



D A T A   C O N S U L T A N C Y

W H I T E   P A P E R

# **From Raw Data to Real Impact:** How Enterprise-Grade Data Expertise Unlocks Supply Chain Sustainability at Scale

A C A S E S T U D Y : N Ó M A D A S × O F I C O C O A C O M P A S S

*Protecting Cocoa Farmer Living Incomes to Ensure Social & Environmental Sustainability*

2026 · [www.nomadas.global](http://www.nomadas.global)

## Executive Summary

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### The Opportunity for Action

Sustainability commitments have become table stakes for agricultural commodity companies operating in global markets. Yet the gap between stated ESG ambitions and measurable, auditable, investor-grade data remains vast - and costly. The cocoa industry illustrates this tension with particular urgency: billions of dollars of supply chain exposure, mounting regulatory pressure from the EU Deforestation Regulation (EUDR), and a web of hundreds of thousands of smallholder farmers whose livelihoods determine the ecological and social health of the sector.

This white paper documents how Nómadas partnered with ofi (Olam Food Ingredients) - one of the world's largest cocoa aggregators - to productize a large-scale data model that cleansed, calculated, and automated key indicators of farmer economic conditions. The project delivered 100% transparency and traceability across 325,000 cocoa farmers in 9 countries, powering ofi's Cocoa Compass sustainability strategy. It is a blueprint for what becomes possible when enterprise data expertise meets real-world sustainability ambition.

<b>325,000</b> Cocoa Farmers in OFIS System	<b>9</b> Countries Covered	<b>100%</b> Transparency & Traceability	<b>153</b> Living Income Indicators
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For sustainability leaders, ESG data officers, and operations executives navigating the next generation of supply chain accountability - this paper explains why partnering with expert external data consultants is not just a tactical choice but a strategic imperative.

# 1. The Cocoa Industry's Sustainability Imperative

Cocoa is one of the world's most scrutinized agricultural commodities. The crop underpins a global chocolate industry valued at over US\$254 billion annually, yet production is concentrated among millions of smallholder farmers across West Africa, Asia, and Latin America - most of whom remain in poverty. The structural challenges facing the sector are simultaneously humanitarian, environmental, and commercial.

## 1.1 A Perfect Storm of Pressures

Regulatory	Market & Climate
<p>The EU Deforestation Regulation (EUDR), targeting implementation in late 2026, requires cocoa entering Europe to be verifiably deforestation-free, traceable from farm-to-port, with documented GPS coordinates for every plot. Non-compliant cocoa faces market exclusion from the EU - the world's largest chocolate consumer.</p> <p>Emerging parallel frameworks - including the African Regional Standard ARS-1000 and corporate human rights due diligence requirements - are expanding disclosure obligations for the entire value chain.</p>	<p>Cocoa futures briefly exceeded US\$12,000 per metric ton in late 2024 - more than 172% above year-prior levels - driven by crop failures in Côte d'Ivoire and Ghana linked to El Niño, flooding, disease, and aging tree stock. Supply volatility at this scale reverberates directly to farmer incomes, deforestation pressure, and child labour risk.</p> <p>Meanwhile, approximately 81% of Ghana's cocoa-producing area has been affected by Cocoa Swollen Shoot Disease - a crisis that compounds climate-driven yield decline.</p>

## 1.2 The Data Gap at the Heart of Sustainable Cocoa

Behind every sustainability target is a data challenge. Industry-wide progress on living incomes, deforestation monitoring, and child labour has been hampered not by lack of ambition, but by lack of reliable, granular, first-party data. The World Cocoa Foundation has acknowledged that income data across the sector has historically been fragmented and inconsistent across countries and organisations - making it impossible to verify progress or prioritize interventions at farm level.

Most companies have relied on statistical modelling and sampled estimates rather than direct collection. This approach produces headline numbers that satisfy reporters but cannot withstand the scrutiny of investors, regulators, or NGOs seeking to verify claims. As the EUDR deadline approaches, the bar for data quality is rising sharply - and it will not be met by spreadsheets maintained by supply chain officers wearing multiple hats.

*"Progress has been hard to track because income data has been fragmented and inconsistent across countries and organisations."*

- World Cocoa Foundation

This is precisely the gap that external data expertise is designed to close.

## 2. Client Profile: ofi (Olam Food Ingredients)

Olam Food Ingredients, operating as ofi, is a global leader in natural food and beverage ingredients. Spun out of Olam International in 2020 and headquartered in Singapore, ofi operates one of the world's most complex agricultural supply chains, spanning cocoa, coffee, dairy, nuts, and spices across more than 60 countries.

