

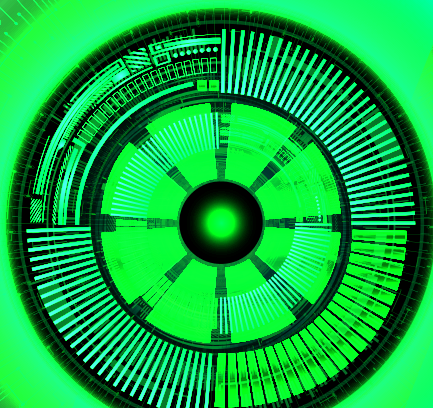


A PALLETEARTH WHITE PAPER

# UNLOCKING EFFICIENCY: HOW AI IS DELIVERING TANGIBLE SAVINGS THROUGH REVOLUTIONISING LOGISTICS.

APRIL 2024

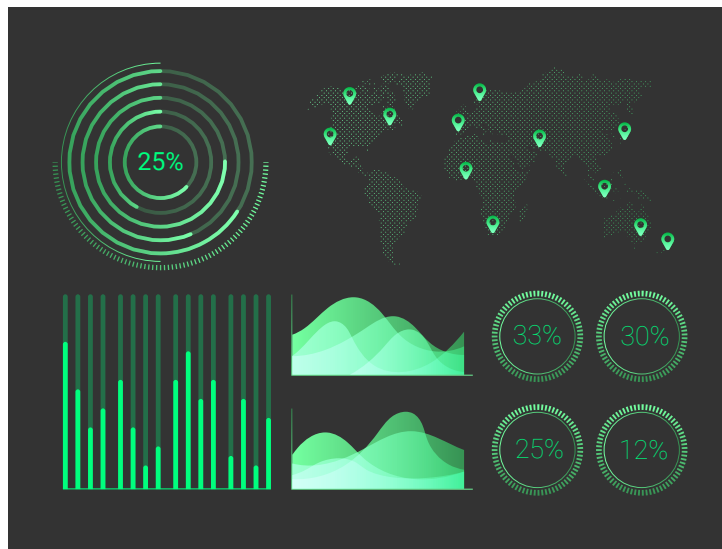
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# UNLOCKING EFFICIENCY: EXECUTIVE SUMMARY

Artificial intelligence (AI) is now optimising every step of an item's journey. By embracing AI, the logistics sector can take advantage of significant benefits, including:

- REDUCED FUEL COSTS
- LOWER CO2 EMISSIONS
- MORE TIMELY DELIVERIES
- IMPROVED SAFETY
- GREATER WAREHOUSE/PORT EFFICIENCY
- OPTIMISED INVENTORY MANAGEMENT
- BETTER DEMAND FORECASTING



## COST SAVINGS CAN BE IMMEDIATE

The up-front costs of adopting AI can be considerable. Companies need to know there will be a return on their investment (ROI). Case studies of AI in action demonstrate how well-implemented AI technology can lead to immediate cost savings and a rapid ROI.

- MAERSK'S WAREHOUSE ROBOTS HAVE TRIPLED SORTING SPEED AND IMPROVED PICK-UP BY 33%
- AUTONOMOUS FORKLIFTS AT DHL DISTRIBUTION CENTRES HAVE CUT DAMAGE CLAIMS BY 30%
- AI ROUTE OPTIMISATION HAS LED TO 25% LOWER TRANSPORT COSTS FOR TRANSMETRICS CLIENTS
- WEATHER TRACKING HAS CUT SEANERGY'S FUEL CONSUMPTION BY 12%
- TRACKING GOODS USING PALLETEARTH'S MATERIAL INTELLIGENCE CAN HAVE A 25% ROI IN YEAR ONE

## RUNNING THE NUMBERS ON AI ADOPTION

Companies must make careful decisions and choose the right partners to successfully implement AI solutions.

This means first identifying pain points, then analysing the market offerings to get a sense of what problems could be solved and how. Cost-benefit analysis and forecasting are essential to make the best long-term investment decisions – weighing up the realistic costs against the most accurate possible forecasting of gains. Plus, non-financial benefits must also be factored in, like reputational protection and compliance.

