

Gain a Competitive Advantage for Bottom-Line Results

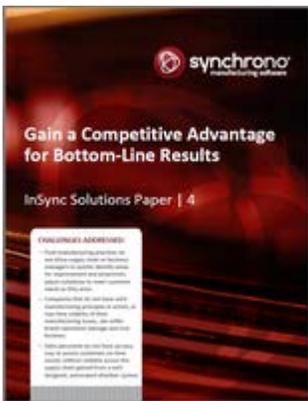
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CHALLENGES ADDRESSED:

- Push manufacturing practices do not allow supply chain or business managers to quickly identify areas for improvement and proactively adjust schedules to meet customer needs as they arise
- Companies that do not have solid manufacturing principles in action, or real-time visibility of their manufacturing issues, can suffer brand reputation damage and lose business
- Sales personnel do not have an easy way to assure customers on-time results without visibility across the supply chain gained from a well-designed, automated eKanban system

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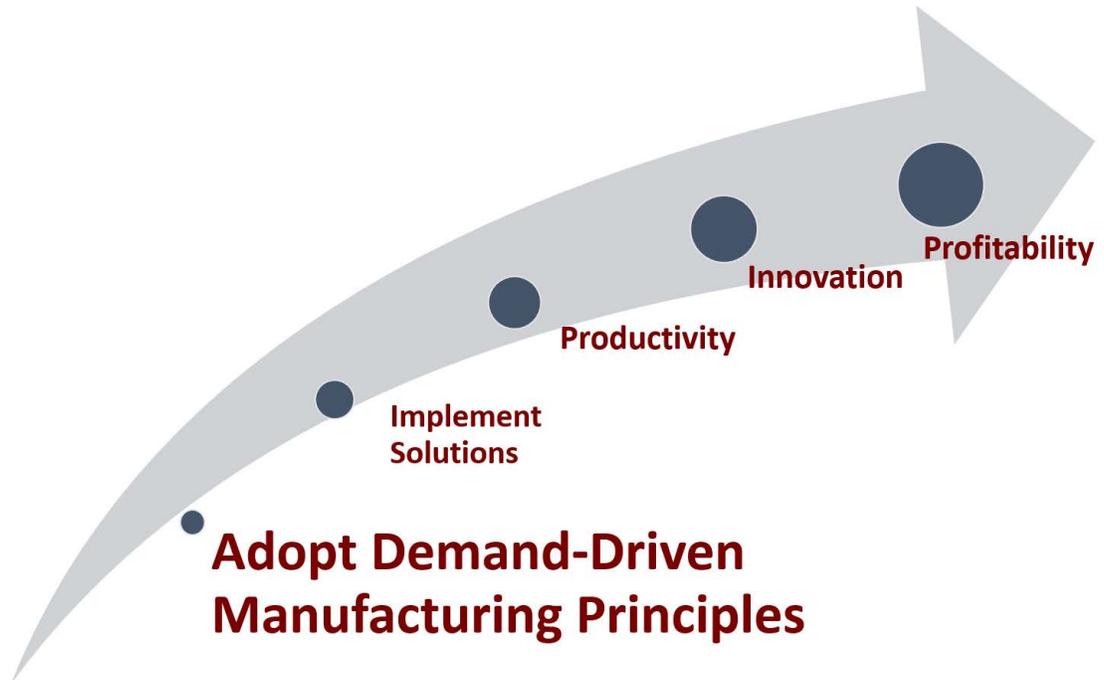
Overview

Modern manufacturing is using automation and technology in new and ever changing ways. Significant competitive advantage is gained through these advancements. Enhanced visibility and on-time automation provides more “bandwidth” within the production cycle because demand signals no longer need a fulfillment phase and are instantly causing replenishment to occur. Amazon.com now has same-day delivery based on these systems, and its fulfillment processes are the envy of competitors.