### ofi at a Glance

- Generates 12% of the world's cocoa from a direct supplier network across Africa, Asia, and South America
- Supplies cocoa and ingredients to brands including Nestlé, Mars, Ferrero, Mondelez, Lindt & Sprüngli, Costco, and The Hershey Company
- Provided sustainability support to more than 832,000 smallholder farmers globally in 2024
- Founding member of the Cocoa & Forests Initiative (CFI)
- Achieved SBTi-validated GHG reduction targets: 12% reduction in GHG Natural Capital Cost per tonne vs. 2018 baseline
- Deployed the ofi Direct app to connect 90,000+ farmers across 12 countries directly with buyers
- Winner of the Sustainability Innovation Award at Fi Europe 2025 for its Cocoa Compass traceability program

### 2.1 The Cocoa Compass Strategy

ofi's Cocoa Compass is its flagship sustainability framework - a comprehensive strategy for tackling the most pressing issues in the cocoa supply chain, from deforestation and carbon emissions to farmer living incomes, child labour, and gender equity. Its ambitions span three core stakeholder categories:

- Farmers: living income, training in best agricultural practices (e.g. tree pruning), entrepreneurship support, and access to diversified income streams
- Communities: child labour reduction, school construction, nutrition screening, health programs, and Village Savings & Loan Associations (VSLAs)
- Natural Environment: agroforestry tree distribution, biochar programs, regenerative soil health, and deforestation monitoring

As of 2024, ofi reported that 155,000 cocoa farmers - 45% of Cocoa Compass program participants - earned a living income, while 9.8 million trees had been cumulatively distributed through agroforestry programs. These are significant milestones. But they rest on a data infrastructure of extraordinary complexity, one that required specialist expertise to build and automate at scale.

### 2.2 The Challenge: Turning Ambition into Auditable Data

ofi's sustainability vision is sophisticated. So is the data challenge it presents. With hundreds of thousands of farmers across nine countries contributing to its cocoa supply chain, the organisation required a model capable of:

- Collecting and cleansing first-party survey data from every farmer and cooperative - not sampled estimates

- Calculating the Living Income metric across 153 indicators comprising nearly 1,000 individual data points per farmer
- Integrating enrichment datasets from external sources (market prices, regional cost-of-living benchmarks, agroforestry yield models)
- Enforcing rigorous data governance standards to maintain credibility with external validators, regulators, and customers
- Automating the model to run reliably at scale, without manual intervention, and with auditable version control

This is not a project that can be delivered by an already-stretched internal analytics team. It requires a dedicated, expert partner with both technical depth and domain experience in ESG data frameworks. That is where Nómadas was engaged.

## 3. The Nómadas Engagement: What We Built and Why It Worked

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Nómadas was brought in to productize ofi's farmer living income data model - transforming a complex analytical concept into a production-grade, automated system that ofi's internal teams could rely on, govern, and build from. The engagement spanned data engineering, domain modeling, quality assurance, and knowledge transfer.

### 3.1 The Mandate

#### Project Scope

*Nómadas productized a large-scale data model to cleanse and calculate key indicators of farmer economic conditions - empowering ofi's supply chain transparency, traceability, and sustainable action across 325,000 cocoa farmers in 9 countries.*

### 3.2 How We Delivered

The engagement followed Nómadas' proven enterprise methodology, applied to the unique complexity of a global agricultural ESG dataset:

#### Phase 1 - Assess & Architect

Nómadas began by conducting a thorough diagnostic of ofi's existing data infrastructure: surveying the sources, formats, and quality of incoming farmer data; mapping the business logic and calculation methodology embedded in ofi's Living Income framework; and identifying gaps between the intended analytical model and the reality of messy, multi-country, multi-language field data. This phase drew on Nómadas' Vision & Strategy and Architect & Build service capabilities - connecting ofi's sustainability KPIs with a technically sound data architecture.

#### Phase 2 - Cleanse & Enrich

The core technical challenge was data quality. Field surveys from hundreds of thousands of farmers across nine countries arrived in varied formats, with inconsistent field definitions, missing values, and outliers that could skew the Living Income calculation significantly. Nómadas implemented systematic data cleansing workflows using predefined business rules and domain logic, enriched the core dataset with external reference data (regional benchmarks, commodity price feeds, and agroforestry yield parameters), and built validation routines that could flag anomalies automatically rather than relying on manual review.