Get it right, and the benefits should quickly be felt. One recent study found that logistics leaders report short-term performance gains of up to 20% after implementing new technology, along with revenue gains of up to 10% within two years.

Now is the time to invest in AI logistics technology to boost your brand and cut costs.

## INTRODUCTION

# HOW AI IS DELIVERING IMPROVEMENTS FOR THE LOGISTICS SECTOR

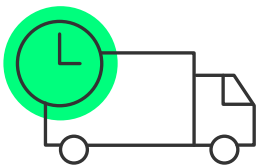
Less waste, fewer delays, bigger margins – the possibilities for artificial intelligence (AI) in the supply chain are almost limitless. Every step of an item's journey can be optimised, reducing delays, cutting waste, and trimming costs.

These small benefits accumulate from end to end throughout the supply chain, adding up to major savings of time and money, helping to drive profitability for brands.

Goods arrive in better condition, in a timelier manner, and with more predictability. End customers are happier and their perception of a brand improves. Adopting AI can set a business apart, establishing a reputation for excellence that allows for premium pricing and high customer retention.

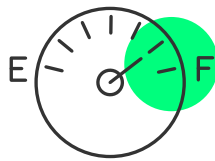
There are upfront costs, but the returns are immediate on many applications. The biggest cost is likely to be doing nothing – laggards will be left behind as the industry embraces AI at every point of an item's journey.

## ADVANTAGES OF AI ADOPTION IN THE SUPPLY CHAIN



### MORE TIMELY DELIVERIES

With machine learning optimising schedules.



### REDUCED FUEL COSTS

Thanks to optimised loads and routes.



### IMPROVED SAFETY

Due to AI wearables and risk analysis.



### REDUCED CO2 EMISSIONS

With lower fuel use and improved efficiency.



### GREATER WAREHOUSE/PORT EFFICIENCY

As AI models optimise use of space and movements.



### OPTIMISED INVENTORY MANAGEMENT

From real-time tracking and automated documentation.



### BETTER DEMAND FORECASTING

Data plus generative AI creates accurate demand predictions.

# FROM NEGOTIATION TO DELIVERY: AI IN ACTION

The early adopters of AI technology in the logistics sector have already seen major gains. Research by McKinsey<sup>1</sup> found that companies that implemented AI-enabled supply chain management before 2021 experienced a 15% reduction in costs.

You can see AI already in use throughout the global supply chain, from warehouse robots to autonomous forklifts to route optimisation. At each point, its use is reducing costs, improving profitability and productivity.

## ROBOTS FOR FASTER ORDERS

Shipping goliath Maersk uses generative AI to streamline its contract negotiations with suppliers, saving time. Its UK warehouses have AI-enabled robots that pick and pack orders. The robots have tripled sorting speed and improved pickup by 33%. The company plans to have AI handling up to 80% of its logistics tasks by 2030, with a stated goal of 'zero-touch logistics'.<sup>2</sup>

## DRIVERLESS FORKLIFTS REDUCE DAMAGE

DHL uses autonomous forklifts to handle up to 90% of inbound freight at its distribution centres, unloading trailers and reducing manual pallet transfers. The robot forklifts are extremely careful with cargo; their use has resulted in a 30% reduction in damage claims. Because they don't need breaks, they've also improved productivity and helped to address the shortage of qualified forklift drivers.<sup>3</sup>

## ROUTE OPTIMISATION REDUCES TRANSPORT COSTS

Transmetrics uses AI tools to provide forecasting and route optimisation for commercial vehicles. The company says its logistics clients achieve up to 25% reductions in transport costs alongside a 14% increase in fleet utilisation.<sup>4</sup>



## WEATHER TRACKING LEADS TO BIG SAVINGS ON FUEL

By analysing weather and route planning data, DeepSea Technologies has developed Pythia, a performance routing platform that optimises a route for each individual vessel. This has helped Seenergy's capesize vessels achieve a 12% reduction in fuel consumption, with average cost savings of 8%.<sup>5</sup>

## PALLET TRACKING PINPOINTS ISSUES TO BOOST BRAND

Major produce brands use PalletEarth's Material Intelligence tracking to reduce losses and delays – and pinpoint weak points in the cold chain. Recently a global fruit exporter discovered a shipment of its berries had arrived in suboptimal condition, and fingers were being pointed.

