The Mission-Critical Digitization of SCM

A unique 'supply chain service bus' paves the way for real-time automated solutions

Recently, a top-three global auto manufacturer made a decisive push into digitization, opting to adopt state-of-the-art protocols such as JavaScript Object Notation (JSON) while leveraging technologies like radio frequency identification (RFID) and Internet of Things (IoT). As opposed to the legacy world of EDI a main goal of this technology thrust is to enable more choice in underlying systems and boost data mobility and supply chain integration, including direct collaboration with suppliers.

This move also marked a sharp departure from the automaker's commercial off-the-shelf (COTS) supply chain management (SCM) software. Heretofore, SCM was handled by aging legacy systems as well as non-API-based manual (and highly error-prone) entry systems—a common situation in manufacturing today.

As challenging as this technology drive has been for the automaker, it has been equally if not more challenging for its global suppliers, including one that supplied some 30,000 parts. Its automaker client wanted to move from manual shipment tracking to cloud-based tracking. Batch processing would be replaced by real-time processing of suppliers' orders. Somehow, the supplier had to quickly figure out how to correlate all the information on these tens of thousands of parts into a single manifest that IT could quickly and seamless process. And the automaker had assigned strict deadlines for the supplier to make all of this happen.

TechTarget | Custom Media

HULFT

HARD REALITIES OF SCM TODAY

Welcome to the highly dynamic world of revolutionary change within SCM. As manufacturers face rapidly mounting production pressures, shifting customer requirements, and generally sharper competitive demands, manufacturers realize they must come to terms with outdated SCM systems characterized by manual processes, siloes of incompatible data, and aging legacy infrastructures.

A recent study by McKinsey explored levels of digitization of five discrete areas of operation.[1] McKinsey found that the average supply chain had a digitization level of 43%—the lowest of the five areas surveyed. Only 2% of executives said SCM is the focus of their digital strategies. Yet, McKinsey research found that, on average, "companies that aggressively digitize their supply chains can expect to boost annual profit growth of earnings before interest and taxes by 3.2%—the largest increase from digitizing any business area—and annual revenue growth by 2.3%."

McKinsey adds that, while there was an initial 'burst of innovation' a few years back in SCM technologies, none of them provided the transformative capabilities of linking and combining cross-functional data, such as from inventory, shipments, schedules, and so on. These data often originate at multiple external and internal sources and from a variety of systems, many of them old. One result, McKinsey says, is the inability of manufacturers and suppliers to properly forecast demand and performance with advanced analytics "so planning can become more precise and problems can be anticipated and prevented."[2]

As PcW notes, if the promise of Industry 4.0—the automation and data exchange in manufacturing technologies—is to be realized, a critical element "will be the evolution of traditional supply chains toward a connected, smart and highly efficient supply chain ecosystem." This SCM digitization will enable manufacturers to instantly and correctly react to supply chain disruptions if not actually anticipate them, PcW maintains.[3]

BRIDGING THE GAP BETWEEN THE REALITY AND THE VISION

But as noted earlier, wide gaps exist between the realities of SCM in manufacturing today and the visions and promise of a more fully automated and digitized SCM function. This is particularly worrisome to plant managers and other senior manufacturing executives, whose income—and even their jobs—are dependent upon how often production lines are stopped due to supply chain problems. And below these executives are the harried directors of logistics, warehousing, and other generally non-IT SCM managers. An unhappy boss above them can make their jobs exceedingly trying.

There are several reasons for this gap between reality and the vision of a better SCM function. For years, manufacturers purchased largely off-the-shelf software solutions for various business processes. They often required minimal customization by IT, but generally could be pressed into service quickly. This included automation of many processes formerly carried out manually.

For the most part, this off-the-shelf approach worked well. But, over time, the pressures of competition and drives for enhanced efficiency required the data from these disparate systems to communicate with each other. That's where the problems became manifest. These solutions were never made to communicate with each other. The variety of data that spewed out in multiple formats made such data exchange highly cumbersome at best, and impossible in the worst cases.

In addition, finding and retaining IT talent capable of working with legacy systems and older databases proves very challenging today, particularly for SCM-oriented operations in areas where IT talent is scarce to begin with.

TOO MUCH INCOMPATIBLE DATA, TOO MANY SILOES

These data originate in different, often proprietary databases, as well as from legacy systems that are literally decades old. Many modern systems cannot even read the data these systems produce. And, as mentioned, finding staff to manage them is almost impossible. This drove one top-three automaker to go on an acquisition binge, buying up integrators with staffs having the required skills to operate legacy systems.

