



# DRIVING SUSTAINABILITY IN AGRIFOOD FINANCING

Redefining Trade Financing for Sustainable AgriFood Trade  
with Artificial Intelligence, Blockchain and FinTech



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# EXECUTIVE SUMMARY

This report examines how supply chain visibility can be leveraged to drive sustainable food systems through financing. By providing transparency into supply chain activities, businesses can reduce risk, enhance sustainability, and access financing that supports sustainable practices such as reducing carbon emissions.

Sustainable financing is becoming increasingly important, given the growing awareness of environmental and social issues among consumers, investors, and regulators. However, many businesses struggle to prove the global ESG impact of their operations.

Supply chain visibility can address this issue by enabling businesses to demonstrate their ESG practices to financiers. This can include tracking the carbon footprint of raw materials, monitoring the environmental impact of production processes, and ensuring ethical labor practices.

Moreover, supply chain visibility can reduce the risk for financiers, as it provides greater transparency into the operations of the businesses they finance. This can enable them to make more informed decisions about their investments, reducing the risk of negative environmental or social impacts.

This report will demonstrate how technology such as AI, Blockchain, and IOT be used to enable visibility of the supply chain and leverage such data for sustainability financing.

# THE GLOBAL FOOD SUPPLY CHAIN IS AT A CRITICAL CROSSROADS.

Experts have estimated that a global food shortage could happen as soon as 2050\*. A combination of factors such as climate change, resource destruction, and booming populations create a growing toll on the world's already fraught food supply.

Yet, about 40% of all food produced around the world is wasted and accounts for 10% of global greenhouse-gas emissions, perpetuating a negative feedback loop\*\*.

What can we do to ensure that the food we grow is able to feed the world? How can we create sustainable food systems that are more efficient in feeding the world?

The world is facing a critical crossroads when it comes to our food problems, and we need to come up with more creative solutions, fast.

Global food supply  
could run out by

**2050**

**40%**

of all food produced is  
wasted each year

**10%**

of greenhouse gas emissions  
come from food waste

“

When food  
systems fail,  
societies fail.

”

— Geraldine Matchett, Co-CEO of Royal DSM, Co-Chair of CEOs  
for Food, Nature and Health at the World Economic Forum



# CHALLENGES OF OUR GLOBAL FOOD SYSTEM

The global food system is a fragmented, complex supply chain with many different moving parts.

That is why problems in our global food supply chain must be viewed and tackled with a systemic lens, and solutions must be delivered in a holistic manner providing benefits for different stakeholders involved.

While global food systems face a multitude of challenges, this report will identify and examine three key underlying issues:

1. The lack of visible, connected data presented to supply chain actors in a timely and applicable manner.
2. A lack of robust commercial capital serving agriculture Small-Medium Enterprises (Agri-SMEs).
3. The lack of an easy and clear way to measure and define sustainability efforts in agriculture.

## 01

**Lack of timely and accurate ground data**

## 02

**Lack of strong financial services**

## 03

**Lack of unified sustainability assessment tools**



# 2.5 BN TONNES OF FOOD WASTE ANNUALLY\*

Today, there is poor data visibility of food supply chains overall. In the last few years, Covid-19 has exacerbated and highlighted the lack of resilience in our global food supply chains with shortages and disruptions.

Our supply chain data typically sits within individual companies or individual teams in the organization. Moreover, stakeholders such as smallholder farmers, grower-exporter SMEs, wholesalers, and retailers have varying levels of technology adoption and operational systems.

This often results in inefficient decision-making by supply chain actors. For instance, if data about inventory levels, expiration dates, and quality issues are siloed in different systems, it becomes difficult to manage the supply chain effectively and prevent waste.



# A GLOBAL FINANCE GAP OF > 106BN FOR AGRI SMEs\*

Globally, the agriculture industry lacks a strong and robust financial services infrastructure that can adequately support the growth of agricultural production and productivity.

In sub-Saharan Africa and Southeast Asia, there is an estimated US\$160 billion demand for financing by over 220,000 agri-SMEs\*. However, only about 34% of that demand is currently being met through formal finance channels—leaving an annual financing gap of US\$ 106 billion in these two regions alone\*. Furthermore, only 3% of public finance is directed to food systems\*. With an increasingly pluralistic global landscape of agri-SMEs, we need to develop innovative financial solutions and start bridging this gap.



# 34% OF GHG EMISSIONS COME FROM AGRICULTURE\*

Food production emissions make up more than a third of global total greenhouse gas (GHG) emissions.

As the world changes and the climate warms, AgriFood systems around the world are no longer as sustainable or effective.

A 2021 UN report estimates that nearly one in three people in the world (2.37 billion) did not have access to adequate food in 2020\*\*. Given the high levels of food waste and food insecurity, it is clear that our food systems today are not working optimally.

As both a contributor to and a victim of climate change, food systems need new strategies, innovation, and technology if they were to be on track to reach the UN Sustainable Development Goals (SDGs).



9 \*Source: UN News - Food systems account for over one-third of global greenhouse gas emissions

\*\*Source: UN Global Issues - Food

“

In food,  
there is  
hope.

”

— António Guterres, the UN Secretary General



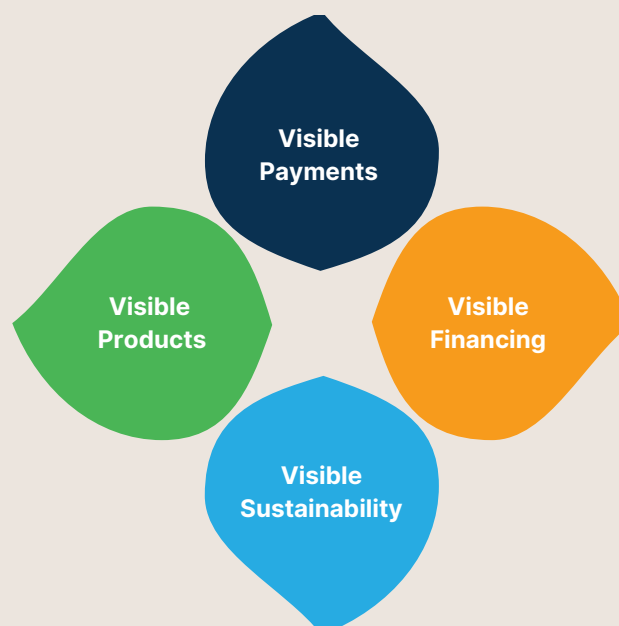
# The Four Vs

The solution to create an impactful change and ensure that food can be produced, moved, and consumed in a sustainable manner cannot be one-dimensional.

For instance, if we focus on just making the farming and growing of food more efficient, we are ignoring the economics of the supply chain, where food is primarily moved through the act of buying and selling between different companies. Currently, only 7%\* of the food waste generated each year starts at the farm.

The current way the world buys, sells, and moves food products is inefficient and ineffective, as siloed supply chain data, opaque transportation, and distribution systems end up creating the majority of food waste. Up to 40-70%\*\* of our food is wasted along the supply chain.

Therefore, we at DiMuto propose a 4-dimensional approach with the 4Vs - Visible Produce, Visible Payments, Visible Sustainability, and Visible Financing. By making the flow of products and the flow of goods visible, we can start to measure sustainability and ensure any agricultural financing efforts go towards truly sustainable businesses.



# Building a Digital Ecosystem

Tracking the flow of goods from farm to fork will allow us to make products visible as it exchanges hands and moves through the supply chain. This product visibility will enable the tracking of product quality and help to reduce food waste.

Tracking the flow of money will enable us to better understand the trade flows in the supply chain, and gain better insights on the operational and financial health of agricultural companies. This helps to drive informed and useful financial services and solutions that can better serve the agriculture industry and help companies to grow, modernise, and adopt more sustainable practices.

Unifying both flow of products and money across the supply chain creates a digital ecosystem that brings about greater visibility, and thus opportunities to redefine global agrifood trade as we know it today.



PART 1

# VISIBLE PRODUCTS





# Challenges with The Messy Middle

Operating in the “Messy Middle” is a giant nightmare for both buyers and suppliers alike. Currently, the information flow for each trade is all over the place, made more complicated with the onslaught of country-preferred instant messaging applications. Sales teams often communicate through both messaging applications and email threads, making transactions prone to miscommunications and misinformation.

Without a single trusted platform acting as a unifying depository of sales and product information categorized according to each trade conducted, internal company resources like manpower and time are predominantly allocated towards coordinating, tracking and tracing sales orders, shipping documentation, and financial payments.

With the different communication channels, there is no way to verify, find and share information in a timely and efficient manner.

This becomes a huge problem when quality disputes over goods received are raised. Moreover, this makes accurate calculation of sustainability metrics, overview of product quality very challenging.

Supply chain transparency has been little more than a buzzword due to the overwhelming complexity of food systems.

While industry giants such as Walmart, Carrefour and Nestle have started implementing traceability solutions in a bid for more transparency, it has been difficult for supply chain transparency to gain more traction throughout the industry.

There are limited players that have adopted traceability solutions that work for the entire supply chain.

This is because the AgriFood supply chain simply involves too many moving parts and stakeholders, and no one traceability solution has been able to work for all the players thus far.

## Operational Concerns of Solution Adoption

A key obstacle would be digitalizing the produce and the carton it is packed in. Without a digital identity, it would be extremely difficult to track.

Operational issues also need to be considered for digitalizing produce to be applicable. They include being able to efficiently capture all the digital identities of the produce and cartons as they move through packing lines on the ground so that there are minimal disruptions to existing workflows.

Not all packing houses are created equal – some are highly automated, while others are still largely manual.

Thus for traceability solutions to work down to the product level, it is important to cater to the needs of different produce companies.

“

Business-as-usual is not an option.

