Oracle+NetSuite+Advanced Manufacturing
IS BREAKING BARRIERS FOR MANUFACTURERS

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Oracle+NetSuite+Advanced Manufacturing Is Breaking Barriers for Manufacturers

NetSuite, now an independent business unit (IBU) of Oracle Corporation, is the leading vendor of cloud enterprise resource planning (ERP) solutions for mid-market manufacturers. NetSuite's ERP solution is built in the cloud and has been developed to support the broader set of needs of modern manufacturers using a complete suite of enterprise application systems—including financials, customer relationship management (CRM), human capital management (HCM), omnichannel commerce, order processing, and inventory management. Manufacturing has always been a key vertical for NetSuite, and NetSuite continues to add capabilities that are critical to helping this industry meet the business challenges of a rapidly changing digital and global economy.

NetSuite's ERP solution is used by more than 40,000 enterprises in more than 100 countries. This experience is brought to bear in helping meet the ever-changing business environment at manufacturers. Not only does the next product need to be manufactured and sold, it might need to be monitored with Internet of Things (IoT) sensors so that a customer pays only for the time the product is in service. Or the next customer order might come from any number of different sales channels (telephone, online, or electronic data interchange [EDI]). Or the next customer might be in another country, and closing the sale means being able to accept payment in that foreign currency or the customer will walk away from the deal.

Manufacturers' business processes have evolved (figure 1) and are no longer a simple process of sourcing, making, building, shipping, and invoicing the product. A modern manufacturer has to manage a complex process that entails a worldwide network of suppliers, subcontractors, and purchasers. To reach new markets, the manufacturer may also need to reach into new sales channels that support business-to-business (B2B) and business-to-consumer (B2C) selling. These models also continue to evolve rapidly, and many manufacturers find it difficult to support the arising complexities with their existing systems. NetSuite has built a unified system that manages customers, orders, items, and inventory, seamlessly integrated across e-commerce, marketing, sales, sourcing, production, warehousing, and support.

Figure 1. Complex business process of the modern manufacturer

NetSuite Supports Complete Range of Business Processes

Manufacturers often make due with a number of point solutions to support different business processes. Manufacturers will often have a CRM solution, an e-commerce system, some supply chain management (SCM) applications like a warehouse management system (WMS), and then a financials system that they try to stuff everything into to figure out if they can pay the bills this month. NetSuite's goal, from day 1, has been to build a complete end-to-end solution to support all the functional areas of the business. Over more than 20 years, NetSuite has built the unified suite of applications to support manufacturers across all the major processes. Figure 2 gives a high-level view of these major processes for manufacturers.

Each row represents key functional areas of your business describing the value chain. Engineering, where all of your master and production data live, is at the top because it is the first area for defining critical components to support production.

Marketing is often an afterthought for many manufacturers because, traditionally, the manufacturer operates in a B2B environment with a small customer base. Business trends are moving manufacturers in the direction of selling direct to customers, which makes Marketing a much more critical area for driving revenue.

Order Management is, of course, core to a business. Traditional order entry methods need to be supplemented by an e-commerce platform.

Figure 2. NetSuite business process support

Supply Chain Management is a critical area where manufacturers can differentiate themselves from their competition. Streamlined processes, which balance supply and demand and account for fluctuations in the supply chain, support the capability to have the right inventory at the right time, improving overall customer satisfaction.

The manufacturing process is critical to ensuring a company can deliver goods to its customers. Having visibility into production operations supports more accurate quoting of lead time to customers.

A support system ensures that you are able to service your customer base effectively through case management, return authorization, and support for warranties and repair management.

Financials are at the foundation of everything NetSuite does. NetSuite supports multi-company, multi-language, multicurrency, multi-book organizations.

NetSuite considers mobility to be at its core—ensuring that you can access your system wherever you are and with any device. SuiteCloud is a critical part of the solution, ensuring that a company has the flexibility to tailor the system to meet its unique needs without version-lock or need for extensive testing to support upgrades.

