WHITE PAPER

Running on the Right Platform
How Supply Chains Can Meet the Demands of the Global Economy

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The Importance of the Supply Chain in Today's Economy

In today's global marketplace, an enterprise that leverages the right platform in support of its business strategy will most likely achieve a significant competitive advantage. As companies evolve to meet the demands of the global economy, competitive pressures are forcing them to explore creative ways to overcome the mounting challenges of the digital era.

Organizations that put the supply chain at the forefront of their strategy are poised to thrive in an environment of constantly changing market conditions. This white paper explores the role that a modern, digital platform plays in a supply chain management solution, how it contributes to the critical success factors and why it matters to the overall success of a supply chain organization.

The Challenges of Today's Supply Chain

The evolving marketplace is impacting supply chains profoundly, leaving businesses to navigate a new normal that has yet to crystallize. The growing prevalence of e-commerce has introduced more widespread omnichannel buying behaviors, and with it, smaller order sizes, higher shipment volumes and increased demand volatility and complexity. This deepening complexity is likely to magnify as a new breed of 'Millennial' buyer is fast becoming the most influential population in the market.

As the Internet of Things (IoT) mushrooms into the Internet of Everything (IoE), CIOs are acknowledging their supply chains as untapped operations assets, namely because they don't harness data as strategically as possible. Today, a standalone and linear supply chain management platform falls short for the modern era. When CIOs envision the ideal supply chain management solution for today's business environment, they are undoubtedly asking themselves whether their supply chain:

Is a siloed and mismatched system comprising various technologies that struggle to work as a single, cohesive solution.

Can handle competitive pressures resulting from disruptions primarily caused by disintermediation.

Is capable of evolving quickly to adapt to unpredictable customer demands and constantly changing market conditions.

Can empower the operations to execute on day-to-day needs without project delays.

To effectively navigate these and other challenges, today's CIOs must make the kind of technology decisions to meet these challenges, while continuing to support and help boost the organizational bottom line.

Getting there requires a centralized (but not monolithic), robust technology platform that allows supply chain managers to view their end-to-end supply chain in a seamless, real-time manner. Equipped with insights into their supply chains, managers can make effective, forward-looking decisions that support their organizational goals. Without this insight, the same managers are forced to either rely on historical data or take their "best guesses" on how to run their end-to-end supply chains. Neither of these approaches will work in the fast-paced, high-velocity, complex distribution environment.

So, what does the right supply chain management platform look like for today's global and digital economy?

Six Characteristics of a Supply Chain Platform for the Modern Era

Broadly speaking, to run a business in today's global economy, the right supply chain platform should seamlessly gel all elements of the modern supply chain, from demand planning, distribution and warehousing to transportation and delivery.

To accomplish that, a modern supply chain platform should exhibit the following characteristics:

A cohesive user experience, so that all supply chain management activities can be conducted uniformly with simplicity and ease.

End-to-end visibility, so that stakeholders can quickly identify dependencies and resolve bottlenecks at every stage of the supply chain lifecycle.

Extensibility and personalization capabilities that allow organizations to continuously optimize their unique and ever-changing business processes — without requiring new development.

A robust process execution engine to run the business logic of the supply chain — one that is scalable, secure and meets the varying on-demand high business volumes.

Seamless collaboration through integration with customer and partner ecosystems — like CRM and ERPs, using open-standards and behaving as one engine, while maintaining regulatory compliance.

Insightful decision-making to minimize costs and accelerate growth in response to fast-paced and dynamic business conditions, achieved through analytics.

Cohesive User Experience

To improve efficiency and optimize operations, it is important to have an overarching uniform experience across a variety of supply chain job functions.

Whether it is demand planning, distribution, warehousing, transportation, delivery management or any other related supply chain applications, the platform should play a key role in simplifying and harmonizing this user experience. This should be done by ensuring that the supply chain solution presents the right kind of user interface, to the right role and above all, in the proper context.

For example, if the application involves entering a set of orders in the office, picking orders by a warehouse worker, or planning for delivery of those orders by the manager, having uniform experience is an important first step towards efficiency.

That is why the platform should provide the flexibility, through which role-based user interfaces could be built across numerous types of devices; like multi-monitor desktops, smartphones, ruggedized handheld RF devices, and commercial RFID scanners or tablets. Empowering emerging users to further personalize their experience to suit their needs will increase their efficiency and optimize operations.

The cohesiveness and contextuality of the user experience should go well beyond desktop, laptop or handheld devices to include wearables. The latter is already well-established with wrist or finger-mounted ruggedized scanners. It also encompasses harnesses worn by warehouse operators with built-in voice capabilities for direct picking or packing activities. However, the opportunity is ripe for a new breed of wearables, like eyeglasses providing augmented reality solutions to help identify various products, either in a high-tech warehouse or in a surgical core.

