



**MORPHEUS.NETWORK**

Cross-Border Paperless Trade  
by Leveraging Emerging Blockchain & Emerging Technologies  
with Dan Weinberger - CEO & Co-Founder Morpheus.Network

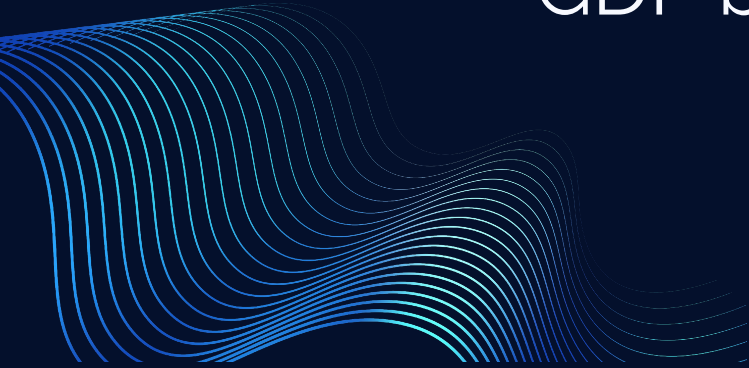


# Today's Agenda

- Introduction – The Problems in Global Trade
- Importance of Data Portability to enable Paperless Trade
- Solutions Overview
- Tech Review (Blockchain, IoT, Machine learning, OCR, Systems Integration)
- Global Impact & Sustainability
- Paperless Implementations
- Demo of Paperless Trade with Interoperability of Technologies
- Criteria To Look For Going Forward

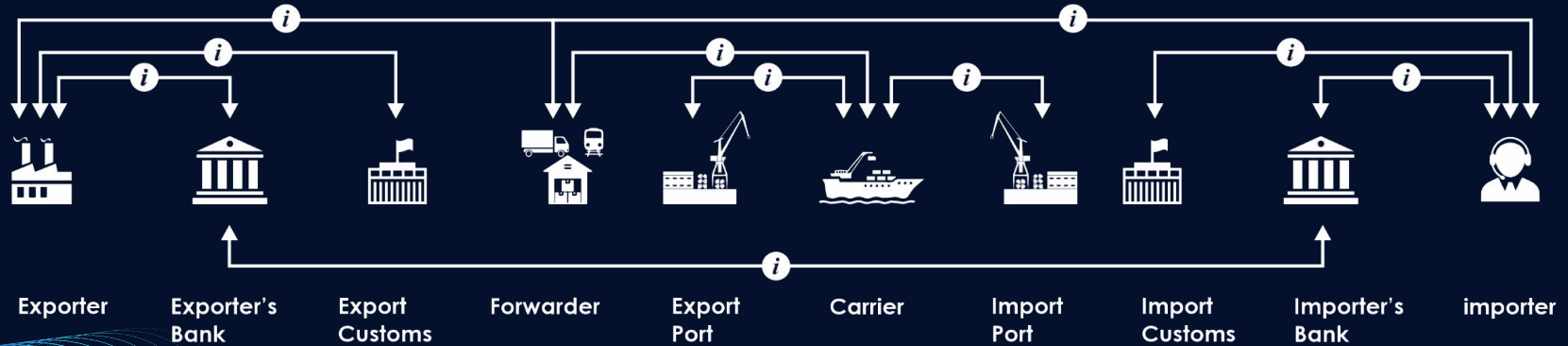


“Supply chain inefficiency is the #1 world problem to solve in order to stimulate economic growth. Reducing these barriers to global trade could increase worldwide GDP by USD \$2 trillion.”



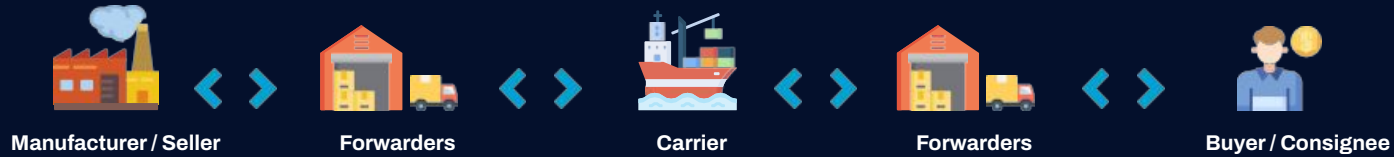
# Lessons Post Covid

Global Supply Chains are only as strong  
as the weakest link.

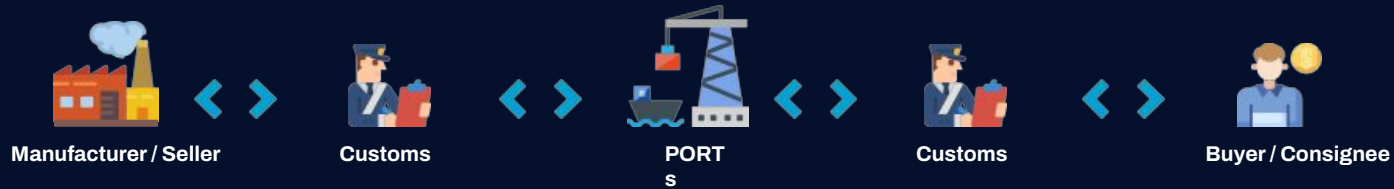




## FLOW OF GOODS



## FLOW OF DOCUMENTS AND SERVICES



## FLOW OF MONEY



What do COVID, semiconductors, globalization and digitalization have in common?

They exposed the fragility of supply chains

- **Disconnected Systems** down supply chain
- **Communication gaps** for supply chain stakeholders
- Inflexible software architecture (if any!)
- Manual and error-prone processes
- Complex, scattered information & communication
- Lack of visibility
- Managing customer demands of speed and reliability
  - ALL HINDRANCES TO SEAMLESS PAPERLESS TRADE



# Key Issues in Data Management Software

- There is a lack of **interoperability**, **trustworthiness in data**, and limited **data portability**.
- **Lack of communication** between multiple systems, importers/exporters, Chamber of Commerce and Industry and Customs Chamber. **Data Silos**.
- **Manual processes** and **missing trust** in authenticity of documents.



