



RTLS INTELLIGENCE

FOR USE WITH
**SAP® MANUFACTURING AND LOGISTICS
 MANAGEMENT PRODUCTS**

INTRANAV RTLS Intelligence for use with SAP® manufacturing and logistics management products

Location Intelligence for reliable industrial processes

With **INTRANAV RTLS Intelligence**, your relevant physical objects (such as handling units and other components of a customer order) and transport vehicles are digitally networked with **SAP® Management Products**, such as **SAP® Extended Warehouse Management (EWM)**, **SAP® Manufacturing Execution (ME)**, **SAP® S/4HANA** or **SAP® Supply Chain Management (SCM)**. The real-time location and process data is generated by the **INTRANAV.IO platform** and **INTRANAV Multi-RTLS technology** and consistently synchronized with the **SAP® Management Products**.

Location Intelligence for use with SAP® Management Systems:

- **Process mapping** of the inventory in the warehouse, on the production line or in the yard as a digital twin
- **Process monitoring** through track and trace of production, transport and material flows
- **Location-based process automation** of relevant workflows on the store and production floor
- **Process analysis** based on real-time location data

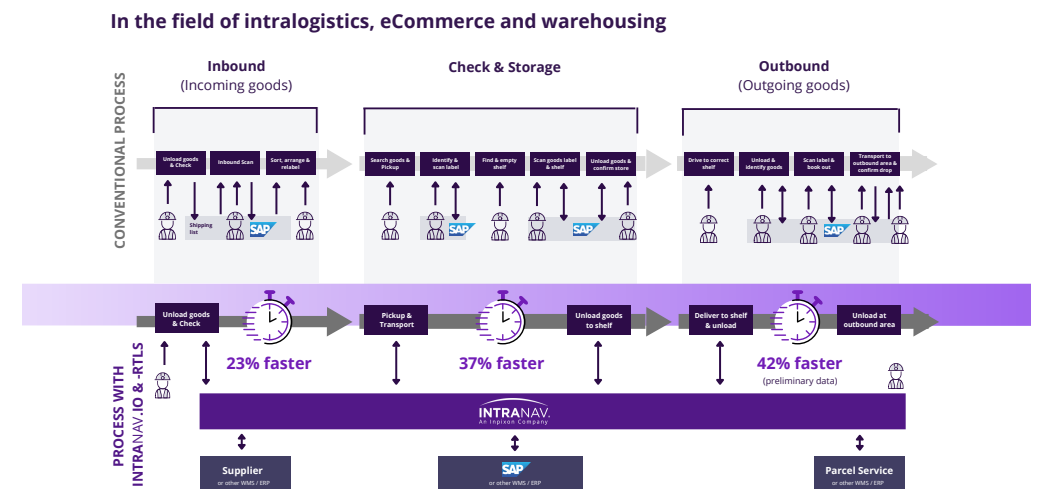
Benefit from dynamic transfer order management and control, scan-free operations, synchronization between physical inventory and **SAP® Management Systems**, plausibility at the production line, status alerts, and error-free operations.

Contact us
www.intranav.com | info@intranav.com

The main functions at a glance

Auto Identification with RTLS	Dynamic transport order management and control	Digital & visual pallet capture (inbound to outbound)
Scannerless goods transport	Autonomous plausibility check in variant production	Automatic cycle feedback on the assembly line
Paperless manufacturing & initiating workflows	Dynamic material Replenishment	Display of sequence- & order-related information (assembly line)

Process optimization key figures that our customer achieved with **INTRANAV RTLS Intelligence** when used with **SAP® EWM**





VIRTUAL Warehouse



INTRANAV RTLS Intelligence provides extended functionality for users of SAP® Extended Warehouse Management

INTRANAV revolutionizes warehouse and transport handling for the first time with the VIRTUAL Warehouse. The **INTRANAV.RTLS VehicleTAG+**, which is installed on the vehicle fleet (forklift, AGV, route train), ensures scanner-free and optimized goods transport. The transport and goods movements are tracked in real-time and mapped in digitized form on the **INTRANAV.IO** platform.

