Carbon Emissions Framework:
Get Started Guide

Introduction: Measuring Carbon Emissions in the Payments Chain - a starting point

Addressing the Challenges and Moving Forward

The digital payments industry operates within a highly interconnected and complex ecosystem, where multiple platforms, applications, and stakeholders work together to enable seamless transactions. This ecosystem spans various processes, including payment initiation, processing, settlement, compliance, and risk management, each involving different parties such as banks, payment gateways, processors, and service providers. However, this fragmented ownership and control across the value chain present significant challenges for consistent and reliable carbon emissions measurement.

> ❯❯ *The Carbon Emissions Framework begins by acknowledging the main challenge themes identified in The Payments Association report, 'Sustainable Digital Payments: Measuring Carbon Emissions in the Payments Chain'. We summarise these below and offer a framework position that allows us to move forward with clarity.*

1. Fragmented Ownership and Inconsistent Data Collection

The payment value chain consists of multiple players, each with different ownership of various components and processes. This fragmented structure presents significant challenges for achieving consistent carbon emissions measurement across the ecosystem. The framework aims to address these challenges by establishing a standardised measurement approach that applies to all participants, defining clear boundaries based on operational control, and ensuring that each entity is accountable for measuring emissions within its own direct sphere of influence, whether it's data centres, cloud services, or payment processing platforms.

2. Data Inconsistency and Comparability Issues

Achieving consistent and comparable emissions data across the payments industry is crucial for ensuring the integrity of decarbonisation efforts. With disparate data collection methods currently in use, the framework establishes a tiered maturity model that guides organisations from basic data collection to more sophisticated practices, such as full Lifecycle Assessment (LCA). This model encourages companies to start with standard baseline metrics aligned with recognised standards like the GHG Protocol ICT Sector Guidance (GHGP-ICTSG) and ISO 21031, which provide a solid foundation for consistent reporting.

As organisations progress through the maturity levels, the framework emphasises data quality improvements, including the use of verified emission factors and standardised calculation methods (e.g., location-based and market-based approaches). This tiered approach ensures that as companies advance in their measurement capabilities, the consistency and reliability of the data improve, enabling better benchmarking and progress tracking.

3. Complexity in Bridging Actors across the Value Chain

With multiple actors involved in the digital payment ecosystem, developing a collaborative approach is essential for comprehensive emissions measurement across the payment value chain. The framework aims to develop stakeholder engagement by establishing consistent, industry-wide measurement criteria, clearly defining its scope and boundaries, and facilitating data sharing, as discussed in point 1 above. It encourages partnerships and shared goals, ensuring that all participants are aligned in their efforts to measure and reduce emissions.

4. High Volume of Data Points and Limited Resources

Given the large amount of data needed for comprehensive emissions measurements, the framework provides a manageable approach by prioritising essential data points that offer the greatest insights. Organisations can start measuring priority metrics like server energy consumption and cloud usage quickly and with minimal resources. In order to streamline this process, the framework grants members the freedom to measure within their capabilities, taking into account their position on the maturity approach without prescribing a specific methodology for measurement.

For example, in the early stages of measurement maturity, we recommend leveraging automation where possible and using proxy data for initial estimates when direct measurement is challenging. This enables companies to build a strong foundation for data collection before expanding into more complex areas.

5. Physical and Digital Payment Impacts & Supply Chains

The transition from physical to digital payments creates a nuanced environmental challenge. Branch closures help reduce direct operational emissions but shift carbon reduction responsibilities to third-party suppliers, making it critical for the payments industry to establish mechanisms for supplier emissions reporting and tracking. Additionally, transparent communication of individual payment footprints must avoid accelerating the decline of cash and cheques, which, while having higher CO_2 footprints, remain essential for accessibility. Our framework includes supply chain emissions under operational control with consistent measurement criteria. We acknowledge the ethical considerations surrounding payment digitisation, although they fall outside the immediate scope of this framework.

6. Knowledge Gaps and Skills Shortages

The challenge of lacking cross-functional knowledge about environmental impact can hinder effective sustainability efforts. Measuring carbon footprints across departments is crucial to initiate company-wide education. Our carbon emissions framework, with standardised measurement criteria, well-defined scope and boundaries, and a maturity framework, will offer the structure needed to help address these knowledge gaps. It enables targeted education by guiding departments in identifying emissions hotspots and engaging in progressive, maturity-based learning. This approach can help make digital sustainability a shared responsibility by cultivating an informed, action-orientated organisational culture.

