



# Automatics for Manufacturing

an innovative solution initiative of

**Mindspeed Communications & InnoDEV & Point Logistix**

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# Executive Summary

- The solution proposition to follow, has emerged as a natural evolution step, based upon the experience gathered by all three parties involved, in the last 10-15 years, having the goal of providing effective process optimization solutions, real time data acquisition & analysis, by unifying synergistic technologies in an end-to-end unified platform.
  - Moreover, the cooperation provides bespoke solutions, covering the complete end-to-end development path, from analysis – prototype development – installation & commissioning – knowledge transfer, thus enhancing the value added proposition with scalability scenarios for faster go-to-market and return of investment.
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# Solution Overview

- End to End solution comprising of 8 main components, providing relevant interoperability.
- Each component is independent, hence the essential solution scalability that insures on demand integration for solution evolution.
- The Real Time Analytics & Statistic component will take advantage of using the complete set of components, since the analysis will be more accurate, complex, as well as meaningful depending on the sets of collected data available.
- The deliverables consist of an accurate, structured & real time information data set, leveraging fast management decision making, as well operational efficiency.



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# Solution Benefits – End to End

- End to End manufacturing process flow visibility
  - Accuracy & Optimization of relevant KPI's
  - Improvement of Lean manufacturing, focusing on  
JIT, Jidoka and Kanban efficient operations
  - Real Time data analytics availability for management &  
operational decisions
  - Mobility services enhancements of day to day operations
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# Real Time Analytics

- Core component relying on the ANDON – NPDIO embedded devices for data acquisition & processing.
- Providing OS & WAN/LAN agnostic functionality, hence leveraging Mobility as key characteristic.
- App. converging all info. from the related components in relevant reports, with specific access levels.
- Data export is supported by means of standard interfaces ( xml, csv, etc ) towards CRM; ERP; third party BI apps.



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# Analytics - Benefits

- ▣ Historical data analysis
  - ▣ “BigData” info. pattern generation for analysis
  - ▣ On demand complete visibility upon manufacturing & logistics workflows
  - ▣ Mobility services process optimization – Sales Force
  - ▣ Management decisions for planning, stock rotation, etc
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# Module Dependencies

- Mandatory component of the Automatics for Manufacturing solution.
  - Core component having as Prerequisite the NPDIO component, for data collection and processing.
  - Third party interfaces connectivity ( PLC, FPGA, CAN,etc ) as single component deployment.
  - Compiling information for all other components composing the Automatics for Manufacturing solution.
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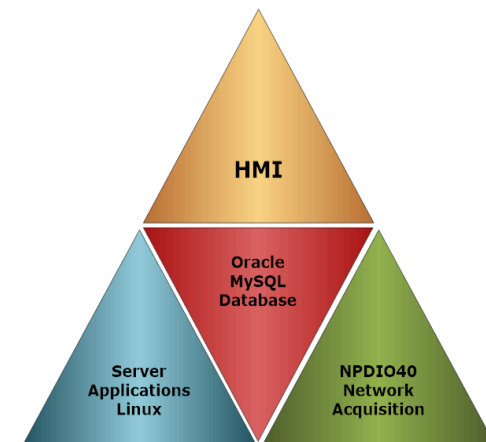


# ANDON Process Optimization

- NPDIO provides vital real time communications, throughout digital, analogic, CNT and CAN interfaces, provided by Ethernet, IP, Wireless or Serial modules, as core component of the solution.
- The process control management platform is web based, for ease of use and portability, providing not just reporting, but control upon relevant processes.
- ANDON statistics are provided on both mobile devices\*, as well as control panels inside the factory.

\* throughout the Real Time Analytics component

High-Level System Elements



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# ANDON Benefits

- Visual aids analysis & statistics of key KPI's & Metrics inside the plant
  - Web based HMI ( SCADA ) management & control application providing mobility
  - Identify abnormalities ( losses/waste ) in the workplace
  - Ask immediate & specialised for help from support areas
  - Communicate the work condition with visual signals, i.e. colors and data
  - Integration of Kanban leveraging mobility, touch screen displays and PTT communications.
  - Usable in both manufacturing and business processes
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# Module Dependencies

- Directly connected to the NPDIO embedded devices for connectivity
  - Complete data visibility throughout the Real Time Analytics component
  - Unified solution infrastructure integrating visual & audio alarms throughout open standards
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# Traceability - Benefits

- It gives all traceability data to be connected with the WMS as follows :
  - Serialization; Integration with PLC, line scanners, RFID readers, voice applications; Batch assigned per finished assembly; Tracking Work in Progress
- Integration with Quality Assurance component
- Material Flow Tracking :
  - Asset Tracking (maximizing productivity and utilization)
  - Electronic Kanban (JIT inventory flow, reduced inventory in process)
  - WIP (track rework, quality tests, integration with manufacturing lines)
  - Inter Warehouse Logistic (unique pallet numbers for integration with customers and stock transfer monitoring )

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# Module Dependencies

- Possible connection with Quality Assurance Module for Optimal Workflows (reducing number of steps to be performed by combining quality and traceability data collection)
- WMS integration allowing the tracking of the serial number within warehouse operations

# Quality Assurance Statistics

- In-Motion embedded devices for measurement
- Application objectives
  - Track quality incidents
  - Document events
  - Manage resolutions
- Monitor non-conformities, defects, deviations and all type of exceptions across operations
- Classification of incidents and associated follow-up tasks



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# Quality Assurance Benefits

