

A Specialist in Textile Equipment Automation

AI AUTOMATED SOLUTIONS FOR TEXTILE MILLS

AI Visual Inspection & Automated Packing
Automated Material Handling & Storage

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THINK QUALITY, THINK SUNTECH

Quality-Driven Management for Scaled & Modern Textile Mills

- **Poor Quality Control with Manual Work**

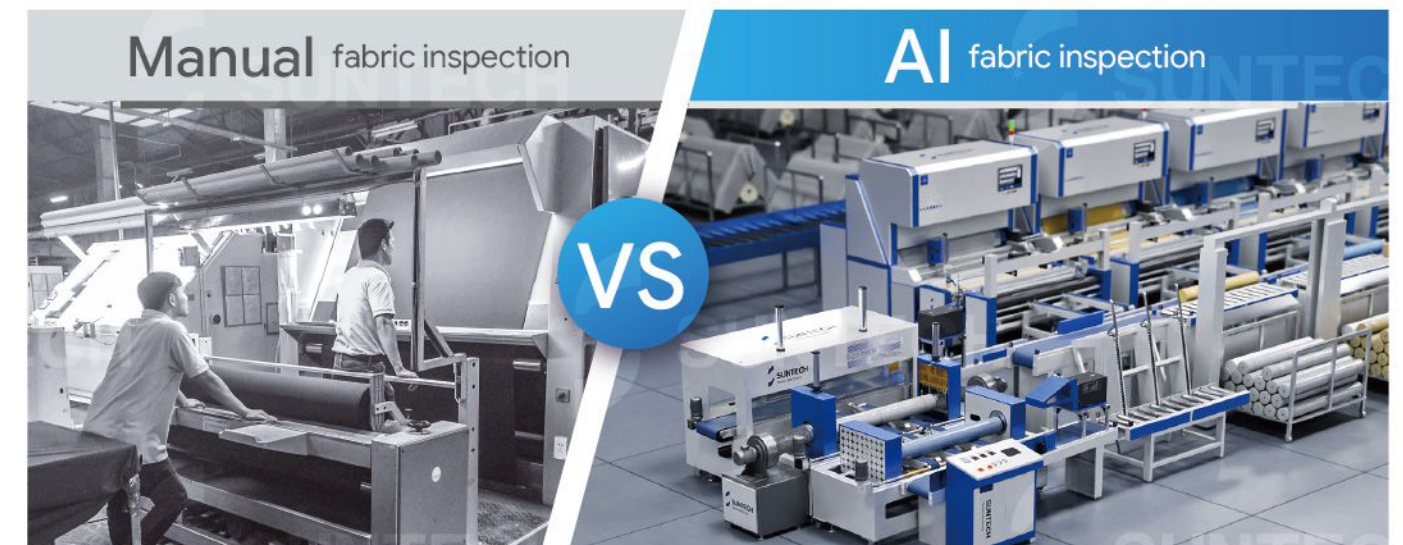
Manual work suffers from high missed detection and low accuracy, triggering frequent terminal complaints.

- **Burdensome Labor Challenges**

Escalating labor expenses, tough recruitment, and widespread reluctance to take on tedious repetitive work.

- **Inconsistency and Low Efficiency**

Manual inspection is affected by subjective factors and faces the challenges of inconsistency and low efficiency, and difficult to track the inspection process and trace problems afterward.



AI-Powered Automated & Comprehensive Solutions

www.suntechvision.ai



• TECHNICAL TEXTILES
Industry Fabrics
Glass Fabrics
Coated Fabrics
Conveyor Belts