To cover a wide spectrum of devices that are increasingly becoming mainstream, especially in an IoT context, the right platform should be flexible enough to support several interaction modalities. It should also be capable of reading a variety of input mechanisms. Besides keyboard, mouse and touch-based interactions, it should support reading industry-accepted barcode formats and multi-frequency RFIDs, in addition to having the extensibility to keep up with ever-evolving industry standards. It should recognize and generate speech with visual applications, capable of issuing and confirming pick orders. It should also have the capability to interact with micro-controllers attached to a variety of sensors to leverage all sorts of gestural interactions, where mere hand-waving can be regarded as interactive input. This will become important with point-of-use solutions that eliminate touch-based responses, especially in sterilized clinical settings.

Such uniformity of experience coupled with persona-based contextuality, contributes to seamless, efficient and optimized supply chain management activities, which should be conducted with simplicity and ease.

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End-to-end Visibility

End-to-end visibility into every aspect of the supply chain has become a fundamental building block in providing value through customer satisfaction and ensuring repeat business. In any operational supply chain setting (as opposed to production supply chain), the backdrop of this visibility comes in the form of an unobstructed, real-time view into the interdependencies among customer orders, their statuses, the availability of inventory to fill them, along with their associated shipment SLAs.

This end-to-end visibility simplifies the manner by which stakeholders can search, see, identify and intervene with remedial action, potential problem areas in order to remove obstacles that interfere with the efficiency of operations.

The platform should facilitate this visibility through a number of mechanisms that include:

- Preconfigured views that provide visibility into various transactions and their dependencies, especially in recurrent business conditions that need follow-up;
- User interface views and navigations that are contextual to business conditions;
- Multidimensional search capabilities with preconfigured search criteria, to conduct recurrent searches with specific and precise criteria, or ad-hoc explorations with incomplete criteria.

Powerful search and navigation capabilities of a platform play a center role in gaining end-to-end visibility into the entire supply chain processes. Identifying issues or dependencies quickly should pave the way for swift and timely remedial actions to help resolve bottlenecks before they escalate.

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Extensibility and Personalization

While supply chain solutions address a wide class of problems that are ubiquitous to most organizations, there will be situations that require specific process optimizations that are unique to every organization. In such situations, the platform's adaptability and extensibility becomes critical in empowering users and administrators, especially those with non-technical background, to operationalize such processes on-the-spot.

In order to help users leverage corporate information assets, especially as they pertain to supply chain solutions, data abstraction should be at the core of the platform. Metadata driven approaches to data asset management (data-describing data in dictionaries), should enable users and administrators to understand and manage the information ecosystem that reside in the databases. This leads to the ability to browse through supply chain business constructs, without the need for any in-depth knowledge of the physical details of the system. This should allow them to drill across the components, to see how given entities or any of their data elements relate to each other.

Through such abstraction the platform should:

- Allow non-technical users to understand and transform search results into valuable business information, necessary for optimizing critical supply chain processes.
- Enable administrators to configure menu systems and screens to provide end users with the proper set of functionalities to match their role to effectively improve the process.
- Give business stakeholders the visibility and control into the decision logic that governs the runtime aspects of the operational system and deal with exception handling of complex business conditions.
- Permit power users to extend their visibility into the decision-making process by tapping into multiple sources of the supply chain data from within the application itself, in addition to disparate third-party systems.

Metadata-driven abstractions should enable users and administrators to understand and manage the information ecosystem that resides in the databases, without being data experts.

Robust Process Execution Engine

Without a core process execution engine, supply chain solutions become siloed, mismatched systems comprising various technologies that struggle to work together. That is why process execution and management must be at the center of the capabilities of a modern supply chain management platform. This is where the capabilities to run and respond to the operational complexities of the supply chain take shape in a unified environment and as a single, cohesive solution.

At the center of it all, the platform should provide a business logic extension framework, where the supply chain applications dovetail to leverage the platform's process execution and management capabilities through a dedicated engine. Such an engine should include:

- Persistence and data validation in an RDBMS vendor-agnostic way with democratized access to data.
- Process orchestration, job scheduling, queueing, routing, industrial printing and notification to handle the core business of running the solutions.
- Rules engine to inject decision-making logic into business flows, allowing adaptation to changing business conditions, without needing code change.
- Identity management, governance and auditing to ensure regulatory compliance (such as HIPAA/PII).

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Seamless Collaboration

A successful supply chain operation undoubtedly needs to interoperate with customers, partners, distribution channels and service providers in a collaborative ecosystem. However, in today's corporate world, data has become more fragmented than ever before. There are significant challenges when it comes to connecting to various ERPs, EMRs, EHRs, or any other complimentary or ancillary systems to the supply chain in order to behave as one engine. Connecting to these disparate systems, running on heterogeneous computing platforms, needing to process numerous data formats, using a variety of communication protocols, poses a significant number of challenges. These challenges are further compounded as the number and types of systems proliferate. This is especially true when security and compliance requirements pose additional barriers.

