

EKOL LOJISTIK SUCCESS STORY

# Transforming E-Commerce Logistics with Wearable IoT and Cyber-Physical Integration

Achieving hands-free continuous flow and zero-error operations in high-volume fulfillment.

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Transformation Partner

# Ekol Lojistik drives global supply chains, requiring execution at the absolute limits of speed and precision.

As a premier 3PL and supply chain provider operating across 15 countries, Ekol Lojistik defines industry standards. Managing hyper-dynamic e-commerce operations for global brands, Ekol's model relies on seamless integration between physical warehouse logistics and advanced data architecture. To sustain a "Daha İyisi İçin" (For the Better) methodology, continuous optimization is a strategic imperative.

**15**

**Countries**

Integrated intermodal network span

**1,000,000+**

**sqm**

Total distribution center capacity

**6,500+**

Multi-national, high-performance workforce

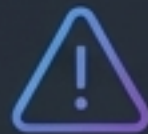
# Traditional handheld terminals introduced critical micro-delays and ergonomic friction into high-speed Q-Commerce workflows.

Despite a robust SAP ERP backbone, Ekol identified a physical bottleneck. In Q-Commerce, legacy hardware compromised continuous workflow and execution speed.



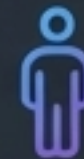
## The 'Pick-Up/Put-Down' Waste

Handheld scanners (weighing 300-500g) occupy one hand. The constant need to put down the device to grasp and pack items creates massive cumulative time losses over a shift.



## Human Error Vulnerability

Interrupted manual workflows break cognitive focus. This lack of a hands-free, continuous motion leaves microscopic windows for mis-picks or incorrect routing.



## Cumulative Physical Fatigue

The repetitive gripping and lifting of heavy traditional terminals compounds physical stress, introducing the risk of long-term ergonomic issues (e.g., carpal tunnel syndrome).

# Deploying VEGA-X transformed the physical workforce into a connected, hands-free node within the digital ecosystem.

Moving beyond incremental upgrades, Ekol deployed Thread in Motion's VEGA-X smart glove—a wearable computer mapping perfectly to human anatomy.

## Ergonomic Anatomy

Weighing only 45 grams, the "tiny hand computer" eliminates musculoskeletal strain, creating a weightless, "hands-free" user experience.

## Continuous Power

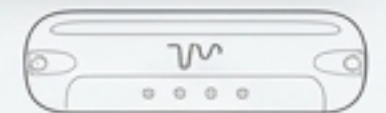
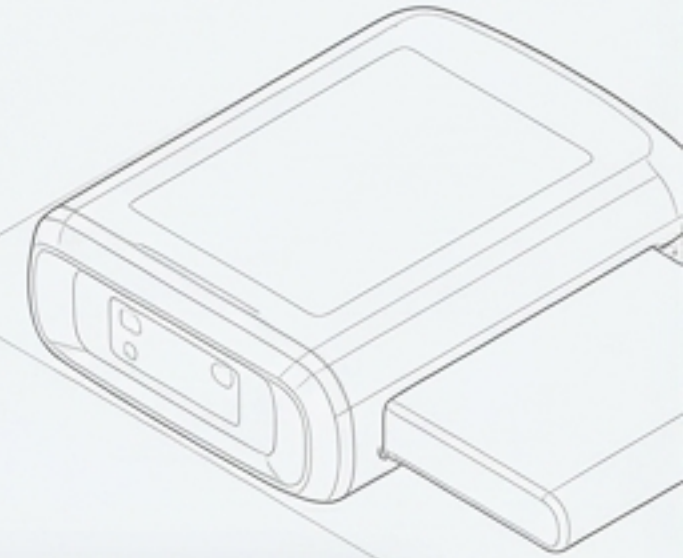
Removable 450mAh lithium-polymer batteries allow hot-swapping. One charges while one works, enabling zero operational downtime.

## Extended Range Execution

A 14-meter scan range empowers dynamic movement across wide warehouse aisles without deceleration.