• NONWOVEN
Medical Gowns
Diapers
Surgical Textiles

• AUTOMATIVE
Safety Belts
Airbags
Tire Cord
Upholstery

• PROTECTION
Awnings
Bulletproof
Workwear
Heat Prevention

• HOME TEXTILES
Bedlinen
Bathroom Supplies
Upholstery

• APPAREL TEXTILES
Clothing
Sportswear
Lining
Denim

PART 1

GAIN PROFIT WITH AI TECH

AI VISUAL INSPECTION SYSTEM

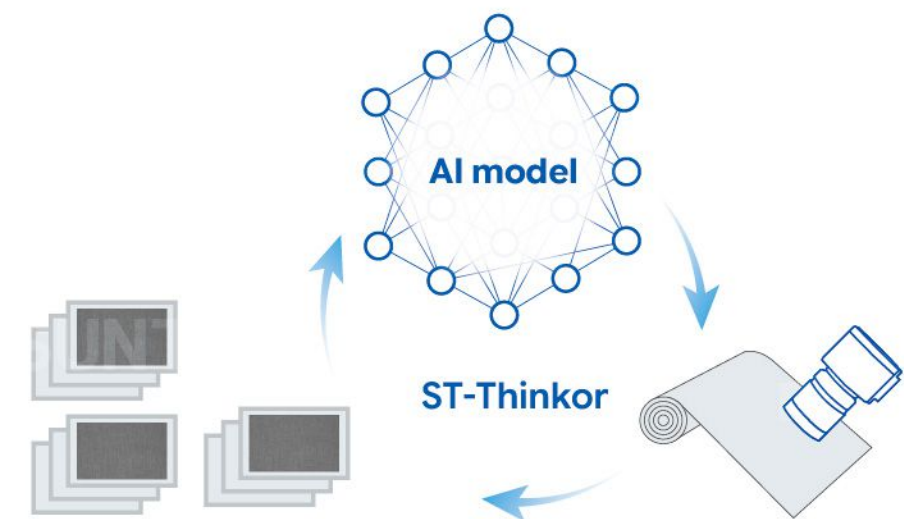
A Top Textile Visual Inspection System

Should Truly Overcome the Pain Points of Manual Detection Through High-Sensitivity Hardware & Continuously Learning Intelligent Algorithms!



SUNTECH Artificial Intelligence Visual Inspection System,
We named as ST-Thinkor, for its exceptional intelligence and autonomy!

Combining deep learning algorithms with industrial-grade vision hardware, the system builds a full-process quality control solution covering from weaving to finishing. The hardware intelligent model equipped in ST-Thinkor will be trained on a database of textile defect samples and undergoes continuous learning and analysis, enabling high-speed and accurate inspection of various fabrics.



It not only overcomes the subjective limitations of traditional manual fabric inspection, as well as the losses and adverse impacts on subsequent processes caused by missed detections or improper defect marking, but also optimizes production via real-time data to cut scrap and customer complaints. Seamlessly compatible with looms, circular knitting machines and other equipment, it achieves "inspection-analysis-decision-execution" closed-loop control—truly "data-driven production, AI-guaranteed quality".

ST-Thinkor™

INSPECTION-TITAN

Capture Defects Effortlessly, Redefine Quality Standards!

INSPECTION TITAN, a standalone or upgrade module compatible with various fabric inspection equipment, converts manual visual checks to AI intelligent inspection. With a max detection speed of 80m/min, it achieves full-width, blind-spot-free coverage and identifies 80+ defect types (surface, internal & structural). The system auto-classifies, grades and locates defects, generates a defect map, and syncs it to downstream cutting processes for seamless inspection-AI cutting integration.



FINISHING-TITAN

Defect Hunter in Finishing Process, Ensuring Qualification for Next Delivery

FINISHING-TITAN integrates with stenter machines, replacing traditional fabric inspection equipment with visual modules to cut labor costs and eliminate the need for extra devices. Equipped with industrial-grade HD cameras and anti-interference optical systems, it detects stenter process-specific defects, captures real-time fabric surface data, and auto-generates defect and quality reports. It flexibly adjusts inspection speed, delivers 85%+ detection accuracy that continuously improves via deep learning, and effectively reduces rework losses caused by finishing defects.



ST-Thinkor™

WEAVING-MAX

Stop Defects at the Source, The Key to Cost Savings & Efficiency

Tailored for real-time quality monitoring of woven grey fabric, Weaving-Max integrates directly with loom production lines to enable early defect detection and prevent material waste. High-speed visual capture and AI analysis instantly identify yarn breakage, wrong yarn, weft skew, holes and more (response time $\leq 0.1s$). It continuously captures recurring defects, triggers alerts and auto-generates reports, reducing grey fabric defect rates at the source.



