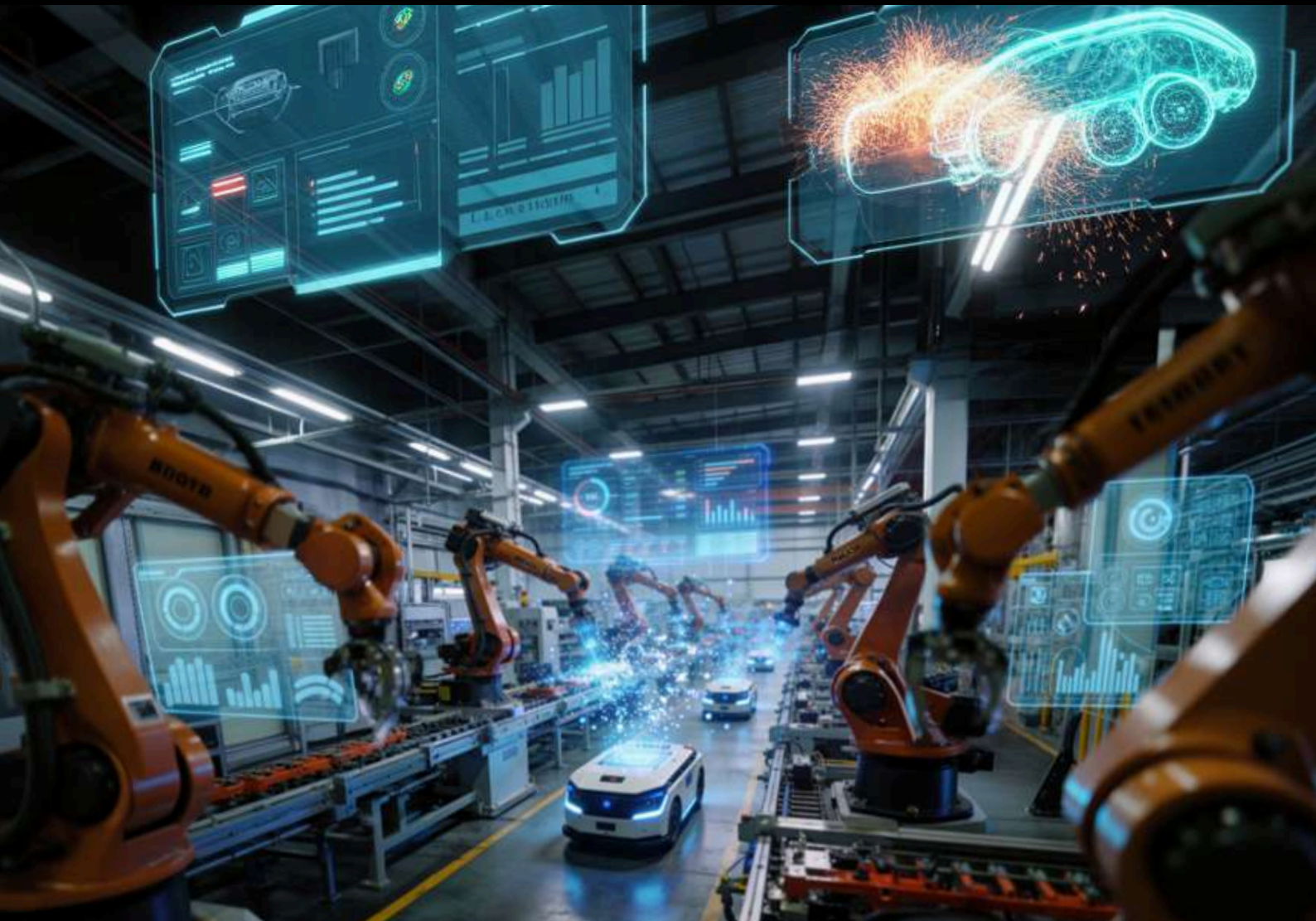


SCALE-UP TECH SOLUTION PROVIDERS USE CASES REPORT



SUPPORTED BY
MINISTRY OF INVESTMENT, TRADE AND INDUSTRY (MITI)

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New Industrial Master Plan 2030

About

The **New Industrial Master Plan 2030 (NIMP 2030)** by the **Ministry of Investment, Trade & Industry (MITI)** is Malaysia's strategic roadmap for industrial development, aiming to transform Malaysia into a high-income, technologically advanced economy. NIMP 2030 emphasises the adoption of smart manufacturing practices across various sectors, including the semiconductor industry, driving innovation, enhancing productivity, and promoting sustainability while aligning with global trends towards Industry 4.0.

Mission 2 - Tech Up for a Digitally Vibrant Nation

The Government will accelerate digitisation and integration to support the industry. This is to shift away from low-skilled labour, increase labour productivity, and create more high-skilled jobs for the industry. Successful implementation of the four Strategies, eight Action Plans and two Mission-based Projects below will result in impactful outcomes for Malaysia. **Scale-Up Tech Solution Providers (TSP)** fall under the **Mission 2 Action Plan (Item 2.3.1: Nurture local technology solution providers to support Technology Adoption Programme)**.