Summary

Recognising and responding to the challenges outlined in the Sustainable Digital Payments report, our framework will develop a phased approach with clear boundaries and metrics across all stakeholders. The framework will provide the practical initial steps for baseline measurement, evolving toward detailed LCA and Scope 3 integration to address the supply chain aspects mentioned above. This phased strategy ensures that companies can start their measurement efforts immediately while allowing for continuous improvement, increased granularity, and sophistication of measurement, as well as preparing to align with emerging regulatory requirements.

To support readers of the framework, refer to our online Key Terminology appendix, which provides a summary explanation of the important concepts, terms, and approaches described through the framework. This covers definitions of Scope 1, 2, and 3, as well as explanations of methods such as location vs. market-based approaches to calculation and a summary of the emerging regulations that will impact the reporting of digital emissions.

Get Started Guide

Getting started with emissions measurement and management is crucial for all members, regardless of where they currently stand in their sustainability journey. The TPA encourages all organisations to take the first steps toward understanding and managing their environmental impact, even if they are not yet able to implement a fully comprehensive measurement framework.

The path to effective emissions reduction is often incremental, with organisations learning, adapting, and refining their approaches. **While achieving precision and comprehensive data collection is the end goal, waiting for perfect conditions or complete data can delay meaningful progress.** Instead, the TPA advocates for a proactive approach: start measuring with the data available, set initial targets, and build from there. Early actions, even if based on estimates or limited data, lay the foundation for more accurate and robust measurement practices in the future.

In conjunction with the detailed Carbon Emissions Framework, this Get Started Guide is designed to provide practical steps and guidance to help all organisations begin their emissions measurement and tracking journey, aligning with industry standards and preparing for more advanced measurement as their capabilities evolve. With each incremental improvement, members can strengthen their understanding of their emissions profile, identify areas for immediate improvement, and set themselves up for long-term success in achieving their sustainability goals.

Why should your organisation measure its greenhouse gas emissions?

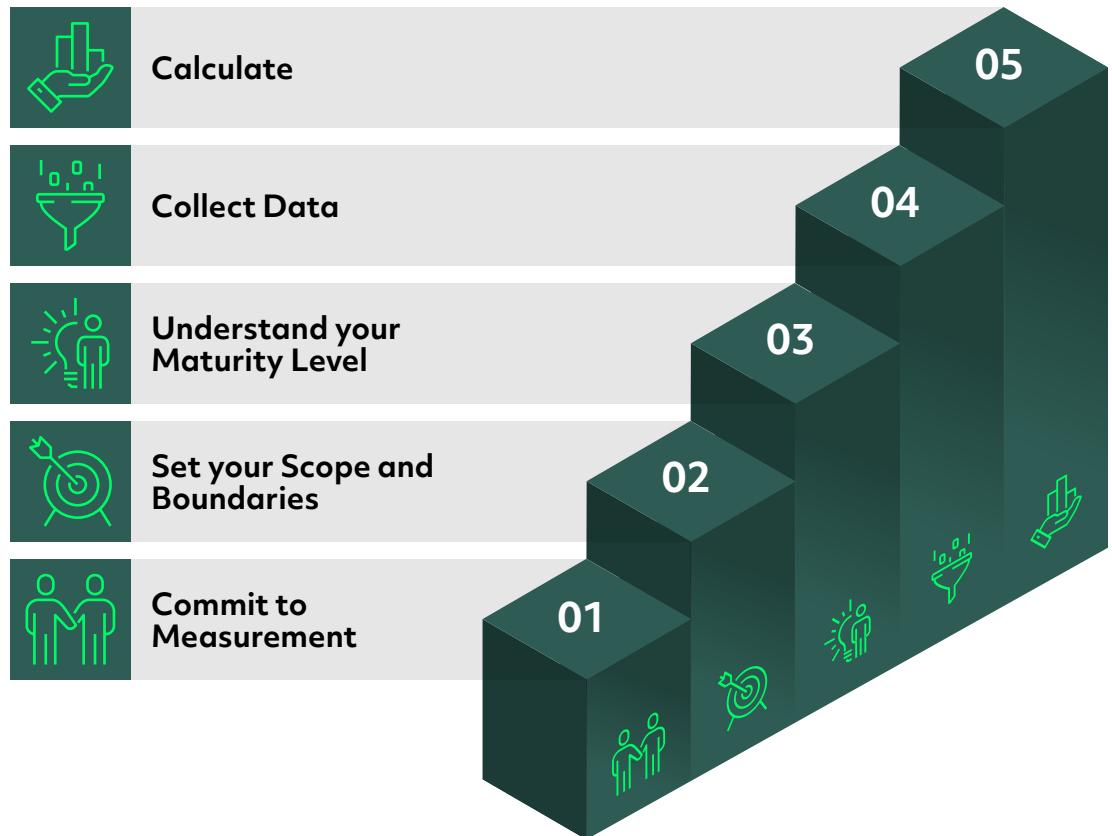| Save Money and Improve Efficiency:	Enhance Competitiveness and Attract New Business:	Meet Customer and Stakeholder Expectations:	Contribute to Climate Action:
Measuring emissions helps you identify areas of high energy and resource consumption across your digital payment operations, enabling you to take targeted actions to reduce waste and lower costs. By focusing on efficiency, your organisation can benefit from immediate cost savings while supporting a sustainable bottom line.	By reducing costs through efficient energy and resource use, your organisation can become more competitive. Customers and clients increasingly prefer businesses that demonstrate environmental responsibility, so emissions measurement and reduction can help you stand out in the market and attract new clients.	Today's customers, stakeholders, and partners are asking more about the environmental impact of their vendors. Measuring emissions equips your organisation to meet these growing information demands and strengthens your position in procurement processes where sustainability is a key criterion.	Understanding your carbon emissions enables you to see the role your organisation plays in contributing to climate change. By measuring and managing your emissions, you take active steps to reduce your environmental footprint and contribute to global sustainability efforts.