KNIT-MAX

Real-time Monitoring, Intelligent QC at Knitting

KNIT-Max integrates easily with knitting machines, tailored to knitted fabric traits. It accurately detects knitting-specific defects, handles fabric stretch-related dimensional fluctuations, and maintains consistent accuracy despite elasticity. Featuring "knitting-inspection-adjustment" integration, it equips circular knitting machines with vision systems for non-stop inspection, delivering $\geq 4x$ the efficiency of manual checks.



ST-Thinkor™

AI VISUAL INSPECTION

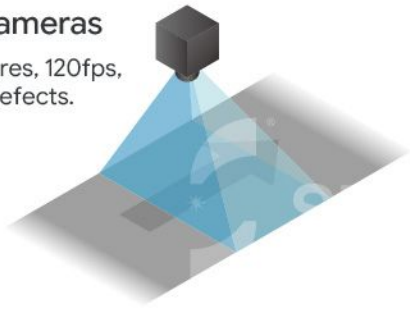
HD Defect Accurate Capture, Visual Traceability
with No Omissions

SUNTECH's ST-Thinkor combines high-precision hardware with AI deep learning and intelligent algorithms. It boosts textile inspection efficiency and accuracy, simplifies complex tasks, and enables consistent, reliable fabric quality control.

Smart Industrial Cameras & Defects Catching

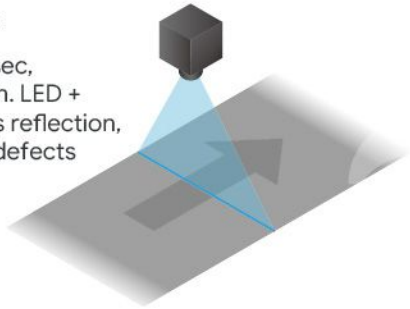
Area Scan Cameras

2048×1440 high-res, 120fps, captures static defects.



Line Scan Cameras

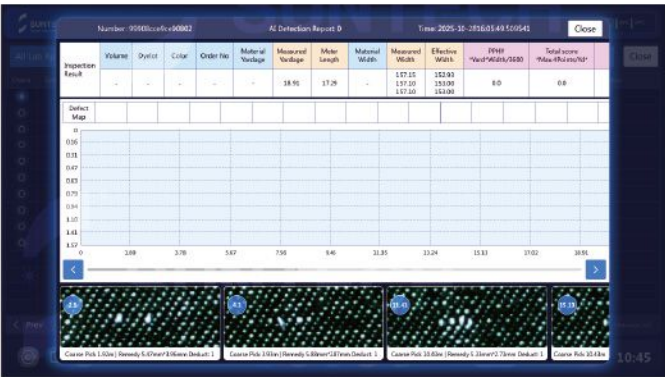
Linear sensor 1000 lines/sec, for high-speed production. LED + polarized light suppresses reflection, identifying 0.1mm micro-defects (pinholes, broken yarns).