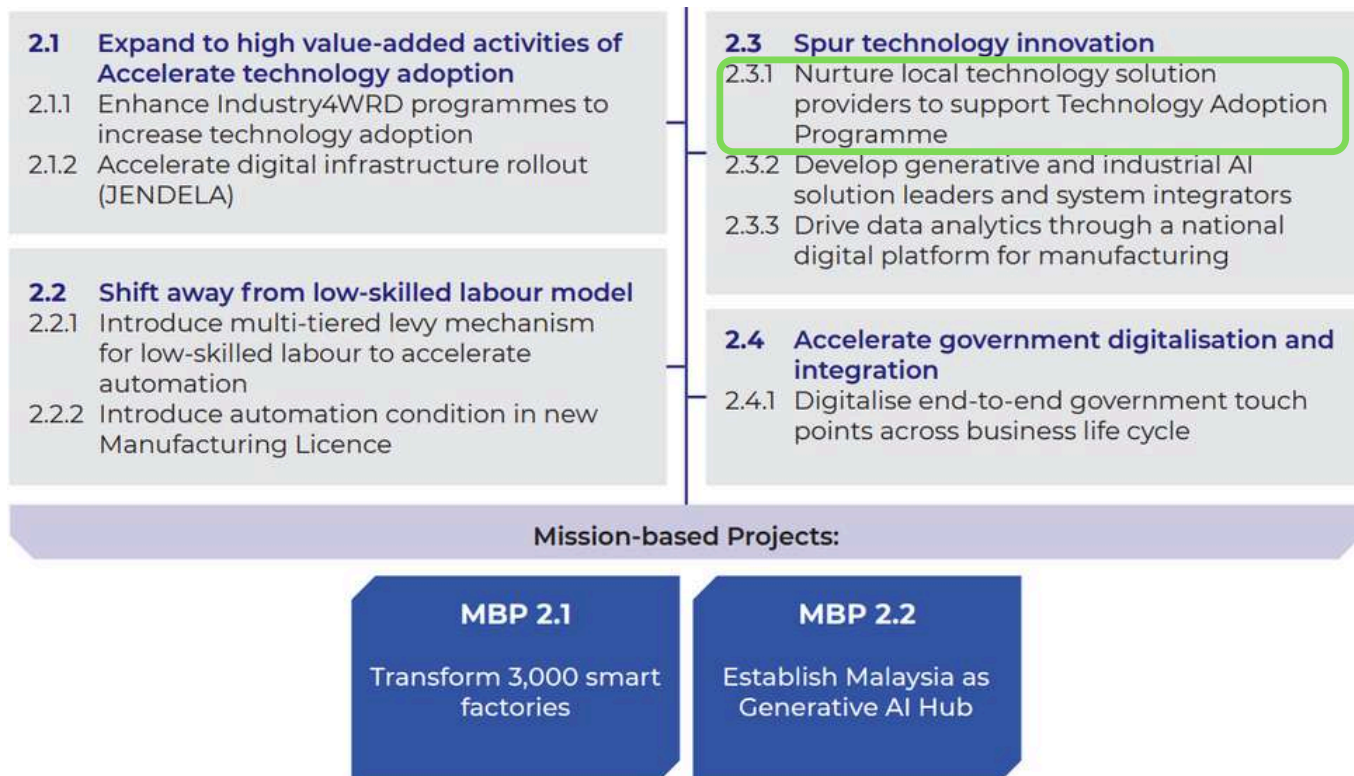


Image Credit: NIMP 2030, Ministry of Investment, Trade & Industry (MITI)

Programme Background

Scale-Up Tech Solution Providers: Fuelling Innovation

The **Scale-Up Tech Solution Providers (TSP) Programme** by **Malaysia Digital Economy Corporation (MDEC)** supports the local Malaysia Digital (MD) companies to develop innovative digital solutions for the manufacturing sector. This Programme focuses on nurturing local TSPs to accelerate technology adoption in the manufacturing sector and support the Technology Adoption Programme.

Selected TSPs can receive **financial assistance up to 70%** of the solution development cost or up to **RM75,000** (whichever is lower), along with access to capacity building, innovation review, sandbox, and go-to-market opportunities to enhance, validate, and showcase their innovations. This will help TSPs to develop and scale new or improved digital solutions that solve key manufacturing challenges and boost industry innovation.

Anchored in the aspirations of the NIMP 2030 and building on the foundations of **Industry4WRD**, this programme is carefully designed to nurture local innovators, empower manufacturers, and elevate Malaysia's position as a competitive hub for Industry 4.0 solutions in the region.

Industry-Centric and Evidence-Based

The Scale-Up TSP Programme is **built with stakeholder engagements and validation**, involving face-to-face interviews, quantitative surveys, and secondary research with manufacturers, trade associations, and skills development centres.

Findings consistently point to **critical challenges in adoption**, talent shortages, financial limitations, lack of clarity on technology pathways, and a fragmented solution provider landscape. Manufacturers further highlighted that proven track record, return on investment (ROI) demonstration, ease of integration, and localised understanding of pain points are the **most decisive factors** in selecting solution providers.

Strategic Goal : To create a sustainable ecosystem capable of enabling 3,000 smart factories by 2030, positioning Malaysia as a competitive hub for Industry 4.0 solutions

Five Priority Domains

These domains emerged as the top priorities for manufacturers, as they seek to improve productivity, resilience and competitiveness in an increasingly challenging global economic environment.

This Programme ensures that local TSPs can develop relevant, market-driven and scalable solutions that bring tangible improvements to the manufacturing sector.