Pallet tracking allowed the brand to see that the fruit had been left out on the wharf for three hours in the country of origin. This meant the problem was correctly attributed and remedied, putting an end to the 'blame game'. Subsequent losses were reduced by around 5%, helping boost the brand's reputation in the destination market.

**“NOW IS THE TIME TO INVEST IN LOGISTICS TECHNOLOGY”<sup>6</sup>**

<sup>1</sup>-McKinsey & Company, April 2021, Succeeding in the AI supply-chain revolution, [www.mckinsey.com/industries/metals-and-mining/our-insights/succeeding-in-the-ai-supply-chain-revolution](http://www.mckinsey.com/industries/metals-and-mining/our-insights/succeeding-in-the-ai-supply-chain-revolution)

<sup>2</sup>-AIX, August 2023, Case Study: Maersk's Innovative Use of AI in Global Shipping, <https://aixpert.network/case-study-maersk-innovative-use-of-ai-in-global-shipping>

<sup>3</sup>-Fox Robotics, July 2023, How DHL Supply Chain uses the FoxBot Autonomous Forklift, <https://www.youtube.com/watch?v=FflaQ9cBX0s>

<sup>4</sup>-Europawire, January 2022, Transmetrics AI is Applied by DB Schenker to Improve Land Transport Network in Bulgaria, <https://www.europawire.eu/transmetrics-ai-is-applied-by-db-schenker-to-improve-land-transport-network-in-bulgaria-613913000/eu-press-release/2022/01/24/06/00/00/96277/?amp>

<sup>5</sup>-DeepSea, (n.d.), DeepSea Technologies has partnered with Seenergy Maritime Holdings Corp. to develop, test, and improve Pythia, [deepsea.ai/news/news-category/pythia-performance-routing-platform](https://www.deepsea.ai/news/news-category/pythia-performance-routing-platform)

<sup>6</sup>-McKinsey & Company, November 2023, Digital logistics: Technology race gathers momentum, [www.mckinsey.com/capabilities/operations/our-insights/digital-logistics-technology-race-gathers-momentum#/](http://www.mckinsey.com/capabilities/operations/our-insights/digital-logistics-technology-race-gathers-momentum#/)

# THREE STEPS TO AI ADOPTION

Excellent AI solutions to shipping and logistics problems already exist. Businesses looking to adopt more machine learning can easily turn to technology partners and platforms for immediate results. Here are three tips for getting started:

## 1. WHERE ARE THE PAIN POINTS?

Each company is different depending on the type of goods being moved and their value.

Consider where you are spending money to solve problems, or where small problems are leading to regular headaches for your team.

## 2. WHAT SOLUTIONS ARE AVAILABLE?

Analyse the market offerings; only the largest companies need custom solutions – for the majority, an out-of-the-box product will do everything required. Consider the options, their pros and cons, and the costs.

## 3. IS THIS A GOOD INVESTMENT FOR THE LONG TERM?

There is typically an up-front cost to investing in new technologies, from the time invested in researching the options through to regular ongoing platform costs.

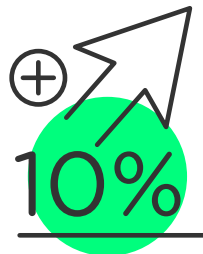
The costs must be weighed up against the long-term benefits of adopting new systems and these aren't always easy to forecast.

Get advice where required to make the most accurate possible forecasts of potential savings, allowing the company to get the full picture of the financial benefits of the technology. Plus, non-financial benefits must also be factored in, such as reputational protection and compliance.



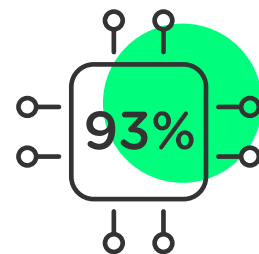
**UP TO 20%  
PERFORMANCE GAINS**

Short-term impact of technology.