Clear Interface & Data-Driven Intelligent Reports



Operation Interface



Automated Defects Report



Knit Fabric Defects Database



Denim Fabric Defects Database

ST-Thinkor™

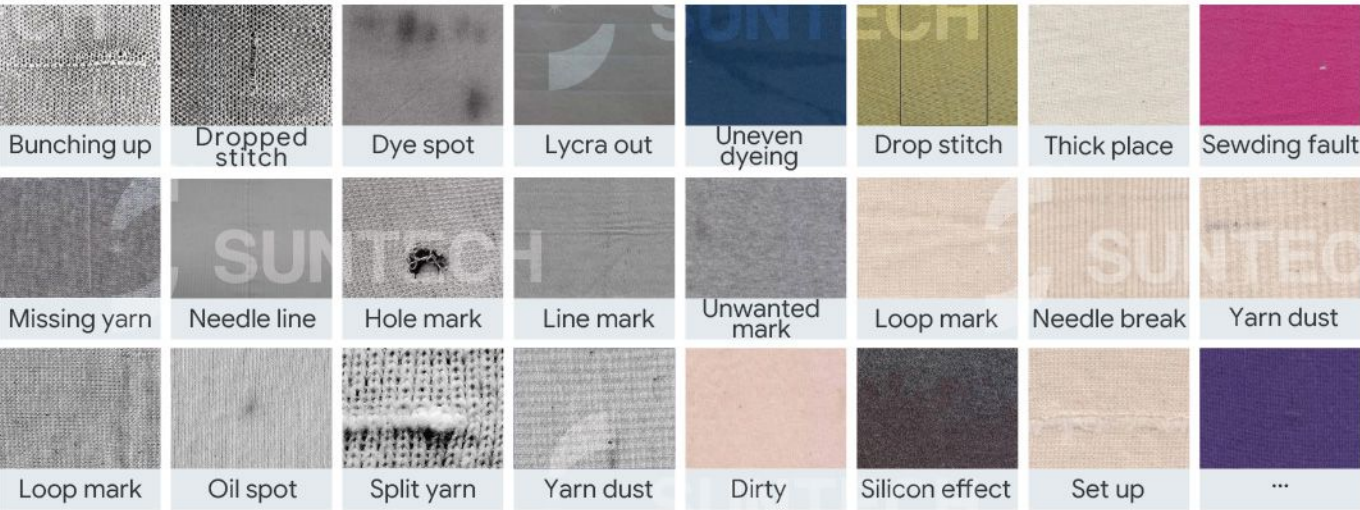
AUTOMATED DEFECTS CATCHING

AI-Powered Defect Detection
>85% Accuracy, Non-Stop Learning

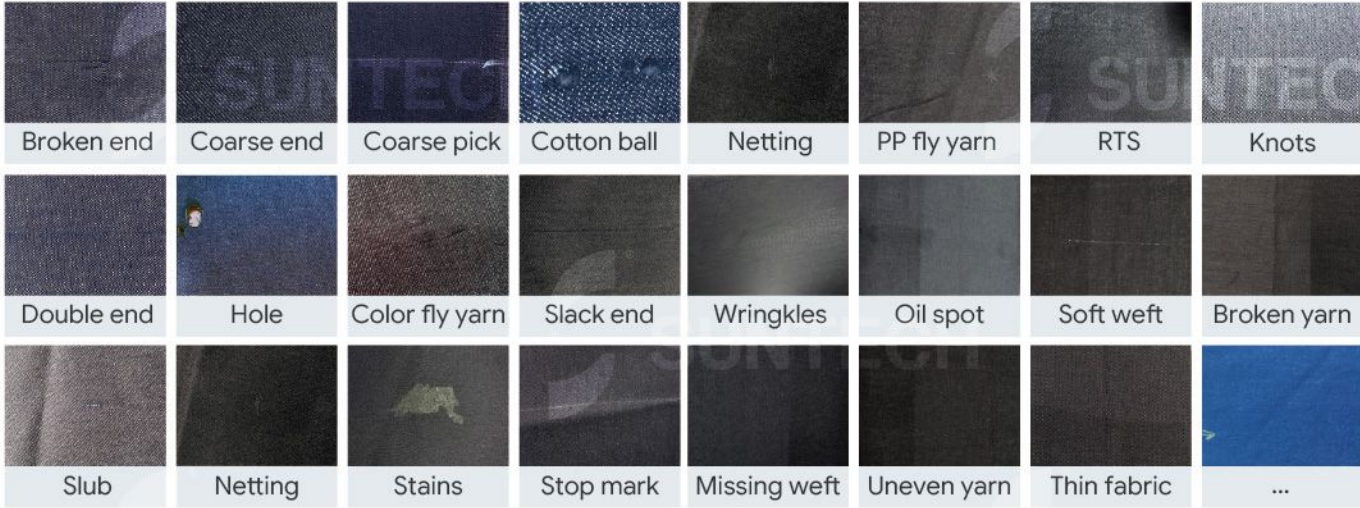
AI-powered with a 10,000-level defect database and continuous learning model, this system captures all types of fabric flaws easily, at high speed and continuously. Compatible with knitted, woven, denim, non-woven fabrics and more, it achieves >85% detection accuracy, with performance still improving as the AI learns from new data.

