

**pudo**

# Transforming E-Commerce Logistics with Wearable IoT and AI

A PUDO & Thread in Motion Success Story



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## ACTION

# The PUDO Ecosystem: Redefining Last-Mile Logistics

Operating the most extensive smart delivery network in the region, PUDO manages over 1,200 intelligent delivery points across 9 major cities. Their 7/24 omnichannel model eliminates chronic traffic congestion and carbon emissions inherent in traditional last-mile delivery.



### Scale & Proximity

Over 10 million users within a 10-minute walking radius.



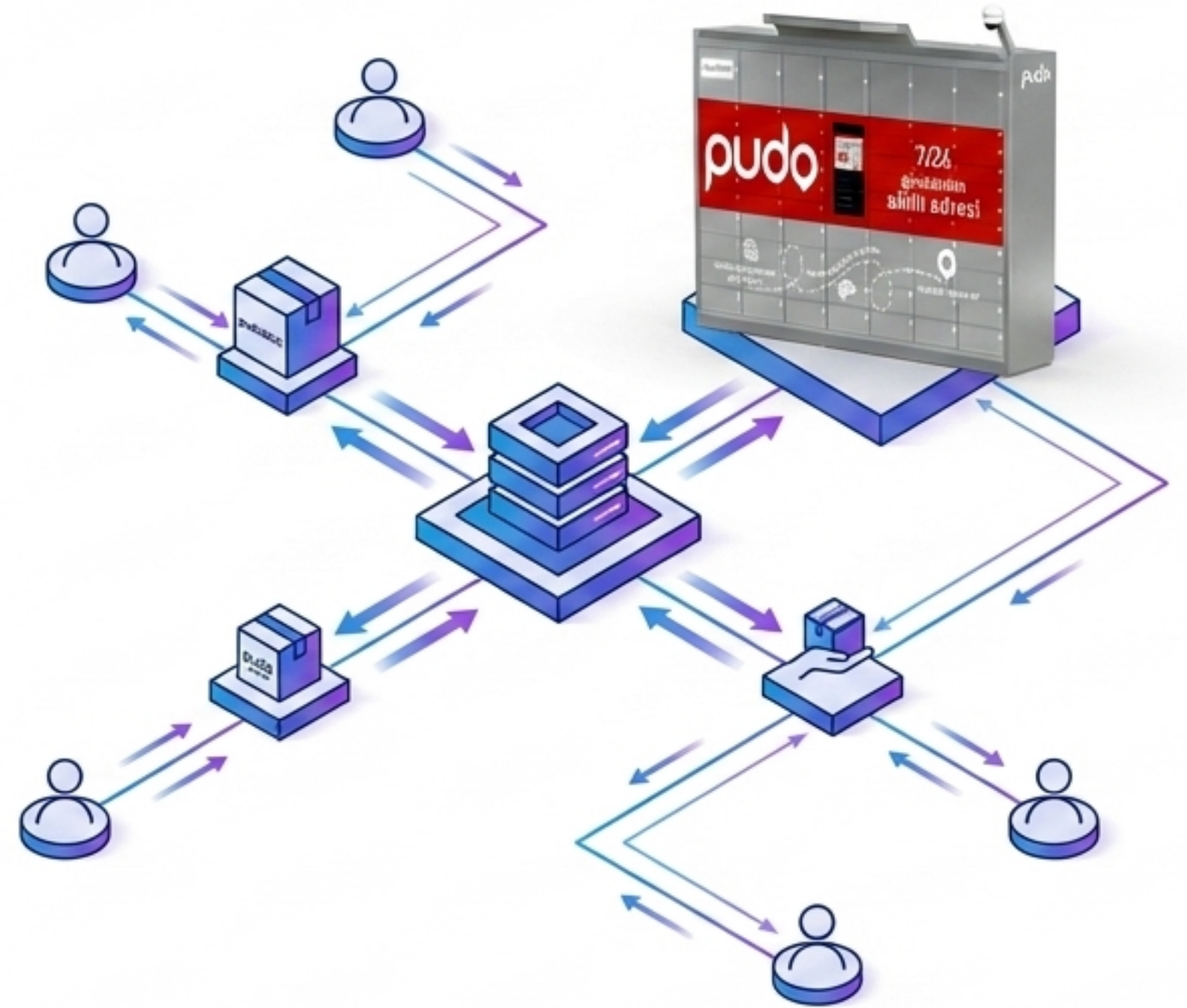
### Omnichannel Flexibility

Seamless integration of pudoBOX, pudoTESLIMAT, and pudoIADE models.



