



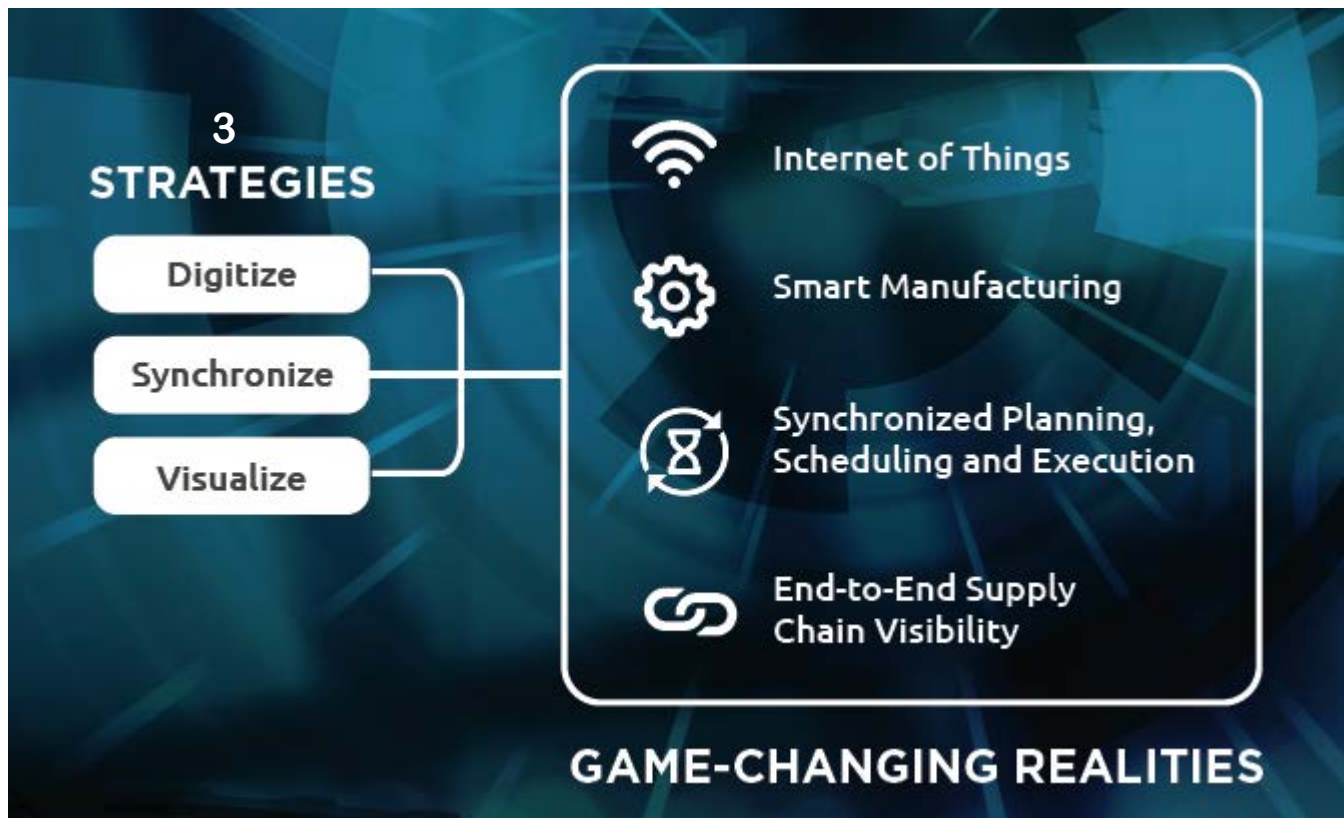
# Three Key Strategies Driving Modern Demand-Driven Manufacturing

As manufacturing environments become more digital and agile, many are adopting demand-driven methods to drive end-to-end production flow and position themselves for the Factory of the Future. This paper will address how and why modern approaches to Demand-Driven Manufacturing are enabling a more connected environment and serving as a catalyst for progressive concepts including:

- **The Industrial Internet of Things** – Digitizing and connecting assets
- **Smart Manufacturing** - Leveraging data to improve performance
- **Synchronized Planning, Scheduling and Execution** – Controlling WIP and driving end-to-end production flow
- **End-to-end Supply Chain Visibility** – Real-time control and communication.

*complex market demands while maintaining desired levels of customer satisfaction, supplier performance and production throughput?*

They are layering the following key Modern Demand-Driven Manufacturing strategies: Digitize, synchronize and visualize.



## 1. Digitize

*Making the right data accessible and putting it in the hands of the right people for smart manufacturing decision-making.*

The convergence of manufacturing digitization and Cloud technologies not only frees data from any source to enable the IIoT, but makes it infinitely easier to transform it into meaningful, actionable information to promote Smart Manufacturing decision-making. Yet, no matter how big your data is, it's only valuable if you can get the *right* data to the *right* people at the *right* time.

