



Transforming FMCG Logistics with AI and Wearable Technology

The ETi Success Story: Achieving 100% Expiry Date Compliance

A STRATEGIC TRANSFORMATION CASE STUDY

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Enterprise Context & The Scale of Distribution

ETİ operates as a leading Turkish FMCG brand, manufacturing a **diverse portfolio of biscuits, cakes, chocolates, and snacks.**

Across such a broad product range, **inventory velocity and product freshness are critical differentiators** for market dominance.

>150

Different product lines managed simultaneously.

FEFO Mandate

Strict adherence required to First Expiry, First Out principles.

Critical Metric

Product freshness and shelf-life tracking at high outbound volumes.



The Shelf-Life Compliance Chokepoint

While standard distribution systems easily process product barcodes, standard WMS/ERP systems lack automated capabilities to capture or validate printed expiration dates (SKT/TETT) on outgoing shipments.

The Known



Easily Scanned & Verified

The Blindspot



Dark Data Blindspot

The Retailer Mandate: Customer Guarantee Date (CGD) agreements dictate strict minimum remaining shelf life requirements (e.g., >120 days before expiration).

The Gap: Shipping products failing the 120-day rule violates contracts, but legacy systems cannot enforce this visually at the shipping dock.

The Compounding Risk of Legacy Processes

1. Labor Intensive Verification

Checking every carton date manually creates immense operational friction at high volumes.

2. Human Error Vulnerability

Visual fatigue leads to misreads or overlooked dates during fast-paced outbound staging.

3. Contract Violations

Near-expiry products (<120 days) slip through, breaching Retailer CGD agreements.

4. Enterprise Repercussions

Results in financial penalties, product returns, and damaged retailer trust.

Strategic Imperative: ETI required an automated inspection solution to eliminate manual vulnerabilities and enforce a fail-safe FEFO outbound workflow.

The Integrated Hardware-Software Ecosystem

ETİ eliminated manual blindspots by deploying a synchronized ecosystem of wearable edge hardware and AI-powered computer vision.

Edge Capture (VEGA-X)



Workers utilize an intelligent smart glove featuring built-in barcode scanning and a high-resolution camera module for hands-free visual data capture.



Cloud AI (TIM INSPECT)