### Operational Imperative

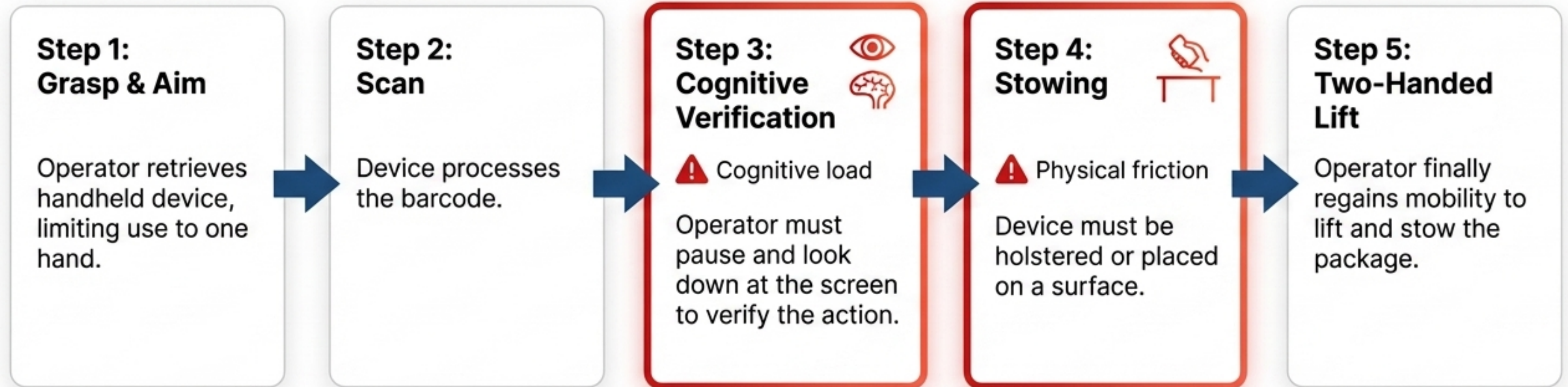
Customer-facing speed demands flawless, millisecond-precision backend sorting, picking, and inbound/outbound orchestration.



# The Hidden Costs of Operational Friction

Legacy handheld terminals weighing 300–500g physically restrict natural human mobility, breaking the critical Just-in-Sequence flow required for modern e-commerce logistics.

## The Anatomy of a Micro-Delay



When multiplied by hundreds of thousands of daily scans, these micro-delays create massive systemic capacity loss and cumulative physical fatigue.

# From Manual Operations to Intelligent Automation: Hardware Ergonomics

VegaX eliminates the physical constraints of legacy terminals, transforming the operator's hand into an intelligent, data-capturing extension of the warehouse system.

## Featherweight Architecture

Weighing only 45g, it restores 100% natural hand mobility and effectively eliminates asymmetrical muscle fatigue.

## Hands-Free Operations

Operators seamlessly lift, sort, and steer equipment without breaking workflow to manage a device.

## Multi-Range Scanning Engine

Adaptive SR/MR/FR optics allow flawless barcode capture from 5 centimeters to 10 meters, adapting instantly to varying warehouse environments.