1. Operational Efficiency and Production Optimisation

A data-driven production system that maximises output while streamlining processes to produce more, faster, better, and at a lower cost.

Robopreneur (ROBOFleet) **iRadar (Smart Automated Tray Stacker)**



2. Quality Control and Process Assurance

A control system that consistently achieves the highest possible product quality while ensuring compliance with industry standards.

Dagangasia (HIAS Halal IR 4.0)



3. Supply Chain and Inventory Intelligence

A system that optimises the supply chain to ensure smooth flow of raw materials, efficient work-in-progress management, timely delivery, and prediction of potential disruptions.

Hatio SEA (PowrUp AI) **OR Technologies (A4M)** **Snapdec (SnapWarehouse+)** **Strella Consulting (SMURPS)**



4. Real-time Production Intelligence

System for continuous and instantaneous collection, analysis, and visualisation of data from the shop floor to gain immediate insights and enable proactive decision-making.

Vigor (Xentr.AI) **WyseTime (AI-Powered Safety Analytics)** **Sophic MSC (Wireless EMS)**



5. Predictive Maintenance and Equipment Health

A predictive system that anticipates potential equipment failures before they occur, enabling planned and optimised maintenance.

EXIATEC (DTWIN) **CALMS (Machine Monitoring & Maintenance System)**

Use Cases





The Challenge

- Inefficient manual material handling
- Poor task prioritisation and autonomous mobile robot utilisation
- Limited autonomous mobile robot brand compatibility
- Lack of real-time tracking and visibility
- High labour costs and worker fatigue



The Solution: ROBOFleet for Autonomous Mobile Robot (AMR)



ROBOFleet is an **Artificial Intelligence (AI) - driven AMR** fleet management that enables smart AMR dispatching and real-time monitoring in warehouses and factories. ROBOFleet for AMR provides:

- Operation efficiency
- Manpower optimisation
- Integration of multiple brand AMR in a single fleet management
- Real-time monitoring and analytics



Expected Key Outcomes

- Improved workforce productivity through smarter task allocation
- Enhanced material handling efficiency through AI-driven orchestration
- Reduced operational idle time across automated fleet systems
- Strengthened visibility and coordination of AMR
- Contributed to leaner production floor operations



Industry Relevance and Contribution

- Supports centralised orchestration of multi-robot operations in manufacturing environments
- Enhances coordination across different robot brands under a unified control system
- Contributes to improved automation asset utilisation
- Enables AI-driven routing and predictive task optimisation
- Reduces dependency on manual supervision and fragmented control systems



The Challenge

Many production lines rely on manual or semi-automated tray handling for loading, unloading, and transferring parts. There is a need for a universal, automated tray-stacking and tracking system that integrates with existing lines and Manufacturing Execution System (MES) / Enterprise Resource Planning (ERP) systems to enhance productivity and enable scalable operations.



The Solution: Smart Automated Tray System



Universal automated tray handling system: A standardised system for trays across processes, reducing manual handling and dependency.

Durable universal tray with automated movement for automated transfer, improving cycle time and production flow.

Easy integration with existing lines and an optional MES / ERP link for data tracking.



Expected Key Outcomes

- Reduced dependency on manual tray handling processes
- Improved consistency and accuracy in industrial handling operations
- Enhanced production through automation
- Lowered operational variability in repetitive industrial processes
- Strengthened process reliability and quality assurance



Industry Relevance and Contribution

- Automates repetitive industrial handling and stacking processes
- Reduces variability in material movement workflows
- Improves operational reliability and consistency
- Supports lean manufacturing and production optimisation initiatives
- Enhances productivity through structured automation deployment

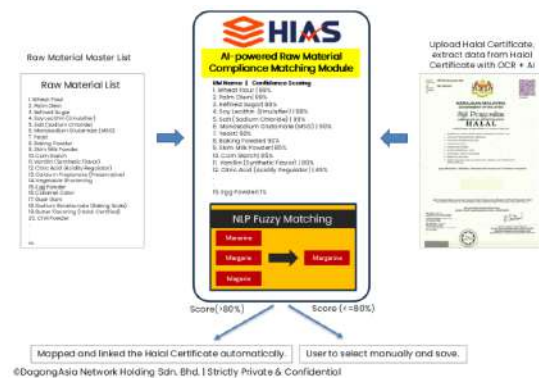


The Challenge

Manual verification of Halal certificates by suppliers against raw material lists is **time-consuming, error-prone, and inefficient**. Variations in naming conventions, inconsistent formats, and multilingual certificates increase the risk of errors, slow compliance processes, and **divert valuable resources away from production**. Manual verification of Halal certificates for 500+ raw materials across 100 suppliers took ~40 hours/month, with a 7% error rate.



The Solution: HIAS Halal IR 4.0 for Smart Manufacturing



HIAS Halal IR 4.0 for Smart Manufacturing leverages AI and Natural Language Processing (NLP) to **automatically capture and interpret the context of supplier Halal certificates**, extracting approved products and raw materials. Using intelligent matching algorithms, the system cross-checks material lists against certificates, handling multiple languages, inconsistent naming, and unstructured data, ensuring fast, accurate, and reliable verification.