## Digitizing processes

There are two key issues with respect to digitization. First, is the need to digitize processes that are manual and second, is the ability to easily connect to and share digital information. We love our manual whiteboards, spreadsheets and post-it notes that tell us what to do. The problem is that these resources create silos of data, that don't provide any historical context and are likely not updated in real-time. Digitizing processes will provide benefits through automation, but a very powerful bi-product is the wealth of data collected that can be leveraged without any additional work.

## Connecting digital assets

Modern Demand-Driven Manufacturers are connecting their environments – within individual plants, across an enterprise of multiple plants and throughout the extended supply chain – while keeping data in its host environment. Data is accessed, aggregated, analyzed and shared by “normalizing” data (translating it into a common format) for easier, faster access, aggregation and analysis. This liberation of data gives modern manufacturers relevant, real-time information for instantly adapting to changes in demand and forward-looking intelligence to correct a course of action, or to predict and prevent disruptive events.



## Value of context

For Modern Demand-Driven Manufacturers, the key to data intelligence – and swiftly taking corrective action - is in understanding the data in *context* with the surrounding systems and environment. Data with context allows manufacturers to quickly pinpoint causal factors surrounding an event (machine performance, part expirations, environmental systems, etc.). Through deeper insight, data in context provides leverage to affect a variety of areas, including:

- **Resource performance and OEE metrics**
- **Issue identification and how to respond**
- **Continuous improvement projects**
- **Smart manufacturing and performance improvement**

It's important to note that transformation through digitization doesn't need to be a big bang, all-or-nothing approach. In fact, given the vast amounts of data most manufacturers are collecting, this could be quite daunting. Rather, start small and scale by connecting assets in a manageable way. Focus on advancing existing corporate or Lean initiatives – or where you will have the greatest organizational impact (see the next section on production synchronization).

## 2. Synchronize

*Aligning people, processes, materials, machines and data at an order level to drive end-to-end production flow.*

Synchronizing digital assets with resources and processes is one of the foundational elements to Modern Demand-Driven Manufacturing. The other foundational element, flow, is enabled through digitization and synchronization.

Consider the value in synchronizing your production resources. In Demand-Driven Manufacturing environments, production is based on actual customer demand (or consumption). Through digitization, Demand-Driven Manufacturers adapt in real-time to variations in demand, driving down the cost and waste associated with excess inventory and long lead times, while increasing capacity and on-time delivery rates. Synchrono® has expanded the value of this method exponentially through synchronization. By incorporating the best of Lean Manufacturing, Theory of Constraints (TOC) and Six Sigma principles, Synchrono® focuses on the entire value stream,

synchronizing the processes of ordering, scheduling, material replenishment and production with the resources necessary to execute the order. This ensures that everything is in alignment to flow through completion before the order hits the shop floor. Operators and machines are available, materials are where they need to be and priorities are clearly visible to all.