The TPA *Get Started Guide* and *Carbon Emissions Framework* are designed to help you embark on this journey, providing practical steps and insights regardless of your organisation's maturity level. Every small step toward emissions measurement brings value, helping you save costs, enhance your reputation, and contribute to a more sustainable future.

https://thepaymentsassociation.org/working-groups/esg/

Steps to Get Started

Figure 1. Get Started Steps

	Calculate
	Collect Data
	Understand your Maturity Level
	Set your Scope and Boundaries
	Commit to Measurement

Step 1: Commit to Measure
Begin by making a commitment to measure your organisation's greenhouse gas emissions. This step is about recognising the importance of emissions tracking and setting the intention to start. Making this commitment internally builds momentum and secures buy-in from key stakeholders.

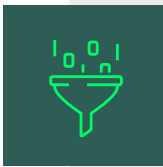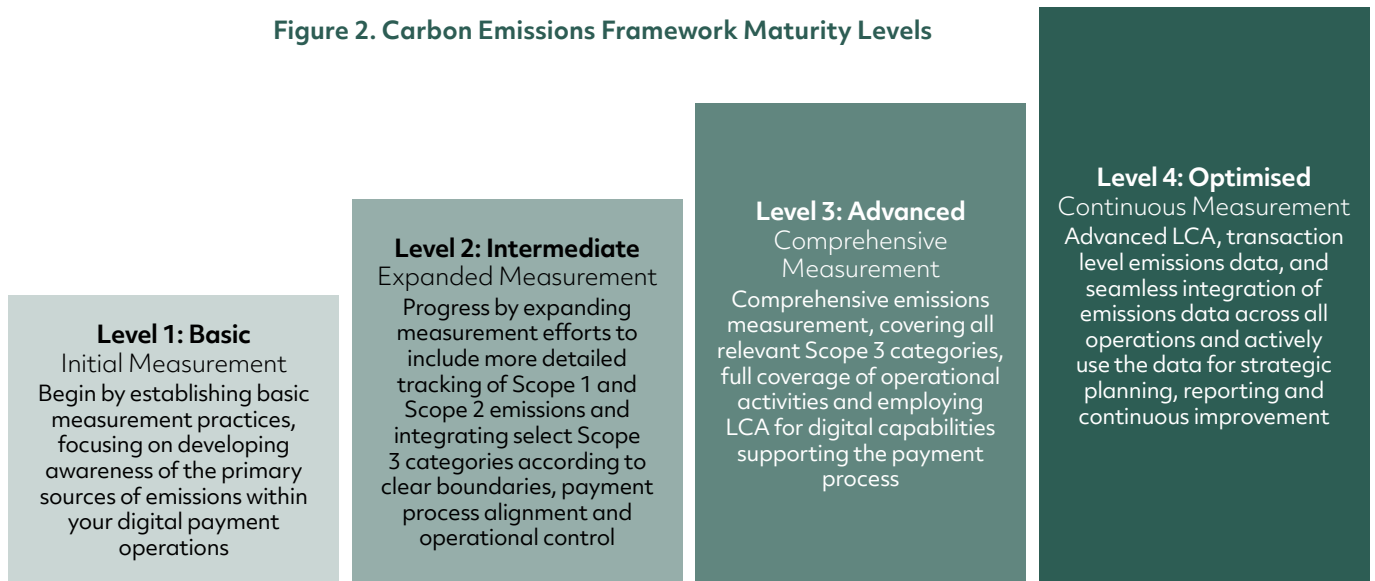**Step 2: Set Your Scope and Boundaries**
Define the scope and boundaries of your measurement activities. This involves determining which emissions sources fall under your operational control, including direct and indirect emissions, and deciding whether to start with Scope 1 and Scope 2 emissions or expand to include specific Scope 3 categories based on your organisation's readiness.