Expected Key Outcomes

- Improved compliance verification efficiency
- Strengthened accuracy in certification matching processes
- Enhanced audit preparedness and documentation traceability
- Reduced reliance on manual compliance verification
- Increased regulatory governance visibility for manufacturers



Industry Relevance and Contribution

- Digitises compliance verification and audit workflows
- Strengthens regulatory transparency and traceability
- Supports automated certificate validation using AI-assisted matching
- Enhances audit readiness across manufacturing supply chains
- Contributes to structured compliance governance



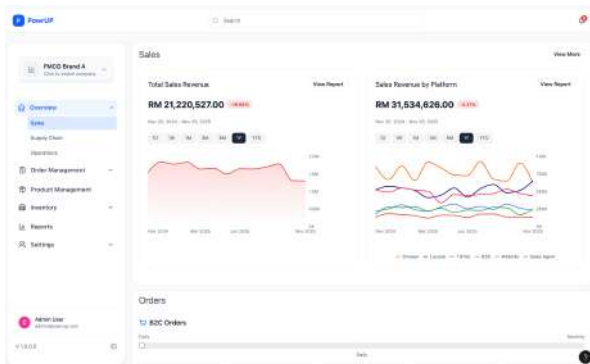
The Challenge

Most manufacturers, brand owners, and retailers still rely on spreadsheets and scattered data, leading to slow decisions, stock imbalances, and missed production schedules. With multiple sales channels and changing demand patterns, teams spend more time compiling reports than planning. In today's fast-moving market, guesswork is no longer sustainable.



The Solution: PowrUp AI

PowrUp AI gives a real-time view of sales and inventory across all channels. It uses AI to detect demand changes early and recommend better purchasing, replenishment, and production decisions.



1. **Omnichannel Brand** - Retail, e-commerce, and wholesale brands often face unpredictable demand and uneven stock levels. PowrUp AI provides early demand signals and helps balance inventory to prevent overstock and stockouts across all channels.
2. **Manufacturer** - Manufacturers struggle when sales, materials, and production run on separate systems. PowrUp AI connects forecasts with inventory and production needs, ensuring smoother scheduling and avoiding shortages or overproduction.



Expected Key Outcomes

- Improved demand forecasting reliability
- Enhanced inventory planning accuracy
- Reduced the likelihood of stock imbalances
- Strengthened supply chain responsiveness
- Enabled better cross-site inventory coordination



Industry Relevance and Contribution

- Provides predictive inventory planning and demand forecasting
- Supports improved stock balancing across multiple sites
- Reduces exposure to supply chain disruptions
- Enhances integration between sales forecasts and production planning
- Strengthens supply chain coordination and decision-making

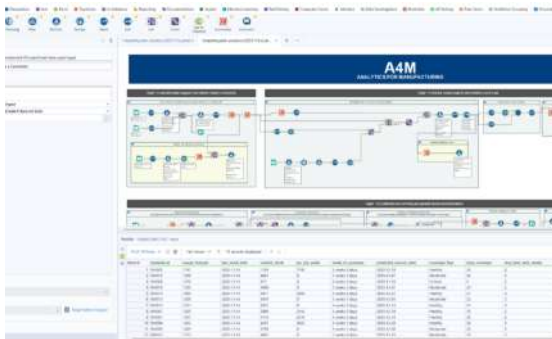


The Challenge

Manufacturers currently lack integrated and predictive tools to forecast critical material shortages and automate inventory control, relying instead on manual spreadsheets and siloed systems with no proactive alerts. This leads to frequent production delays, emergency procurement, and inventory bloat that increase operating costs and reduce delivery reliability.



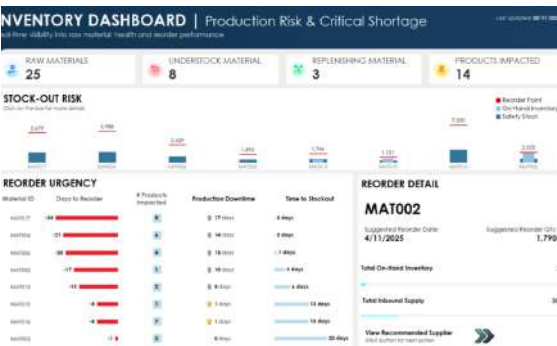
The Solution: Analytics for Manufacturing



The **Analytics for Manufacturing (A4M)** initiative enhances manufacturing decision-making through integrated data analytics for demand forecasting, stock optimisation, and production planning. Key features include the inventory forecasting module, which predicts material needs using historical demand and production data.

The A4M provides:

- Inventory forecasting workflow
- Reorder point recommendation engine
- Inventory health dashboard
- Exception alerting module



Expected Key Outcomes

Dashboards display real-time insights into stock performance, bottlenecks, and potential risks to support proactive decision-making.



Industry Relevance and Contribution

- Delivers analytics-driven planning and optimisation engines
- Supports improved forecasting and logistics visibility
- Enables structured operational data analysis
- Strengthens decision-making for supply chain and production planning
- Contributes to data-led manufacturing management



The Challenge

Poor integration between ERP or accounting systems and warehouse management systems (WMS) creates inefficiencies in inventory and warehouse operations. Many organisations rely on semi-digital processes with manual data entry, leading to inaccurate stock records, picking errors, delayed replenishment, and stock imbalances. These issues reduce productivity and put pressure on cash flow.