**C-Suite priorities and larger budgets will lead to new billion-dollar software categories**

**93%**

Plan to increase resilience across the supply chain

**11%**

Face budget constraints for transforming supply chain

**\$100B+**

Broader SaaS TAM Potential (2030)

Source: <https://www.bvp.com/atlas/roadmap-supply-chain-software#How-big-is-this-market>

# Digital. Integrated. Automated Global Supply Chains with Portable Data

## What is needed?

A **binding glue** for fragmented **data**, **software systems** & **stakeholders** down the supply chain. Middleware provides intuitive tools to digitize and automate **any** supply chain.



# INTEROPERABILITY

in·ter·op·er·a·bil·i·ty

/,ɪn(t)ər,äp(ə)rə'bilədē/

the ability of computer systems  
or software to exchange and  
make use of information.





# Solution Overview:

## Binding Glue for ALL the Data & Stakeholders



Data from manual entry,  
ERP or CSV Import



Logistics (Ocean, Land  
(TMS), Air)



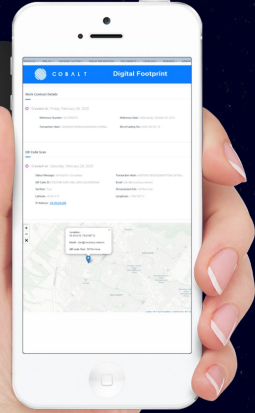
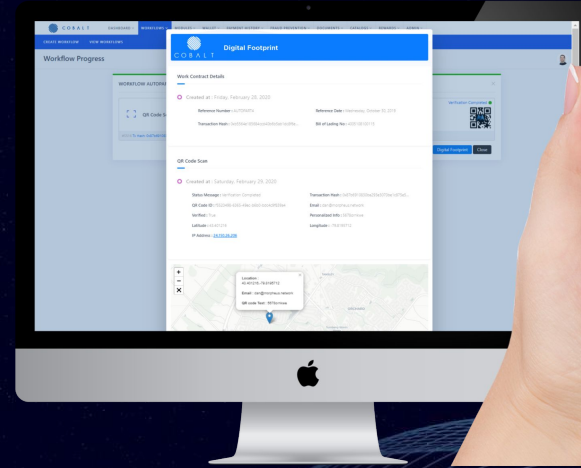
Customs Compliance  
(eg. BOL, Proforma, EPA)



Geolocating  
Handling Points



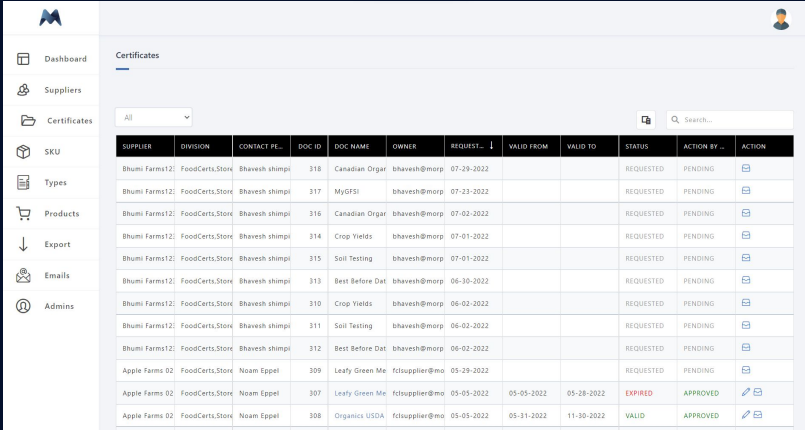
**PAPERLESS FROM RAW  
MATERIAL to RETAIL or  
CONSUMER**



**DIGITAL FOOTPRINT NOTARY SERVICE  
RECORDS OF ALL SHIPMENT AND STAKEHOLDER  
INFORMATION FLOWS**

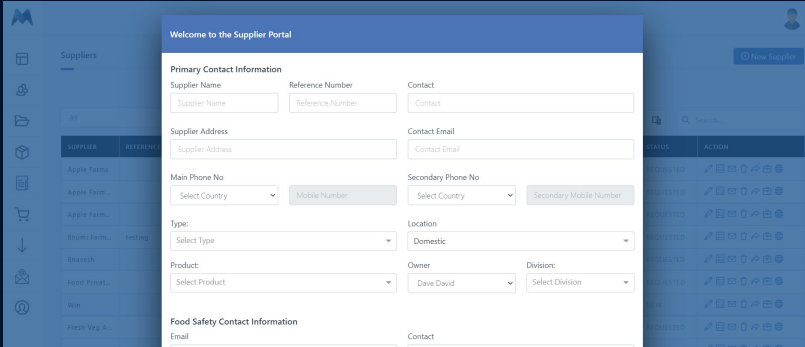
# Blockchain Based Doc / Certification Handling

- Fully **automated** management systems to digitize, validate and track certifications
- Self-service portal**, paired with an integrated document handling database to exchange **immutable** data between importers/exporters and stakeholders with portability into various backends
- Complete confidence in certificates:** We store a unique identifier on the blockchain creating provenance and trust in data



The screenshot shows a web application interface for managing certificates. On the left is a sidebar with navigation icons for Dashboard, Suppliers, Certificates, SKU, Types, Products, Export, Emails, and Admins. The main area is titled 'Certificates' and contains a search bar and a table of certificate records.