1   Digital transformation: Raising supply-chain performance to new levels. McKinsey & Company, November 2017, McKinsey & Company, 2018.

2   Ibid.

3   Industry 4.0: How digitization makes the supply chain more efficient, agile, and customer-focused, PcW Network, January 2017.

"Tying these disparate systems together into a cohesive SCM function viewed via a single pane of glass driven by standard APIs has largely been a pipe dream to this point," notes Dmitry Dukhan, vice president of Cloud & Networking at Link Solutions Group. "But that is exactly what SCM leaders want and need to drive greater efficiency as well as better vision into overall SCM processes."

Many thought and still believe that artificial intelligence (AI) and machine learning (ML) techniques can resolve stubborn manual SCM functions. The reality is that for AI/ML solutions to work, picking out discrete, previously unforeseen data patterns to derive better insights and predictive capabilities, they need data—normalized data. They need lots and lots of normalized data, not just historical data but current operational data on a regular basis. And, with the bulk of that data resident on these aforementioned incompatible systems, AI-enabled SCM also has remained a pipe dream.

NEW VISION FROM HULFT

Essentially, what's needed is a sort of 'universal decoder ring' capable of quickly normalizing SCM data from wherever it originates, then moving it into consolidated databases, data lakes, and other repositories. This task of taking isolated islands of incompatible data and then normalizing it is at the heart of solutions supplied by **HULFT**, which stands as the only company undertaking this task for manufacturing today.

HULFT delivers the ideal vision for SCM in that it takes the Manufacturing Execution System (MES) then links it to Warehouse Management and the Historian. HULFT does so by aligning the master list of what has been manufactured using inventories on the parts shelf with the protocols of what part-picker tools can understand. HULFT then attributes a bar Quick Response (QR) code, an RFID tag, or any code that effectively reads itself to overall parts categorization tools. Subsequently, any modern display systems or systems of integration such as web with proper Representational State Transfer (REST) APIs

can be integrated. Thus, from product manufacturing all the way to distribution, all parts in the process are fully visible.

HULFT Integrate is part of HULFT's comprehensive data logistics platform. Its intuitive, low-code user interface allows SCM managers to get connected to all their diverse data sources and diverse formats, no matter where they originate. HULFT Integrate is a purely graphical environment and is easily manipulated using simple-to-understand graphical icons. While being aimed at IT professionals or non-IT professionals with an above average 'IT IQ,' the solution dramatically speeds vital SCM processes without requiring developer resources.

TAMING TOUGH DATA

Moreover, this ability of HULFT Integrate to normalize vast quantities of formerly incompatible and disparate data can enable AI/ML solutions to finally be put to work efficiently. With all data normalized, these solutions have what they require, namely vast and continuing supplies of SCM-related data from which new insights and predictive capabilities are enabled.

The HULFT data logistics platform for manufacturing includes:

HULFT Director, which makes fast and easy work of automating, orchestrating and accelerating the monitoring and managing of complex data transfer projects. HULFT Director is essentially the command and control center for watching the progress of these data transfer projects, so SCM staff can be sure data was delivered to where it needed to go and in the timeframe it was supposed to arrive. Highly graphical in nature, HULFT Director features configurable, user-generated/specified widgets to help sort and manage what you want to track.

HULFT Transfer is compatible with a very wide range of operating systems and is a new standard for sending mission-critical data reliably, securely and efficiently. It can handle character code conversions, connecting with different operating environments, and dealing with a range of file and code system types. By using industry-standard TCP/IP protocol security, HULFT Transfer delivers your data faster and won't over-burden your network.

In one instance, a $30 billion global manufacturer built an online ordering system leveraging the HULFT data logistics platform. The system was meant to renovate an aging EDI solution by transforming that platform into a highly automated online ordering system to process purchase orders. The net result to the manufacturer was a 45% cost reduction in these processes and overall improvements in system reliability—a full 50% cost savings more than initially anticipated.

For the last 25 years, HULFT has worked with more than 10,000 companies spanning finance, health care and manufacturing sectors across 43 countries. HULFT occupies the second largest global market share and is among the most trusted and widely adopted data logistics platforms on the market today.

Click here for more information on HULFT and what its solutions are doing to digitize and automate the SCM function in manufacturing.