Advanced Manufacturing Plays in the Big Leagues

The advanced manufacturing solution extends the manufacturing functionality in several key areas. The advanced Manufacturing functionality was greatly enhanced with the acquisition of IQity solutions in 2016. These advanced manufacturing functions were built for NetSuite from the start, and are fully integrated into the NetSuite ERP application suite. The advanced manufacturing module adds the functionality shown in figure 3 to NetSuite's ERP package.

Key strengths of advanced manufacturing include:

- Finite Scheduling—ensures that work proceeds at an even and efficient pace through the facility.
- Capacity Planning—verifies that you have sufficient resource capacity to meet the scheduling requirements.
- Shop Floor Execution—allows for the collection of downtime, production loss, and production results.
- Quality—in process and receiving quality control recording and reporting.
- Reporting—all manufacturing information is recorded and reported on in real time.

Advanced manufacturing has a finite scheduling engine that automatically slots work orders (WOs) into the appropriate work center upon release. Work orders are released using a multi-variable advanced work order release view that allows the production manager to preview and edit the production schedule prior to release. The master production schedule lists all WOs and is filtered by WO status.
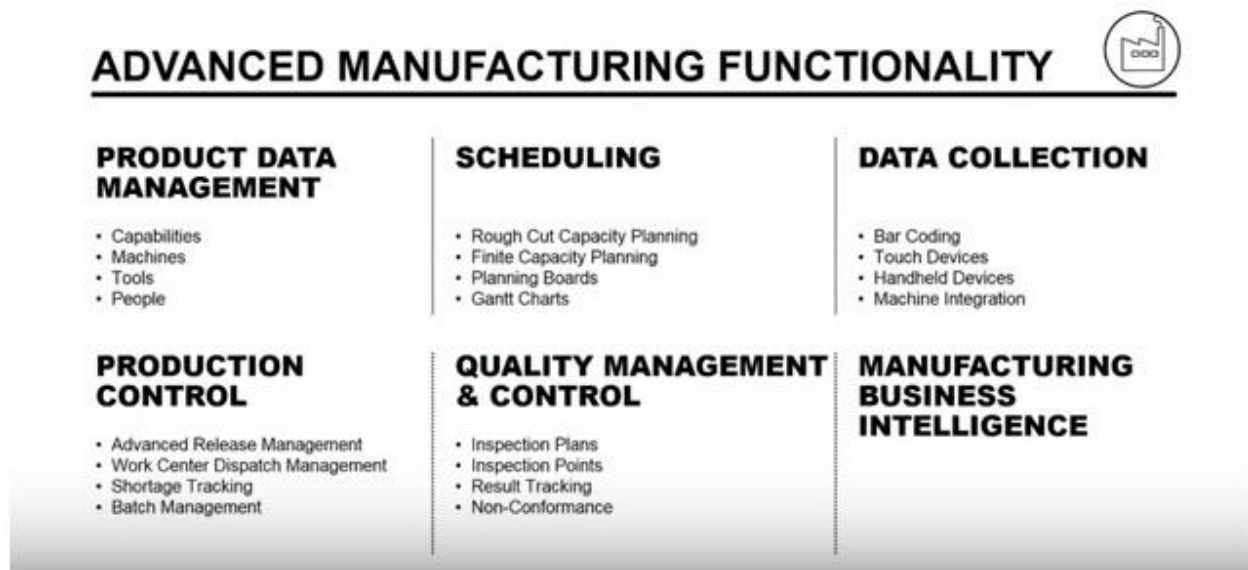
Figure 3. Advanced manufacturing functionality
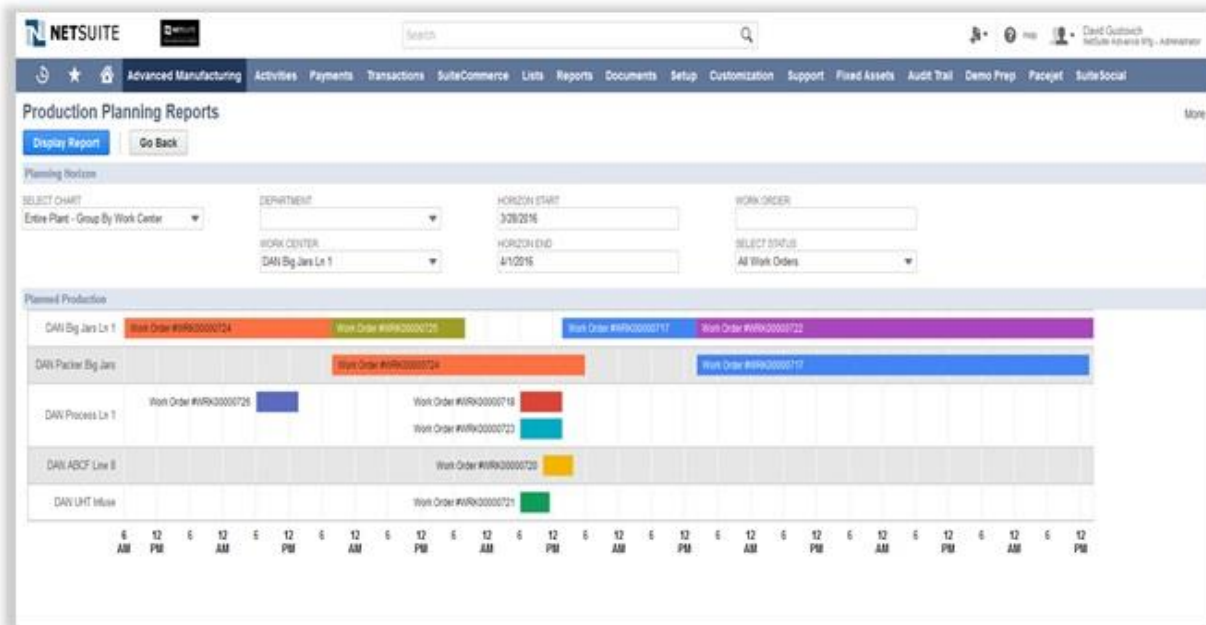
Figure 4. Work Order (WO) management screen, calendar view