SUPPLIER	DIVISION	CONTACT PER	DOC ID	DOC NAME	OWNER	REQUEST...	VALID FROM	VALID TO	STATUS	ACTION BY	ACTION
Bhumi Farms12	FoodCerts.Store	Bhavesh shimpi	318	Canadian Orgar	bhavesh@morp	07-29-2022			REQUESTED	PENDING	
Bhumi Farms12	FoodCerts.Store	Bhavesh shimpi	317	MyGRSI	bhavesh@morp	07-23-2022			REQUESTED	PENDING	
Bhumi Farms12	FoodCerts.Store	Bhavesh shimpi	316	Canadian Orgar	bhavesh@morp	07-02-2022			REQUESTED	PENDING	
Bhumi Farms12	FoodCerts.Store	Bhavesh shimpi	314	Crop Yields	bhavesh@morp	07-01-2022			REQUESTED	PENDING	
Bhumi Farms12	FoodCerts.Store	Bhavesh shimpi	315	Soil Testing	bhavesh@morp	07-01-2022			REQUESTED	PENDING	
Bhumi Farms12	FoodCerts.Store	Bhavesh shimpi	313	Best Before Dat	bhavesh@morp	06-30-2022			REQUESTED	PENDING	
Bhumi Farms12	FoodCerts.Store	Bhavesh shimpi	310	Crop Yields	bhavesh@morp	06-02-2022			REQUESTED	PENDING	
Bhumi Farms12	FoodCerts.Store	Bhavesh shimpi	311	Soil Testing	bhavesh@morp	06-02-2022			REQUESTED	PENDING	
Bhumi Farms12	FoodCerts.Store	Bhavesh shimpi	312	Best Before Dat	bhavesh@morp	06-02-2022			REQUESTED	PENDING	
Apple Farms 02	FoodCerts.Store	Noam Eppel	309	Leafy Green Me	fcsupplier@mo	05-29-2022			REQUESTED	PENDING	
Apple Farms 02	FoodCerts.Store	Noam Eppel	307	Leafy Green Me	fcupplier@mo	05-05-2022	05-05-2022	05-28-2022	EXPIRED	APPROVED	
Apple Farms 02	FoodCerts.Store	Noam Eppel	308	Organics USDA	fcupplier@mo	05-05-2022	05-11-2022	11-30-2022	VALID	APPROVED	



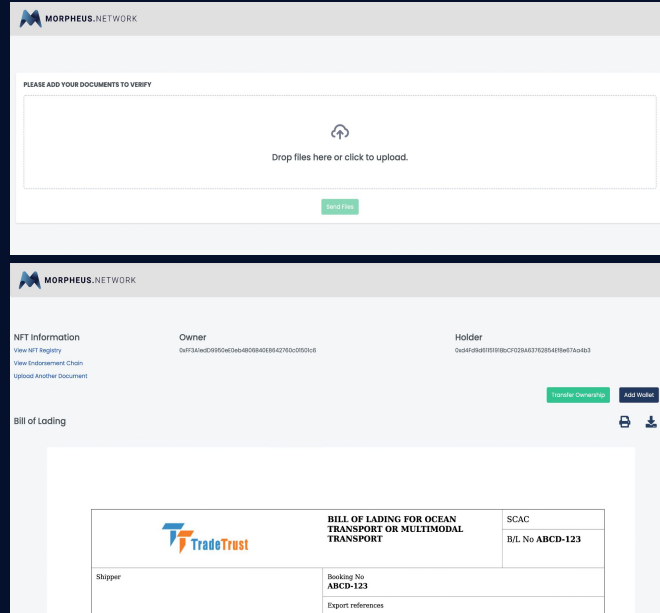
The screenshot shows a 'Welcome to the Supplier Portal' form. It is divided into 'Primary Contact Information' and 'Food Safety Contact Information' sections. The primary contact section includes fields for Supplier Name, Reference Number, Contact, Supplier Address, Contact Email, Main Phone No (with Country and Mobile Number dropdowns), Secondary Phone No (with Country and Secondary Mobile Number dropdowns), Type (dropdown), Location (dropdown), Product (dropdown), Owner (dropdown), and Division (dropdown). The food safety section includes fields for Email and Contact.

FLOW OF DOCUMENTS AND SERVICES



# Blockchain Based Doc / Certification Handling

- Cryptographically **verify ownership** of documents, preventing fraud.
- Blockchain-based **Endorsement Chain** tracks the ownership transfer of each document.
- **Complete confidence** in ownership



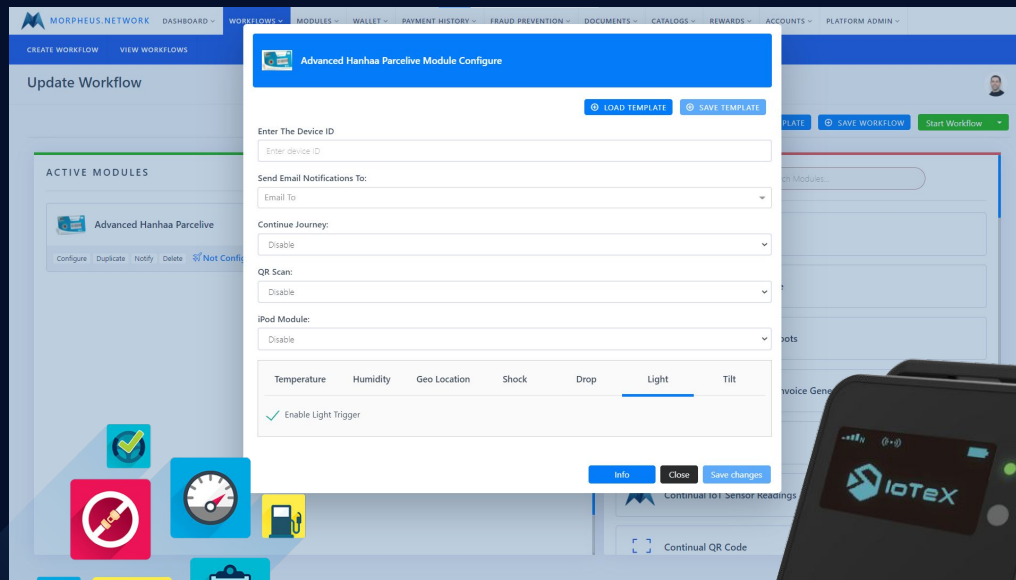
The interface is divided into two main sections. The top section is a document upload area with the heading 'PLEASE ADD YOUR DOCUMENTS TO VERIFY'. It features a large dashed box with a central upload icon and the text 'Drop files here or click to upload.' Below this is a green 'Select Files' button. The bottom section displays document details for a 'BILL OF LADING FOR OCEAN TRANSPORT OR MULTIMODAL TRANSPORT'. It includes fields for 'Owner' (0xP3a6eC5950e4eb4809840E8642761c0901c6), 'Holder' (0x4fd9d81151918bcf029a63762854ef8e67aac4b3), and 'NFT Information' (View NFT Registry, View Endorsement Chain, Upload Another Document). There are buttons for 'Transfer Ownership' and 'Add Wallet'. A 'Bill of Lading' section shows a 'Shopper' field and a table with shipping details.