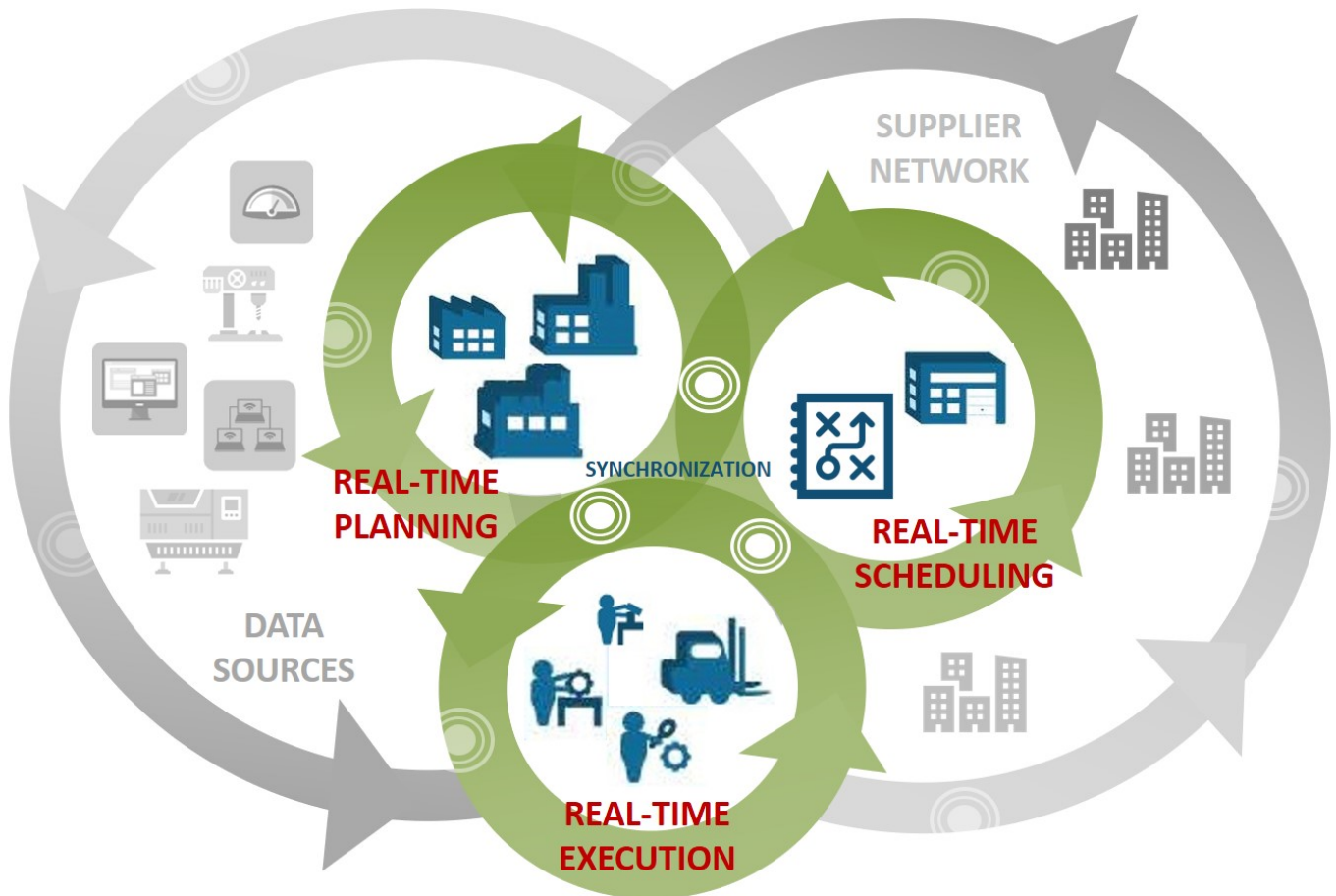
This level of synchronization drives uninterrupted, end-to-end production flow and is represented in the following graphic:

### How Modern Demand-Driven Manufacturers Drive End-to-End Production Flow:

- Real-time communication and visibility
- Resource synchronization
- Managed order release
- Constraints management
- Adaptive to demand changes
- Scenario modeling
- Smart detailed sequencing
- JIT materials replenishment



## Modern Demand-Driven Manufacturing End-to-End Production Flow



### DIGITIZATION

- CONNECTED DATA SOURCES
- EASY, REAL-TIME AND HISTORICAL DATA ACCESS
- DATA WITH CONTEXT VALUE
- AUTOMATED WORKFLOWS
- OEE, PRESCRIPTIVE AND PREVENTATIVE IQ

### SYNCHRONIZATION

- PRIORITIES
- PEOPLE
- MATERIALS
- SUPPLIERS
- MACHINES
- METHODS
- DATA

### VISUALIZATION

- REAL-TIME PRIORITIES AND STATUS
- METRICS/KPIs
- ACTIONABLE DATA
- SINGLE VERSION OF THE TRUTH

### 3. Visualize

*Instantly communicate changes in demand and priorities to all – creating a single version of the truth.*

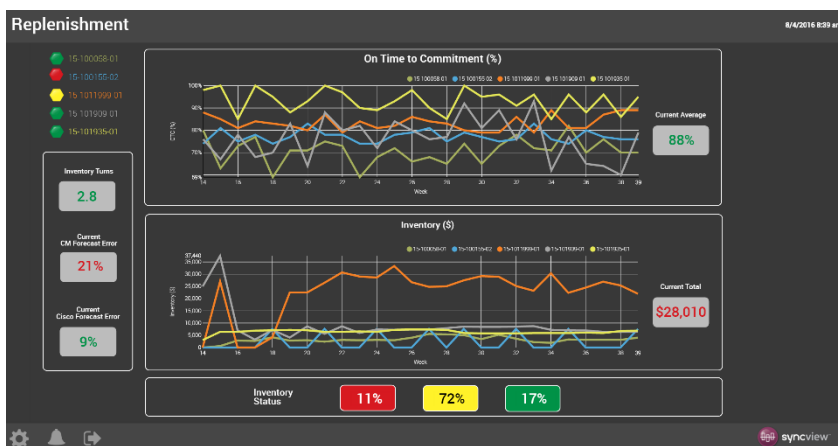
Modern Demand-Driven Manufacturers work to get as close to the demand signal as possible. As they get closer, visibility needs become more time-sensitive. All stakeholders along the value stream require real-time access to the information they need to adapt and drive performance.