A rough-cut capacity plan (RCCP) summary shows cumulative work center load and remaining capacity. The plan displays the machine utilization and labor utilization. The WOs can be viewed and managed via a number of different screens and reports. Advanced manufacturing provides flexibility in managing a WO. WOs can be scheduled at the top or header level, or individual operations within the WO can be managed separately. There is an easy-to-use calendar view for managing WOs (figure 4). The RCCP can be generated based on different plan types, including planned orders, sales orders, or the demand plan.

The finite capacity planning also supports scheduling work based on other product classifications, such as color or flavor or any other attribute a manufacturer may use to group manufacturing runs together. For a textile manufacturer, grouping runs by the color will minimize the changeover time between colors.

For Shop Floor Execution, touch pad tablet data entry is simple to use. The actions are performed on a real-time work queue. The active job run is shown in green, with the WO sequence based on the finite shop floor schedule (figure 5). Other common warehouse transactions, such as material issues, labor recording, downtime, scrap, and production, are also available for a tablet in support of material management operations.

An integrated bar code scanning app is provided in advanced manufacturing. The app supports handheld scanners and uses bar codes for recording manufacturing operations. For example, a work order traveler may be generated that has the batch record information along with all the work instructions needed for the manufacture of the particular batch. The app supports a wide range of

manufacturing, inventory, and shipping transactions. The bar codes are read using a scanner to minimize data entry errors, speed operations, and ensure proper recording of all manufacturing operations.

NetSuite has always integrated quality tracking with its manufacturing solution. However, quality management was seen to be an important function for other industries as well, so NetSuite is rolling out a new quality management module that will integrate across the entire suite. The quality system is built around three distinct roles of a quality department: quality administrator, quality manager, and quality engineer. The system supports creating quality procedures and recording them against quality inspection records, which are reusable system objects. Inspections can be qualitative and quantitative and have several more advanced features, such as the ability to specify skip lot, sample sizes, and failure rates. Inspections can be automatically triggered based on the item/vendor/location associations, and integrated workflows can be used to trigger other events and notifications. The newly enhanced and upgraded quality module again shows how NetSuite continually and rapidly innovates.