Step 3: Understand Your Maturity Level
Assess your current maturity level in emissions measurement to determine the right starting point. Understanding your level—whether it's basic, intermediate, advanced, or optimised—will help you identify which measurement practices and data collection methods are appropriate for your organisation at this stage. This assessment will guide your progression and set realistic expectations for growth in your emissions tracking capabilities.

Figure 2. Carbon Emissions Framework Maturity Levels

Level 1: Basic
Initial Measurement
Begin by establishing basic measurement practices, focusing on developing awareness of the primary sources of emissions within your digital payment operations

Level 2: Intermediate
Expanded Measurement
Progress by expanding measurement efforts to include more detailed tracking of Scope 1 and Scope 2 emissions and integrating select Scope 3 categories according to clear boundaries, payment process alignment and operational control

Level 3: Advanced
Comprehensive Measurement
Comprehensive emissions measurement, covering all relevant Scope 3 categories, full coverage of operational activities and employing LCA for digital capabilities supporting the payment process

Level 4: Optimised
Continuous Measurement
Advanced LCA, transaction level emissions data, and seamless integration of emissions data across all operations and actively use the data for strategic planning, reporting and continuous improvement

Step 4: **Collect Data**
Identify the types of data you'll need to collect and establish data sources. This step is crucial for understanding the requirements for accurate emissions measurement. Consider whether you'll use spend-based or activity-based approaches, depending on data availability and your organisation's current maturity level in emissions tracking.

Step 5: **Calculate**
Implement basic tracking and monitoring by calculating emissions with the data you have available, using initial methods to monitor energy use and resource consumption within your defined scope. This stage doesn't require perfection—start with approximate measurements if needed and improve accuracy over time.

This Get Started Guide provides a foundation for measuring emissions, helping your organisation move from commitment to actionable insights, regardless of your current maturity level.

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Next Steps for each Maturity Level

To help members at different levels of maturity, the following actions should be considered as targeted recommendations to guide progress, enhance measurement accuracy, and support continuous improvement in emissions management.

"Each set of actions is tailored to the specific needs and capabilities of each maturity level, providing practical steps to advance sustainability efforts effectively."

Level 1: Basic - Initial Measurement

01 **Define Scope and Boundaries:** Clearly delineate the scope and boundaries of digital payment operations to establish which activities and emissions sources fall under organisational control.

02 **Implement Basic Scope 1 and Scope 2 Measurement:** Begin capturing data on Scope 1 and Scope 2 emissions, focusing on direct emissions from owned assets and indirect emissions from electricity usage to establish a baseline.

03 **Initiate Tracking of Key Operational Emissions:** Track emissions related to workforce activities, such as commuting and remote work, as part of the initial measurement practices within the organisation's operational scope.

04 **Incorporate Organisational-Level Scope 3 Allocations:** If applicable, include organisational-level Scope 3 allocations that impact shared services, setting the foundation for more detailed measurement in future stages.

05 **Apply Basic Shared Services Allocation:** Use simple allocation methods for emissions related to shared services under operational control, supporting an initial understanding of shared resource impacts.

Level 2: Intermediate - Expanded Measurement

01 **Expand Scope 1 and Scope 2 Data Collection:** Implement systems to capture more granular energy usage data, including on-site and purchased energy, to build a robust Scope 1 and Scope 2 emissions profile.

02 **Start Tracking Relevant Scope 3 Categories:** Identify key Scope 3 emissions related to ICT and employee activities, aligning measurements with defined boundaries of control, and establish data collection protocols.

03 **Enhance Energy Monitoring Systems:** Develop and deploy tools to capture detailed energy consumption data in critical areas like data centres and cloud platforms, ensuring accurate, real-time tracking.

04 **Prepare for Lifecycle Assessment:** Establish data collection practices that will support future lifecycle assessments, focusing on gathering comprehensive emissions data across product or service lifecycles.

05 **Refine Shared Services Allocation:** Use transaction volume or other relevant metrics to accurately allocate emissions for shared services, improving emissions visibility for shared digital payment platforms.