#### Phase 3 - Productize & Automate

The model was brought to life through productization: encoding the Living Income logic into a stable, version-controlled codebase that could be executed reliably across every data refresh cycle. Automation removed the fragility of manual processing, ensured reproducibility for regulatory and customer verification, and freed ofi's internal sustainability team to focus on interpretation and action rather than

data wrangling. This reflects Nómadas' Rollout & Retool and Architect & Build service pillars - transforming analytical concepts into durable operational infrastructure.

### Phase 4 - Validate & Govern

Enterprise-grade ESG data requires more than accuracy - it requires provenance. Nómadas enforced data governance standards across the pipeline, ensuring that every metric in the Living Income model could be traced to its source data, calculation logic, and validation checkpoint. This gave ofi the audit trail necessary to support SBTi target validation, customer disclosure requests, and emerging regulatory due diligence requirements.

### Phase 5 - Transfer & Evangelise

Nómadas' engagement model is built to leave clients stronger, not dependent. The final phase focused on training ofi's internal teams to understand, operate, and extend the model - embedding data literacy and giving the sustainability team genuine ownership of their most critical measurement asset. This aligns with Nómadas' Train & Evangelise service: building consensus for data-driven decisions and giving data legs through democratisation.

## 3.3 The Results

The Nómadas engagement delivered measurable impact across the three dimensions that matter most to ESG programme leaders:

<p><b>325K</b></p> <p>Farmers tracked with first-party data</p>	<p><b>100%</b></p> <p>Direct supply chain transparency</p>	<p><b>~1,000</b></p> <p>Data points per farmer validated</p>	<p><b>9</b></p> <p>Countries in automated pipeline</p>
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- Supply Chain Transparency: 100% deforestation monitoring coverage across ofi's direct supply chain, enabled by polygon-mapped farm data (79% of farms mapped as of 2022)
- Living Income Accuracy: The 153-indicator Living Income model calculated from direct farmer surveys - not models or proxies - across every farmer and cooperative in the programme
- Operational Scale: The automated pipeline replaced fragile manual processes, making the model repeatable, auditable, and extensible to new geographies and commodities
- Strategic Credibility: ofi's Cocoa Compass impact data met SBTi validation standards and contributed to winning the Sustainability Innovation Award at Fi Europe 2025

## 4. The Case for External Data Partnership

Large organisations pursuing ambitious ESG programmes frequently underestimate the distance between having data and having useful data. The gap is not a question of willpower - it is a question of specialised capability, bandwidth, and objectivity. This section makes the structural case for why

enterprises like ofi benefit from partnering with an external data consultancy like Nómadas, rather than attempting to build equivalent capability in-house from scratch.

## 4.1 The Internal Team Is Already at Capacity

Sustainability teams at large food and agriculture companies are typically small relative to their mandate. They are navigating stakeholder relationships, writing public reports, managing certification bodies, and coordinating with procurement, legal, and communications - while simultaneously being expected to build and maintain complex data pipelines. This is not a criticism; it is a structural reality. The same team responsible for the annual sustainability report cannot simultaneously function as a data engineering unit.

Nómadas provides a dedicated team that focuses exclusively on the data problem - bringing depth that internal generalists cannot sustain across all competing priorities. The result is faster delivery, higher quality, and a data asset that does not degrade when a key internal team member changes roles.

## 4.2 ESG Data Is Technically Demanding

The Living Income model Nómadas built for ofi required integrating multiple data sources: first-party farmer surveys, external commodity price benchmarks, regional cost-of-living indices, satellite-derived land-use data, and agroforestry yield models. Each source has its own format, refresh cadence, and quality profile. Joining and governing these sources - in a way that is reproducible and auditable - requires data engineering skills that go well beyond standard business intelligence capabilities.

Furthermore, ESG data must meet a higher standard of defensibility than internal management reporting. Metrics disclosed to investors, customers, and regulators will face scrutiny. Errors in the calculation methodology - or gaps in the governance chain - can become material liabilities. External experts who have built similar systems in comparable contexts bring pattern recognition and risk awareness that internal teams typically acquire only after expensive mistakes.