The Solution: SnapWarehouse+ AI Optical Character Recognition (OCR)



SnapWarehouse+ AI OCR is an intelligent automation module that bridges ERP / Accounting systems and WMS by digitising document data for warehouse operations. It uses AI-powered OCR to capture and extract data from documents like purchase orders and invoices, populating this information into the SnapWarehouse+ platform.



Expected Key Outcomes

- Reduced manual document processing burden
- Improved data integrity in warehouse documentation
- Enhanced operational workflow automation
- Strengthened inventory visibility
- Reduced data entry inconsistencies



Industry Relevance and Contribution

- Automates document processing within warehouse and logistics systems
- Reduces reliance on manual data entry
- Improves data accuracy and backend efficiency
- Supports digitisation of operational workflows
- Enhances inventory tracking reliability

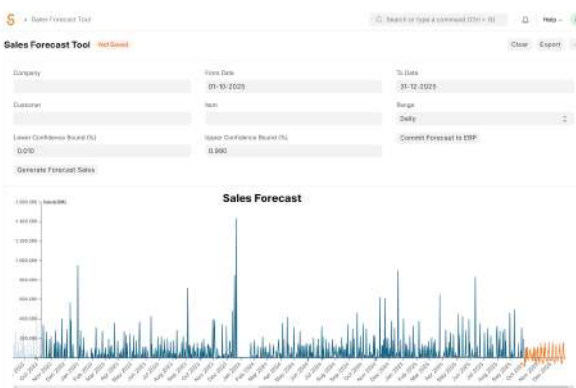


The Challenge

Manufacturers face inefficiencies due to outdated and inaccurate forecasting methods. This leads to stockouts, excess inventory, waste, and high holding costs. Poor forecasting disrupts production schedules, affects delivery commitments, and limits SME growth.



The Solution: SMURPS



SMURPS Compass is an AI-powered demand forecasting and planning module built to seamlessly integrate with our in-house ERP (SMURPS), with optional connectivity to third-party systems. The solution replaces manual, spreadsheet-based planning with intelligent, data-driven forecasting, automated planning insights, and scenario simulation tools that improve accuracy, reduce waste, and increase supply chain agility.



Expected Key Outcomes

- **Higher Forecast Accuracy:** AI-driven models replace guesswork, significantly reducing human error and leading to more reliable demand predictions
- **Reduced Inventory Waste:** The system optimises inventory levels to match real demand, proactively preventing costly overstocking and expiry risks.
- **Fewer Stockouts and Missed Sales:** By improving accuracy, the solution ensures products are reliably available exactly when customers need them.
- **Improved Procurement and Production Planning:** Teams can plan effectively due to clear demand visibility, leading to synchronised workflows.
- **Enhanced Operational Efficiency:** Eliminates the need for extensive manual forecasting work and tedious spreadsheet reconciliation, freeing up resources.



Industry Relevance and Contribution

- Provides an integrated ERP tailored for Small Medium Enterprises (SME) transitioning to digital systems
- Enhances coordination between procurement, inventory, and production
- Supports scalable digital transformation for smaller manufacturers
- Improves structured business planning processes
- Strengthens enterprise-wide visibility

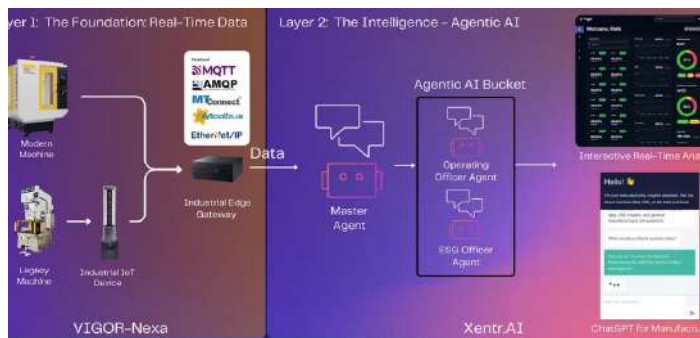


The Challenge

Manufacturers face increasing pressure to balance production efficiency with mandatory compliance requirements such as **ISO, CBAM, ESG, and SMETA**. However, many factories still rely on manual processes and disconnected systems, making it difficult to access accurate, real-time data. This creates operational risks and administrative burden. In one example, a manufacturer with 31 SMT lines faced invoicing delays because traceability data had to be manually compiled into spreadsheets, diverting teams from production activities.



The Solution: Xentr.AI - Agentic AI-powered Industrial Internet of Things (IoT) Platform



- Xentr.AI upgrades factory operations without replacing existing machines.
- It uses plug-and-play IoT devices to collect real-time data from all equipment.
- An AI layer analyses the data, enables natural language queries, and automates reporting.
- Reduces manual data work and spreadsheet usage.
- Improves visibility, traceability, and data-driven decisions.