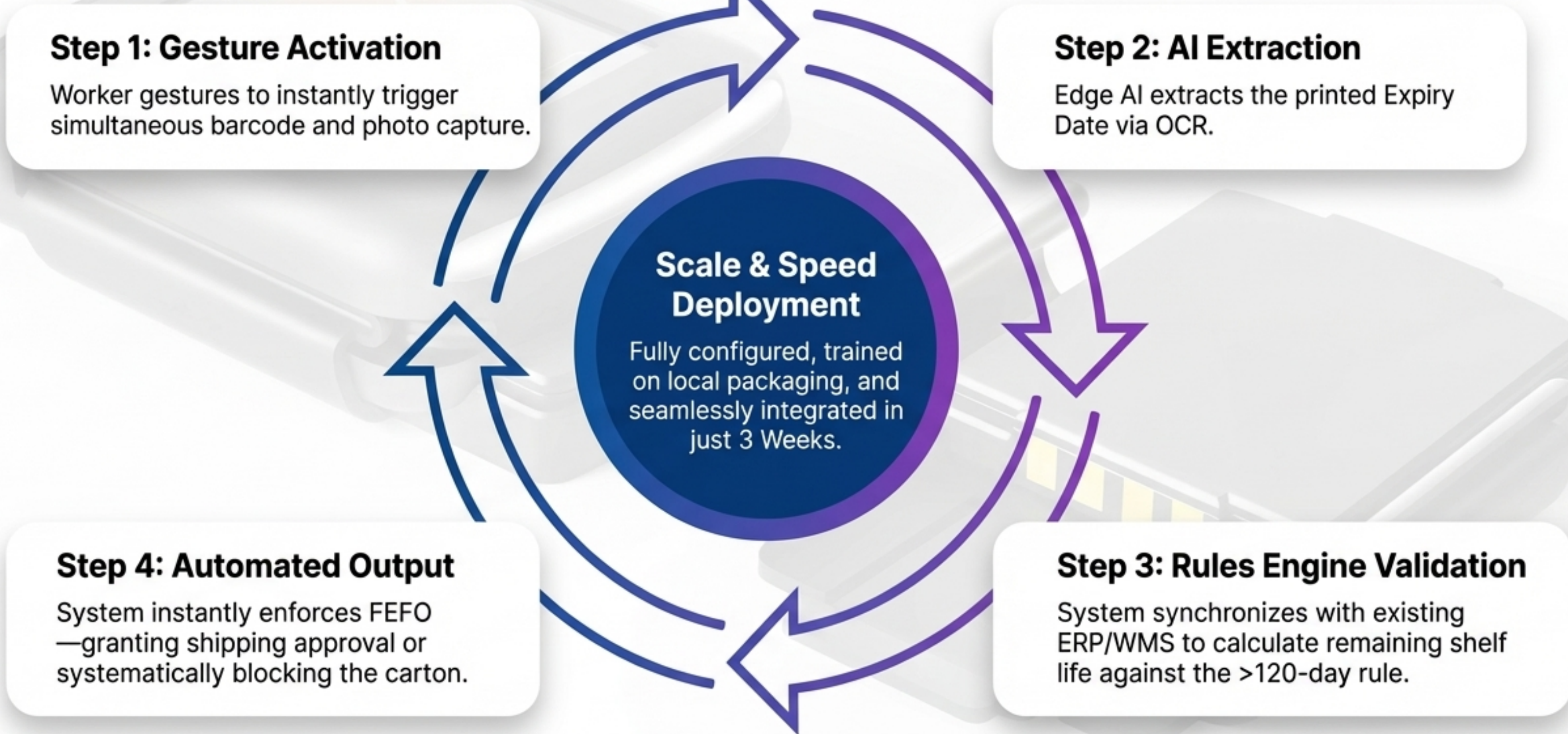


Captured visual data is processed via targeted Optical Character Recognition (OCR) and machine learning models tuned specifically for Turkish date formats (TETT).

Operational Diagnostic: Legacy vs. Augmented Workflows

	Legacy RF Scanners	VEGA-X Ecosystem
Form Factor	Bulky Handheld RF Scanners	Ergonomic Wearable Glove
Data Capture	Barcode Only	Barcode + Image-based Expiration Date
Operational Motion	Pick up, scan, put down, handle box	Continuous hands-free scan and move
Accuracy Profile	High risk of human misreads on dates	AI-driven zero-error OCR extraction
Validation	Manual mental math against 120-day rule	Real-time WMS enforcement

The Automated WMS Decision Engine



Value Realization Dashboard

Enterprise Risk Mitigation

100%
**Shelf-Life
Compliance**

Complete elimination of unverified shipments. Total assurance of Customer Guarantee Date (CGD) adherence.

Process Quality

**Zero
Manual
Misreads**

Eradicated human error in date verification. The AI system provides consistent, fatigue-free validation.

Operational Velocity

**Accelerated
Throughput**

Replaced multi-step clipboard checks with a single-second scan-and-capture motion, enabling enabling continuous, unhindered outbound flow.

Human Capital & Ergonomic ROI

Digital transformation extended directly to the warehouse floor, upgrading the physical experience of the workforce.

Hands-Free Agility

Workers now scan and move products simultaneously (e.g., using hoists), eliminating the repetitive strain of holstering handheld devices.



Fatigue Reduction

Minimizing awkward movements and idle time allows staff to maintain peak productivity and focus through long operational shifts.

Frictionless Adoption

By building on existing systems, the wearable technology augmented the current process without requiring steep learning curves.

Securing Retailer Trust & Future Scalability



Securing the B2B Relationship

By proactively investing in intelligent safeguards, ETI insulates its brand reputation, eliminates contract penalty risks, and establishes itself as a highly reliable, forward-thinking FMCG partner.

Enhancing End-Consumer Experience

Strict digital enforcement ensures shoppers consistently find optimal freshness on retail shelves.

Vision for the Future

With a scalable AI infrastructure now proven, ETI is positioned to expand image-based computer vision across other critical quality assurance nodes within the enterprise, driving rapid ROI and continuous operational excellence.

THREAD IN MOTION



GET IN TOUCH WITH US

Website	www.threadinmotion.com
Phone	+44 20 4587 4397
E-mail	info@threadinmotion.com
HQ address	7 Henrietta Street, WC2E 8PS, London, United Kingdom