Based on Deep Learning Models,
80+ Defect Types Recognized by ST-Thinkor

Knit Fabric Defects



Denim Fabric Defects



ST-ThinkorTM

PRACTICAL CASE:

AI VS MANUAL

Woven Fabric (Denim)

A large-scale textile enterprise specializing in woven grey fabrics, especially for denim, with a monthly output of 6 million meters, and adopted a manual fabric inspection mode.

Comparison Dimension	Manual Fabric Inspection Mode	SUNTECH AI Visual Inspection Mode	Improvement Effect
Monthly Output	6 million meters	6 million meters	-
Required Equipment Quantity	18 fabric inspection machines	5 sets of AI inspection modules	Reduced 13 machines,72.22% equipment optimization
Labor Allocation	54 fabric inspectors (3 Shifts)	15 operation and maintenance personnel (At Start of Learning Trial)	Reduced labor by 39 people,lowering labor costs \$468000 per year
Missed Detection Rate	8%-15%	≤2%	Missed detection rate reduced by 82.61%
Customer Complaint Rate	≈6.2%(caused by missed defect detection)	≤1.5%	Complaint rate reduced by 75.81%
Defect Rework Rate	≈12%	≤1.8%	Rework loss reduced by 85%

Knitting Fabric (Sports Wear)

A large-scale textile enterprise specializing in knit grey fabrics, especially for sportswear, with a monthly output of 10000 tons, and adopted a manual fabric inspection mode.

Comparison Dimension	Manual Fabric Inspection Mode	SUNTECH AI Visual Inspection Mode	Improvement Effect
Monthly Output	10000 Tons	10000 Tons	-
Required Equipment Quantity	41 fabric inspection machines	16 sets of AI inspection modules	Reduced 25 machines, 60.98%equipment optimization
Labor Allocation	123 fabric inspectors (3 shifts)	48 Operators (3 shifts)	Reduced labor by 75 people,lowering labor costs by \$900000 per year
Missed Detection Rate	12%-20%	≤2%	Missed detection rate reduced by 87.5%
Customer Complaint Rate	≈8.5% (caused by missed defect detection)	≤1.5%	Complaint rate reduced by 82.35%
Defect Rework Rate	≈10%	≤2%	Rework loss reduced by 80%

AI CUTTING OPTIMIZATION

Direct 1.5%-2% Waste Reduction
Maximize Fabric Utilization



Based on auto-generated defect reports, the AI Cutting Optimization System creates optimal cutting plans and determines best positions per quality requirements. It boosts fabric utilization by at least 3%-5%, cuts annual leftover waste by ~2%, seamlessly connects to automatic cutting, and uses invisible sync markers to enable maximum cutting table speed.



Cutting Optimization Plan

AI Tech Accurately Identifies Fabric Cutting Points & Generate the Optimal Cutting Plan



Execution of the Cut

Automated Cutting Execution, Saving 1.5%-2% Fabric Waste Directly.

AI CUTTING SYSTEM **VS** CONVENTIONAL

AI Cutting, Automated Report Generated



Production Capacity & Efficiency

Conventional System:	Modern System:
Produces approximately 2500–3000 meters per shift.	Achieves a production range of 5000–6000 meters per shift with fewer stoppages.
Relies on a fragmented setup with more machine stoppages.	Further optimizes with parallel cutting, enabling 7000–8000 meters cut per shift.