BILL OF LADING FOR OCEAN TRANSPORT OR MULTIMODAL TRANSPORT		SCAC
B/L No ABCD-123		
Shopper	Booking No. ABCD-123	
Export reference		





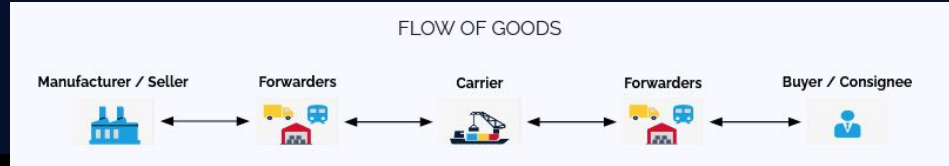
# IoT Enabling Geofence Triggers



- End-to-end traceability
- 100% visibility and tracking
- 1 device sensing:
  - Geolocation
  - Shock
  - Light
  - Temperature
  - Humidity



# Simple Geofence IoT Configuration



MORPHEUS.NETWORK DASHBOARD

CREATE WORKFLOW VIEW WORKFLOW

### Update Workflow

ACTIVE MODULES

- Document Exchange
- Advanced Hanhaa Pa

Continue Journey:

Disable

QR Scan:

Disable

iPod Module:

Disable

Temperature Humidity Geo Location Shock Drop Light Tilt

☐ Enable Temperature Trigger

Select the temperature range

Minimum Temperature: -5

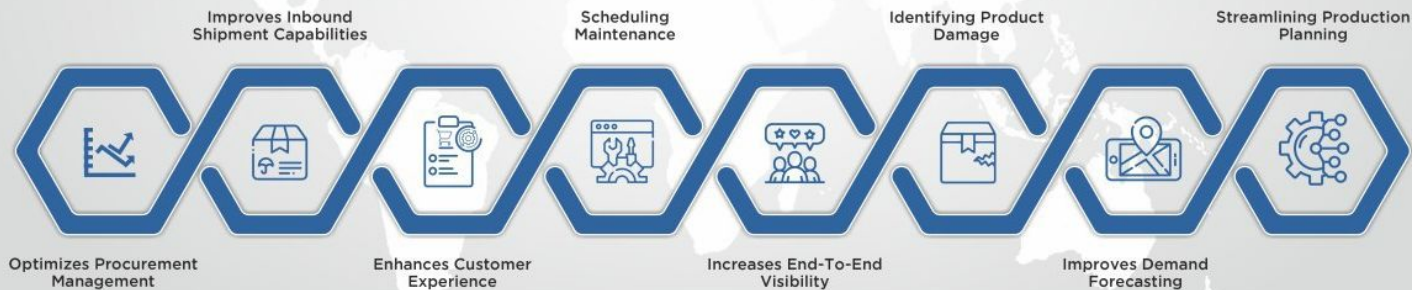
Maximum Temperature: 20

Module Complete: Module Complete Inside Range

Info Close Save changes



## BENEFITS OF MACHINE LEARNING IN THE **SUPPLY CHAIN** INDUSTRY



# Optical Character Recognition to Digitize (“OCR”)

Extract Dynamic and Actionable data from traditional paper documents.

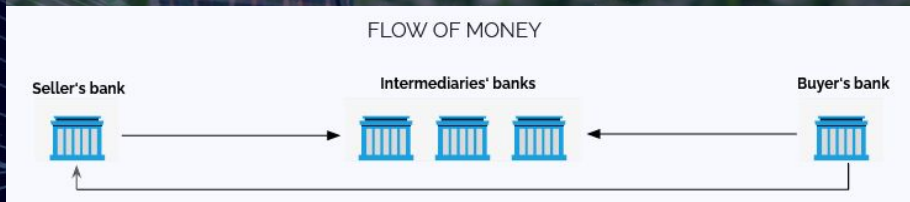
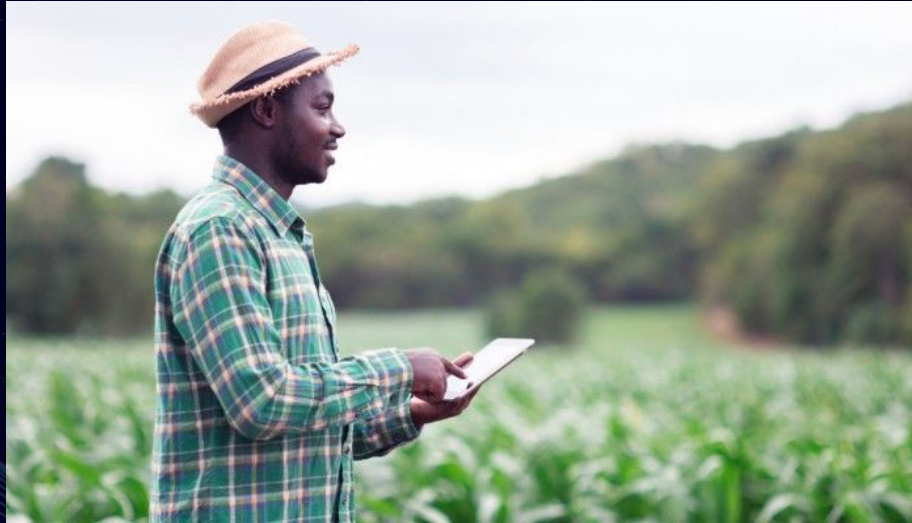
Optical Character Recognition or “OCR” Integration for FAST, ACCURATE, SIMPLE digitization of physical documents for use in automated workflows.