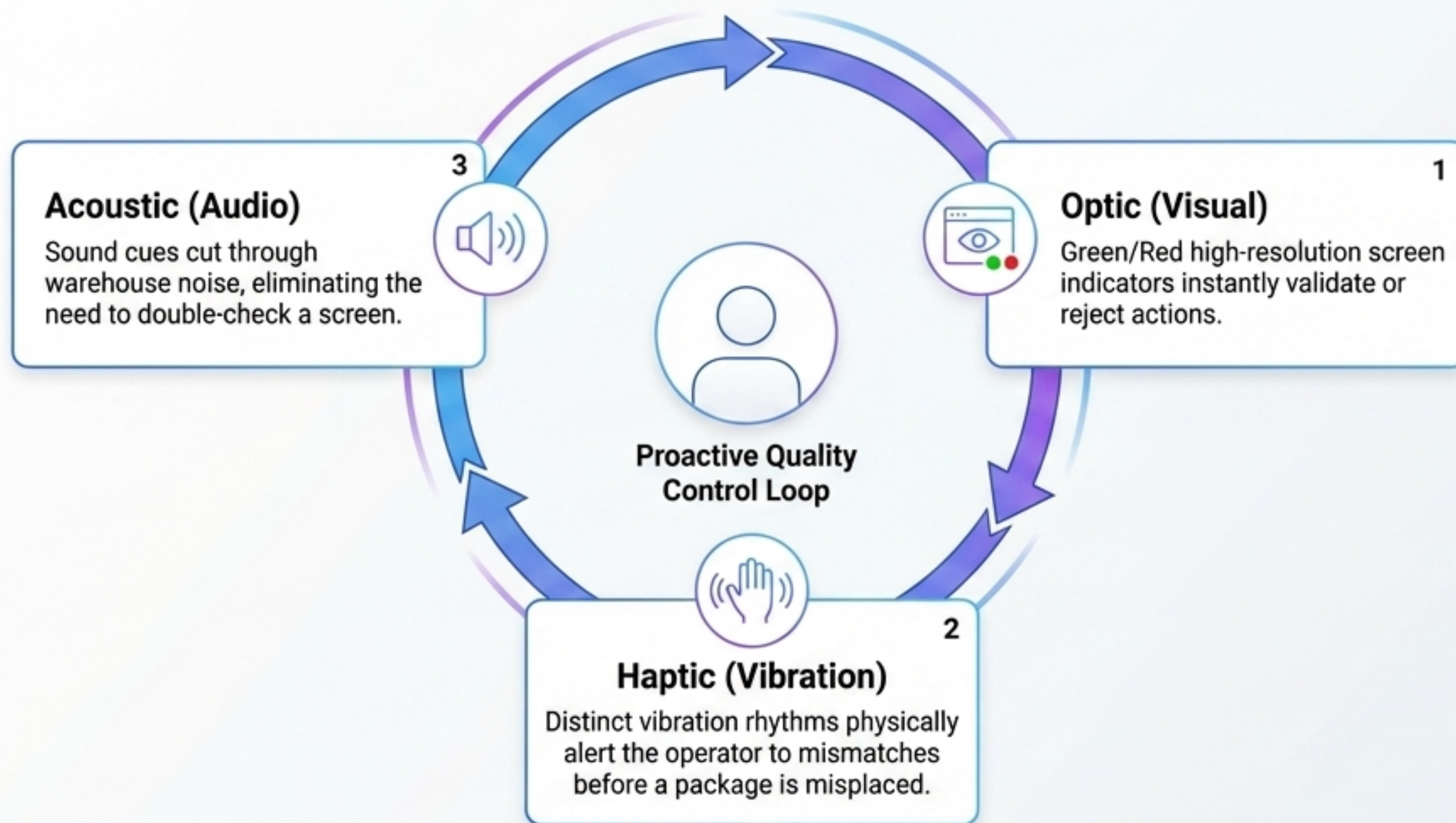


Action Title

# Digital Transformation: Proactive Quality Control and IoT Connectivity


Core Insight

Shifting from reactive error correction to proactive mistake-proofing (Poka-Yoke) through real-time, multi-sensory feedback.