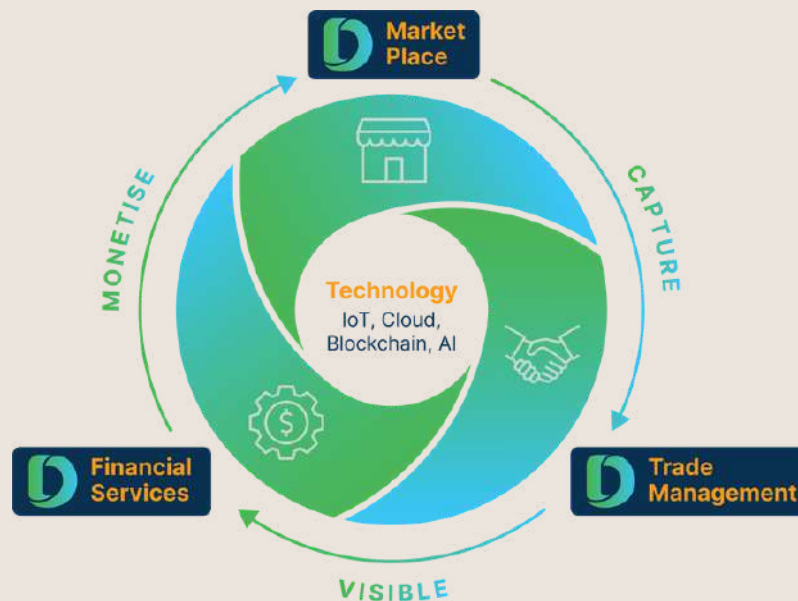
”

— Dr QU Dongyu, FAO Director-General





# DiMuto Digitally Connects Supply Chains From Farm to Fork



DiMuto’s AgriFood trade platform offers three key services – DiMuto Marketplace, DiMuto Trade Management, and DiMuto Financial Services. DiMuto leverages its ecosystem of traceable buyers and suppliers to move traceable AgriFood products around the world.

Once the order has been placed between a buyer and a seller, the products are tracked and managed using DiMuto’s Trade Management module. These orders, with the added visibility on DiMuto, are now available for financing on DiMuto.

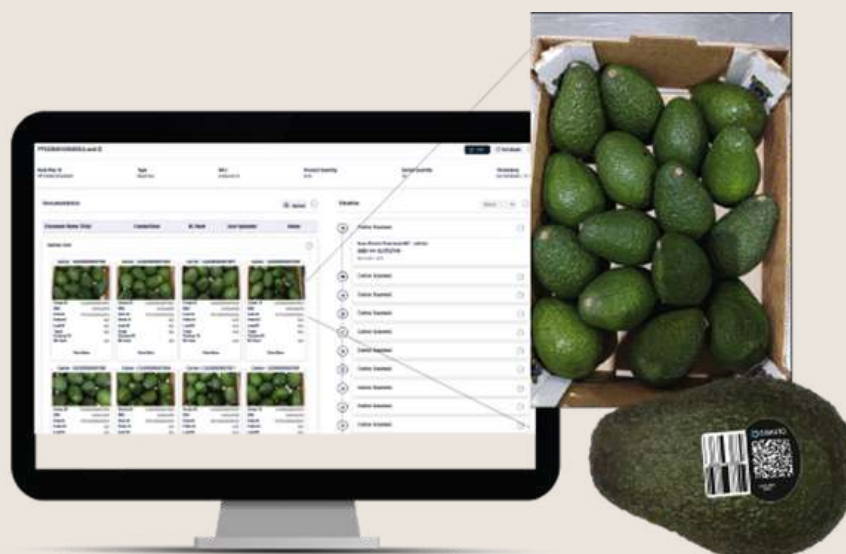
DiMuto’s proprietary digital asset creation technology (DACKY) tracks AgriFood products with QR labels and digital images to track the movement of produce so that every buyer and seller of goods and services along the supply chain – from farmers and packers to the logistics and shipping companies, distributors, and retailers – know where the products are at any point in time.

With the QR code, DiMuto assigns a digital identity to every single physical produce, and is able to capture a photo of each carton and product before each carton is sealed, upload this photo, and associate it to the specific sales order it was packed for.

This digital asset contains important information about the product, such as its origin, quality, and certifications, as well as its journey through the supply chain.

Buyers can verify the quality of the products from AI-scored images uploaded to the platform before they are packed and receive advance warning of any delays in delivery. The seller, on the other hand, can see the produce when the carton is opened at the receiving end. This helps to assure objective product quality assessment across the supply chain.

The DACKY technology enables businesses to track and trace their products in real-time, allowing them to identify and address any issues or inefficiencies in the supply chain. This not only helps to increase transparency and trust between businesses and consumers but also helps to improve the quality and safety of food products.



*DiMuto Production Management Feature showing each carton that has been packed and the visual image tagged to respective carton*

## DiMuto Digital Asset Creation Capabilities



Top: DiMuto's Digitization Device, DACKY implemented at frozen durian packing facility  
 Middle: DiMuto Digital Identity Labels and DACKY operating on the ground in Mexican Mango packhouse  
 Bottom L: DiMuto DACKY being used at Passionfruit packing facility in Colombia  
 Bottom R: DiMuto Digital Identity Labels on cartons of Colombian Passionfruit

## Connecting Each Step of Supply Chain in One Single Place

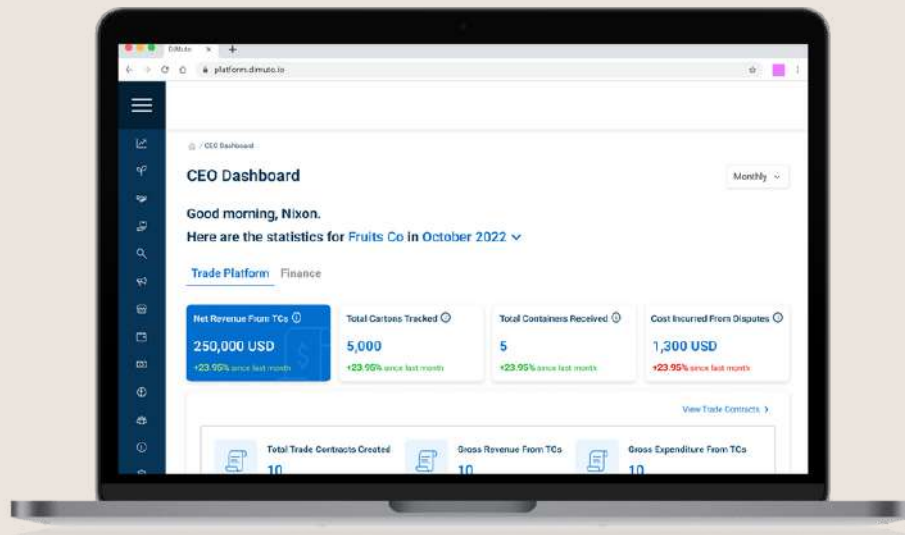


*DiMuto's end-to-end AgriFood Trade Solutions*

DiMuto Trade Solution is able to create visibility for each stage of the supply chain with our modular features and create visibility on pre and post-shipment product quality information, documents and operational statuses. This is combined into a timeline and streamlined dashboard so companies can visualize key aspects of their business performance and recognize overall patterns and trends.

This allows team leaders, managers, and executives to see the bigger picture, providing key insights from different features in one single place. Overall, DiMuto's digitization solutions provide a range of benefits for businesses in the agriculture and food industries, including increased transparency, improved efficiency, and enhanced quality control.

## Visualising Data and Leveraging Visibility for Better Decision-making



DiMuto CEO Dashboard

DiMuto's powerful dashboards and big-picture analytics can help businesses manage their operations more effectively. DiMuto's dashboards provide real-time data visualization and analytics, allowing businesses to track and monitor their supply chain and trading activities. The dashboards can be customized to show key performance indicators (KPIs) relevant to the business, such as inventory levels, sales performance, and logistics performance. This provides businesses with a comprehensive view of their operations and allows them to identify areas of improvement and potential bottlenecks.

Moreover, the dashboards can be accessed by different teams and stakeholders within the organization, providing visibility across the business. This facilitates collaboration and ensures that everyone is working towards the same goals.

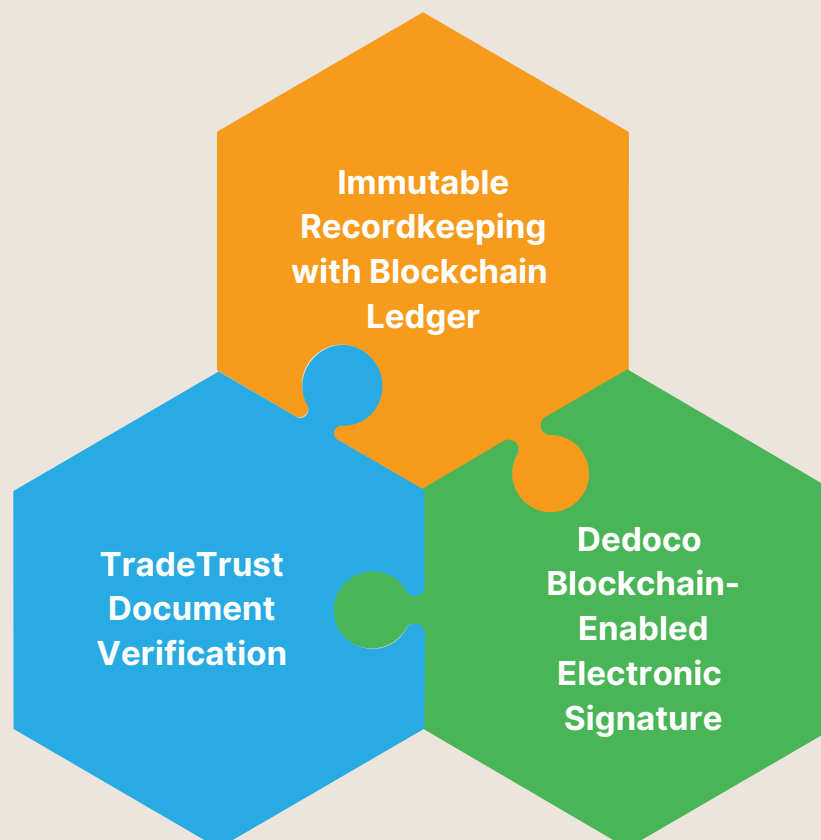
In addition to the dashboards, DiMuto's big-picture analytics allow businesses to gain insights into their trading and supply chain activities at a macro level. This includes data on market trends, pricing, and competitor activities, which can be used to inform business strategy and decision-making in a more efficient and sustainable manner.