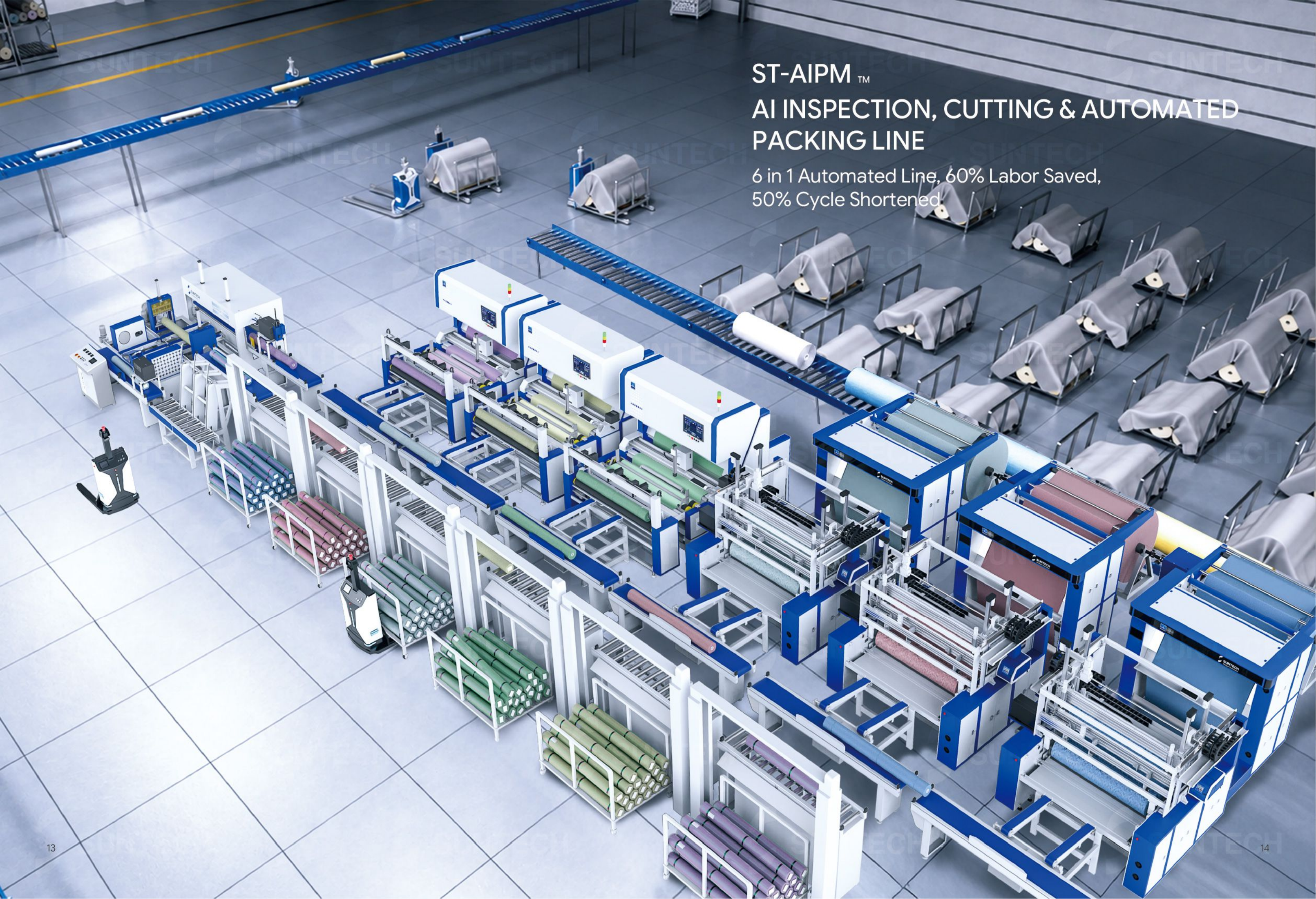
Aspect	Conventional System	Modern System
Machine Requirement	Needs more machines to meet production demand.	Requires fewer machines for the same production output.
Fabric Waste	Generates significant fabric waste during cutting.	Minimizes fabric waste, increasing the yield of A-grade fabric.
Labor & Operational Costs	Incurs higher labor costs and overall operational expenses.	Reduces labor costs and operational expenditures.
Record Keeping & Reporting	Has slower record-keeping and management processes.	Enables faster record keeping and automatic reporting for packing.