## Enterprise Connectivity & Power

 **Hybrid Network**  
Dual LoRa® and Wi-Fi/Bluetooth infrastructure ensures zero-packet-loss communication in high-interference metal racking environments.

 **Unlimited Power**  
Hot-swappable batteries allow zero-downtime continuous operation across overlapping shifts.

## ACTION

# Measurable Impact: Compounding Micro-Savings into Enterprise Capacity

### Speed & Capacity

**3-4 Seconds**

### Saved Per Scan

Eliminating the grasp-and-stow loop organically expands daily processing capacity without requiring additional headcount or extended shifts.

### Accuracy & Traceability

**Up to 66%**

### Reduction in Operational Errors

Proactive mistake-proofing prevents misroutings at the source, drastically reducing reverse logistics costs and protecting delivery SLAs.

### Ergonomics & OHS

**100%**

### Natural Hand Mobility Restored

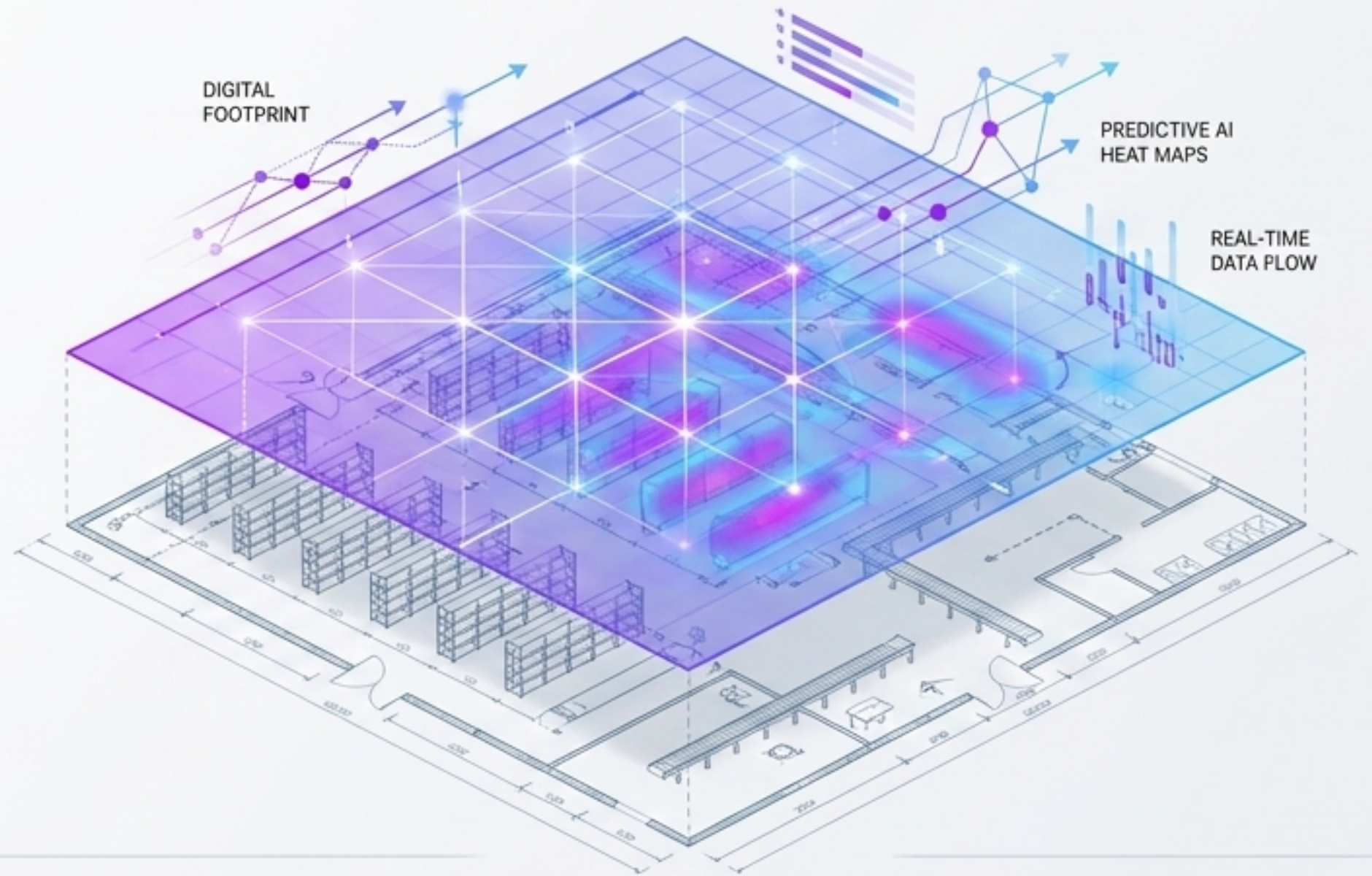
Replacing 500g terminals with a 45g wearable eliminates cumulative joint stress, boosting shift endurance and meeting advanced workplace safety standards.