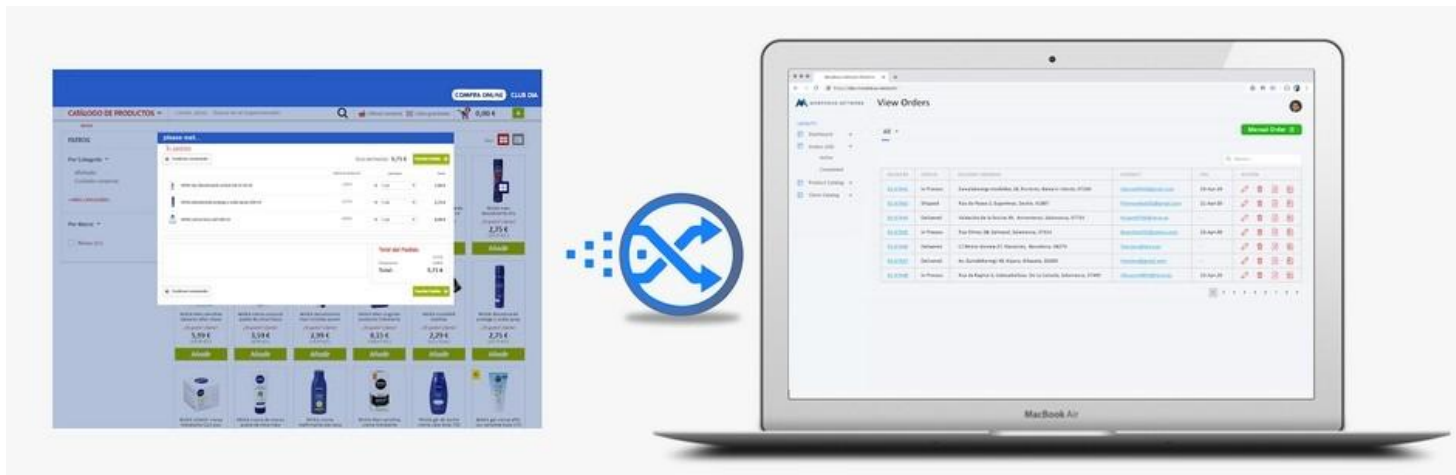


# The Banked & the Unbanked

Leveraging new technologies such as BLOCKCHAIN to connect stakeholders around the world. Critical in 3rd world nations to allow them to transaction.



# DIRECT API CONNECTIVITY TO LINKING ECOMMERCE PLATFORMS TO SUPPLY CHAIN EVENTS & AUTOMATION WITH DATA END TO END



REQUIRED SEAMLESS INTEGRATION FROM E-COMMERCE PLATFORMS TO ERPS (SAP, ORACLE, MS DYNAMICS, INFOR) AND LEGACY SYSTEMS IN PLACE (CSV IMPORTS, FLEXIBLE API)

# Middleware simplifies the technology integration effort for global supply chain automation

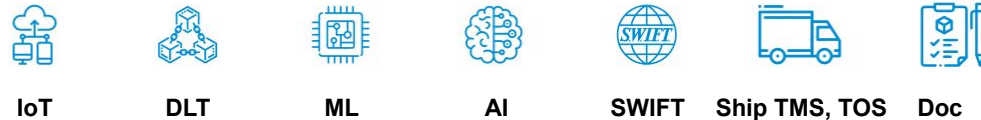
Frontend :  
**Client Side**



Backend:  
**Legacy Stacks**

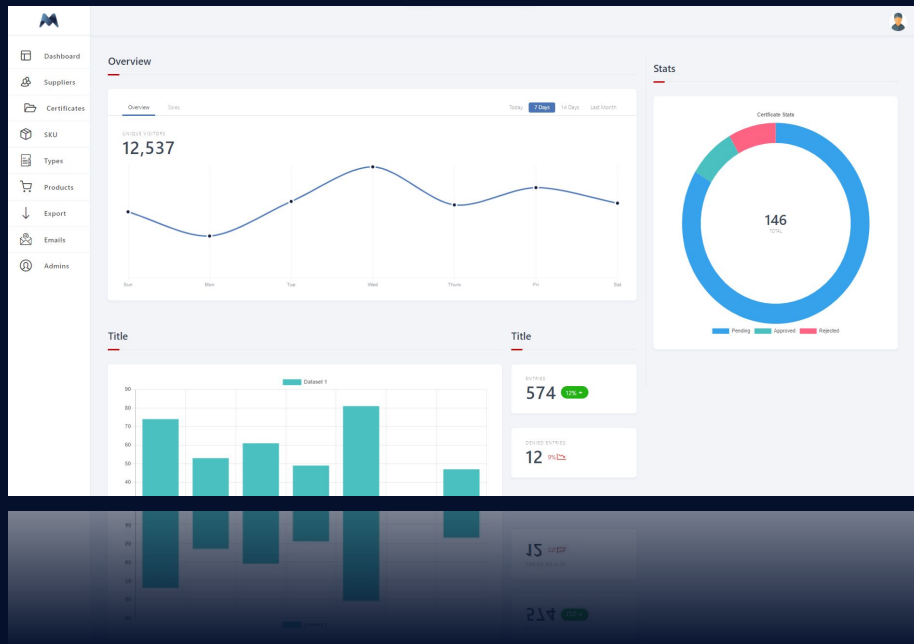


3d Party Technology  
Stacks



# Tech Stack Criteria Moving Forward

- **Interoperability** is key - Fluid Data Change (eg. Cloud-based, can be deployed in Amazon AWS, Microsoft Azure or Google Cloud).
- **Digital documentation** and signage tools (OCR, uploaders, DocuSign, etc).
- Blockchain backend, for an **immutable verification** trail and queryable data.
- Reporting system with **proactive notices** and alerts on issues.





