



ENHANCING SUPPLY CHAIN TRACEABILITY THROUGH SERIALIZATION

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EXECUTIVE SUMMARY

Global supply chains need to be flexible and transparent. Organizations require insight into past, current, and future imports and exports to ensure regulatory compliance, product traceability, and future optimization.

Regardless of industry, all organizations are susceptible to supply chain disruptions, lack of visibility into product timelines, and regulatory audits; however, pharmaceuticals, automotive, and Consumer Packaged Goods (CPG) are among the heaviest hit. Pharmaceuticals must adhere to constantly increasing health regulations. Automotive must balance the intricacies of coordinating with numerous contract manufacturers for the 30,000+ Bill of Materials (BOM) of a car. CPG faces longevity concerns as the shelf life for products is often short and can be affected by insufficient shipment tracking.

Cloud-based serialization software is the key to solving supply chain performance issues. By physically and digitally tagging products and containers with Radio Frequency Identification (RFID) or barcodes, products and shipments

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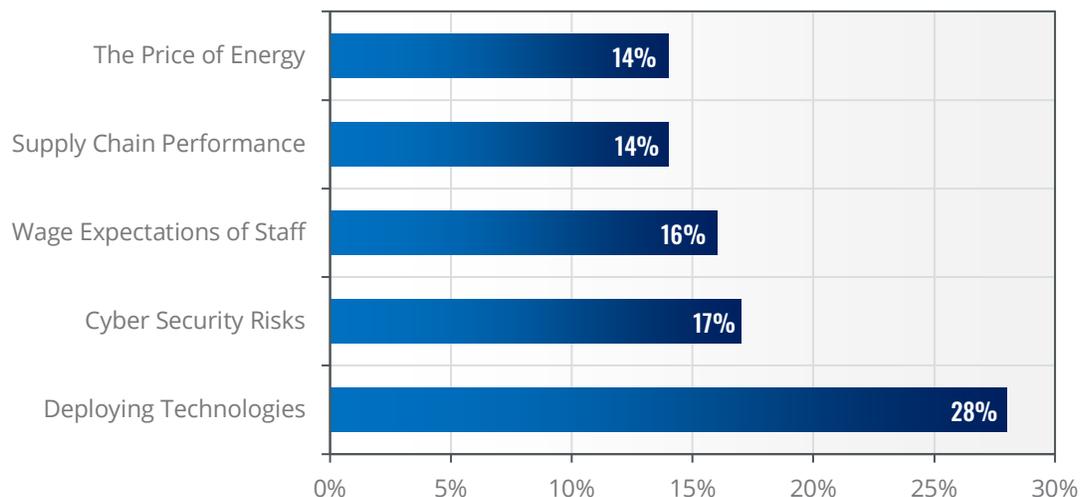
can be securely tracked end-to-end. Serialization from [Movilitas.Cloud](#) assists organizations in tracking products from raw material delivery through last-mile delivery. With Movilitas.Cloud, manufacturers in industries such as pharmaceuticals have enhanced traceability for drug batches at the packaging level, allowing for regulation compliance, real-time updates, and insight sharing with relevant third parties such as contract manufacturers, re-packagers, and local distributors.



TOP ISSUES WITH SUPPLY CHAIN APPROACHES

Supply chain performance is widely viewed as a key business challenge that manufacturers can improve today. Examining process manufacturers, supply chain performance ranked as the 4th most pressing challenge in ABI Research's 2025 Industrial and Manufacturing Survey, outperforming critical challenges such as wage expectations, the rising cost of raw materials, and an aging workforce.

Chart 1: Key Challenges Faced by Process Manufacturers: Business Challenges
(Source: ABI Research)



Manufacturers understand the value of supply chain performance and resiliency; however, they fail to address the key pain points that exacerbate day-to-day operations. Within supply chain performance, keeping track of regulations is the fastest growing business challenge among process manufacturers, with real-time update sharing, product tracking, and eliminating data silos also being of growing concern.