PART 2

AUTOMATION BOOSTS EFFICIENCY

ONE-STOP AI & AUTOMATED SOLUTIONS FOR FULL PLANT

AUTOMATED



ST-AIPM™

AI INSPECTION, CUTTING & AUTOMATED PACKING LINE

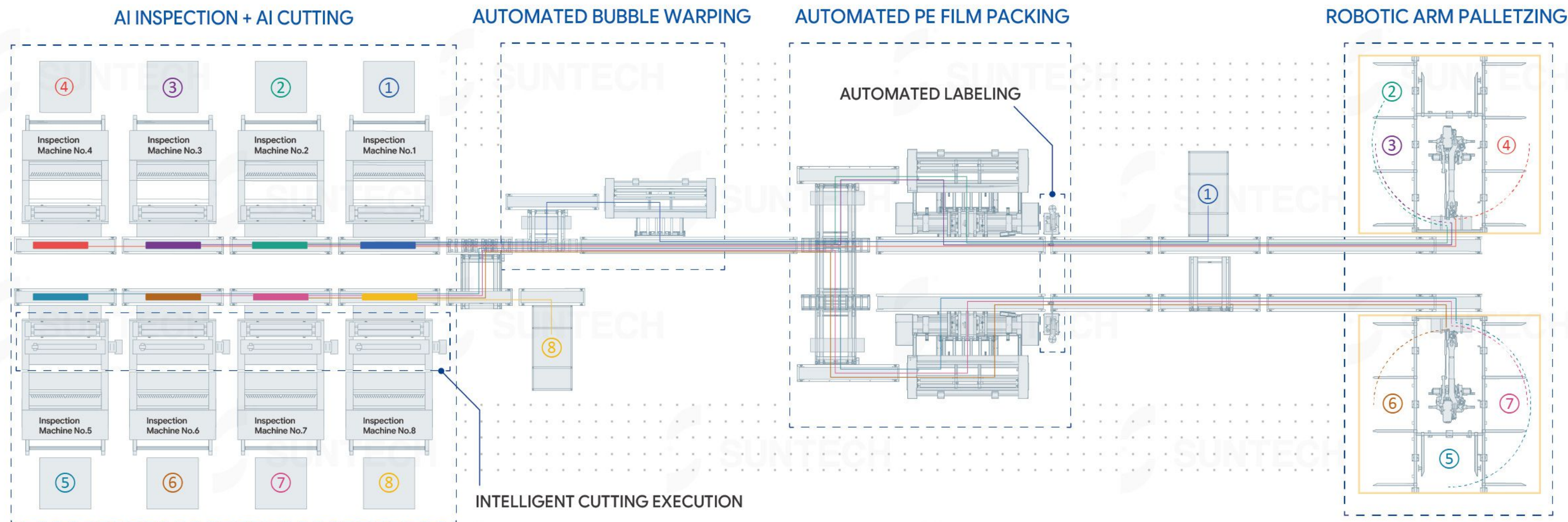
6 in 1 Automated Line, 60% Labor Saved,
50% Cycle Shortened

AI INSPECTION, CUTTING, PACKING & SORTING

All-in-One AI-driven Automation Streamlines Workflows, Cuts Manual Work, Boosts Fabric Roll Delivery Quality & Efficiency for Downstream Use. Seamless ERP/MES Integration Enables Full-process Traceability.

Autonomous Sorting

Based on AI inspection quality grading, it auto-sorts fabrics by grade into respective packaging channels to prevent mixing errors.



Connects with AI Inspection & Cutting

Integrates with AI inspection/cutting for full-process automation, reducing transfers and secondary damage.



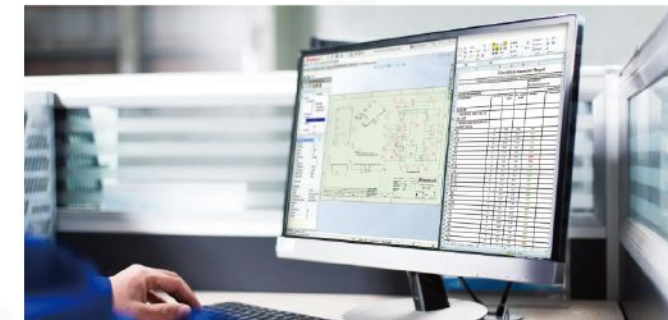
Automated & Speedy Packing

Cuts packing cycle by 50%, boosting storage & delivery efficiency.



Automated & Traceable Labeling

QR codes enable "one item, one code" full-process traceability.