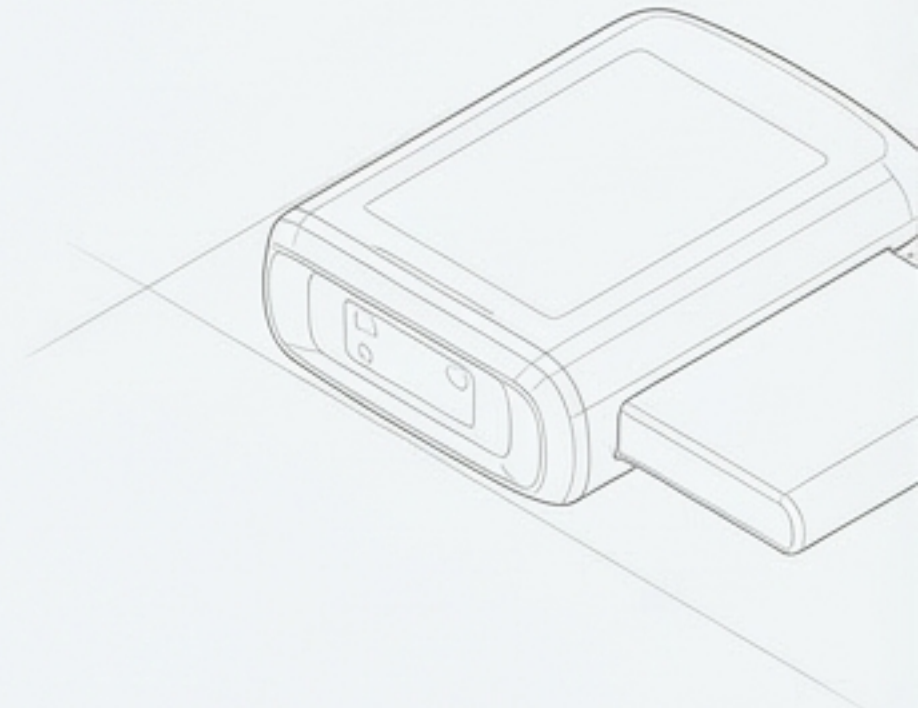
## Edge Display

A 1.77-inch color screen pushes live routing and task data directly to the back of the hand.



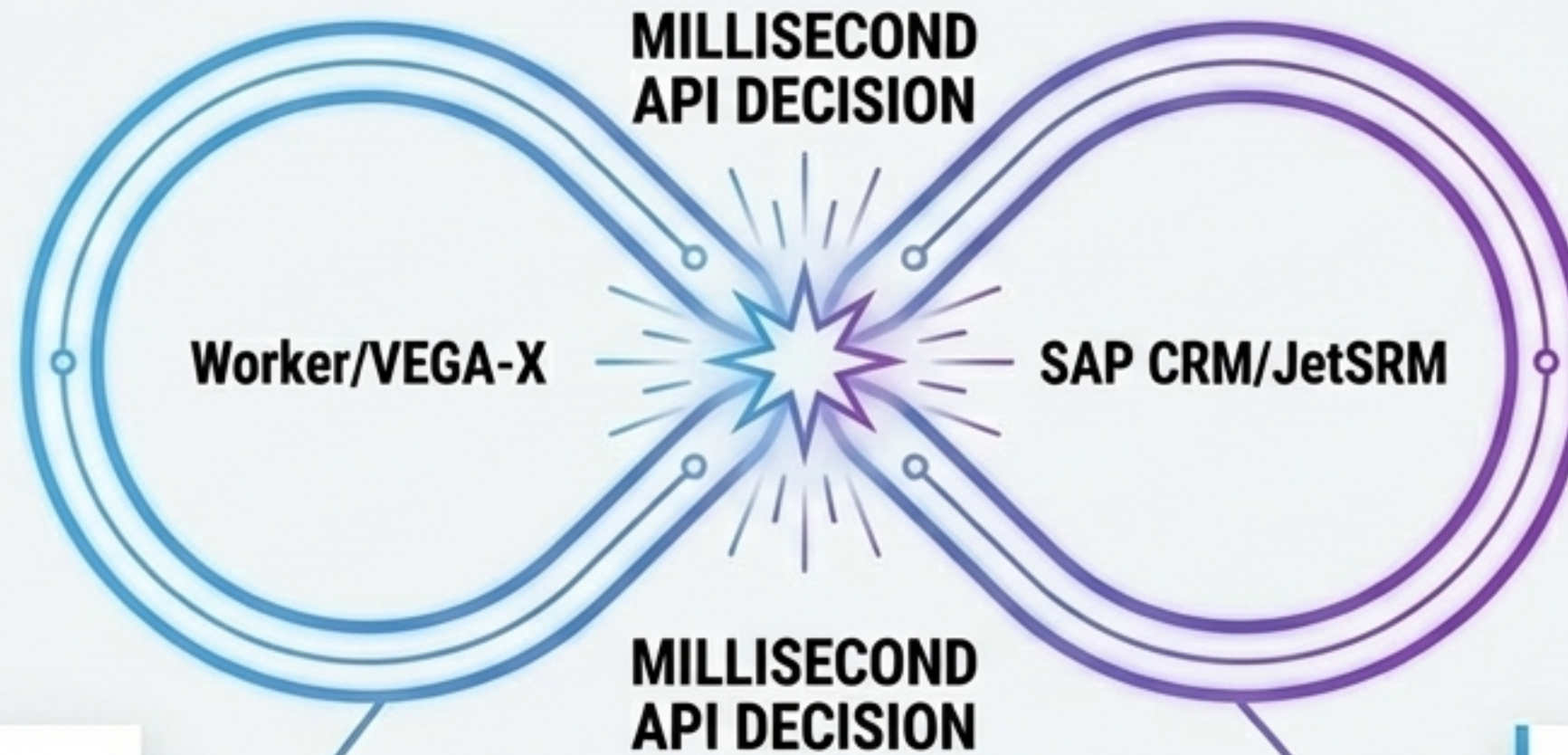
# Deep SAP integration and active “Mistake-Proofing” shifted quality control to the exact moment of physical interaction.