## Utilizing Blockchain Technology for Added Verification and Security of Data

The DiMuto Platform utilizes blockchain technology to create an immutable ledger of transactions, accessed by all authorized parties. With blockchain, an unalterable and transparent record of each step in the food supply chain from farm to fork can be kept securely and accurately.

DiMuto leverages blockchain technology in 3 main ways:

- Immutable recordkeeping for each supply chain action
- Verify electronic trade documents with document verifier TradeTrust, a Singapore Government initiative
- Verify electronic signatures on contracts and trade documents with Dedoco



DiMuto uses blockchain technology to create a unique digital identity for each product, which is linked to a QR code or RFID tag. This digital identity contains all the relevant information about the product, including its origin, quality, and condition. The information is recorded on the blockchain and can be accessed by all authorized parties in the supply chain.

As the product moves through the supply chain, each transaction is recorded on the blockchain, creating an auditable trail of all the activities that have taken place. This includes information about the location of the product, any changes in ownership, and any inspections or quality checks that have been performed.

This is presented in a simple timeline that easily lets you know the latest updates, the who, what, and when of each action. Each action is recorded on the blockchain with a unique hash for immutability.

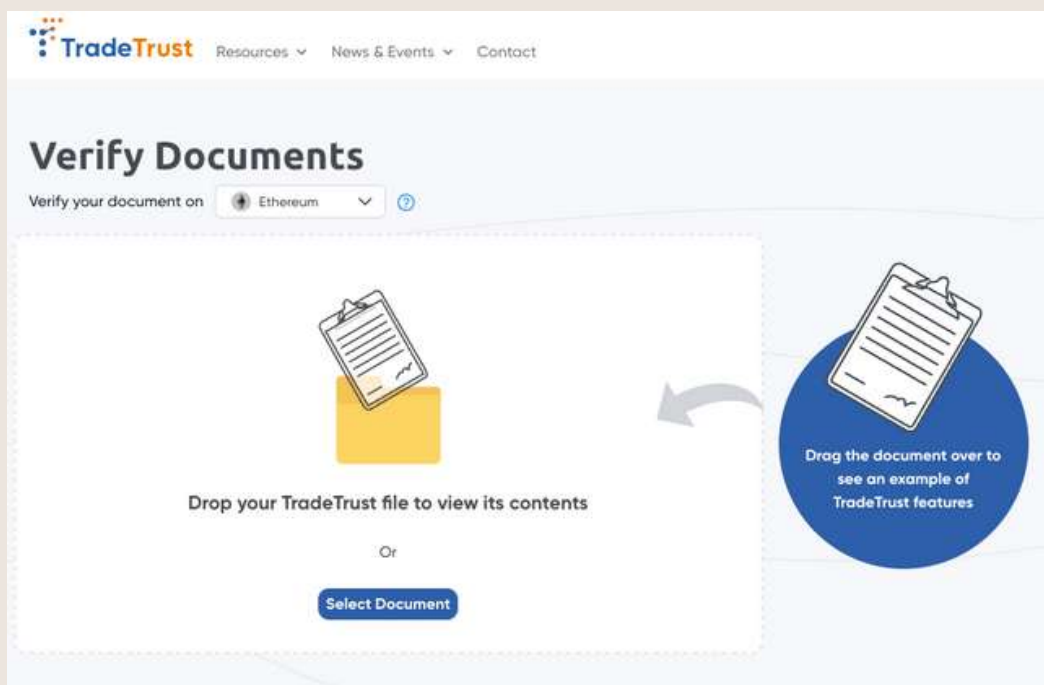
SKU	Carton - CA200000955670	Carton - CA200000955884	Carton - CA200000955873	Carton - CA200000955797
User				That: Dimuto assigned
Status				
Carton ID	CA200000955670	CA200000955884	CA200000955873	CA200000955797
SKU	res_GoldThatLongan11_SKBasket	res_GoldThatLongan11_SKBasket	res_GoldThatLongan11_SKBasket	res_GoldThatLongan11_SKBasket
Pack ID	IPC00019200005	IPC00019200005	IPC00019200005	IPC00019200005
Pallet ID	N/A	N/A	N/A	N/A
Load ID	LPC00019200002	LPC00019200002	LPC00019200002	LPC00019200002
Trade Contract ID	TCC00001200011	TCC00001200011	TCC00001200011	TCC00001200011
BC Hash	0aef4926470d34f16a45a176482232150a741e38bc2814b058e4ebf44c204	5a705811289408c44c78504692645a5c4c0eeb1f823a221648f4a21a8c741a	0aef4926470d34f16a45a176482232150a741e38bc2814b058e4ebf44c204	5a705811289408c44c78504692645a5c4c0eeb1f823a221648f4a21a8c741a

a	<b>Trade Contract Created</b> 2022/12/14   17:05:45	✓
b	<b>Shipping Leg Created</b> 2023/01/02   22:46:20	✓
c	<b>Load Plan assigned</b> 2023/01/01   14:33:35	✓
d	<b>Inspection Completed</b>	✓
e	<b>Goods Received</b> 2023/01/06   19:36:44	✓
f	<b>Dispute Created</b>	
g	<b>Dispute Settled</b>	
h	<b>Payment Created</b> 2023/01/02   23:12:20	✓
i	<b>Financing Created</b>	
j	<b>Trade Completed</b>	✓

Top L: DiMuto Digital Identity Labels, Bottom L: Visual Quality of each carton captured and recorded on DiMuto Platform, R: Trade Timeline Report

Together with the International Chamber of Commerce (ICC), the Singapore government launched TradeTrust, a set of globally-accepted standards and frameworks that is connected to a public blockchain supporting the exchange of electronic trade documents between governments and businesses. TradeTrust aims to digitalize global trade and eliminate the inefficiencies caused by manual trade documents and verification processes. TradeTrust works to ensure there is legal harmonisation across multiple countries and jurisdiction for legal validity of digital trade documents, and promote internationally accepted standards that facilitates interoperability of digital documents exchanged across platforms.

The Tradetrust verification is integrated onto the DiMuto Platform. Trade documents that are uploaded onto the DiMuto Platform are automatically pushed onto TradeTrust, allowing users and relevant parties to verify the authenticity of their documents.



*TradeTrust Document Verification Tool*



When a trade document is uploaded on the DiMuto platform, it is identified uniquely by a Document Hash and saved as a signed TradeTrust JSON file – this JSON file serves as a unique fingerprint that is then recorded on the public Ethereum blockchain.

Data breaches, document forgeries, and fraudulence have become a pressing issues for digital documents on the web or businesses’ private platforms. It is crucial to note that although there are several methods for digitizing documents and storing digital documents, the security, and efficiency of such methods may not be as seamless and transparent as one might think.

The screenshot shows a vertical timeline with five steps:

- 5: 1 Load Plan(s) Assigned
- 4: Document(s) Uploaded
  - Document Name : 12\_09\_2022\_Freshlettuce100g\_roll-1668737641.pdf
  - Document Type : Customer Invoice
  - Viewing Permission : Supplier, Buyer
  - fruits co : User1
  - 2022/11/18 | 10:14:02
  - Blockchain Type : Ethereum
  - BC Hash : 0x1e742d12f8a1ae75a8247a893fa5dbbc5280125bcc
  - TT BC Hash : 0xb5712a37785e2ebcbb8bcc3859bff20746093d7
  - TT File : Download
- 3: Trade Contract Updated
- 2: Trade Contract Updated
- 1: Trade Contract Created



L: TT Blockchain Hash and TT json file found on DiMuto Trade Timeline, R: Verification of documents uploaded on DiMuto done via TradeTrust

Current communications occur over different communications platforms such as social messaging apps and emails, causing crucial trade information and documents to be scattered and stored inefficiently. This makes it challenging for AgriFood companies to ensure timely verification of these documents, or store and retrieve them securely.

AgriFood Trade documents on DiMuto are further authenticated with Dedoco's blockchain-enabled electronic signature platform to increase the credibility of digital documents. Documents are readily signed using Dedoco and registered with a unique blockchain hash when they are published to the DiMuto platform. Documents' signatures can also be verified Dedoco web.

With blockchain-verified signatures that act as a guarantee of document authenticity, DiMuto ensures credibility of every trade transaction – removing barriers such as security risks, fraudulence, and forgery of documents. DiMuto's All-in-One trade management platform helps strengthen trust and confidence among AgriFood players in the food supply chain.

Overall, DiMuto's use of blockchain technology for data verification in AgriFood trade offers a secure, transparent, and efficient way to track and verify the origin, quality, and condition of products throughout the supply chain. This can help businesses to reduce the risk of fraud and counterfeiting, improve customer trust, and increase the overall efficiency of their supply chain operations.





Carton ID:  
CA200000476387

Powered by DIMAuto

18050 1 13

PART 2

# VISIBLE PAYMENTS





# Challenges with cross-border payments for Agri SMEs

Cross-border payments in AgriFood present a significant challenge for stakeholders. The industry operates on a global scale, with products being traded across borders, but the process of making cross-border payments can be complex and time-consuming. The challenges of cross-border payments are especially acute for SME farmers and traders, who may lack the financial resources and infrastructure needed to carry out these transactions efficiently.