This is the fourth white paper in our series exploring Pull-based Kanban systems. Each paper in the series looks at the manufacturing system from a different perspective: In the first paper, [*Gaining Control: Exploring Push vs. Pull Manufacturing*](#), we looked at systems and workflow processes, exploring the nature of Push- and Pull systems and the difference between manual and eKanban systems within a Pull environment. In the second paper, [*Gaining Clarity: Drive Productivity, Flow and Profit with Data that Matters*](#), we introduced the essential operational building blocks and transition points of Pull-based manufacturing and explored the benefits of a more predictable environment along with the decision-making power gained through a deeper access to data and analytics. In the third paper, [*Gaining Confidence: Syncing Supplier Delivery to Customer Demand*](#), we discussed how demand-driven concepts take Lean outside the four walls of the manufacturing operation to bring a forward-looking perspective.

In this paper, we will look at the competitive edge that manufacturers gain by being not only devoted to driving flow and eliminating waste, but also enabling their organizations to become best-in-class by using Pull and eKanban technology. They are committed to providing valuable opportunities to their customers and, because of their Lean and continuous improvement efforts, these companies are equipped to increase their effectiveness, productivity and capacity while achieving a competitive advantage in the marketplace.

Goals for Accelerating a Competitive Advantage



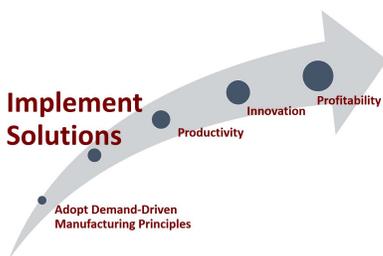
Goal 1: Adopt Pull or Demand-Driven Principles - Business Benefits Revisited

As we explained in our first paper, one of the great benefits of the Pull or Demand-Driven process is the level of control gained through real-time demand signals and the ability to make quick adjustments. If demand increases, Kanban replenishment signals increase. In the cases where demand slows, supplier replenishment slows as the frequency of items pulled from the supermarket is reduced. This process is very nimble across the entire supply chain.

There is not as much effort required to adjust/synchronize a Demand-Pull system as in the Push method. Many Demand-Pull systems can do so automatically, in real-time. And, unlike Push systems, there is no second guessing about “what is a real change?” versus changes that are “just noise.” In Pull environments, communication of the change is clear, precise and quickly acted upon.

When Demand-Driven manufacturers act, they act based upon an information flow that cascades from the point of sale to purchasing and through production. They have reduced their need for too much inventory by cutting cycle time via real-time demand signals generated from the customer order and relayed through the supplier network for instant replenishment. They remain flexible and can handle variability because they are using proven suppliers who are supporting the manufacturer’s demand-driven efforts by working – and communicating – within their system. The business benefits realized by these manufacturers allow them to keep their heads above the fray of manual systems. They have successfully managed variability in their systems, allowing them to greatly improve flow and increase capacity while cutting costs associated with excess inventory– all factors leading towards a competitive advantage.

Competitive positioning and revenue gains will be so profound that you won’t want to risk being left behind.



Goal 2: Implementing an eKanban Solution to Create Workflow Improvement and Maximize Resources

The important thing to remember about moving from a Push-based, manual or automated system to a Pull-based, eKanban Demand-Driven manufacturing system is to find a partner or partners that can “meet you where you are” in the process.

Legacy MRP/ERP platforms typically rely on forecasts that must re-adjusted overnight through a batch process based on what occurred in manufacturing and the extended supply chain during the day. Pull-based eKanban software can be incorporated into legacy ERP systems for use in even the most complicated environments. The right eKanban solution can work to streamline and integrate multiple, interdependent facilities, using tens of thousands of SKUs, so even complex manufacturing models can demonstrate process agility that yields true competitive advantage.

Demand-driven manufacturing (DDM) is an approach to manufacturing where production is based on actual orders rather than forecasts. DDM is also referred to as flow-driven manufacturing (FDM).

Pull-based manufacturing. Under this method, build is based on what is consumed; inventory levels are maintained only at what is required to satisfy current customer demand so excess inventory is minimized. In contrast to **Push-based manufacturing** where the build quantity is based on machine or process time and expected future demand. The quantity is typically larger than the immediate demand and the balance waits in inventory to be consumed.