Expected Key Outcomes

- Accelerated access to production data insights
- Enhanced real-time decision-making capabilities
- Reduced delays in traceability reporting
- Improved production performance monitoring
- Enabled faster identification of production anomalies



Industry Relevance and Contribution

- Consolidates operational data into centralised real-time dashboards
- Supports faster identification of production inefficiencies
- Enhances shopfloor visibility and monitoring
- Strengthens traceability across manufacturing processes
- Enables data-informed operational decisions

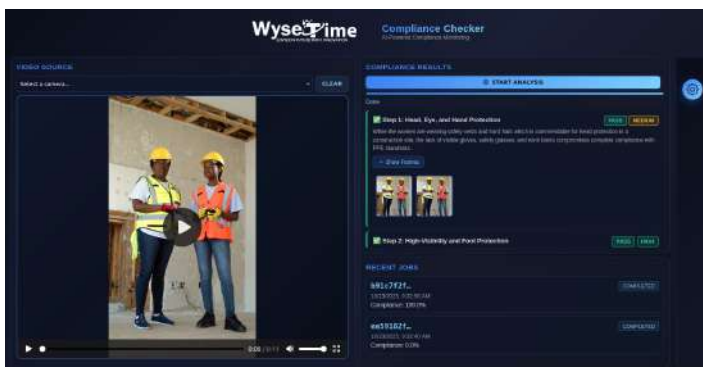


The Challenge

Manufacturers encounter significant challenges with heightened safety incidents and issues of non-compliance, largely stemming from their reliance on manual monitoring processes. This situation leads to diminished productivity and an increase in regulatory risks. As a result, companies face difficulties in maintaining their competitive edge, as they are required to allocate additional resources to address these concerns and ensure compliance with industry standards. When safety data is not effectively integrated with production processes, high incident rates and reactive safety management occur. This leads to missed opportunities for identifying hazards and implementing preventative measures. Therefore, it's crucial to develop an integrated approach using AI where safety data enhances production practices.



The Solution: AI-Powered Safety Analytics



An AI-powered platform autonomously monitors safety and production in real time, instantly detecting violations and automating emergency responses, while integrating with existing factory systems. AI-Powered Safety Analytics provides:

- Real-time safety violation detection
- Integration with ERP/MES/SCADA
- Automated alerts and interventions
- AI behavioural analytics
- Production-safety data correlation



Expected Key Outcomes

Shifts the paradigm to **proactive safety** by dynamically analysing operator behaviour and factory conditions to prevent accidents and significantly reduce incident rates.



Industry Relevance and Contribution

- Enables AI-assisted workplace safety monitoring
- Identifies personal protective equipment (PPE) compliance gaps and operational risks
- Strengthens proactive incident management
- Enhances workplace visibility and governance
- Supports safer industrial environments

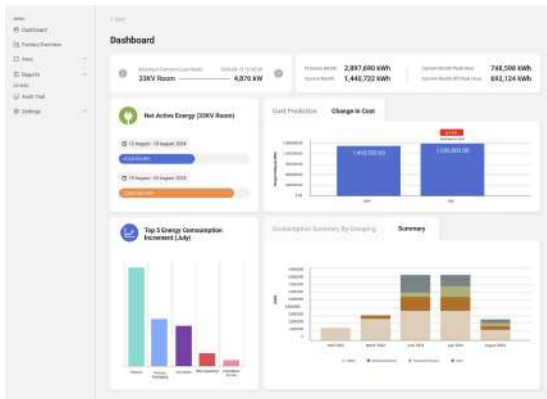


The Challenge

Manufacturers face challenges with unpredictable energy consumption and high capital expenditure for mechanical and electrical (M&E) cable implementation. They are also required to comply with the Energy Efficiency and Conservation Act (EECA) 2024. Currently, the process involves deploying two technicians to manually log electricity usage at each distribution panel across different factory sections. Additionally, identifying panels with abnormal electricity usage or peak demand issues requires manual tracing and investigation, making the process time-consuming and inefficient.



The Solution: Sophic Wireless EMS (Energy Management System)



Using wireless transmission LoRaWAN, it captures electricity data from the power distribution panel across the manufacturing site and centralises viewing within your palm.

- Centralised energy dashboard with live and historical usage by building, line, machine, or area with trends and charts.
- Wireless IoT energy meters to capture energy consumption without complex wiring.
- Built-in analytics and reporting help analyse peak and off-peak usage, identify potential wastage, and generate reports to support EECA 2024 and ESG requirements.



Expected Key Outcomes

- All data is centralised and monitored within the dashboard
- Reduced labour and increased data accuracy
- Uncommon electricity usage and demand peak issues are automatically alerted by Sophic Wireless EMS with location, frequency and history data



Industry Relevance and Contribution

- Provides industrial energy monitoring and anomaly detection
- Enhances visibility into energy consumption patterns
- Supports proactive operational adjustments
- Reduces system deployment complexity via wireless integration
- Contributes to smarter resource management



The Challenge

Manufacturers face frequent unplanned downtime due to machine breakdowns, leading to higher operational costs and inefficiencies. Manual monitoring limits real-time visibility into equipment performance, resulting in reactive rather than preventive maintenance practices. Maintenance teams may take 20–40 minutes to detect and respond to faults due to manual reporting processes. As a result, machine utilisation remains low, at around 65%, due to inefficient scheduling and delayed maintenance actions.



The Solution: Machine Monitoring and Maintenance System (MMS)



The **MMS** is a smart Industrial IoT solution that monitors machine health and improves maintenance management. It connects machines and sensors to a cloud platform to **collect real-time data and detect abnormalities**. The system provides dashboards showing live machine status, **OEE** ($\%$), alarms, and maintenance indicators. When issues occur, it automatically creates incident tickets through integration with the CALMS Incident Management System (IMS), ensuring timely follow-up. This helps manufacturers improve equipment visibility, reduce unplanned downtime, and manage maintenance more efficiently.



