

How Omlox and RTLS enable smart manufacturing

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As manufacturers accelerate their journey toward Industry 4.0, the need for real-time visibility, seamless interoperability, and actionable data has never been more urgent. To achieve truly smart manufacturing, companies must not only digitalize their assets and operations but also ensure that different systems and technologies can communicate efficiently. This is where standards like Omlox and technologies like **Real-Time Location Systems (RTLS)** come into play.

In a previous article, we explored how Omlox and OPC UA are contributing to open and interoperable smart factories. In this follow-up, we take a closer look at **how Omlox and RTLS work hand in hand**, enabling manufacturers to gain real-time insights into their operations, backed by concrete use cases from the field.

What is Omlox?

Omlox is an open standard that defines how location technologies can interoperate within industrial environments. It enables the seamless integration of different RTLS technologies, such as UWB, BLE, RFID and GPS into a unified system. This makes it possible to standardize how location data

is collected, transmitted, and consumed, regardless of the hardware vendor.

At the core of this ecosystem is the **Omlox Hub**: a software layer that manages and harmonizes location data from multiple sources. Its key capabilities include:

- **Working across multiple location systems** within the same facility, even when they use different coordinate systems or localization methods.
- **Reliable geofencing**, with logic that accounts for varying technology accuracy, reducing false positives or missed events.
- **Providing open APIs** to easily stream location data into MES, WMS, or analytics platforms.
- **Decoupling the physical tag from the digital asset** being tracked, allowing easy reassignment and tag replacement without disrupting operations.

This interoperability ensures that manufacturers can scale their tracking systems flexibly and avoid vendor lock-in. Some solution providers, such as Pozyx, have fully embraced this approach by embedding the Omlox Hub into their RTLS platforms to deliver plug-and-play location intelligence.

Tracking in manufacturing: full visibility without gaps

In modern manufacturing, visibility of assets, people, tools, and vehicles is essential for efficiency, quality, and safety. However, no single tracking technology can cover all needs or environments cost-effectively. That's why manufacturers are increasingly deploying a **combination of location technologies**, each with specific characteristics:

- **GPS** for outdoor tracking of vehicles, containers, or incoming materials
- **RFID** for low-cost, passive tracking at key checkpoints
- **BLE** for general-purpose indoor tracking with moderate accuracy
- **UWB** for high-accuracy tracking on the shop floor, where precision is critical

This heterogeneous approach ensures full coverage, but it introduces complexity: different coordinate systems, different levels of accuracy, and incompatible data formats.

This is exactly where **Omlox proves its value**. By acting as the neutral layer between these technologies, Omlox:

- **Combines location data across technologies and vendors** into a unified stream
- **Lets you define business logic just once**: your geofences, rules, alerts and coordinate systems, regardless of the underlying tracking technology
- **Reduces integration efforts**, enabling scalable, future-proof deployments

Instead of managing multiple siloed systems, manufacturers can now rely on a single, standardized framework that adapts to their environment while keeping the data consistent and usable across the entire value chain.

Real-world use cases

Manufacturers adopting Omlox and RTLS technologies are seeing measurable impact across their operations. Here are five practical applications where these technologies add real value:

1. **Optimizing intralogistics with forklift & tugger train tracking**
   By tracking the movement of forklifts and tugger trains on the shop floor, manufacturers can analyze transport routes, identify idle time, reduce unnecessary movements, and balance workload between zones. With RTLS integrated via the Omlox Hub, this data becomes actionable in real-time and feeds directly into dashboards, WMS, or MES systems.

2. **Guided loading for logistics staff**
   Ensure that the right materials are loaded into the correct truck, buffer zone, or workstation. By guiding operators using location data and validating geofence confirmations, errors in outbound logistics are minimized. This reduces costly shipping mistakes and accelerates the loading process.

3. **Trigger material requests based on work order location**
   As work orders move between stations or zones, their location can be used to trigger the delivery of required materials at exactly the right time. This ensures **just-in-time (JIT)** material delivery and reduces the risk of early, late, or misplaced replenishments, especially critical in lean manufacturing environments.

4. **Automated, detailed bill of labor**
   By tracking how long workers are present at specific workstations in relation to specific work orders, manufacturers can automatically generate detailed labor reports. This increases cost transparency and improves the accuracy of time reporting without additional administrative effort.

5. **Automatic arrival detection for incoming material**
   Rather than manually scanning or confirming inbound deliveries, manufacturers can use geofencing to detect when materials arrive on-site. This allows automated check-in and material booking in the ERP, ensuring real-time inventory updates and reducing errors or delays at intake.

Benefits for manufacturers

- **Increased efficiency** through visibility of assets and people
- **Improved safety** via real-time alerts and geofencing
- **Reduced costs** from lost tools, downtime, or inefficient logistics
- **Faster decision-making** powered by accurate and standardized location data
- **Future-proof architectures** through vendor-independent design

Getting started with RTLS and Omlox

For manufacturers considering smart factory upgrades, the advice is simple:

- **Start small**: a pilot with one use case (e.g. tool tracking or forklift monitoring) often demonstrates clear ROI.
- **Think interoperable**: choosing open standards like Omlox ensures future scalability.
- **Ask for integration support**: platforms like the Omlox Hub allow you to centralize and use your location data in new and powerful ways.

At Sirris, we guide companies in making the right technological choices. From feasibility assessments to prototype validation, we help connect your operational challenges with innovative solutions.

Conclusion

Location-aware manufacturing is not a vision of the future, it’s a reality that’s being implemented today with technologies like Omlox and RTLS. By focusing on open standards and real-time visibility, manufacturers can make smarter decisions, automate more processes, and stay competitive in an increasingly complex landscape.

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