## Paradigm Shift: Before vs. After Diagnostic Matrix

	Legacy Handheld Terminal	VegaX Industry 4.0 Standard
Ergonomics & Mobility	Forced one-handed operation; asymmetrical physical strain (300g+).	<b>100%</b> hands-free operation; weightless integration (45g).
Process Flow (Time)	Fragmented workflow with micro-delays for device handling.	Continuous Just-in-Sequence fluidity; <b>3-4 seconds</b> gained per interaction.
Quality Control	Reactive validation requiring cognitive focus on a screen.	Proactive mistake-proofing via simultaneous haptic, acoustic, and optic feedback.
Data Integration & Traceability	Intermittent, station-based Wi-Fi synchronization.	Real-time edge-to-cloud traceability via hybrid IoT protocols.

# A Strategic Leap Towards Industry 5.0 Data Autonomy

The integration of VegaX transforms PUDO from a high-performing logistics executor into a predictive, data-driven technology pioneer.



## End-to-End Traceability

Every millisecond, location coordinate, and operator action generates a flawless digital footprint, illuminating operational blind spots.



## Predictive Resource Allocation

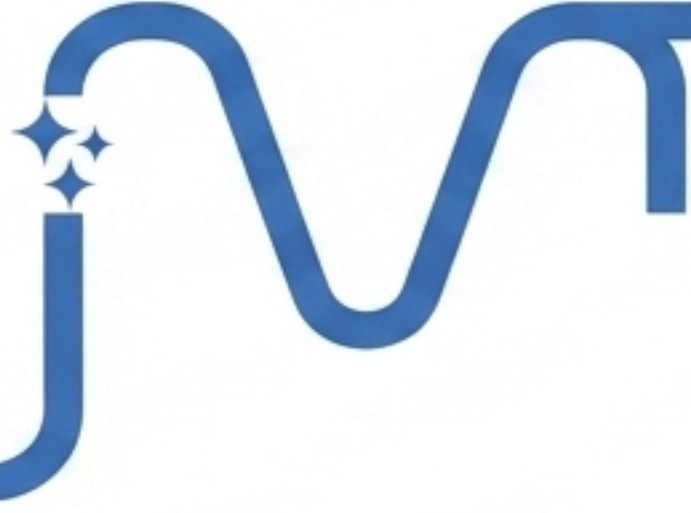
Edge computing and continuous big data flow allow AI algorithms to generate real-time heat maps, anticipating bottlenecks before they manifest.



## Human-Centric AI Symbiosis

Moving beyond Industry 4.0 automation, the system establishes an Industry 5.0 standard where AI proactively supports, rather than replaces, human operators, ensuring infinite scalability.

THREAD IN MOTION



# GET IN TOUCH WITH US

## Website

[www.threadinmotion.com](http://www.threadinmotion.com)

## Phone

+44 20 4587 4397

## E-mail

[info@threadinmotion.com](mailto:info@threadinmotion.com)

## HQ address

7 Henrietta Street, WC2E 8PS,  
London, United Kingdom