## 4.3 The Cost of Getting It Wrong

### Material Risks of Poor ESG Data Quality

- Regulatory non-compliance: EUDR documentation requirements demand verifiable, plot-level data. Inaccurate or incomplete records create exposure to import bans and fines
- Greenwashing liability: Overstated sustainability claims based on flawed data expose companies to NGO scrutiny, press coverage, and increasingly, litigation
- Investor confidence: ESG-rated investors and lenders use sustainability data to assess risk. Data quality failures undermine the credibility of the entire sustainability programme
- Customer relationships: Major chocolate brands depend on ingredient suppliers' sustainability data for their own reporting obligations. A supplier's data failure becomes a customer's compliance problem
- Strategic misdirection: If the data underlying farmer living income calculations is unreliable, the organisation cannot accurately identify which farmers need intervention - wasting programme spend and missing impact

## 4.4 Speed to Value and Institutional Knowledge

An experienced external consultancy compresses the time from problem to solution. Nómadas has built ESG data pipelines, sustainability measurement frameworks, and automated reporting systems across multiple sectors. When engaged on a new project, this institutional knowledge translates directly into faster scoping, fewer false starts, and better anticipation of edge cases.

Critically, Nómadas' model is not designed to create dependency. The engagement includes structured knowledge transfer - ensuring that by project completion, the client's internal team understands what has been built, can operate it independently, and is positioned to extend it. This is the difference between a vendor and a partner.

## 5. Nómadas: Service Capabilities for Enterprise ESG Data

Nómadas is a boutique global data consultancy that empowers clients to clarify data complexity, make empirically-grounded decisions, and take data-driven action. The firm serves enterprise, small business, and non-profit clients across sectors, with deep experience in sustainability data, media analytics, and operational intelligence.

Nómadas holds GRI and ISSP (TCFD) certifications - the leading international standards in ESG reporting - enabling the firm to bridge the worlds of data engineering and regulatory disclosure in ways that few technical consultancies can.

### 5.1 Enterprise Service Portfolio

<p><b>Monitor &amp; Pulse</b> Ongoing market analyses, competitive benchmarking, and stakeholder feedback systems - keeping your finger on the pulse of the conditions that shape your sustainability context.</p> <p><b>Vision &amp; Strategy</b> Connecting sustainability vision and targets with custom metrics frameworks. ROI models that translate ESG impact into language that finance teams and investors understand.</p> <p><b>Architect &amp; Build</b> Cloud-based data warehouses, automated pipelines, and data alert systems. The foundational infrastructure that makes large-scale ESG measurement possible and repeatable.</p>	<p><b>Analysis &amp; Insight</b> Story-telling through analytics and data science: identifying which farmers need intervention, which programmes are generating impact, and where spend should be redirected.</p> <p><b>Visualize</b> Interactive dashboards and visualizations that make complex ESG data accessible to leadership, external stakeholders, and programme teams alike.</p> <p><b>Train &amp; Evangelise</b> Building internal data literacy and consensus for data-driven sustainability decisions - ensuring that what Nómadas builds, your team can own, extend, and champion.</p>
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### 5.2 ESG Reporting Credentials

Nómadas is certified and trained in GRI (Global Reporting Initiative) and TCFD (Task Force on Climate-related Financial Disclosures now embedded within ISSB) standards - the most widely adopted frameworks for corporate sustainability disclosure globally. This dual technical-regulatory capability means Nómadas can design data systems with reporting requirements built in from the start, rather than retrofitting compliance onto a system that was not designed for it.

This matters enormously for clients operating under EUDR, CDP, SBTi, or investor ESG questionnaire obligations - where the same underlying data must serve both operational decision-making and external disclosure simultaneously.

### 5.3 Sector Experience and Client Portfolio

Nómadas' client portfolio spans agricultural commodities, conservation and environmental organisations, and media and entertainment corporations. This breadth means Nómadas brings cross-sector pattern recognition to each engagement - as well as a deep appreciation for the unique complexity of agricultural supply chain data at global scale.

Nómadas operates as a genuinely global firm, with consultants and projects spanning multiple continents - matched to the geographic complexity of the supply chains its clients operate.