# Global Impact – What is the bigger picture?

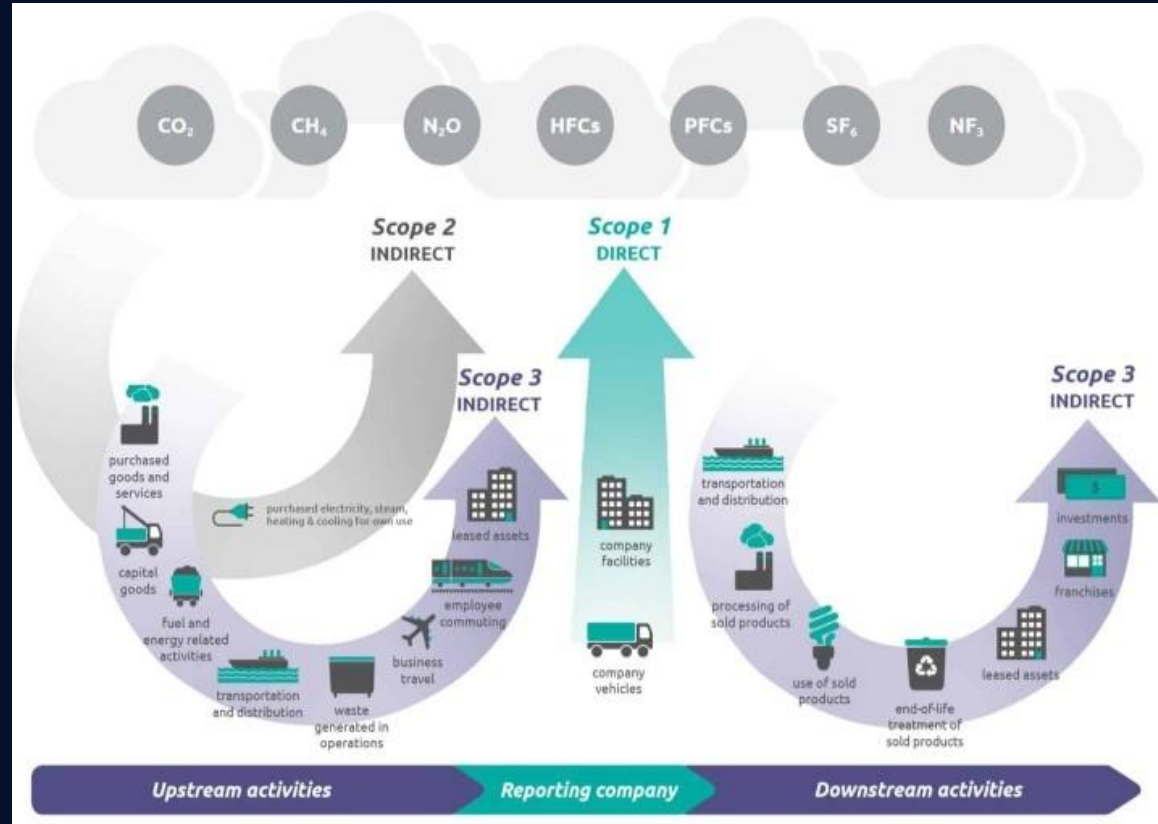
The Earth is choking at 400 ppm CO<sub>2</sub>  
with 40 billion tons of CO<sub>2</sub> being  
released into the atmosphere each year  
The Paris Agreement limits global  
warming to 2 C (or below!)

The EU has launched the Green Deal  
which targets 50% in CO<sub>2</sub> levels until  
2030 and Net Zero Carbon until 2050 for  
the block of 27 Nations

According to the EPA, supply chains  
often account for more than **90%** of  
businesses greenhouse gas (GHG)  
emissions.



# 80% of Sustainability Emissions Are In Your Value Chain





Digital  
Footprint

QR

Doc Gen

Notifications

Tracking

Multilingual

SWIFT

SDK

ML/OCR

IoT

IPFS



Workflow Builder

Middleware API

MNW

Mainnet

Sidechain



Ethereum

# Technology Will Influence Our Future



- Set a technology-neutral standard to report emissions (Interoperable, trusted data sources)
- Collaborative approach - Enterprise/Gov/Organizations - UN SDGs, INATBA's Environmental goals, Paris Agreement, EU "top down" CO2 emission reduction requirements
- Paperless, Optimized Supply Chain can save the planet



# Live Paperless Implementation: Cross-Border Automated Compliance



PAPs #



Custom Broker

PAPs #



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Physical Assets Cleared  
Across Border With PAP#



Hashed Encrypted PAP#  
Carrier Code & Shipment Control #





# Live Paperless Implementation: Food Certification System



The background of the slide is a photograph of a CO-OP grocery store. The top half shows the interior with shelves stocked with various food items, including bags of chips and boxes of cereal. The bottom half shows the exterior of a CO-OP store with a prominent red sign featuring the CO-OP logo.

**Supplier Dashboard**

**Federated Co-operatives Limited**

**Upload**

**Welcome to FCL Food Certification**

FCL is a wholesaling, manufacturing, marketing and administrative co-operative owned by more than 170 independent retail co-operative associations. These retail co-ops own and operate many grocery, food stores, gas stations, health stores and home centres.