Expected Key Outcomes

- Enhanced production tracking and monitoring visibility
- Strengthened process transparency across shopfloor operations
- Improved traceability and operational coordination
- Reduced manual data consolidation
- Supported smarter production scheduling decisions



Industry Relevance and Contribution

- Enhances production tracking and workflow coordination
- Improves integration of operational data across systems
- Supports structured reporting and process transparency
- Strengthens operational monitoring capabilities
- Contributes to smoother digital adoption in manufacturing



The Challenge

Manufacturing facilities struggle with fragmented equipment visibility, delayed decision-making, and inefficient handling processes. Critical assets such as conveyors, stockers, shuttles, Automated Guided Vehicles (AGV), cranes and machine interfaces operate in silos. These issues increase operational cost, reduce throughput, and limit the plant's readiness for Industry 4.0 and autonomous manufacturing. A unified digital twin platform is required to solve these gaps including fragmented equipment visibility, delayed decision-making, and inefficient handling processes. Critical assets such as conveyors, stockers, shuttles, AGVs, cranes and machine interfaces operate in silos, creating a layer of unneeded obfuscation



The Solution: Digital Twins (DTWIN) for Automated Handling Management System (AHMS)



DTWIN is an end-to-end **Digital Twin and Operations Intelligence Platform** that mirrors the whole AHMS in real time. It integrates Programmable Logic Controllers (PLC), stockers, conveyors, sensors, Radio Frequency Identification (RFID), vision systems, Manufacturing Execution Systems (MES), and Supervisory Control and Data Acquisition (SCADA) into one unified 3 Dimensional (3D) environment.



Expected Key Outcomes

- Improved equipment uptime through predictive analytics
- Strengthened preventive maintenance planning capabilities
- Reduced the likelihood of unexpected production disruptions
- Enabled earlier detection of potential machine failures
- Contributed to more stable and resilient production environments



Industry Relevance and Contribution

- Provides AI-powered predictive maintenance capabilities
- Supports early identification of potential equipment issues
- Enhances asset lifecycle management
- Enables integration between legacy and modern industrial systems
- Contributes to more resilient smart factory environments

Conclusion

Fuelling Smart Factory Transformation in Support of NIMP 2030

Driven by MDEC, this Programme strengthens the supply of locally developed, innovative high-impact digital solutions to support Malaysia's industrial transformation under the **NIMP 2030**.

The following 12 validated solutions have demonstrated an appropriate level of technical readiness and implementation maturity, positioning them as contributors to support the national ambition of developing **3,000 smart factories by 2030**. These solutions collectively support the broader technology adoption ecosystem by enhancing industry capability, encouraging digital integration, and facilitating structured industrial modernisation.

1. Operational Efficiency and Production Optimisation

Robopreneur (ROBOFleet); iRadar (Automated Tray Stacker)

Solving the Industry Problem

These solutions address the high cost and inefficiencies associated with manual material handling and production processes. **ROBOFleet** introduces AI-enabled fleet orchestration to coordinate autonomous mobile robots, improving the management of mixed automation fleets and reducing reliance on manual handling. Complementing this, **iRadar's Automated Tray Stacker** automates tray stacking and material movement processes, reducing repetitive manual tasks and improving consistency in production flow. Together, these solutions help reduce labour-intensive operations, improve workflow efficiency, and support more reliable production processes.

Achieving NIMP 2030 Objectives

This domain contributes to the broader NIMP 2030 ambition of enhancing industrial productivity and operational efficiency. By improving material flow, automating selected production tasks, and introducing intelligent fleet coordination, these solutions help strengthen operational visibility and streamline factory logistics. Such improvements support manufacturers in advancing towards more digitally enabled and automated production environments aligned with the smart factory vision.



2. Quality Control and Process Assurance

Dagangan (HIAS Halal IR 4.0)

Solving the Industry Problem

The industry faces significant risks and resource strain due to **manual verification of compliance documentation** (e.g. Halal certificates), leading to human error, slow audits, and potential loss of market access. **HIAS** solves this by leveraging **AI-OCR and fuzzy logic** to automate certificate matching and generate instant, immutable audit trails.



Achieving NIMP 2030 Objectives

This reinforces Malaysia's competitive edge in **high-value, specialised sectors** (Halal industry). By institutionalising **digital governance** and achieving **significant reductions in verification time**, the solution ensures that Malaysian-manufactured goods maintain high-quality and integrity standards, crucial for global export readiness and reputation.

3. Supply Chain and Inventory Intelligence

Hatio SEA (PowrUp AI); OR Technologies (A4M); Snapdec (SnapWarehouse+); Strella Consulting (SMURPS)

Solving the Industry Problem

Manufacturers often face supply chain disruptions due to inaccurate demand forecasting, fragmented inventory systems, manual documentation, and limited stock visibility. These challenges can lead to emergency procurement, stock imbalances, production delays, and inefficient warehouse operations. The solutions in this domain address these challenges through digital technologies. **PowrUp AI** (by **Hatio SEA**) supports AI-driven demand forecasting and inventory planning. **A4M** (by **OR Technologies**) provides analytics tools for forecasting and inventory optimisation. **SnapWarehouse+** (by **Snapdec**) digitises warehouse documentation and operations through AI-enabled processing. **SMURPS** (by **Strella Consulting**) integrates inventory, procurement, and production planning within a single enterprise platform. Together, these solutions help manufacturers improve inventory visibility, reduce manual processes, and strengthen supply chain planning.