Finally, the advanced manufacturing module provides numerous reports covering all aspects of the manufacturing process. NetSuite is built with integrated reporting as an important part of the overall user interface. The NetSuite reports are real-time views of the data that can be pulled as a list, charted, or graphed, and most views allow the user to drill down into a detail to see corresponding information. The reports show all areas of advanced manufacturing and can be viewed online (via any device) or, in the case of a shop floor traveler, can be printed if needed.

Figure 5. Touch tablet data entry in advanced manufacturing

SuiteSuccess Helps Manufacturer's Take the Leap to ERP

NetSuite's solutions are 100% cloud. That means all a user needs is an internet browser, no matter the device, and a network connection to run NetSuite solutions. Having the power to run enterprise solutions from only a browser is transformational for businesses. Implementing a system no longer entails setting up the server infrastructure, databases, and application software needed to support the business. Nor does a business have to worry about system maintenance or ensuring compliance to security standards such as Statement on Standards for Attestation Engagements No. 16 (SSAE 16), Payment Card Industry Data Security Standard (PCI-DSS), or the US-EU Safe Harbor framework. The vendor has taken care of all these compliance standards, leaving the business free to focus on actually running the business.

Of course, managing infrastructure, security, and associated support is only one aspect of an ERP system. To meet an organization's unique requirements, the ERP system still needs to be configured for the particular vertical, such as manufacturing, and then for the specific organization's unique business processes.

This is where NetSuite's SuiteSuccess comes in. It is a methodology and a set of tools to help NetSuite customers get up and running fast and have a clear path for enhanced business digitization. The methodology focuses on four key areas:

- Continuous Customer Lifecycle Engagement: Leverages NetSuite's deep understanding of the manufacturing business to ensure success through a consultative approach that spans the entire customer lifecycle, from sales to implementation to support.
- Leading Practices in Manufacturing: SuiteSuccess brings best practices, tools, and templates to bear, speeding implementations.
- Intelligent Phased Implementation: An implementation broken down into a set of phased steps. The steps are developed as an agile process and built from over two decades of experience from thousands of manufacturing deployments.
- Business Intelligence: One of the biggest problems with ERP solutions is not getting data in but getting data out. SuiteSuccess solves this problem by delivering hundreds of prebuilt reports and valuable dashboards that are developed for personnel with similar roles in the industry.

The stepped aproach to system implementation is shown in figure 6, appropriately titled the NetSuite Stairway. The stairway takes a business through a phased journey from initial system remediation, where the core financials, order management, inventory management, the CRM, and operational busines intelligence are established. The next managed phases will help a company expand, innovate, and enhance business operations as needed. The final stage sets up the business to be truly tranformational, with the use of best practices in

marketing automation and price or margin management. The methodology is flexible and allows an organization to advance through the phases using an agile approach.

This phased approach to implementation is different from other standard ERP industry practices. Most ERP implementations take more of a big-bang approach to the implementation. The big-bang approach attempts to implement all the parts of a larger ERP system at once. The problem is that all these additional ERP components, such as advanced supply chain management and field service automation, can't be properly undertaken until the core processes are in place and understood. Only after having a handle on the core operations can a company know which of these additional enhanced modules are needed.