**CO-OP**

**MORPHEUS.NETWORK**

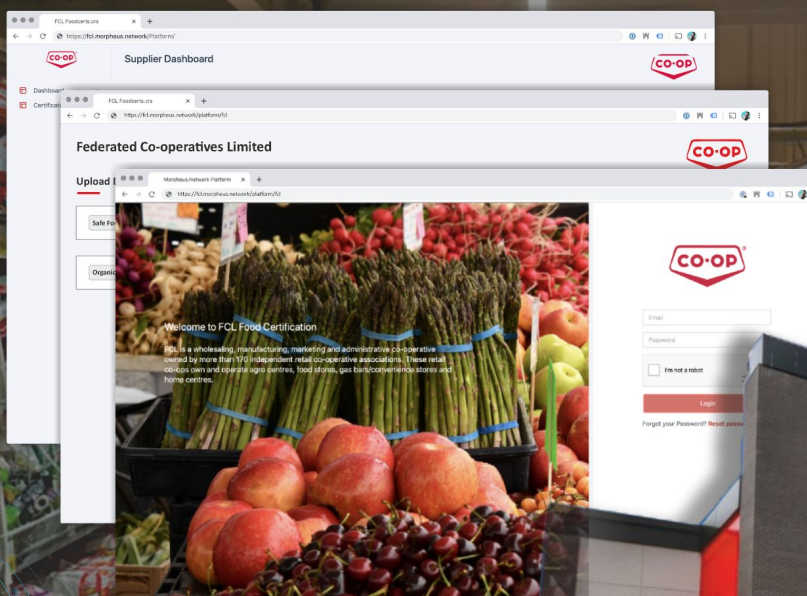
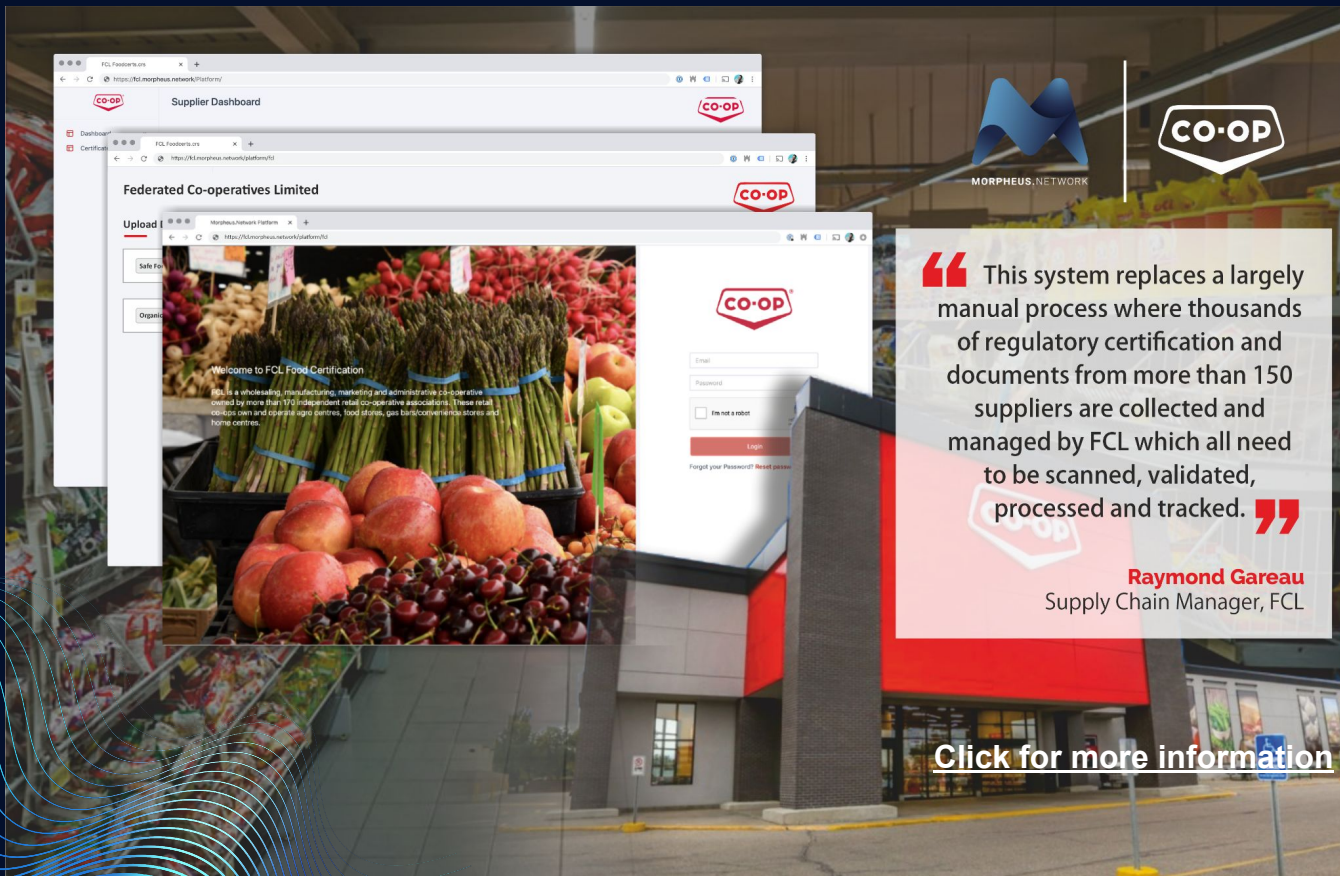
**REVENUE OF \$9.2 BILLION USD 2019**

**TOP 50 LARGEST COMPANIES IN CANADA**

**23,000 EMPLOYEES**



# Live Paperless Implementation: Food Certification System



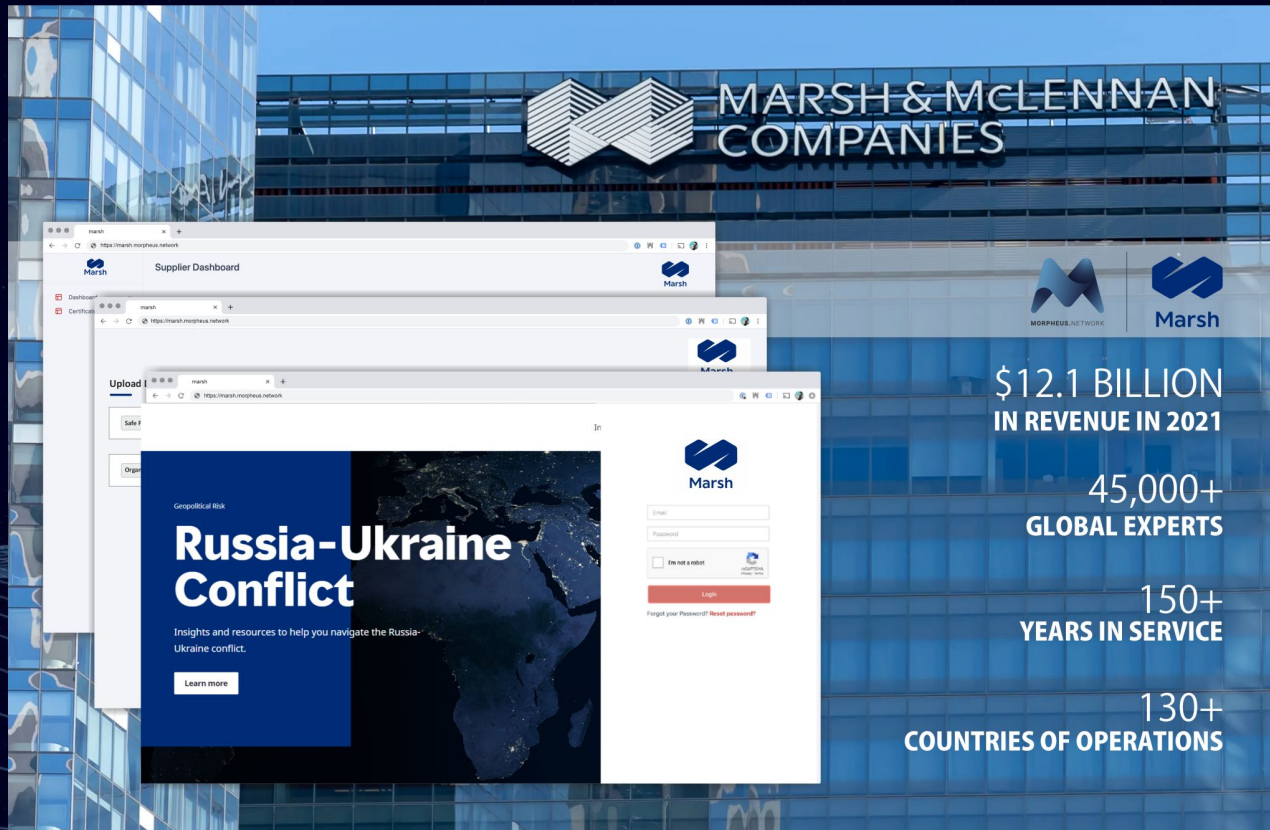
**“** This system replaces a largely manual process where thousands of regulatory certification and documents from more than 150 suppliers are collected and managed by FCL which all need to be scanned, validated, processed and tracked. **”**