The top business challenge faced by process manufacturers that has been overwhelmingly identified is the inability to rapidly deploy and implement new technologies such as supply chain management software. While solutions to deploy new technologies such as hiring dedicated Information Technology (IT) teams or using third-party System Integrators (SI)

can work for large organizations, these solutions are time-intensive and incredibly costly. Organizations that do not have the prerequisite requirements of having enough capital to employ full-time IT teams or purchase the services of SIs are at significant risk of having time-consuming and failed deployments, along with concerns around not keeping up with market competition as it pertains to digital maturity and transformation.

Without a core solution to resolve issues of supply chain performance and new technology deployment, process manufacturers are susceptible to a host of bottom line-impacting effects. First and foremost is the opportunity cost of not deploying new technology such as Artificial Intelligence (AI), which has become the most demanded functionality for all users of manufacturing software. Second, not addressing supply chain performance issues can lead to violations of industry- or country-specific codes, resulting in regulatory audits or a halt in production if violations are egregious.

Table 1: Current Approaches to Supply Chain Pain Points

(Source: ABI Research)

Issue	Current Approach	Drawback
Navigating Regulations	Initial verification from regional and international bodies on validity of designs and raw materials used	Organizations are not staying up-to-date with foremost regulations, presenting issues of non-compliance, which can lead to audits, violations, and penalties
Real-Time Update Sharing	Email, PDFs, in-house communication tools, Request for Information (RFI)	Updates on product or container shipments are not shared in real time to resellers, re-packagers, and distributors, leading to a delayed final product for the end user
Product Tracking	Excel spreadsheets, Enterprise Resource Planning (ERP), and Supply Chain Management (SCM) software	Manually entering product data for tracking exposes the organization to faulty or inaccurate data entries, leading to internal confusion, lack of product transparency, and a diminished brand image due to late or incorrect deliveries
Data Silos	Utilizing disparate solutions such as ERP, Warehouse Management Systems (WMSs), and SCM to aggregate supply chain information and create an overview of operations	Applications and data produced by separate systems are not standardized or consolidated, leading to employees having to check multiple solutions for an accurate depiction of operations
Inability to Rapidly Deploy Solutions	Use an in-house IT team to deploy solutions within current infrastructure, or work with implementation partners such as SIs or Value-Added Resellers (VARs)	Lack of knowledge exists within internal IT teams to implement complex applications. Using SIs or VARs is costly and takes significant time to deploy new solutions with complex integrations to existing software



CRITICAL TENETS TO OPTIMIZE SUPPLY CHAIN RESILIENCE

With supply chain performance and deploying new technology being of the highest importance, solving the key pain points of regulation, real-time updates, tracking, and data silos is a necessity. The current market approach consists of a concoction of multiple applications, disparate datasets, and archaic record-keeping. Supply chain managers need to find a solution that streamlines operations, increases visibility, allows for transparency among third-party organizations, and can be implemented faster than traditional methods of new software deployment.

SERIALIZATION

Serialization software is the solution for the future of supply chain performance optimization. Serialization works as a digital archive for all product and container information in a centralized repository for easy access. By allocating inbound and outbound shipments with either physical RFID or barcodes, along with digitally assigning numeric values to individual parts and components, all supply chain operations can be traced end-to-end.

CLOUD-BASED SAAS SOLUTIONS

Cloud-based Software-as-a-Service (SaaS) addresses the remaining pain points in supply chain traceability. With cloud-based SaaS, sharing real-time updates internally and with relevant third parties is not an issue, as instant file sharing or updating Application Programming Interfaces (APIs) can be sent without human input. Data silos that exist between disparate software such as ERP and WMS solutions are broken down by pulling insights and raw data directly into the cloud-based solution. Additionally, further integration with external software such as SCM and Product Lifecycle Management (PLM) software can be built out through REST APIs for greater transparency and data sharing.