Because Demand-Driven Manufacturers operate in real, or near real-time, the coordination of people, materials, machines, processes and data can be quite complex and highly variable. Visibility not only helps to simplify complexity and manage variability, but supports the movement of all relevant KPIs in the right direction. Modern Demand-Driven Manufacturers operating in digitized, synchronized environments with real-time visibility benefit from increased capacity, reduced inventory costs, improved on-time delivery, and greater throughput.

When it comes to visibility, these are the core areas modern Demand-Driven Manufacturers focus on:

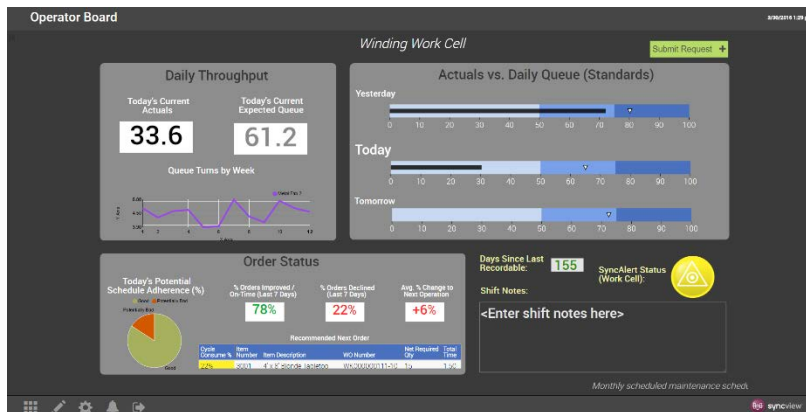
- A. Demand and Supply:** Real-time visibility and synchronization of the demand signal, material availability, and execution (resource availability) to ensure uninterrupted and end-to-end production flow.



*SyncView, manufacturing visualization and communication software connects to any data source for self-service dashboard creation. This example displays on-time delivery metrics and inventory status in real-time.*

For fully digitized and synchronized Modern Demand-Driven Manufacturers, this level of visibility typically results in higher rates of on-time delivery because all production variables are synchronized and scheduled against the customer's required date.

- B. Production Flow Indicators:** Because synchronization and production flow define Modern Demand-Driven Manufacturing, having visibility into factors impacting production flow is critical. Real-time visibility into replenishment buffer levels, constraints (machines, processes or parts/assemblies) and shop floor events/interruptions can make the difference in throughput and profitability.



*SyncView, manufacturing visualization and communication software provides drag-and-drop tools to create production status and priority boards at an operator, work cell, plant or enterprise level.*

- C. Priorities:** Modern Demand-Driven Manufacturing technologies are highly adaptive to changes in demand. Subsequent shifts in priorities need to be communicated across the supply chain in real-time to maintain optimal production flow. For example, schedulers need visibility into available resources to off-load work; operators need visibility into what to work on next; suppliers need visibility into replenishment adjustments; and service providers need visibility to optimize transportation.

**“End-to-end supply chain visibility is a foundational and critical component for becoming demand-driven.” -Gartner**

## Start where you will have the greatest sustainable impact

To Synchrono®, Modern Demand-Driven Manufacturing serves to “synchronize the supply chain from the factory out,” which simply means, if a manufacturer understands its internal manufacturing capacity and capabilities - and has the systems in place to provide actionable data - supply chain variability can potentially be eliminated through real-time communication and visibility. This principal becomes exponentially powerful within a supply chain ecosystem where tiered suppliers benefit from the same level of real-time visibility.

Starting from the factory out ensures that once you have your production environment flowing, you have set the best possible foundation not only for continuous improvement, but for further leveraging the IIoT, Smart Manufacturing and building a factory of the future that positions you for growth.



### Additional Resources:

Report: [Top Ten Trends in Modern Demand-Driven Manufacturing](#)

Article: [What is Demand-Driven Manufacturing?](#)

White Paper: [Why Become More Demand-Driven? Responding to Customer Needs](#)

White Paper: [How Technology Will Connect Your Enterprise and Create the Demand-Driven Factory of the Future – Today](#)

White Paper: [End-to-End Supply Chain Visibility Technology is Here](#)



# Layer Your Existing Systems with Modern Demand-Driven Technology

Transitioning to a Modern Demand-Driven Manufacturing environment doesn't mean you need replace all your existing systems. Web-based Synchrono® solutions were developed to work with your existing ERP and other systems/data sources, helping to preserve those investments and extend their value.

## STRATEGIES

Digitize

Synchronize

Visualize



Adaptive production planning, scheduling and execution



Supply and capacity planning to align with projected demand



Automated inventory replenishment for supply chain execution and collaboration



Real-time, synchronized, visualization and communication



Connect and aggregate data from any source to analyze, predict, prevent and automate activity. *Powered by Savigent*



Real-time alert notification and escalation management

## GAME-CHANGING REALITIES

Request a software demo at [Synchrono.com](https://www.synchrono.com).