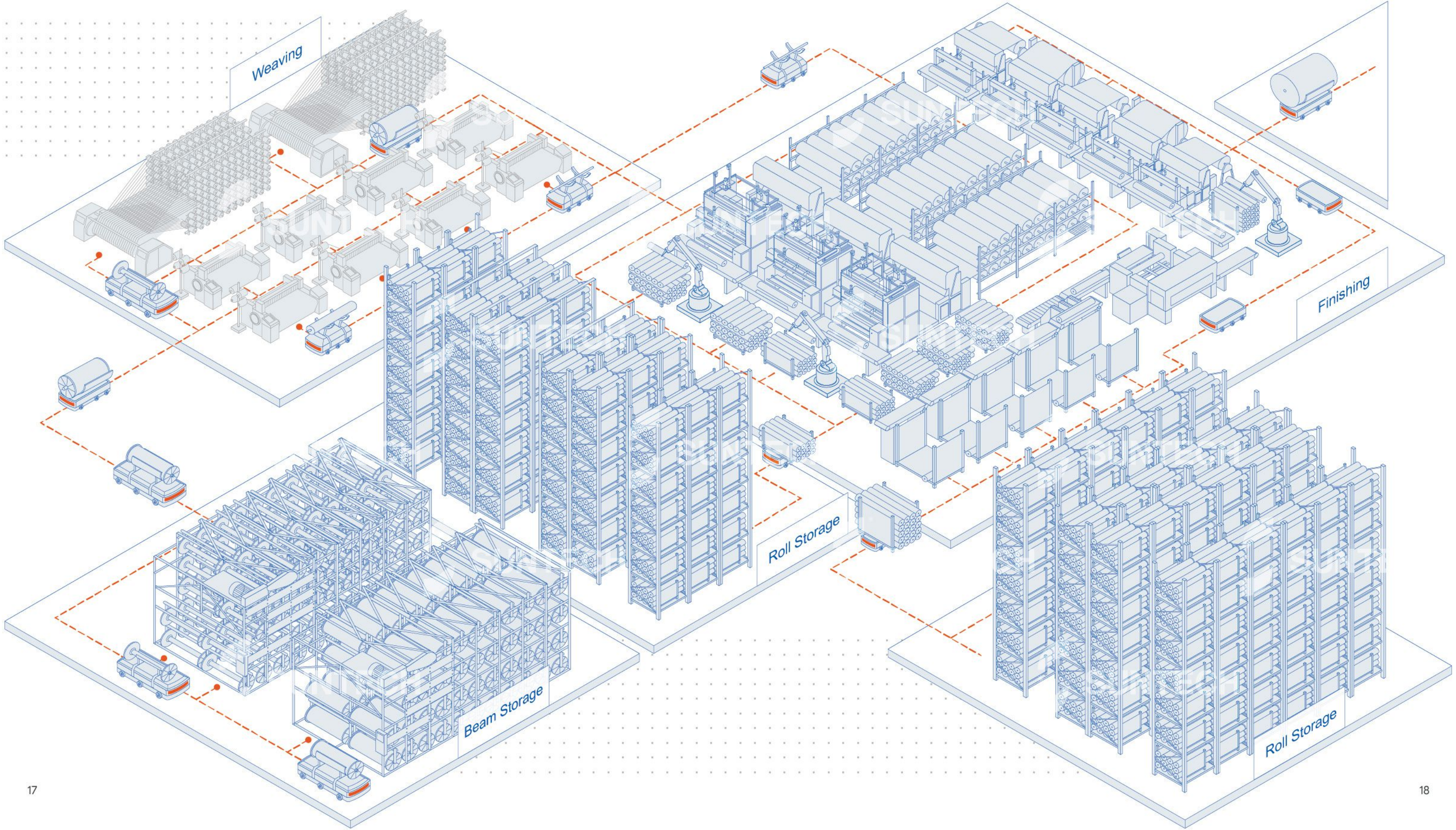


Integrated ERP/MES, Digitalized Management

Seamless integration with factory systems simplifies management.

INTELLIGENT WAREHOUSE SOLUTIONS

Boost Textile Warehousing Efficiency,
Accelerate Smart Factory Implementation



ONE-STOP TEXTILE INTELLIGENCE

AI Inspection + AI Cutting + Packing + Sorting +
Palletizing / Depalletizing + AS / RS

Top-Tier Industry Customers Trust in SUNTECH

56 Years
Experience

11270+
Customers Globally