The VEGA-X hardware was paired with a “Plug-and-Play” API integration directly into Ekol’s existing SAP CRM and JetSRM platforms, turning every scan into a live data event.



## Physical Action

Action: Worker scans SKU naturally while grasping the box.



## Digital Verification

### Optic, Haptic & Acoustic Validation:

The system confirms accurate picks instantly via green LEDs and positive vibration, maintaining continuous flow.

### Active Error Prevention:

If an incorrect SKU is scanned, the device vibrates aggressively and flashes red, physically halting the error before the item is packed. Reverse logistics costs are proactively eliminated.

Hands-free execution and sensory feedback delivered immediate, quantifiable leaps in speed, accuracy, and worker safety.

Velocity

**15% - 20%**

**Increase in Picking Speed**

Eliminating the "pick-up/put-down" motion allowed simultaneous scanning, grasping, and packing.

Accuracy

**Near 0%**

**Error Rate**

Multi-sensory mistake-proofing verified every action against the SAP database in milliseconds.

Traceability

**100%**

**Real-Time Visibility**

Management gained a live, transparent view of total warehouse throughput and individual asset movement.

Workforce

**Zero**

**Ergonomic Friction**

Complete elimination of device-related physical fatigue, drastically improving workplace health and safety.



# Wearable IoT fundamentally outperforms traditional infrastructure across all critical e-commerce dimensions.

## Legacy Handheld Architecture

Single-handed capacity; repetitive physical stress.

Static, interrupted workflows (pick-up/put-down).

Reactive, post-process quality control.

Batched or manual data checkpoints.

## VEGA-X Cyber-Physical Ecosystem

**Hands-free, natural anatomical movement.**

**Continuous, uninterrupted operational flow.**

**Proactive, real-time error prevention (Poka-Yoke).**

**Real-time, continuous SAP synchronization.**

## **Ekol Lojistik has cemented its position at the forefront of Logistics 4.0, building a scalable architecture for future demands.**

By harmonizing human capability with cyber-physical intelligence, Ekol Lojistik did not just solve a hardware problem—they engineered a future-proof fulfillment ecosystem.

### **Strategic Outlook**

This transformation shifts operations from reactive management to proactive, data-driven orchestration. With absolute traceability and uncompromised speed now standardized, Ekol is uniquely positioned to dominate the accelerating demands of global Q-Commerce and execute advanced Collaborative Planning, Forecasting, and Replenishment (CPFR) strategies.



**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