Level 3: Advanced - Comprehensive Measurement

01 **Achieve Full Scope 3 Emissions Coverage:** Implement processes to measure emissions across all Scope 3 categories, including upstream and downstream activities, employee contributions, and value chain emissions. This will provide a complete view of emissions associated with digital payment operations.

02 **Refine Shared Services Allocation Methods:** Use a combination of metrics, such as transaction volume and resource usage, to allocate emissions accurately for shared services. This approach allows for a more granular understanding of the impact of shared resources on total emissions.

03 **Conduct Detailed Lifecycle Assessments:** Carry out full LCAs to assess emissions across the lifecycle stages of ICT and operational activities, enabling insights into emissions at every phase of the digital payment process.

04 **Facilitate Data Access for the TPA Community:** Make measurement data accessible to the TPA community, encouraging shared learning and collaborative action planning based on collective emissions data.

05 **Develop Targeted Reduction Plans and Performance Management:** Use data insights to identify high-impact decarbonisation opportunities across the value chain, set actionable reduction targets, and establish a system for tracking progress against these goals.

Level 4: Optimised - Continuous Improvement

01 **Implement Real-Time Emissions Tracking:** Develop systems for real-time emissions tracking within payment operations and update shared services allocations dynamically as new data is captured, ensuring that emissions data remains current and relevant.

02 **Utilise Lifecycle Data for Ongoing Optimisation:** Leverage lifecycle assessment data continuously to refine processes, identify new decarbonisation opportunities, and improve efficiency across operations.

03 **Establish Advanced Reporting and Benchmarking Tools:** Set up advanced tools for emissions reporting and benchmarking, enabling detailed performance tracking against industry standards and regulatory requirements.

04 **Embed and Automate Data Collection:** Incorporate embedded, automated systems for data collection to streamline emissions measurement, making it an integral part of routine operations across the payment value chain.

05 **Aggregate Data Across the Value Chain:** Aggregate emissions data across all stages of the payment value chain to gain a unified view, enhancing decision-making for compliance, strategic planning, and sustainability.

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About the Author

Eric Zie, CR&A, is a globally recognised leader in sustainable digital transformation, with a 30-year career in technology and innovation. He is the Founder and CEO of GoCodeGreen, a certified B-Corp that provides pioneering IT environmental measurement solutions, and the GCG Learning Academy, which promotes digital sustainability education. Eric's influence extends to his role as Vice Chair of TechUK's Climate Council and partner to the United Nations ITU, where he collaborates to shape sustainable practices in the digital sector.

He is the author of the Decarbonise Digital guidebooks, which provide actionable insights into reducing digital carbon footprints, further exemplifying Eric's thought leadership. His academic contributions as Visiting Professor of Practice in the Department of Informatics at King's College London, Honorary Professor at the University of East Anglia (UEA) School of Computer Science, and Visiting Professor in Digital and ICT Sustainability at the University of Suffolk strengthen his influence in bridging industry and research. Eric also holds a strategic board position at the University of Suffolk/BT DigiTech Centre, which plays a critical role in advancing digital sustainability education and practice.

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About The Payments Association

The Payments Association is the largest community in payments. Founded in the UK in 2008, the association now operates communities in the UK, EU and Asia, helping almost 300 companies enhance their commercial interests, solve societal problems such as financial exclusion and evaluate new opportunities for innovation in payments.

Our purpose is to empower the most influential community in payments, where the connections, collaboration and learning shape an industry that works for all.

We operate as an independent representative for the industry and its interests, and drive collaboration within the payments sector in order to bring about meaningful change and innovation. We work closely with industry stakeholders such as the Bank of England, the FCA, HM Treasury, the Payment Systems Regulator, Pay.UK, UK Finance and Innovate Finance.

Through our comprehensive programme of activities for members and with guidance from an independent Advisory Board of leading payments CEOs, we facilitate the connections and build the bridges that join the ecosystem together and make it stronger.

These activities include a programme of monthly digital and face-to-face events including our annual conference PAY360 and awards dinner, CEO roundtables and training activities.

We run seven stakeholder working groups: Cross-Border, Digital Currencies, ESG, Financial Crime, Inclusion, Open Banking and Regulatory. The volunteers within these groups represent the collective view of The Payments Association members at industry critical moments and work together to drive innovation in these areas.

We conduct exclusive industry research. This research is not legal advice. It is made available to our members through our Insights knowledge base to challenge and support their understanding of industry issues. This includes whitepapers, insightful interviews and tips from the industry's most successful CEOs.