The 2020 market growth for international payments reached an all-time high, of US\$2 Trillion\*. However, research has shown that only 1% of small and medium enterprises (SMEs) use digital finance successfully, even though SMEs contribute up to 20% of national GDP in major economies\*\*.

## High cost of cross-border transactions

One of the main difficulties of cross-border payments in the AgriFood industry is the high cost of international transactions. Sending and receiving payments across borders can involve significant transaction fees, currency exchange fees, and other charges, which can reduce the profitability of agrifood businesses.

Add that to the complex regulations and infrastructure of cross-border payment systems today, it is no wonder that moving money across borders is still far from an efficient and easy process. This problem will only become more pertinent as the role of SMEs in the global economy continues to grow.

Country-specific rules have impeded international payments, and transactions routed through intermediate institutions can take days to complete and typically come with costs.

Due to the numerous intermediaries involved in transferring money from one nation to another, all of which collect fees for their services, cross-border payments can end up notoriously expensive.

As such, regulatory costs pile up, and FX fees for converting one currency to another will be levied. Furthermore, there is the lack of clarity when it comes to remittance fee structures.

## Efficiency & Security Challenges

Unlike near-instantaneous domestic payments, traditional cross-border bank payments can involve numerous exchanges of hands in one transaction and take two to five days to process, making it difficult to expect payments on time.

On top of that, high-level security breaches in cross-border payment systems are common, as evidenced by the \$81 million theft on Bangladesh's central bank in 2016\*.

## Lack of Visibility

Another challenge for businesses making cross-border payments is the lack of visibility of payment status.

According to a poll conducted by SWIFT and EuroFinance in 2017, 64% of businesses desire real-time payment tracking capabilities, and 47% want improved insight into the costs and deductions involved\*.

With the longstanding lack of real-time tracking of payment status, businesses often do not have certainty of transaction status.

When companies need to know the current status of a payment, they are dependent on operations specialists undertaking manual research and time-consuming administrative tasks to ascertain basic information.

Payment inquiries must be directed through correspondent banks, then communicated back to clients to determine any necessary actions.

This lack of transparency creates high informational costs that can undermine corporate cash flow forecasts, and can strain relationships with a client's suppliers and business partners when funds are not received as expected.



## Need for trade-centric payment management

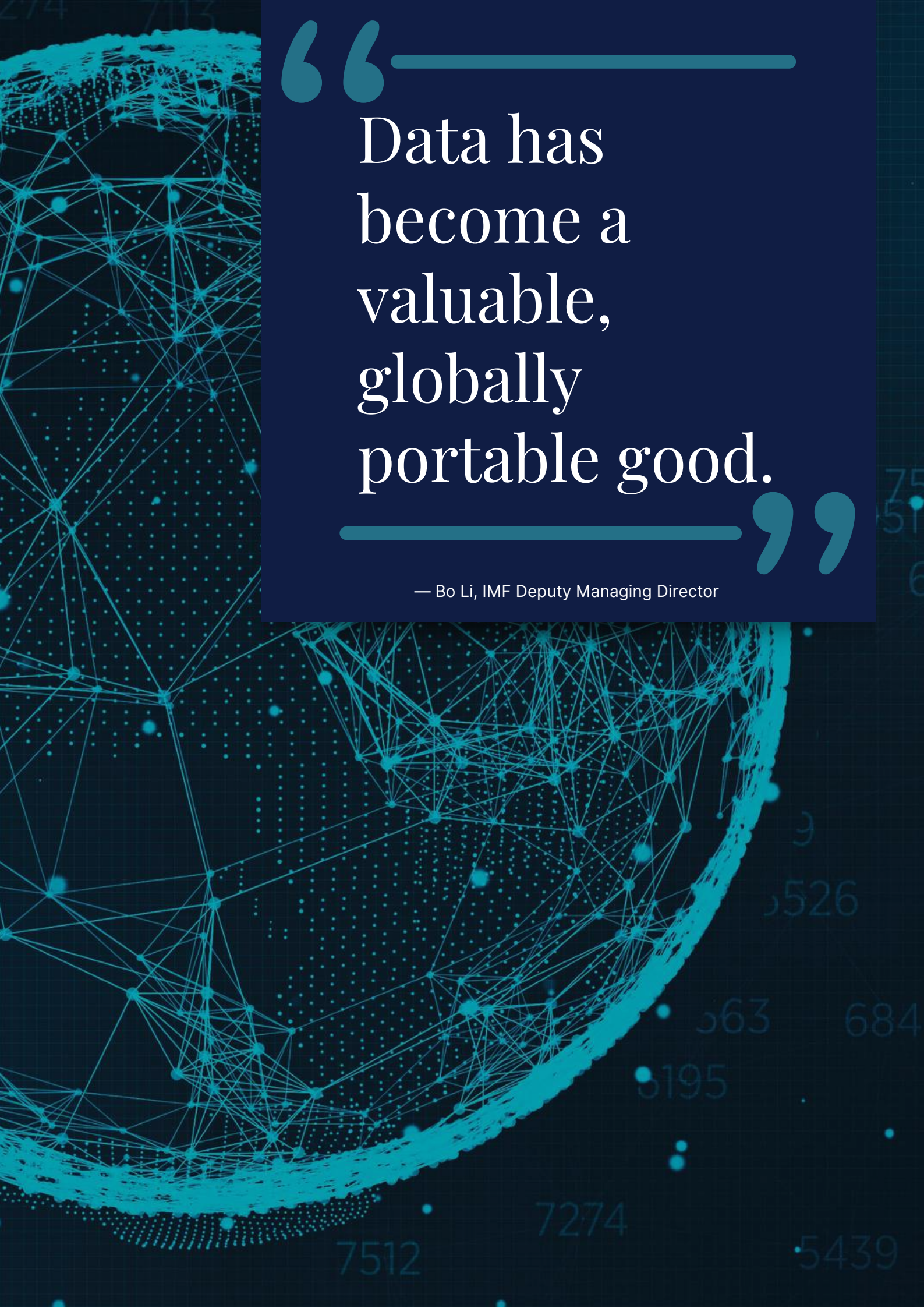
For AgriFood companies with a significant portion of business in export-import trade, the ability to conduct and manage payment transactions across borders in an efficient, secure and visible manner is a concern.

The risks of cross-border payments today are especially great for AgriFood companies dealing with a high volume of international trade transactions where one container of fresh produce can easily amount to an average cost of USD\$50,000 to 150,000\*.

In global AgriFood Trade, there's not only a need for cross-border payment methods to have less friction but have a trade-centric perspective as well. This is because product movement is dependent on a multitude of factors and delays and changes in timelines are commonplace.

Trade disputes involving quality issues are typical and can cause upwards of 5-15% of trade value\*.

Thus, it is particularly important for finance teams to be informed of any and all situations affecting expected payments and cash flow.



“ Data has  
become a  
valuable,  
globally  
portable good.”

— Bo Li, IMF Deputy Managing Director



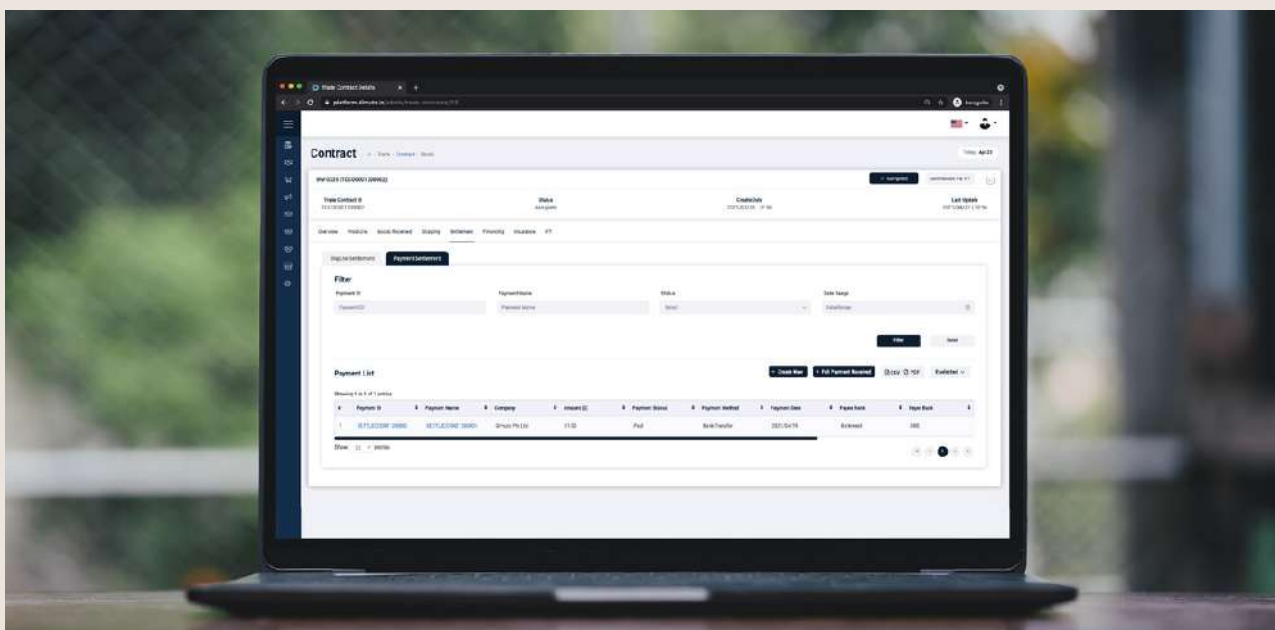
# DiMuto Unifies Products, Documents, Payments in One

DiMuto connects products, documents, and payments on a single platform, giving visibility across departments and functions in a company.

As mentioned in Part 1 of our solution, Visible Product, we digitalize physical AgriFood products by tagging each fruit or vegetable with a Digital Identity Label (DID). DIDs act as a digital identifier for each fruit and contain product quality and traceability data and allow companies to connect the product to digital documents and payments on DiMuto Platform.