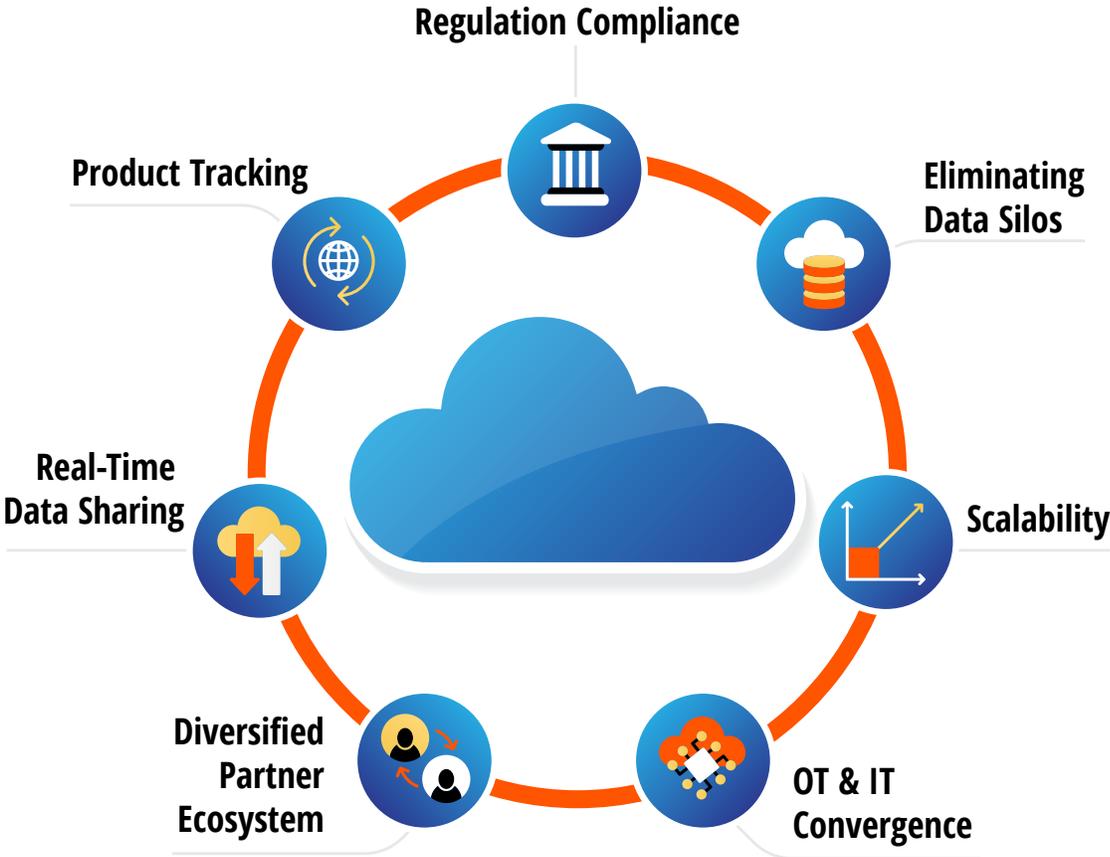
MOVILITAS.CLOUD ON SIEMENS XCELERATOR

Cloud-based serialization software directly solves core issues within supply chains that process manufacturers struggle to overcome. Leading the pack in cloud-based serialization is [Movilitas.Cloud](#), offered on the Siemens Xcelerator Marketplace.

Movilitas.Cloud is a cloud-based serialization software deployed as SaaS to aid manufacturers in industries such as pharmaceuticals, automotive, textile, CPG, and furniture to track products and containers, while enabling real-time collaboration and regulation compliance in the markets of North America, the European Union, South America, Africa, and the Middle East, and Asia.

Movilitas.Cloud on the Siemens Xcelerator Marketplace solves the major pain points that process manufacturers are facing regarding supply chain performance and new technology deployment. Movilitas.Cloud tackles core supply chain issues such as insufficient product tracking, real-time update sharing, and regulation adherence, while Siemens Xcelerator Marketplace hits on speed of deployment for new technology and applications, along with eliminating data silos created by disparate software. By purchasing through the Siemens Xcelerator Marketplace, end users can deploy Out-of-the-Box (OOTB) serialization capabilities and be operational faster than working with SIs, VARs, or in-house IT teams. Furthermore, data silos existing from disparate applications are eliminated through bi-directional data sharing and interoperability of all software sold on the Siemens Xcelerator Marketplace.