For example, a company may be certain that it needs to put in place a sophisticated WMS with the latest pick-to-light add-on to speed the operations. However, after putting in place proper operational core systems, the company realizes that it can reduce the number of stock keeping units (SKUs) by half, eliminating the need for the more complex and pricey WMS.
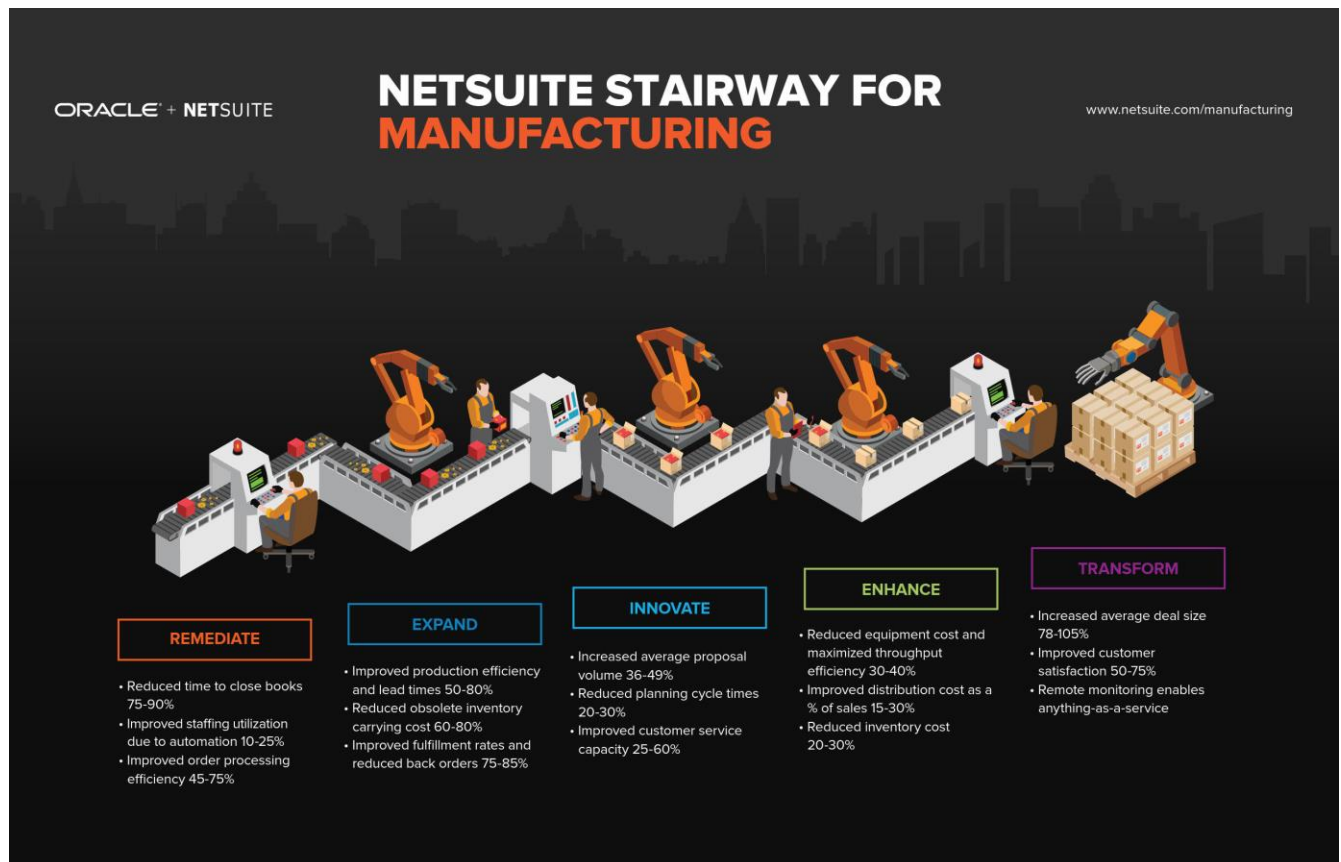

Figure 6. NetSuite SuiteSuccess stairway for manufacturing

Oracle's Muscle Supports the Next Big Steps

The purchase of NetSuite by Oracle for more than USD$9 billion was closed a little over a year ago. There was some trepidation about the acquisition. Many industry observers feared that Oracle would absorb NetSuite into the Oracle corporate machine and put out the fire that made NetSuite what it was able to become as an independent company. At this time, all signs point to Oracle learning lessons from past acquisitions.