## DiMuto Payment Management

DiMuto allows payment receipts to be uploaded onto the blockchain automatically, ensuring immutability. Payment status is also viewed in the same trade timeline as other trade actions, ensuring that both sales and finance teams understand the trade situation. The DiMuto Payment Management feature also allows companies to conduct cross-border transactions via the DiMuto Platform.



DiMuto Payment Management

# DiMuto Digital Wallets

DiMuto Digital Wallets allow DiMuto’s agrifood customers to make payments directly tagged to the movement of goods on the DiMuto Platform, creating visibility of both the movement of goods and money for physical agrifood products tracked with DiMuto’s existing trade digitalization technology.

We work with digital payment gateway partners licensed by the Monetary Authority of Singapore (MAS) such as Aleta Planet and OPAL.

DiMuto Digital Wallets help facilitate safe and secure cross-border transactions in over 100 financial corridors with multi-currency accounts and competitive Fx rates that are cheaper than conventional banking methods.

This helps AgriFood SMEs to get visibility on cheaper, faster, and more secure cross-border payments when conducting AgriFood trade.



**Hold and convert multiple currencies within your digital wallet**



**Global remittance at competitive rates via SWIFT, local bank networks or UnionPay**



**Custodian account ensuring security of your funds**



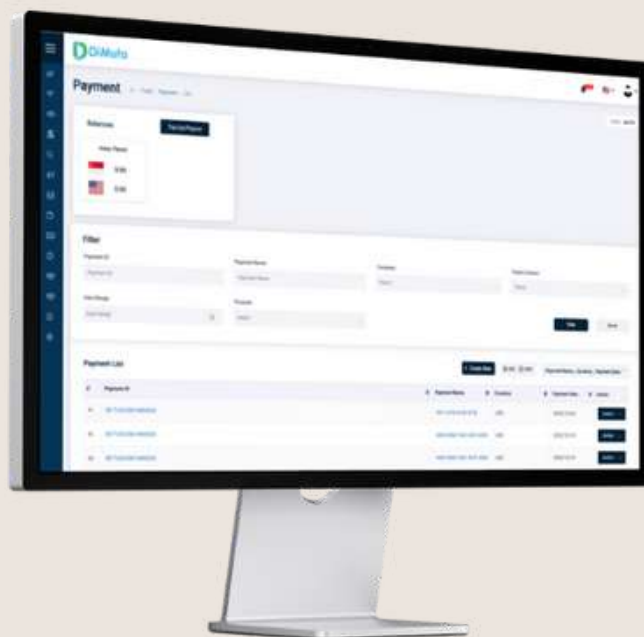
**Fast transaction speeds with ability to pay Chinese partners within T+2**

## Benefits of DiMuto Digital Wallets

The DiMuto Digital Wallet can offer several benefits to AgriFood companies and help streamline financial operations. It allows companies to make and receive payments quickly and securely, reducing the time and costs associated with traditional payment methods such as wire transfers and checks.

Not only that, it provides real-time tracking and visibility of financial transactions, allowing businesses to monitor and reconcile their accounts more efficiently. A digital wallet can also enable companies to manage multiple currencies, facilitating international transactions and reducing foreign exchange fees. A B2B digital wallet can offer enhanced security features such as two-factor authentication, reducing the risk of fraud and unauthorized transactions.

Overall, a B2B digital wallet can offer import-export companies greater convenience, efficiency, and security in managing their financial operations.



*DiMuto Payment Management*

## A Bright Future: Paving the way to trade financing access

Beyond connecting payments in traditional currencies, the DiMuto Payment Management can allow transactions in the USD Coin (USDC), through CIRCLE, a uniform platform for businesses to collect payments and send payouts around the world using blockchain technology.

Meeting the needs of high-volume trading firms, crypto exchanges, and market makers, the USD Coin (USDC) is a significant advancement in the way businesses utilize money. Digital dollars function similarly to other digital content: they travel at the speed of the internet, can be traded in the same manner that we share content, and are less expensive and more secure than current payment systems.

More efficient and trade-centric cross-border payment methods will not only create more visibility and help businesses manage their operations and cash flow better but also help to provide the opportunity for more transparent and accurate operational and financial health data.

This can then be used for trade financing opportunities to help their businesses grow greater, to be explored further in Part 4.





PART 3

# VISIBLE FINANCING





# The global trade finance gap is now US\$3.4 Trillion\*

The US\$1.9 trillion global trade finance gap has deteriorated as a result of Covid-19, which is now projected to be as high as US\$3.4 trillion by experts, with SMEs in emerging nations being the hardest hurt\*.

SMEs have historically had difficulty obtaining institutional funding. This is due to concerns regarding factors such as the creditworthiness of loan applicants, various collateral requirements, short-term liquidity, as well as political or currency risk.

When it comes to agricultural financing, the global share of agriculture in total credit has continued to decrease, from 2.50 percent in 2012 to 2.14 percent in 2021, despite the real terms increase by 32 percent to USD 1 116 billion in 2021\*\*. This is despite the agricultural sector contributing more than \$1 trillion to the economy in 2020, about 5% of the annual global GDP\*\*\*.

\*Source: Standard Chartered - Global trade faces a USD3.4 trillion financing gap

\*\*Source: FAO - Credit to agriculture

\*\*\*Source: Nikkei Asia - Southeast Asia needs sustainable finance, even if imperfect

# Challenges faced by Agri SMEs in accessing financing

The challenges faced by AgriFood SMEs when trying to obtain financing opportunities can be numerous and complex, and they can make it difficult for these companies to obtain the funding they need to grow and expand their operations.

One of the main challenges that small to medium agrifood companies face is the perception of risk associated with agricultural lending.

Agriculture is traditionally considered a high-risk industry, with many factors outside of a company's control, such as weather, disease, and natural disasters, that can impact production and profitability. This perception of risk can make it difficult for these companies to obtain traditional financing, as lenders may view them as too risky to invest in.

Additionally, small to medium agrifood companies may lack the collateral and credit history required to secure loans. These companies may be relatively new or may have limited assets to put up as collateral, which can make it challenging for them to secure financing through traditional lending channels.

Moreover, agriculture is a highly seasonal industry, which can result in uneven cash flows for small to medium agrifood companies. This can make it difficult for them to make consistent payments on loans, which can further exacerbate the challenges associated with obtaining financing.

Lastly, there is a lack of understanding and knowledge about the agricultural sector among financial institutions. Many lenders lack the expertise necessary to properly assess the risks associated with agricultural lending, which can lead to a reluctance to finance these companies.



To assess these risks, banks and other financing platforms tend to rely on a business's historical financial documents. However, assessing such documents may not be a reliable way to judge the risk of financing a company as they may be altered, forged, or irrelevant to their current operations.

## **Lack of Visibility into Trade Operations of Agriculture Supply Chains**

To assess these risks, banks and other financing platforms tend to rely on a business's historical financial documents. However, assessing such documents may not be a reliable way to judge the risk of financing a company as they may be altered, forged, or irrelevant to their current operations.

Financiers may face significant risks when financing businesses in the AgriFood industry due to the lack of trade visibility.

Unlike other industries where there is a clear and established supply chain, the agrifood industry is fragmented and complex.

This lack of trade visibility makes it challenging for financiers to understand the risks associated with financing agrifood businesses.


Without a clear view of the supply chain, financiers face difficulties when trying to accurately assess the creditworthiness of potential borrowers or the risks associated with their operations. This leads to reluctance to offer financing to Agriculture SMEs who can be better supported in their growth.

## **Lack of Visibility into Use of Funds**

The lack of trade visibility in the agrifood industry can also make it difficult for financiers to monitor the use of funds. Without a clear view of the supply chain and the operations of agrifood businesses, financiers may not be able to track the use of funds they provide.

This can make it challenging to ensure that funds are being used as intended and can increase the risk of fraud or mismanagement.

Financiers may need to mitigate these risks and ensure that funds are being used effectively, but find it challenging to implement stricter monitoring and reporting requirements.



“  
Every investment  
bears a level of  
risk. The  
challenge is how  
best to de-risk.  
”

— Axel van Trotsenburg, Managing Director of The World Bank

# DiMuto Financial Services

With the right financial solutions and risk management strategies in place, it is possible to minimize these risks and support the growth and success of AgriFood businesses.

DiMuto's Financial Services provide AI-powered trade financing to agri-food companies. The DiMuto platform unifies critical documents, products, and payments in one place, gathering an accurate depository of live trade data between the borrower and respective business partners.

To ensure the visibility of the supply chain, borrowers are required to digitalize their trades, tracking every single carton for each order from packinghouse to export markets. DiMuto leverages its proprietary AI to assess trade health and product quality for every trade transaction, creating a complete and accurate image of the financial and operational strength of companies.

The added data visibility lowers risks for financiers and leads to more favorable financing rates for agri-food SMEs. This means agri-food companies can now better manage cash flows, maintain working capital liquidity, and have greater access to essential resources for economic growth.



## Improved Cash Flow for Agri SMEs

DiMuto Financial Services is a game-changer for businesses looking to improve their cash flow and grow their operations. With post-shipment financing, purchase order financing, and invoice financing, businesses can access the necessary resources to continue their operations, pay their suppliers, and invest in their growth.

By providing businesses with 20-30 days of improved cash flow, DiMuto can help them take advantage of growth opportunities and achieve their full potential in the competitive global market.

Post-shipment financing enables businesses to obtain financing for the goods that have been shipped to their customers but have not yet been paid for. This service provides businesses with the necessary cash flow to continue their operations while waiting for payment from their customers, which can take anywhere from 30 days to 60 days, depending on payment terms and customer type.

Typically, larger retailers offer payment terms of weeks upon product arrival. By offering post-shipment financing, DiMuto enables AgriFood businesses to pay their suppliers, cover their production costs, and invest in their growth.