## 6. What Good Looks Like: A Framework for ESG Data Maturity

The ofi engagement provides a concrete illustration of what enterprise-grade ESG data infrastructure looks like in practice. The table below outlines the distinction between common internal ESG data approaches and the standards achievable with dedicated external expertise:

Dimension	Common Internal Approach	Enterprise Standard (Nómadas)
<b>Data Collection</b>	Sampled surveys and third-party estimates	Direct first-party collection from every farmer and cooperative
<b>Living Income Calculation</b>	High-level proxy metrics, manually updated	153-indicator model with ~1,000 data points per farmer, automated and versioned
<b>Governance</b>	Ad hoc documentation, manually maintained	Enforced governance standards with full audit trail and regulatory defensibility
<b>Automation</b>	Annual manual refresh, error-prone	Repeatable automated pipeline, scalable to new countries and commodities
<b>Disclosure Readiness</b>	Internal management reporting only	EUDR-ready, investor-grade, customer shareable
<b>Internal Capability</b>	Dependent on external SaaS vendors or key individuals	Nómadas training ensures team ownership and independence

The pattern is consistent: internal approaches optimise for feasibility given existing resources. External expert engagement optimises for quality, defensibility, and strategic leverage.

## 7. Broader Lessons: What This Means for Your Organisation

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The Nómadas-ofi engagement is not only a cocoa story. It is a blueprint for any large organisation navigating the transition from sustainability ambition to sustainability accountability - regardless of commodity, sector, or geography.

### 7.1 The Living Income Challenge Is Industry-Wide

Farmer living income is one of the most demanding metrics in supply chain sustainability - requiring integration of productivity data, cost data, regional benchmarks, and demographic information at individual farm level. The World Cocoa Foundation has made accurate living income benchmarking a sector-wide priority, and the model of ofi deployed (with Nómadas' support) represents the technical frontier for what this looks like at scale.

The same methodology - direct first-party data collection, multi-indicator calculation, automated governance - is applicable to coffee, palm oil, tea, cotton, and any other commodity where farmer welfare is both a human rights concern and a supply chain risk.

### 7.2 Traceability Is the Foundation, Not the Destination

ofi achieved 100% traceability in its direct supply chain - a foundational milestone. But traceability is an enabling capability, not an end in itself. The organisations that will extract the greatest strategic value from their supply chain data are those that move from knowing where their cocoa comes from to understanding what conditions their farmers are operating under, and using that understanding to intervene effectively.

That leap - from traceability to insight to action - is where data expertise creates disproportionate value. The ofi Living Income model did not just track farmers: it targeted specific communities and individual farmers with tailored interventions, and performed follow-up impact analysis to verify whether those interventions had worked. This closes the loop between measurement and management.

### 7.3 Regulatory Pressure Will Only Intensify

The EUDR is one regulatory development among many. The EU Corporate Sustainability Due Diligence Directive (CSDDD), national supply chain laws (Germany's Lieferkettensorgfaltspflichtengesetz, the UK Modern Slavery Act), and investor-driven ESG disclosure frameworks are collectively creating an environment where supply chain data quality is a legal and financial necessity - not a competitive differentiator.

Organisations that invest now in building enterprise-grade ESG data infrastructure will be better positioned for compliance, with lower marginal cost of each additional regulatory requirement. Those that delay will face the same reckoning under significantly more time pressure.

*"Sustainability is no longer optional. We have to be clear that it must be at the heart of operations."*

- Rishi Kalra, CFO, ofi - Bain & Company

## 8. Conclusion: Follow Your Data to Real Impact

The greatest sustainability risks facing agricultural commodity companies today are not a shortage of commitment - they are a shortage of measurement. Without reliable, granular, first-party data, the gap between what organisations claim and what they can verify will continue to widen, leaving them exposed to regulatory, reputational, and commercial consequences.

The Nómadas-ofi engagement demonstrates that this gap is closable. With the right combination of data engineering rigour, ESG domain expertise, and a partnership model built around client empowerment, a complex global sustainability programme can be grounded in data that is accurate, auditable, and actionable.

325,000 farmers across nine countries. 153 indicators. Nearly 1,000 data points per farmer. Fully automated, fully governed, fully traceable. This is what it looks like when data follows impact.

### Is Your ESG Data Ready for What Comes Next?

Whether you are preparing for EUDR compliance, strengthening your living income reporting, building your first automated supply chain data pipeline, or simply trying to understand what your existing data is actually telling you - Nómadas can help.

We offer a complimentary initial consultation to explore your data landscape and identify where external expertise can create the most immediate value.

[contact@nomadas.global](mailto:contact@nomadas.global) | +1 347.391.5554 | [www.nomadas.global](http://www.nomadas.global)

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*This white paper was produced by Nómadas, LLC using Claude.ai with a prompt to reference Nómadas ofi case study, a Q&A of Nómadas founder discussing the ofi project, and open internet sources for ofi and current cocoa industry. All ofi performance data cited reflects publicly available disclosures. Proprietary client information has been summarised in accordance with applicable confidentiality obligations.*