Figure 1: Benefits of Movilitas.Cloud
(Source: ABI Research)



MILLA PHARMACEUTICALS CASE STUDY

Milla Pharmaceuticals, an A.forall Group company and a developer of injectable medicines for the U.S. pharmaceuticals market, required accurate product tracking to comply with the Food and Drug Administration's (FDA) Drug Supply Chain Security Act (DSCSA). Milla Pharmaceuticals needed a solution that could manage shipments and warehouse operations of serialized products, while connecting Contract Manufacturing Organizations (CMOs) and third-party logistics on a centralized platform. The end goal was to deploy a solution that could connect, track, and trace all drug batches.

With [Movilitas.Cloud](#), Milla Pharmaceuticals was able to interconnect its global supply chain network. Movilitas.Cloud enables Milla Pharmaceuticals to serialize drug manufacturing and logistics, broadening its supply chain ecosystem, connecting factory floor operations to associated drug batches, and evaluating application partnerships for future deployment. Downstream, this has led to increased operational flexibility, further customer safety, supply chain integrity, full compliance with the FDA's DSCSA, and a wider partner ecosystem for Milla Pharmaceuticals to harness.

SIEMENS XCELERATOR MARKETPLACE

On the Siemens Xcelerator Marketplace, organizations can expand and scale software on a whim. With over 1,000 solution offerings in 30+ industries, Siemens Xcelerator Marketplace is a one-stop shop for all manufacturing needs. Organizations that purchase solutions on the Siemens Xcelerator Marketplace can utilize domain-specific digital connectors so integration with all products and services on the marketplace is seamless. With modular purchasing, users can easily scale software up or down depending on need, creating purpose-fit customized solutions.

Siemens Xcelerator Marketplace unifies applications such as Teamcenter, NX, Opcenter, and Tecnomatix with third-party applications from a global cohort of vendors. Bringing together Siemens software with other leading industry applications from third parties enables organizations to pick and choose a combination of software to create a unique tech stack that complements all facets of manufacturing. The large choice of software offerings in conjunction with SaaS-based solutions and domain-specific digital connectors provided by Siemens Xcelerator Marketplace enable process manufacturers to solve the key pain points of deploying new technology and solutions faster, while also tackling supply chain performance concerns with the use of Movilitas.Cloud and serialization.



CONCLUSION

The status quo of supply chain traceability does not yield desirable results. Organizations around the world face critical issues such as insufficient product tracking, regulation violations, lack of real-time update sharing, disparate software creating silos, and slow implementation speeds when deploying new technology and software. Current methods rely heavily on outdated protocols such as manual product code inputs, Excel and PDF updates, and disconnected data repositories, so organizations need a better way to track products end-to-end.

Movilitas.Cloud on the Siemens Xcelerator Marketplace solves these pain points by offering an OOTB cloud-based serialization platform in the form of SaaS. Using cloud-based serialization, organizations can be assured that all industry regulations are followed, while providing visibility into current, future, and past product shipments. Movilitas.Cloud provides full supply chain traceability and acts as a springboard for future digital transformation in an increasingly cloud-SaaS world.

Siemens Xcelerator amplifies the benefits of manufacturing software purchased on the marketplace. Primarily, the core issues of existing data silos and the slow deployment of new solutions are eliminated with the Siemens Xcelerator Marketplace. Using digital connectors to integrate manufacturing software and bi-directionally share data results in a seamless digital thread connection that unifies software such as ERP, PLM, Computer-Aided Design (CAD), and Manufacturing Execution Systems (MESs) to break down data silos. With Siemens Xcelerator Marketplace's emphasis on SaaS-based solutions, manufacturers in any industry can swiftly implement, deploy, and utilize solutions that use new technology in real time.

When organizations choose to enter into the Siemens Xcelerator Marketplace, exposure to new solutions outside the realm of immediate knowledge occurs. By broadening the availability of Siemens-based and third-party software, the Siemens Xcelerator Marketplace takes the complexity out of deploying new technologies and expedites digital transformation. With cutting-edge hardware and software solutions available on the Siemens Xcelerator marketplace, organizations are being led on the path toward a streamlined and efficient 21st-century operating environment.



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