Oracle is letting NetSuite operate as a separate business unit and continue its mission of servicing mid-market organizations, while providing additional resources to support global growth. And NetSuite can draw on the extensive Oracle portfolio of products to support its mission. As part of Oracle, NetSuite is now under less direct pressure to keep Wall Street and the investment community happy on a quarterly basis—NetSuite can look at fulfilling longer-term goals.

The acquisition by Oracle has enabled NetSuite to push into global markets much more aggressively than would have been possible on its own. The push is possible because Oracle already has a worldwide footprint with personnel, offices, and data centers across the globe. NetSuite has explained that one of the bigger expansion problems it faced was not that the software couldn't be modified to support additional geographies and localizations, but that the vendor needed all the other resources in place to support customers in the additional regions.

NetSuite is also very excited about other Oracle technologies that it will be able to leverage. The Oracle portfolio is extremently broad, and the problem is in deciding on which of these technologies to move ahead with first. Initially, NetSuite has announced plans to fully integrate the industry-leading Oracle Planning and Budgeting Cloud Service and Oracle BlockChain Cloud Service within NetSuite. NetSuite will also be able to access all the latest Oracle database and engineered systems, and other cutting-edge technologies such as the Oracle Internet of Things (IoT) and Oracle artificial intelligence solutions.

Breaking Down Barriers with NetSuite

Small to midsize manufacturers business models are changing, and to compete in this environment requires the right tools. An ERP system that manages current and future business challenges can be the difference between success and failure.

NetSuite delivers 100% cloud solutions that are accessed over the internet. NetSuite's customers can access their systems on virtually any device with only an internet connection. Much like turning on a light, a NetSuite customer simply turns on his/her phone to check the status of the latest sales or purchase order, or

to update time and expense reports. This is the way people work now, and they should expect no less from an ERP system provider.

The NetSuite application suite has supported the move of thousands of companies to a modern cloud ERP solution. The debate over whether to purchase software that runs in the cloud or runs on premises is basically over. The market dominance (and market capitalization) of players such as Salesforce for CRM and NetSuite for ERP shows that running software over the internet is the future of software. Other ERP vendors have supported manufacturers but have been waiting around for the past five or even ten years without making significant changes to their software. Many of these vendors are now too far behind the curve to ever catch up with software solutions such as NetSuite that were developed for the internet age.

NetSuite's unified suite of solutions is ready to support the changing business models of today's manufacturers. The advanced manufacturing solutions available in NetSuite give smaller companies access to capabilities that were not too long ago available only to larger companies with much larger information technology (IT) budgets.

NetSuite continues to see manufacturing as one of its key vertical markets and will continue to invest heavily in functionality to support manufacturers. At the same time, NetSuite supports a broad range of organizations so is ready to support areas, such as services offerings, that traditionally haven't been offered by manufacturers.

With the backing of industry heavyweight Oracle, NetSuite is here to stay. NetSuite can now take advantage of the large portfolio of products and resources within Oracle. Manufacturing organizations that once could only dream of using a world-class ERP system now can leap this hurdle and focus on future business challenges.

About the Author

Ted Rohm is a research analyst at TEC focusing on ERP manufacturing solutions. He has over 20 years of experience in large-scale selection, design, development, and implementation projects, primarily in the biotech/pharma industry.

Prior to joining TEC, Rohm worked for a number of companies including Oracle, Syntex, and Genentech (now part of The Roche Group). Rohm worked with Genentech for 13 years, starting as a senior programmer analyst responsible for building custom applications using the Oracle Tool suite in support of sales and marketing and product distribution. He then became senior manager of commercial systems, where he directed the development, deployment, and operations of enterprise-wide applications for the sales and marketing departments. Rohm was the principal systems architect during his last few years at Genentech, focusing mainly on the implementation of SAP ERP and its integration with other systems.

Rohm holds a bachelor's degree in electrical engineering from Columbia University and a bachelor's degree in physics from Allegheny College.

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