While the pallet is on the forklift truck, booking processes from inbound to outbound are automatically booked in **SAP® EWM**. The last storage location in the rack storage or other buffer stations is also recorded in **SAP® EWM** by software-based touch and endpoint identification.

Virtual zones in the warehouse automatically initiate the transport order jobs of the vehicles, **INTRANAV.APPs** ensure an optimal transport order distribution of the vehicle fleet with a transport order pool and take into account the forklift availability as well as an optimized routing of the vehicles. Integrated sensors ensure transport safety and collision avoidance.

Retrograde reports based on real-time location data now also enable optimization potential of the entire material flow; weak points and waste can be analyzed at a glance.

[Learn more about VIRTUAL Warehouse.](#)

VIRTUAL Manufacturing



INTRANAV RTLS Intelligence provides extended functionality for users of SAP® Manufacturing Execution

With **INTRANAV VIRTUAL Manufacturing**, the entire manufacturing flow is transparent and traceable in real-time as a digital twin via the **INTRANAV.IO** platform. Through RTLS Intelligence, **INTRANAV VIRTUAL Manufacturing** provides the basis for pre- and main assembly synchronization of cycles, cycle-related picking (large components) but also for autonomous generation of transport orders.

With the connection to manufacturing management software such as **SAP® Manufacturing Execution**, information can be provided at higher levels, initiating subsequent orders and information processes. For example, cycle confirmations of racks/transportation equipment/containers can be automatically posted in **SAP® Manufacturing Execution** based on the location on the production line. Automatic plausibility checks based on location data at the assembly line supports process reliability for subsequent assembly. Physical Assembly Groups are digitally connected with **INTRANAV**, enabling paperless tracking of production orders in all assembly branches.

VIRTUAL Manufacturing

The integration of structured location data into systems such as **SAP® Manufacturing Integration and Intelligence** allows extensive process optimization of the production and material flow.

[Learn more about VIRTUAL Manufacturing.](#)

Paperless Factory



INTRANAV RTLS Intelligence provides extended functionality for users of SAP® Manufacturing Execution

With **INTRANAV Paperless Factory**, production-relevant information such as accompanying slips or production orders are provided interactively by e-ink displays (electronic displays), adjustable and in real-time. The respective production status can be retrieved on the display depending on the location and production cycle. Requirements or status feedback are transmitted to **SAP® Manufacturing Execution**, **SAP® Extended Warehouse Management** or **SAP® Yard Logistics** with the push of a button.

The real-time availability of the data ensures short distances and clear instructions, which increases the productivity of employees and accelerates manufacturing processes.

Through the interface to **SAP® Manufacturing Execution**, **SAP® Extended Warehouse Management** or **SAP® Yard Logistics**, location-based information can be used to block or release processes. Automated workflows initiate further processes, such as locking of safety zones (so-called quality blocking or release) or initiate pickup orders.

[Learn more about Paperless Factory.](#)

VIRTUAL Yard Management



INTRANAV RTLS Intelligence provides extended functionality for users of SAP® Yard Logistics

With the help of **INTRANAV's** intelligent process virtualization platform and the digital twin, your previous process flows and interactions with **SAP® Logistics Business Network**, **SAP® Yard Logistics**, or, for example, **SAP® Transportation Resource Planning** are brought to a "virtualized level" and intelligently automated there with the help of this new data level.

With **INTRANAV**, you monitor, control and manage the entire handling process via the **INTRANAV RTLS IoT** platform, from goods receipt to goods issue, including the complex loading and unloading traffic at the loading ramps.

VIRTUAL Yard Management

Authorization steps that were previously performed manually, e.g. via physical logistics terminals on-site, as well as the entire yard communication, ramp access control including ramp allocation, take place with **INTRANAV** through virtual linking and location tracking of the vehicles as a digitized and interconnected plant logistics process.