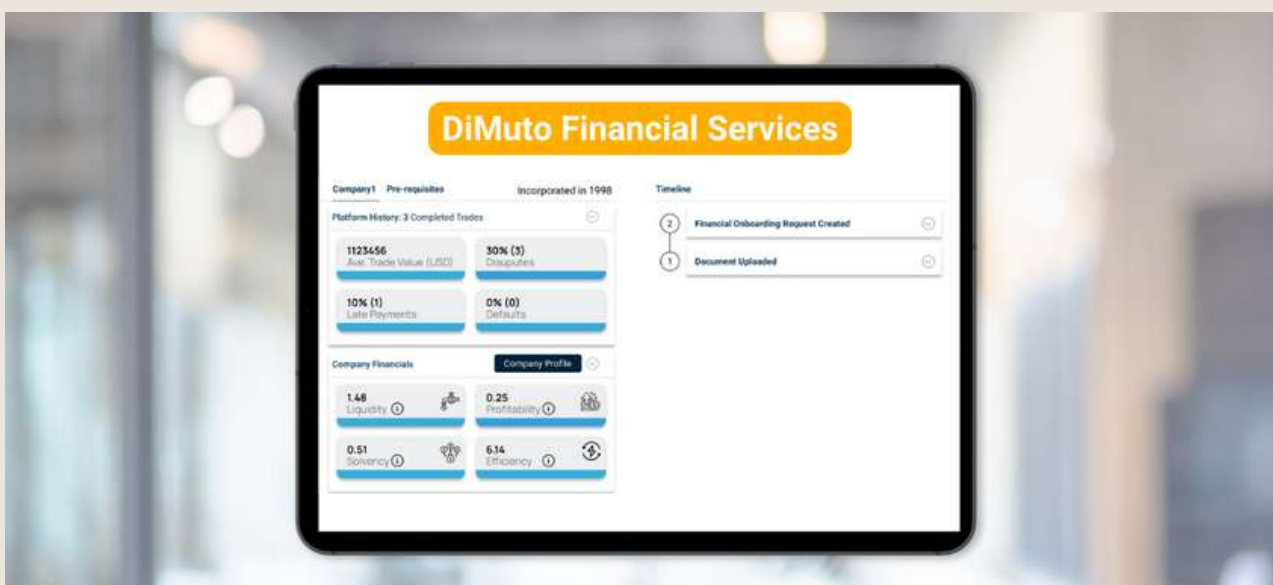


## AI-Powered Trade Health and Credit Scoring

DiMuto Financial Services leverages AI to assess trade health and product quality for every trade transaction on our platform, providing Agrifood business and financiers with:

- Visibility of day-to-day operations
- A complete & accurate image of financial & operational strength of the company
- Low-risk lending for financiers, opportunities for buyers/suppliers

Such analyses can be made not only based on the real-time trade data of each trade that is captured on the DiMuto Platform, but also on the collection of such granular data over time per trade relation. In combination with DiMuto's Product Quality AI, DiMuto can generate a financial risk score for each trade and company that can be used for financing opportunities. Thus, DiMuto's Trade Health & Financing AI allows financiers to enjoy deeper visibility and more robust assurance and for borrowers to gain more accurate risk assessments and more flexible terms.



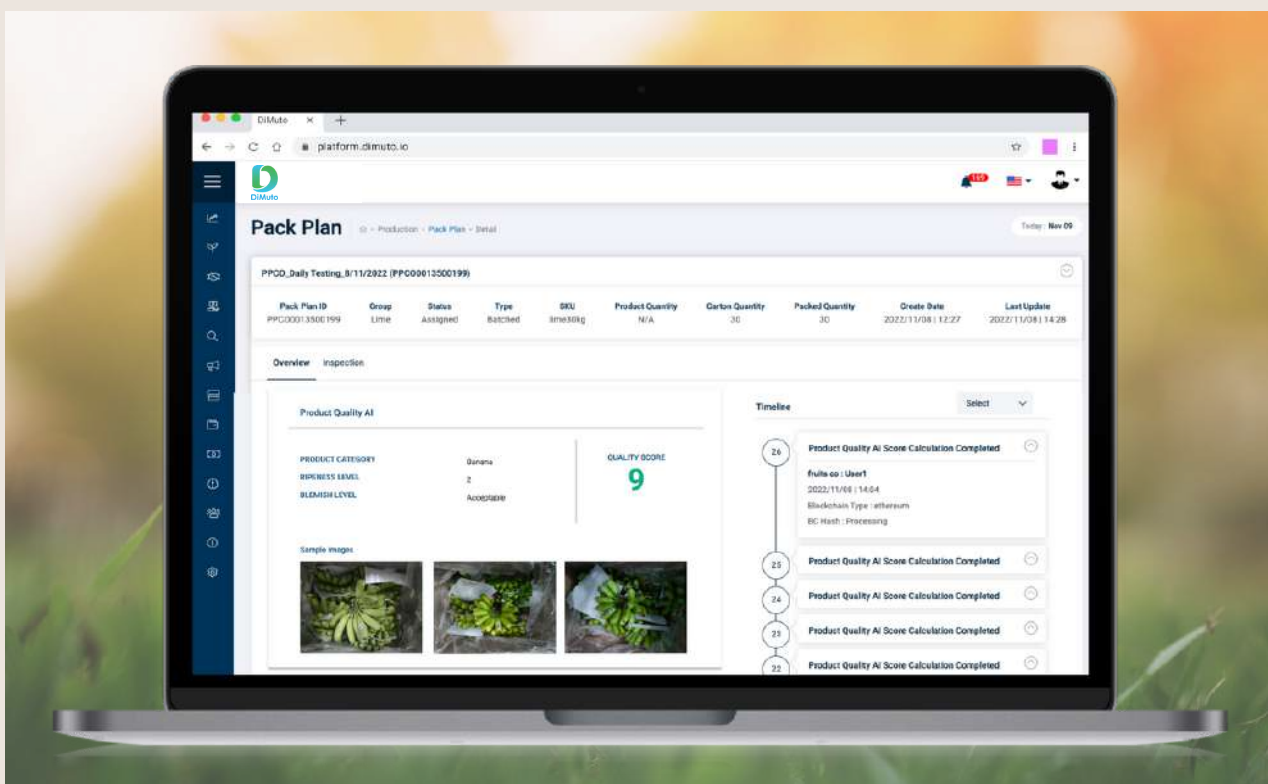
DiMuto Financial Services AI Score

## Digitization-enabled Product Quality AI

As mentioned in Part 1, through DiMuto's digitization solution, we are able to obtain the visual photo of each carton as they move along the supply chain.

DiMuto's Product Quality AI is an artificial intelligence-based platform that uses computer vision and machine learning technologies to assess the quality of fresh produce.

The platform allows producers, traders, and retailers to track the quality of their products at various stages of the supply chain, from production to retail, providing real-time data on factors such as ripeness, freshness, and quality. By using machine learning algorithms, the platform is able to learn from past data to improve its accuracy and precision over time.

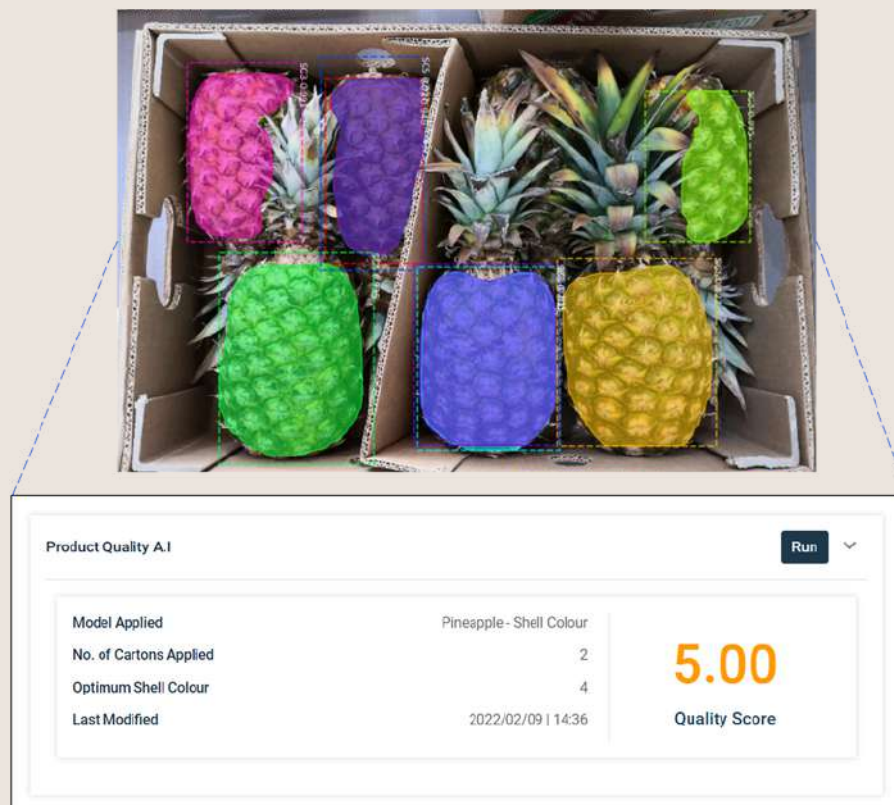


DiMuto Product Quality AI applied on digitalized cartons on DiMuto Platform

## Product Quality Visibility Along Supply Chain

DiMuto is able to obtain product quality visibility on the various critical supply chain points, namely both pre-shipment and post-shipment financing.

With this added visibility, we can now generate a more accurate overall product quality powered by our Product Quality A.I. This can ascertain the quality of the produce, as well as the ability to trace and track individual physical produce, which can make the verification of collateral quality more efficient and verifiable, lowering the barriers to trade financing for agrifood players, particularly small and medium growers, packers, and buyers that do not traditionally have such access to such financing.