- Meet regulatory requirements and reduce time to market
  - Access to real-time metrics allowing continuous improvement
  - Integrate relevant processes and positions depending on company's profile (within production process, warehousing, delivery, etc)
  - Reminders, tasks, auto-escalation policy
  - QA definitions department (end of line inspector, quality manager)
  - Management Dashboards and configurable Metrics and Reports
  - Integration with ERP, MRP, CRM, etc
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# Module Dependencies

- Integration with Production Traceability and WMS component for enhanced visibility

# Warehouse Management System

- ❑ Point Logistix's solution for automation of all workflows inside a warehouse
- ❑ Increased productivity of warehouse workers and improved processes
- ❑ Improved order planning and scheduling
- ❑ Reduced overtime costs
- ❑ Faster inquiries with meaningful data
- ❑ Minimize missed dates, lower returns
- ❑ Lower costs to rectify errors



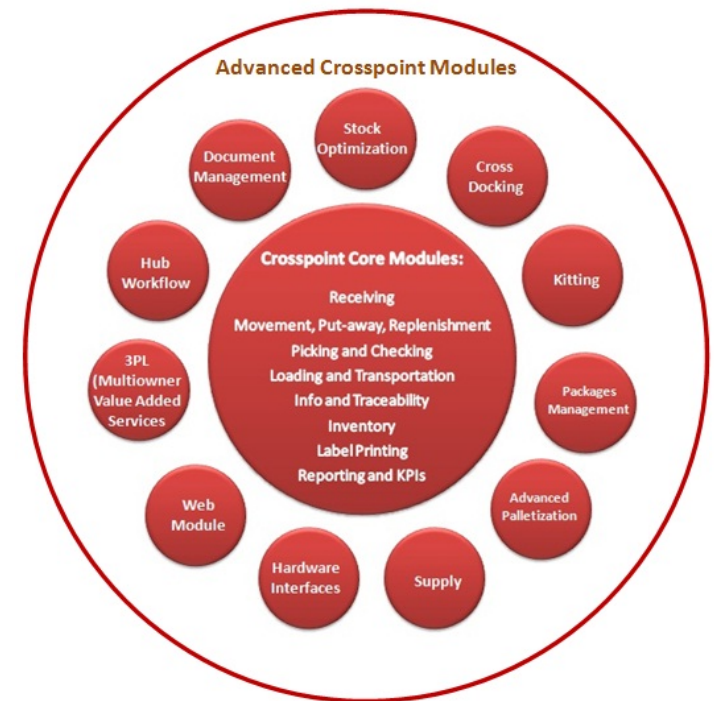
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# WMS Benefits

- Minimize safety stock
  - Fewer shipping errors
  - Accurate inventory
  - Faster picking
  - New capabilities/services
  - Better stock control
  - Real-time access to logistics workflows
  - Happier customers
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# Module Dependencies

- Core component covers all standard processes inside a warehouse
- Specific components allow for advanced features such as document traceability, packaging management, 3PL operations, stock optimization. These components can be integrated with other software solutions (CRM, website, ERP, supplier and customer platforms, TMS and other forwarder systems)
- Manufacturing Traceability for end to end tracking
- Quality Assurance for processes included in warehouse area



# Live Goods Inventory

- Reusing Wi-Fi or RFID infrastructure for localisation purposes
- Specialized embedded devices available ( NFC, ZigBee, etc )
- Buffering techniques reducing implementation costs
- Box ( pallet ) based accuracy providing best benefit - especially for manufacturing
- Stock & goods manipulation inventory “on demand”



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# Live Inventory Benefits

- Live inventory management “on demand”
  - Mobility services – smartphone, notebook & tablet application availability
  - Web based application, providing agnostic OS engagement
  - Fast & accurate decision making for stock rotation
  - Investment optimization, providing WMS transparency
  - Enhancing JIT goals – minimum inventory, based on historical data analytics ( unreliable deliveries, scrap, capacity imbalances, etc )
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# Module Dependencies

- Warehouse Management Systems, for data correlation
  - Comprehensive interdependency with Traceability component
  - Real Time Analytics dependency for data aggregation and inter-modules analytics
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# Group Communications - PTT

- Push To Talk on handheld devices over Wi-Fi or cellular infrastructure for operations coordination
- 8 Groups in simultaneous connection
- Group & User priorities support for escalation purposes
- Android, IOS, Symbian & Windows OS support for smartphones & tablets





# Group Communication Benefits

- Unifying the Barcode handheld devices with Group Communication in Real Time
- Reusing the Wi-Fi infrastructure, with no adjacent investments
- Encrypted communication over Wi-Fi, 2G, 3G or LTE networks
- Communication recording for historical evidence
- Geolocation in Real Time for all group members
- Distress Calls for Emergency purposes
- Outside plant Group Communication extension
- Unified communication – data transfer of pictures in real time

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# Module Dependencies

- ANDON interdependency for emergency situations
- WMS interoperability for process optimization purposes

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# Summary

- 100% bespoke customizable solution, both hardware & software
- End-to-End solution enhancing the proposition of maximizing TCO/ROI
- Optimizing Lean Manufacturing, by providing comprehensive insights upon JIT/Kanban, with focus on optimizing :

Takt Time – Flow Production – Pull System

- Main goals : Highest Quality – Lowest Cost – Shortest Lead Time
  - Mature solution proposition, having mainstream international manufacturing companies in portfolio
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# Contact Information

- For a more comprehensive technical insight upon the Automatics Solution portfolio, as well as for Commercial inquiries, please feel free to contact us at :

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For solution updates, please visit us at [www.mindspeed.eu](http://www.mindspeed.eu)