The supply chain management platform should be the backbone and play a key role in simplifying data exchange among these various systems, thus ensuring the facilitation of this interoperability challenge. The platform should incorporate an embedded script-based integration engine with a rich set of APIs to create, stage, export, import, deploy and run the necessary interfaces, while continuously monitoring them to expose potential pitfalls.

The platform should eliminate any impedance mismatches among many of the disparate systems with which it needs to interact. The alphabet soup of interchange standards and communication protocols (like HL7, EDI, X12, GS-1, SOAP, XML, REST, JSON, TCP/IP, FTP, HTTP/S and many others), should be replaced by a smooth collaboration environment, where seamless bidirectional data flow ensures that orders come in unhindered, they are processed correctly, error-free shipments go out on time, and customer and partner commitments are met.

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Insightful Decision-making

In a complex distribution environment, stakeholders not only need to have the right insight into their business, at the right time, but also should be empowered to take the right decision in a timely manner. Organizations should leverage real-time, actionable insights into the inner workings of the supply chain in order to drive all other decisions and to provide continuous business value in ever-changing market conditions.

This is where the platform should play a key role in providing a unified environment to enable support for various types of analytical capabilities. Through these capabilities, analytics stakeholders can in real-time see, measure, analyze and compare different performance metrics of the organization's supply chain processes. It should set the stage to transform data into intelligent information, which will ultimately metamorphose into insight that can be acted upon. The platform should include the following:

- Intuitive analytical dashboards with interactive exploration that provide an oversight of supply chain operations to stakeholders of varied focus and interest.
- Data governance to support authoring of content that is robust enough to have the oversight of centralized IT, yet provide the flexibility to cater to a decentralized business-user community through self-service needs.
- Capability to define metrics or use built-in industry benchmarks (like WERC*) to compare and contrast against pre-set targets or across peers in the industry.
- Leverage advanced analytical skill sets of data scientists, by enabling them to easily access supply chain management repositories for data mining, smart data discovery and machine learning, using third-party analytical toolkits — including open source.
- Seamless sharing of data analysis to collaborate on findings for faster reach to insight.

Stakeholders should be looking into all the facets of their supply chain to discover, report and analyze patterns in their operations. Through careful examination of their overarching supply chain processes — be it distribution, warehousing, transportation, delivery or point of use — they should ask themselves what will happen in the future, and strive to answer that through forecasting and anticipation. Only then, and by generating new inferences that are specific to their organization's domain expertise, will they be in a position to not only know what they should do about it, but what they should understand and learn from the experience moving forward.

The platform should empower the organization's analytics stakeholders, not only to put their finger on the pulse of their supply chain to drive performance, but also to become an enabler for the organization to take insightful decisions in a business world, where knowledge and wisdom are powerful success tools.

Rethinking Supply Chain Management:
A Platform Assessment

Becoming an enabled organization in the digital era is a journey to better deliver products and services more quickly and efficiently, deal with competitive disruptions and improve the bottom line at a lower cost. Organizations with a modern, digital supply chain platform should be more agile, able to adapt and scale, and be much more responsive to their customers than their competitors.

To identify the right supply chain management platform that can deliver solutions and meet the demands of the fast-moving business world, one needs to ask a set of questions that truly puts its differentiating competency into perspective:

1. Does the supply chain management platform provide a uniform experience, so that organizations can conduct their daily supply chain activities, across a variety of functions and roles, with ease and simplicity?

2. Does it enable stakeholders to have end-to-end visibility into their supply chains, so that they can quickly identify dependencies and help resolve process bottlenecks?

3. Does it empower users to seamlessly effectuate personalization (without requiring new development), specific to their organization's business needs in order to optimize operations, cut costs and gain competitive advantage?

4. Does the supply chain management platform run on a unified technology stack, which is robust, scalable, extensible and capable of executing on the operational complexities of the organization's supply chain, in the fast-moving economy?

5. Does it easily facilitate collaboration with customers and partners so organizations can interact in their ecosystem using open standards, while meeting their compliance needs?

6. Does it convey the insight that stakeholders need to make informed business decisions, and, therefore, be able to meet their organization's strategic and tactical objectives?

As CIOs evaluate their supply chain operations and ensure that they can weather the challenges of the modern era, these are the questions to which they must feel confident in answering 'yes'; these are the parameters that will provide them with the flexibility, robustness, growth, compliance and insight that are needed to meet the demands of today's fast-changing business needs.

About **Tecsys**

Since our founding in 1983, so much has changed in supply chain technology. But one thing has remained consistent across industries, geographies and decades — by transforming their supply chains, good organizations can become great.

Our solutions and services create clarity from operational complexity with end-to-end supply chain visibility. Our customers reduce operating costs, improve customer service and uncover optimization opportunities.

We believe that visionary organizations should have the opportunity to thrive. And they should not have to sacrifice their core values and principles as they grow. Our approach to supply chain transformation enables growing organizations to realize their aspirations.

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