INTRANAV VIRTUAL Yard Management coordinates and controls all movements of internal transport vehicles and ensures efficient and resource-optimized plant logistics through real-time optimized handling processes and parking space information on the plant site. With **INTRANAV**, you benefit from shorter throughput and waiting times as well as from an increase in transport and goods throughput, thereby reducing costs and increasing the productivity of the entire logistics operation.

[Learn more about VIRTUAL Yard Management](#)

SMART Factory & Warehouse



INTRANAV RTLS Intelligence provides extended functionality for users of SAP® Management Products for Logistics and Manufacturing

SMART Factory

The application areas for **INTRANAV RTLS Intelligence** for SMART Factory include "Production & Assembly Line Automation", "Material Replenishment (eKanban) & Real-Time Production Process Tracking" and "Tool and Robotic Handling".

By integrating real-time location data into **SAP® Management Products** for manufacturing, such as **SAP® Manufacturing Execution**, processes can be tracked and workflows automated. This provides process clarity, stability, and security, and can also shorten process times.

Real-time location data also provides important data when it comes to maintenance; with IIoT, parameter values of objects and machines can be monitored reliably and predictively.

In order to keep the production output constant, relevant characteristic times must be evaluated. Real-time location data provides actual data without delay to analyze granular cycle measurements, zone dwell times, work cycles, just-in-sequence provisioning and more. For this purpose, **INTRANAV** products such as **INTRANAV.APP Flow Status** or **INTRALYTICS** can be used or the data can be integrated into **SAP® dashboards**.

SMART Warehouse

The application areas for **INTRANAV RTLS Intelligence** for SMART Warehouse include "Warehouse Automation", "Intelligent AGV Management", "Social Distance Management" and "Workforce Safety". By integrating real-time location data into **SAP® Management Products** for (intra-)logistics, such as **SAP® Extended Warehouse Management**, processes can also be tracked and workflows automated on the shopfloor, and high-level information can be provided. Resources can be dynamically controlled, goods movements and updates can be automated and performed without scanners, search times can be reduced, empty runs can be avoided and throughput can be increased.

Virtual zones can be defined in **INTRANAV.IO** by Drag and Drop. These zones are used to identify posting processes such as incoming and outgoing goods, intermediate storage or transport processes in real-time without the use of scanners and to post them fully automatically to **SAP® EWM**.

SMART Warehouse

Transport orders can be consolidated into an order pool to optimize movement sequences, and networking with all store floor participants (objects and vehicles) ensures an automated exchange of information and status. Different priorities can be assigned and AGVs, depending on availability and position, can be automatically allocated to open transport orders.

[Learn more about SMART Factory & SMART Warehouse](#)

Track & Trace with Multi-RTLS



INTRANAV RTLS Intelligence provides extended functionality for users of SAP® Management Products for Logistics and Manufacturing

Industry 4.0 begins with the digital networking of warehouses and manufacturing, which includes the necessary capture and digitization of the movements of process-relevant transport vehicles and objects, such as containers, load carriers, equipment, vehicles, and in sectors that require a high level of personal safety, people as well. The collection of this data is a prerequisite for planning, optimization, and quality assurance processes.

With **INTRANAV Multi-RTLS** technology, cost-effective and application-specific location technologies can be deployed and combined, e.g. RFID, Ultra-Wideband (UWB) and Wirepas or BLE. The integration of location data into **SAP® logistics and supply chain** as well as **manufacturing products** or **asset performance optimization products** provide the basis for system and process synchronization, transparency and collaboration of further processes.

[Learn more about Asset Tracking](#)

INTRANAV supports RTLS data integration into the following SAP® products

Logistik and Supply Chain:

- SAP® Extended Warehouse Management
- SAP® Logistics Business Network
- SAP® Yard Logistics
- SAP® Transportation Resource Planning
- SAP® Supply Chain Management

Manufacturing:

- SAP® Manufacturing Execution
- SAP® S/4HANA Manufacturing
- SAP® Manufacturing Integration and Intelligence
- SAP® Digital Manufacturing Cloud

Optimization of the Asset Performance:

- SAP® Asset Intelligence Network (AIN)

SAP® is a registered trademark of SAP® SE or its affiliates in Germany and in several other countries.