**UP TO 10%  
REVENUE INCREASE**

Within 2 years of implementing digital tools.



**93% PLAN TO  
INVEST MORE**

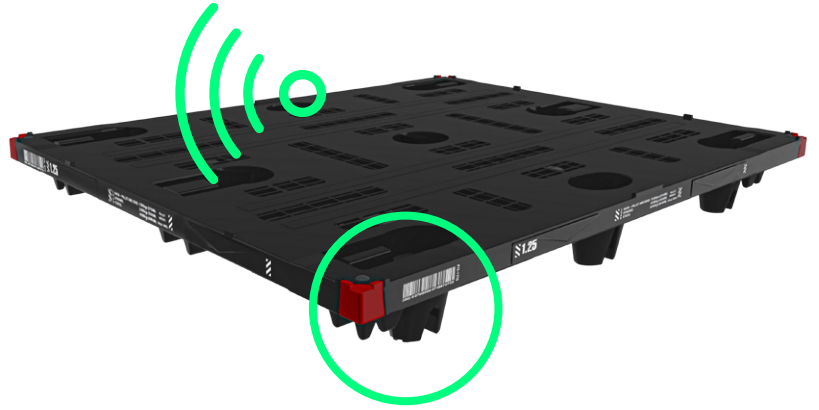
In digital technologies and AI.

# PALLETEARTH'S MATERIAL INTELLIGENCE: MEASURABLE RETURNS






PalletEarth's Material Intelligence (MI) provides global tracking on every pallet. Each pallet has a unique GS1 barcode that links it directly to a customer's supply chain software, so they can see their goods location, temperature and impact status clearly on their own in-house platform.

This smart pallet approach provides data globally 24/7. There is no device recharging, no device installation or removal, no special readers, no requirement to go past gateways and, importantly, no loss of data or recording devices. It all happens automatically without human intervention.

This provides gate to plate traceability and visibility throughout the entire supply chain at an affordable price – from 2.3 cents per day per pallet.



## SMART PALLET SERVICES

 SMART LOCATOR	 SMART ALERTER	 SMART SCANNER APP	 SMART BILLING	 SMART API
Improve pallet utilisation	Identify major supply chain events that impact on supply chain waste	Find pallets and goods using handheld devices anywhere	Automatically identify pallet costs for each customer	Industry standard secure REST API
Improve pallet security	Impact alerts	Reduce time spent finding pallets/stock	Geofence location driven	Integrated pallet movements into your dataset
Reduce product theft	Temperature alerts	Reduce stocktake times	Summary and detail reporting by location	Query temperature/impacts over time
Reduce LEC charges	Pallets out of location		Highly customisable to meet your business needs	Push product and logistics data to the pallet
Improve customer service	Enhance customer service		Simplify customer relations with easy to understand and transparent charges	Automate pallet utilisation decisioning
Reduce pallet administration costs	Enhance dispute resolution			
	Optimise pallet utilisation			

# MATERIAL INTELLIGENCE IN ACTION: ACHIEVING A 25% ROI

A customer whose perishable products take 180,000 annual journeys could achieve a 25% return on investment by switching to PalletEarth:

COSTS	
Annualised cost of tracking per pallet per day	\$0.026
Total annual spend on pallets and tracking	\$283,531
SAVINGS	
Annual saving in reduction in lost pallets (previously 2.5% pallets lost)	\$56,250
Annual saving from pallet efficiency; reduced dwell and improved coordination reduces the number of pallets required.	\$144,540
Annual saving from reduced loss or damage in transportation (0.215 % of total export value)	\$154,800
<b>TOTAL SAVINGS</b>	<b>\$355,590</b>
Net value of MI to customer annually	\$72,059
<b>RETURN ON INVESTMENT</b>	<b>25%</b>

For more information on PalletEarth's MI contact the team at

✉ [info@palletearth.com](mailto:info@palletearth.com)

🌐 [palletearth.com](https://palletearth.com)