

Digital Production Operations – A Roadmap to Industry 4.0



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Making Industry 4.0 a reality

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Many challenges face the manufacturing industry today as the market moves more towards extreme design and demand variability, expectations of rapid innovation and the onset of markets of one. To address these challenges manufacturing companies are looking to leverage the principles of Industry 4.0 to [drive efficiency into their production operations](#). Success requires a roadmap.

Digital transformation is not a simple task, it's a journey. Companies know they must make their processes more automated and integrated to make them more efficient, they need intelligent, interconnected systems to drive processes and they need visibility into operational performance – this is the essence of Industry 4.0.

Recognizing the complexity of this journey, SAP developed three Industry 4.0 packages to guide this transformation and enable customers' digital business strategies. The

Jumpstart Package is designed to initiate operational and business system connectivity as a foundation to monitor operational equipment effectiveness and provide insight into shop floor operations. The Accelerator Package establishes an automated, paperless, manufacturing execution and control environment. The Advanced Package, slated for delivery in 2017, is intended to provide advanced manufacturing insight and controls, machine learning and predictive analysis in quality and maintenance.



Jumpstart Package - Getting started by knowing where you are

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Accelerator Package – Improving execution and control

Advanced Package – Take manufacturing to new heights

It's been said that if you don't know where you're going any path will get you there. The pathway to industry 4.0 will require a specific plan, one that begins with understanding your existing environment.

The Jumpstart package first assesses your current systems connectivity and the level of automation in your processes. The next step will be to implement a more robust IT/OT integrated system architecture by integrating business and operational systems to the shop floor.

The Jumpstart package is specifically designed to initiate these operational and

business system connections as a foundation that enables monitoring of equipment effectiveness and provides insight into your shop floor operations.

Once implemented you will experience improved visibility into the status of your global live production environment and be provided specific KPI's for OEE and energy monitoring. All KPI's and dashboards are designed to the specific operational environment and user's needs. And, successful implementation is insured by safeguarding services, deploying best practices and industry standard processes.

Establish the critical IT/OT connections that will drive your digital transformation and provide greater insight into operational performance.



Accelerator Package – Improving execution and control

Jumpstart Package - Getting started by knowing where you are

Accelerator Package – Improving execution and control

Advanced Package – Take manufacturing to new heights

Operate more efficiently, be more responsive to market variability, deliver innovative products and ensure market competitiveness.

The Accelerator package builds on the connectivity and monitoring capabilities of the jumpstart package to improve digital manufacturing execution and control. It gives you shop floor enforcement, visibility and control, including a seamless handover from engineering to production that enables faster innovation through a simplified user experience.

Capabilities enabled through the accelerator package include:

- Support for manual & automated manufacturing processes
- Elaborated non-conformance management
- Integrated quality management
- Fully documented product genealogy

- A simplified, modern, browser based production operator dashboard
- Flexible management of the shop floor with an ability to build multiple products and product variants
- Granular product variation to a lot size of one
- Machine integration driven process and analytics
- Enterprise business integration

This package ensures visibility into global operations and improves decision-making that leads to higher efficiency, improved on time delivery, higher quality and radically changes your ability to deliver new products.



Advanced Package – Take manufacturing to new heights

Jumpstart Package - Getting started by knowing where you are

Accelerator Package – Improving execution and control

Advanced Package – Take manufacturing to new heights

The Advanced Package, slated for release in 2017 is intended to provide advanced manufacturing insight and controls, machine learning, and predictive analytics.

Capabilities in the package are planned as:

- Run Line Dispatching (Shop Floor Dispatcher**)
- Sophisticated management of manufacturing process data including machine information and alerts from IoT devices
- Secure end to end handling of changes coming from engineering or manufacturing
- Impact analysis and support implementation of changes in master data and production data (orders)

The planning functions enabled will include finite and infinite production planning within a single plant or across multiple plants and assessment of optimal production sequencing taking into account various constraints.

Predictive capabilities are also a major focus of this package, including predictive analytics, predictive quality management and predictive maintenance requirements.

In addition, more sophisticated process flows and control mechanisms for part approval and ensuring the secure handling of digital rights are also planned.





Objectives

Solution

Benefits

Digital Production and Industry 4.0 Package Benefits

Establishing a path to digital transformation and embracing industry 4.0 approaches to manufacturing will require a specific plan. The industry 4.0 packages will enable your company to take the path best suited for your specific situation and objectives.

The packages will extend your investment in ECC or MRP, production planning, scheduling, inventory management, quality management and maintenance down to the value on the shop floor. Making manufacturing execution

more efficient, while at the same time improving decisions through the real-time analysis of granular information about the operations of the machine assets, the production line, the plant or across multiple plants. All tailored to your specific KPI's and objectives and delivered to the end-user in a modern, friendly user experience.

Learn more

To find out more, call your SAP representative or visit us online at sap.com/loT.

Meet the challenges presented by evolving market requirements while being efficient and responsive. Choose your path to Industry 4.0 with SAP Packages



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