**Raymond Gareau**  
Supply Chain Manager, FCL

[Click for more information](#)



# Live Paperless Implementation: 1-Click Insurance Certificates



The image features a background of a modern glass skyscraper. Overlaid on this are several screenshots of the Marsh website. The top screenshot shows the 'Supplier Dashboard' with the Marsh logo. Below it, another screenshot shows a 'Russia-Ukraine Conflict' article with the headline 'Geopolitical Risk Russia-Ukraine Conflict' and a sub-headline 'Insights and resources to help you navigate the Russia-Ukraine conflict.' A third screenshot shows a login form with fields for 'Email' and 'Password', a checkbox for 'I'm not a robot', and a 'Login' button. To the right of the screenshots, there are four statistics listed vertically.

**MARSH & MCLENNAN  
COMPANIES**

**\$12.1 BILLION  
IN REVENUE IN 2021**

**45,000+  
GLOBAL EXPERTS**

**150+  
YEARS IN SERVICE**

**130+  
COUNTRIES OF OPERATIONS**



# Live Paperless Implementation: Port Operator API Hub – Automation by Integration (TOS, TMS)





MORPHEUS.NETWORK



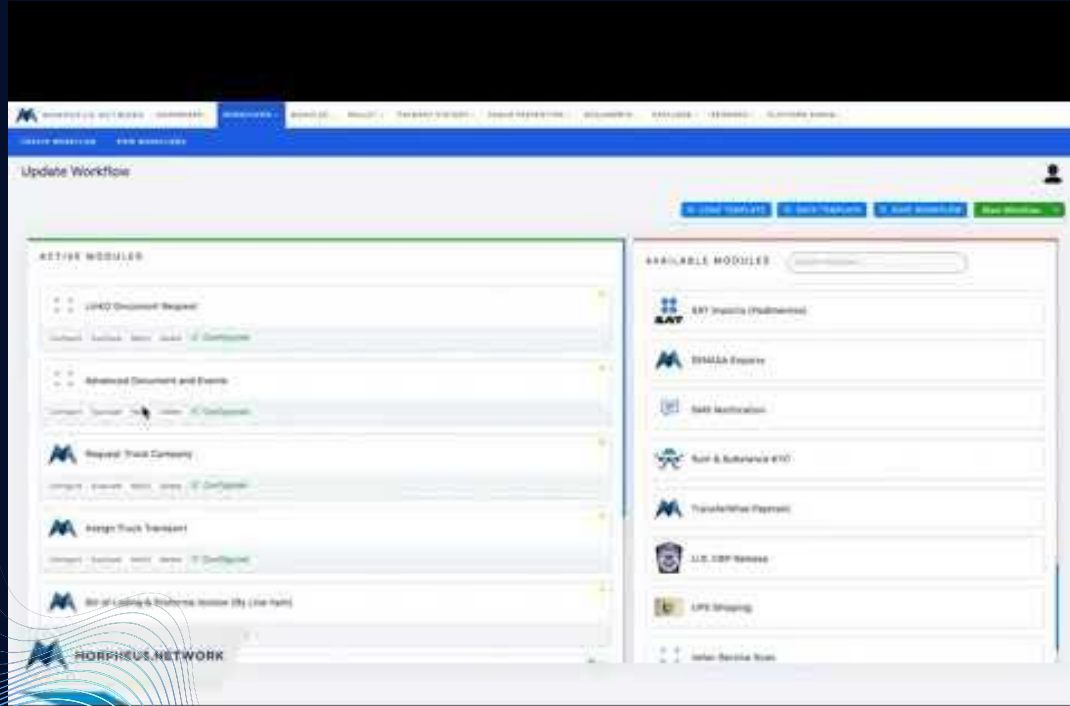
Gulfair

Gulfair is the world's largest privately owned independent port operator. Its global footprint spans the Middle East, Europe, and the Americas, including operations in the UAE, Iraq, Saudi Arabia, Lebanon, and the USA.

[Click for more information](#)

# Demonstration of Technology Interoperability for Paperless Trade

## Blockchain, IoT (EMERGING), QR, RFID, ERP systems (LEGACY)



# Key Criteria In Tech Systems to Look For



## Ease of integrate

---

No proprietary system, **no lock-ins** and no need to replace established legacy systems and IT architecture.

The result: Fast setup and minimized switching costs



## Trusted data

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Blockchain backend for **secure data notarization** without the hassle of setting up wallets or tokens.

Decentralized data clearing removes a single point of failure and reduces costs of data exchange.



## Adaptable

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**Third-party integrations for diversified solutions** and automated end-to-end processes.

Flexible, customizable modular architecture suited to clients of all sizes, verticals and supply chains

AND **EASY TO USE!**

# Morpheus.Network - Core Team



100+ Years of Combined Industry Experience in Supply Chain, information security, global trade, and business development.



**DANNY WEINBERGER**  
Co-founder and CEO

20 years in global trade



**NOAM EPPEL**  
Co-founder and COO

20 years in web development  
and internet security



**ROGER CROOK**  
Team Lead for Global  
Logistics

Former CEO DHL, CEO  
Springboard Capital



**KARL MCDERMOTT**  
Global Head of Business  
Development

Former SaaS Logistics CEO

# Morpheus.Network - Awards & Recognition





**MORPHEUS.NETWORK**

**THANK YOU!**

Dan Weinberger

Chief Executive Officer & Co-Founder

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Phone: 1-877-771-8222