DiMuto Product Quality AI

## Visibility of Payments As Added Layer of Risk Reduction

Cross-border trade finance is largely paper-based and vulnerable to fraud due to the complex flow of transactions and a multiple number of parties involved. This makes it challenging to ensure adequate oversight and prevent fraud and crime. The collapses of Hin Leong, Agritrade, and Greensill have seen a tightening of credit facilities and a preference for financing larger players as part of a “flight to quality” trend, making it more difficult for small to medium traders and companies to get access to supply chain finance.

The DiMuto Payment Management allows financiers to gain visibility on payments made and received by the borrower companies for financed trades, on top of existing trade documents and product visibility enabled by the DiMuto Trade Management Platform.

In addition to such visibility, the primary trade data and payment data collected on DiMuto Platform will be applied to DiMuto’s proprietary Trade Health AI model, to create objective and efficient trade health and credit scores.

This actively reduces the risk of financing and enables the offering of competitive rates for AgriFood SMEs that cannot rely on Letters of Credit for their trades and are unable to get traditional financing.

With Digital Wallet Payment Solutions embedded with DiMuto’s technology, those making and receiving payments for goods and services as well as those providing financing can easily access all critical data regarding the product quality, documentation, and payment activities for every single trade order.

Additionally, blockchain-enabled systems such as DiMuto offer users a greater level of security since immutable records are stored across different computers which can be accessed by interested parties.

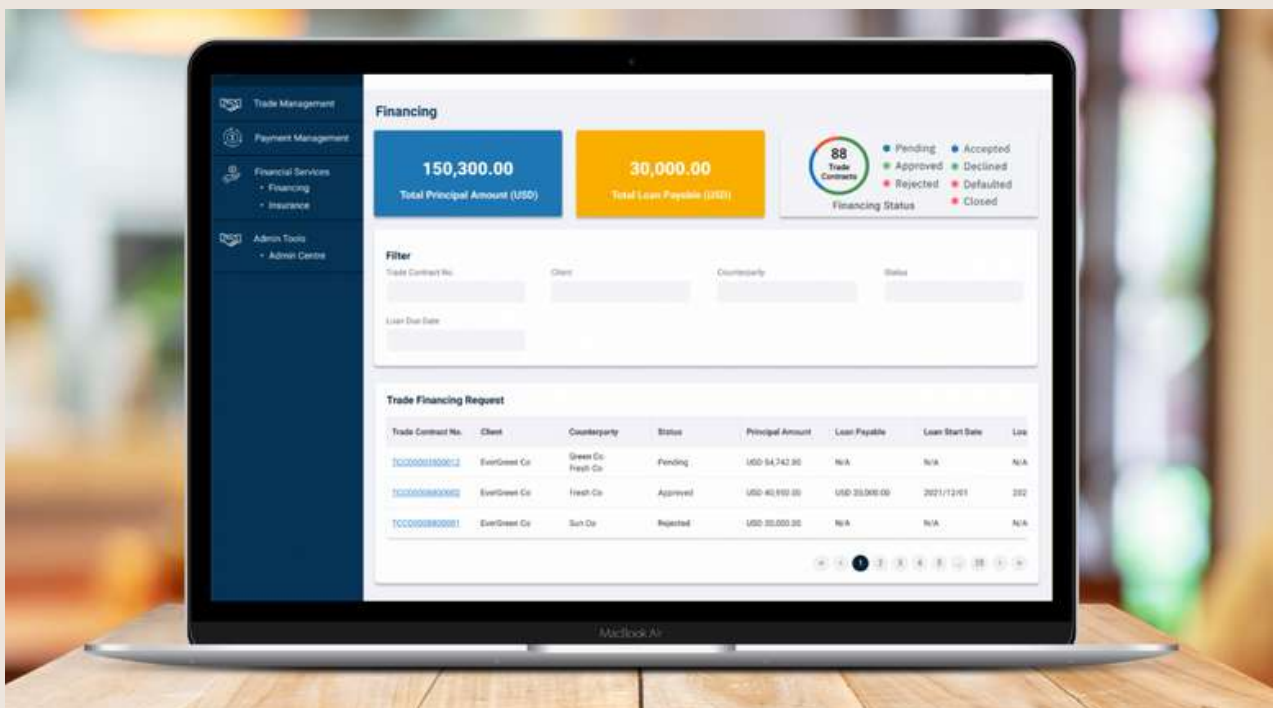


## A Data-backed, AI-powered Financial Service built to de-risk lending

Overall, by utilizing AI, DiMuto Financial Services is able to provide more accurate risk assessments, faster decision-making, and better risk management services to its clients, reducing the risk for financiers and increasing the chances of success for agribusinesses.

DiMuto is able to capture organizational and supply chain data, analyze and understand companies' trade, financial and organizational health and accurately assess borrowing capacity and risks.

This helps AgriFood companies to assess more flexible, favourable financing options while effectively reducing the lending risks for financiers.



DiMuto Financial Services



PART 4

# VISIBLE SUSTAINABILITY





# Climate Change Effects Impede Achieving SDGs for AgriFood SMEs

The agriculture industry plays a critical role in achieving the UN Sustainable Development Goals (SDGs). Across the world, it is responsible for ensuring food security, reducing poverty, and promoting economic growth.

However, this industry faces a multitude of challenges that impede its progress toward sustainability. Progress toward achieving the SDGs will be impeded by the fact that agriculture is extremely vulnerable to climate change.

One of the most significant challenges is climate change, which has led to erratic weather patterns, soil degradation, and water scarcity. These factors impact crop yields, making it difficult to maintain food security and contribute to economic growth.

## Vulnerability of Agriculture to Climate Change

Another challenge facing the agriculture industry is the unsustainable use of natural resources, particularly water, and soil.

Many agricultural practices, such as irrigation, use significant amounts of water, leading to water scarcity in certain areas.

Such unsustainable practices can place additional pressure on the environment, undermining the sustainability of the agricultural industry.

Smallholder farmers—the vast majority of farmers in developing countries—are among the most vulnerable because they have little capacity to adapt, lack safety nets, and are highly exposed to livelihood and food-security risks.

The vulnerability of agriculture to climate change also threatens global resilience to climate change more broadly.

## Challenges of measuring sustainability

Today, measuring sustainability in the food supply chain is a complex and challenging task.

One of the main challenges is the lack of a universally accepted definition of sustainability, making it difficult to establish clear metrics for measuring progress.

Sustainability can encompass a wide range of environmental, social, and economic factors. Different stakeholders may also prioritize different aspects of sustainability.

This can lead to confusion and disagreement over what metrics to use and how to interpret the results.

## Difficulties measuring sustainability in reality

Another challenge in measuring sustainability in the food supply chain is the complexity of the supply chain itself. Food supply chains are often long and complex, involving multiple actors and stages, from production and processing to distribution and retail.

This complexity makes it difficult to track and measure sustainability metrics, especially if there are gaps in data collection and reporting.

Measuring sustainability in the food supply chain can be challenging due to the dynamic nature of sustainability itself.

Sustainability is not a static concept but rather a constantly evolving one that responds to changing factors of societal, environmental, and economic dimensions.

As a result, sustainability metrics need to be regularly updated and adapted to reflect these changes.

However, this can be difficult in practice, particularly for small and medium-sized enterprises that may lack the resources and expertise to develop and implement more sophisticated sustainability metrics.

## Role of Climate Finance in Agriculture Sustainability

Currently, climate finance resources are fragmented and have traditionally been directed to mitigation purposes and "quick wins" projects. However, climate finance can play a critical role in directing liquidity to agriculture and promoting agricultural investments that address mitigation and adaptation goals.

Financing offered to AgriFood companies can be tagged with legally binding environmental and social covenants that will motivate companies to achieve sustainability goals. This acts as a powerful tool to stop and reverse the negative impacts of climate change caused by agriculture.

For example, a sustainable financing instrument could enforce sustainable practices, and ensure that areas of land are set aside for conservation and that local communities receive clear benefits. Plantations can also act as an important buffer against encroachment into adjacent protected areas.

Hence, agriculture finance can function as an effective method to enforce sustainability standards through the mandating of compliance, the disclosure as well as auditing of performance.

However, companies, smallholders, investors, and policymakers often face significant challenges in proving and measuring meaningful impact on sustainability as a result of such financing activities.

Additionally, there is an absence of common governing frameworks to classify projects as sustainable and enable ready comparison so that investors can make informed investment decisions.

## Data for Sustainability Financing

By providing clear and transparent data on sustainability performance, businesses and investors can identify areas where improvements are needed and make informed investment decisions based on sustainability criteria.

For example, a company that has strong sustainability metrics in terms of reducing greenhouse gas emissions, water usage, and waste production may be viewed as a more attractive investment opportunity than a company with poor sustainability metrics. Similarly, investors may be more likely to invest in a renewable energy project that has a clear and measurable impact on reducing carbon emissions compared to a project with less clear sustainability benefits.

Visibility on sustainability metrics can provide valuable guidance for green finance investment decisions, allowing investors to align their investments with their sustainability goals and make informed decisions that have positive environmental and social impacts.

An aerial photograph of a dense forest, showing a variety of green ferns and other foliage. The perspective is from directly above, looking down on the canopy. The colors range from deep forest green to bright, sunlit greens.

“

Smarter food financing, along with scientific knowledge and political will, can be a major game-changer.

”

— David Malpass, President of The World Bank



# Implementation with Impact: The 4Es

DiMuto is dedicated to using our Solutions to promote sustainable development throughout the Agrifood industry. By capturing live on-the-ground data through the supply chain, DiMuto aims to create positive social impact in four key areas: Efficiency, Engagement, Empowerment, and Environment.