Achieving NIMP 2030 Objectives

This domain contributes to NIMP 2030 priorities related to strengthening **supply chain resilience and operational efficiency** within the manufacturing sector. By improving demand visibility, inventory coordination, and warehouse management processes, these solutions support more responsive and stable manufacturing operations. Collectively, they contribute towards building a more connected and digitally enabled supply chain ecosystem aligned with Malaysia's smart manufacturing ambitions.

4. Real-Time Production Intelligence

Vigor (Xentr.AI); **WyseTime (AI-Powered Safety Analytics)**; **Sophic MSC (Wireless EMS)**;

Solving the Industry Problem

Many manufacturers operate with limited real-time visibility into production performance, machine health, energy usage, and workplace safety conditions. As a result, operational decisions are often reactive, relying on fragmented data and manual monitoring processes. The solutions in this domain address these gaps through real-time data collection and analytics. **Xentr.AI** (by **Vigor**) connects legacy and modern machines to capture operational data and provide AI-assisted insights. **AI-Powered Safety Analytics** (by **WyseTime**) uses computer vision to support monitoring of safety compliance and workplace risks. **Wireless Energy Management System** (by **Sophic MSC**) collects energy consumption data from power distribution panels to support energy monitoring and reporting.

Achieving NIMP 2030 Objectives

This domain supports NIMP 2030 priorities related to **data-driven decision-making and sustainable manufacturing practices**. By providing greater visibility into machine performance, energy usage, and operational risks, these solutions help manufacturers strengthen operational monitoring, improve resource management, and support more responsive production environments aligned with the smart factory vision.



5. Predictive Maintenance and Equipment Health

Exiatec (DTWIN); **CALMS (Machine Monitoring & Maintenance System)**

Solving the Industry Problem

The core issue addressed is the high cost and risk associated with **unplanned downtime** in capital-intensive sectors (e.g. semiconductor). **DTWIN** solves this by establishing a **digital twin** that uses real-time sensor data and simulation to predict when a failure will occur, moving maintenance from a costly reactive or fixed-schedule process to a **prescriptive strategy**. **Machine Monitoring & Maintenance System** (by **CALMS**) integrates machine sensors and incident management tools to detect anomalies and support maintenance workflows. Together, these solutions help manufacturers improve operational visibility, monitor production performance, and respond more quickly to operational issues.

Achieving NIMP 2030 Objectives

This domain contributes to NIMP 2030 priorities related to **asset reliability and operational efficiency** in capital-intensive industries. By providing tools that support predictive maintenance and improved monitoring of equipment health, EXIATEC's solution helps manufacturers better anticipate maintenance needs and reduce the likelihood of unplanned downtime. These capabilities support more efficient asset utilisation and can contribute to strengthening operational resilience within Malaysia's advanced manufacturing sector.



Way Forward

Alignment with SIRIM Smart Tech-Up Programme

The output from the Scale-Up TSP Programme can contribute to **filling the technology supply gap** for the **SIRIM Smart Tech-Up Programme** under Mission 2, Action Plan (**Item 2.1.1 Enhance Industry4WRD Programmes to Increase Technology Adoption**). The SIRIM Smart Tech-Up Programme is the **demand-side mechanism** established to help Malaysian SMEs and Mid-Tier companies to accelerate technology adoption. The 12 validated Scale-Up TSP solutions can serve as a **technology menu** for the manufacturing companies as below:

- For **operational efficiency and production optimisation** solutions like **Robopreneur (ROBOFleet)** or **iRadar (Automated Tray Stacker)** can be deployed to automate logistics and manual processes.
- For **quality control and process assurance**, they can deploy **Dagangasia's HIAS Halal IR 4.0** to automate critical regulatory assurance via AI.
- When a factory identifies a need for **supply chain optimisation** (e.g, poor inventory control), choose from pre-qualified options such as **Hatio's PowrUp AI**, **OR Technologies' A4M**, **Snapdec's SnapWarehouse+**, or **Strella Consulting's SMURPS**, which support demand forecasting, inventory optimisation, and warehouse operations through data-driven planning and digital integration.
- For **real-time production intelligence**, manufacturers can adopt platforms such as **VIGOR's Xentr.AI**, **Sophic's Wireless Energy Management System**, and **WyseTime's AI-Powered Safety Analytics**, which provide real-time operational insights, enabling manufacturers to monitor machine performance, safety conditions, energy usage, and production efficiency.
- When a manufacturer identifies a weakness in **predictive maintenance and equipment health**, they can confidently select a solution like **EXIATEC's DTWIN** and **CALMS' Machine Monitoring & Maintenance System**.

Contribution to NIMP 2030

This Scale-Up TSP Programme aims to support the aspiration to achieve **3,000 smart factories by 2030** under **NIMP 2030**. The solutions implemented through this Programme align with key NIMP 2030 priorities, including **digitalisation, advanced technology adoption, and industrial competitiveness**. This Programme demonstrates how locally developed technologies contribute to improving operational visibility, automation adoption, and data-driven decision-making for the manufacturing sector, supporting Malaysia's broader smart manufacturing agenda.



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