## Efficiency

Optimize inventory management, reduce waste, and improve the accuracy and speed of product delivery



## Engagement

Spread awareness of companies' environmental impact, product health information and receive end-consumer feedback on product quality



## Empowerment

Empower supply chain stakeholders with accessible operational data and trade financing opportunities



## Environment

Easily see company's environmental impact and follow product lifecycles in real-time with useful metrics

# DiMuto Sustainability Management

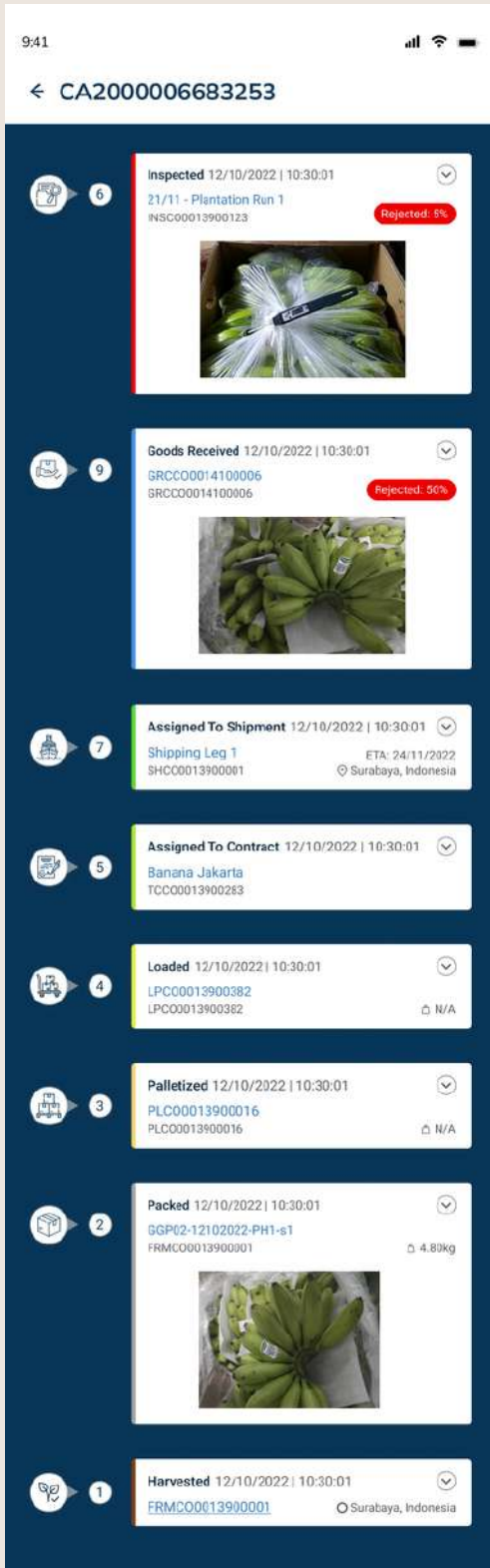
With DiMuto Sustainability Management, AgriFood companies can now gain real-time insight into their environmental impact across the global Agrifood supply chain and determine opportunities for them to adopt sustainable solutions. The feature also aims to help expedite the creation of Sustainability Reports with data that is consistent, complete, and reliable.

DiMuto's Sustainability Management feature can immediately determine an AgriFood company's estimated monetary costs from losses and waste, food waste from rejected or discarded products, carbon emissions from various trade activities, and water usage of their facilities.

These 4 key data types are then aggregated automatically on DiMuto's Sustainability Management Dashboard. This dashboard helps Agrifood business owners easily see the environmental impact of their operations and follow product lifecycles in real-time with useful metrics, which can be immediately generated into a report for it to be shared with relevant parties.



*DiMuto Sustainability Management Dashboard*



## Accurate Sustainability Measurement with Granular Operational Data

DiMuto's digital ecosystem can capture the movement of every single carton of food product along the supply chain, and use A.I. to automatically calculate the various sustainability metrics such as product lifecycle analysis and food waste for each AgriFood company.

To ensure the integration and verification of this data, DiMuto's Sustainability Management feature is built on blockchain technology and is connected to existing features on the DiMuto Platform.

DiMuto's blockchain-powered solution helps to ensure immutability, showing the who, what, and when of data inputs for accurate tracking and monitoring of businesses' environmental impact.

DiMuto Carton Traceability Journey

## Data-backed Sustainability Financial Services

DiMuto's Sustainability Management feature offers AgriFood companies real-time insight into their environmental impact across the global supply chain, providing opportunities to adopt sustainable solutions. The feature can also expedite the creation of Sustainability Reports with consistent, complete, and reliable data.

By using DiMuto's Sustainability Management and Financial Services, AgriFood companies can estimate their monetary costs from losses and waste, food waste from rejected or discarded products, carbon emissions from various trade activities, and water usage of their facilities. These key data types are then aggregated automatically on DiMuto's Sustainability Management Dashboard, allowing business owners to easily see the environmental impact of their operations and follow product lifecycles in real-time with useful metrics.

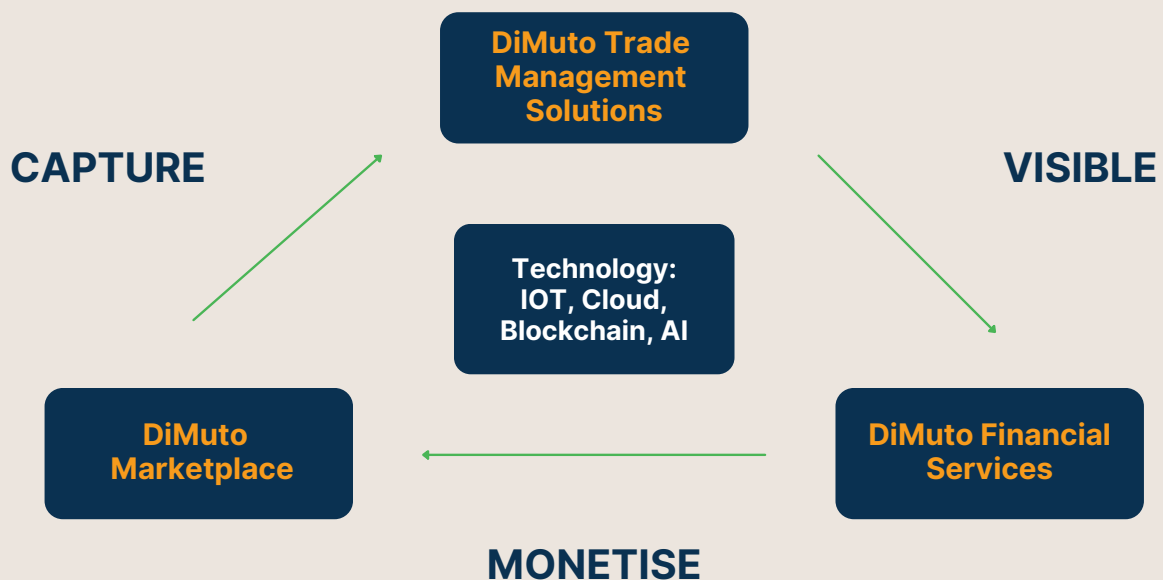
This dashboard provides data that can be immediately generated into a report, making it easy to share with relevant parties. By adopting sustainable solutions, AgriFood companies can reduce their environmental impact, leading to more sustainable practices and potentially better access to financing options from financiers who prioritize sustainable operations. DiMuto's Sustainability Management and Financial Services can help create a more sustainable agri financing system by providing data-backed insights and opportunities for AgriFood companies to improve their sustainability practices.



# POWERING UP OUR DIGITAL ECOSYSTEM

With our three pillars of DiMuto Marketplace, Trade Management, and Financial Services, DiMuto captures the trade, makes them visible, and monetizes them.

This helps global AgriFood companies to shed light on every phase of their processes with visibility. We believe that such data visibility when used in a holistic manner, it is possible to help companies to trade better and grow greater for a connected, more sustainable food future.





SUSTAINABILITY

ENVIRONMENT

FUTURE

NATURE

ECONOMIC

SOCIAL

RESPONSIBILITY

EQUALITY

ETHICS

# REDEFINING AGRIFOOD TRADE

Today, our AgriFood systems need to be transformed. By making them more efficient, inclusive, resilient, and sustainable, the world can benefit from increased food security and better nutrition for all.

Overcoming the various and complex challenges and achieving visibility across Products, Payments, Financing, and Sustainability allows the AgriFood industry to step into a digitalized, brighter future.

When we create a visibility-driven digital ecosystem of food supply chains, we can now use technology, data, and AI to build more efficient and sustainable food systems by reducing waste, improving efficiency, and promoting sustainable practices across the supply chain.

Beyond the operational benefits, gaining tech-enabled visibility of the supply chain has the potential to drive climate-positive action for agriculture practices across entire food systems.

By providing financial incentives and economic benefits via financing vehicles that are in line with sustainability goals, food supply chain stakeholders can be motivated to act in a cohesive, future-forward manner to build the foundations of a better, more sustainable global food system.

Changing agricultural systems all over the world using the right technology and applications is definitely possible, and we hope you will join DiMuto on our journey to redefine global AgriFood Trade today.

“  
A little less  
conversation,  
a little more  
action.”

— Erna Solberg, Prime Minister of Norway







DiMuto is an AgriFood Trade Solutions that powers global AgriFood Trade with Visibility and Financing. With its three pillars of Marketplace, Trade Management, and Trade Financing, DiMuto simplifies every step of global trade – from produce, trade to market, DiMuto provides sales, marketing, operations, financing, and insurance tools so agribusinesses can get the data visibility they need to trade better and grow greater.

With DiMuto’s ability to capture AgriFood trades, make them visible and monetize them on a single platform, we create a more efficient, transparent, and measurable ecosystem of sustainable global AgriFood trade.

With Visible Trade, DiMuto powers companies and the world forward with confidence.

Since 2019, DiMuto has successfully tracked and traced over millions of pieces in produce and millions in dollars of trade value on our platform, working with a global portfolio of clients in over ten countries and five continents. DiMuto is founded by Chief Executive Officer Mr Gary Loh, who is also the Executive Chairman of First Alverstone Group.

For more information, please visit [www.dimuto.io](http://www.dimuto.io).



[www.dimuto.io](http://www.dimuto.io)



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