Electronic kanban (eKanban) is a signaling system that uses a mix of technology to trigger the movement of materials within a manufacturing or production facility. Kanban is the Japanese word for “card”. It represents a pull signal that is related to a handling unit of a specific item or an item family, combined with manufacturing and/or transport instructions. It can be applied to both material and product flow within a site and material flow between suppliers and customers, or any partners of the supply chain.

The opportunities inherent in managing the flow of a Pull order through your processes and being able to adjust, react, and share - where appropriate - these changes with suppliers and customers, creates a valuable opportunity for your company to differentiate itself in the following ways:

- 1). Implementing a solution using eKanban-based systems allows customer service representatives to instantly see issues with customer orders, proactively warning of potential delay. For example, should customers need to add to an order, the representatives can check timing and capacity without leaving their desk.
- 2). Supplier constraints can now be identified from your end, allowing your company to raise its standing in your industry and become a best-in-class partner.
- 3). Implementing solutions using eKanban can result in a 50% or more reduction in inventory across the entire production process, freeing funds for investment or improvements in other areas.

A reduction in inventory also allows you to free up space and maximize your ability to move quickly on solving your current customers’ issues. Prospective or new customers may also realize that you have enough capacity to take on more business – and still meet their deadlines.

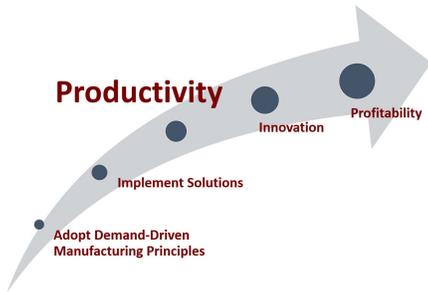
- 4). A big-picture view driven by actual demand signals across a multi-site environment creates opportunities for identifying performance issues in different sites and acting on them before they become issues. Shifting processes site-to-site across these plants can free-up capacity in localized areas, identifying geographies and markets where your sales force can ramp up efforts in prospecting.

- 5). Implementing an eKanban solution yields dashboard views, analytics and reporting features unheard of in the Push environment. For example, you can see where constraints arise during each part of your production

process via prioritized alerts. Moreover, these decision drivers are visible to purchasing personnel, too, freeing them from administrative tasks and allowing them to become more strategic in sourcing and negotiations.

Business Benefits of Pull Manufacturing

- 1. Right-sized inventory levels and increased inventory turns.** Manufacturers don't need to keep the same amount of inventory as they did under the Push-based system and inventory turns over quickly because the demand trigger is a real order and not a forecasted quantity.
- 2. Reduced purchase order cycles.** Pull-based manufacturing cuts the time from a generated PO to delivery because real-time triggers create instant replenishment across the supply chain, avoiding issues that can add time to the process.
- 3. Shorter lead times.** Pull is based on instant replenishment and triggers across the supply chain - long lead times are literally a "thing of the past."
- 4. On-time performance.** Armed with fulfillment statistics that make their competitors green with envy, Pull manufacturers can act quickly upon order placement - and adjust to constraints and variability in real-time, ensuring timelines are met.
- 5. Real-time communication up and down the supply chain.** Transparency among suppliers, manufacturers, and customers, particularly in multi-site environments, ensures a good flow of information between all parties and avoids relationship-damaging mixed messages and unmet expectations.
- 6. The ability to function in multi-plant, multi-site, multi-distributed environments.** Using Pull in complex environments, each party can run interference on its own part of the supply chain as well as have complete insight into what's going on elsewhere. The right eKanban solution can work to streamline and integrate highly complex supply chains – those with multiple, interdependent facilities, tens of thousands of SKUs, etc.
- 7. Leveraging existing MRP/ERP systems and data.** MRP/ERP systems and data often exist in separate silos and their capacity to empower decisions is lost. With Pull-based eKanban, the information flow from these systems is integrated into the actual throughput of goods-- solid evidence for powerful decision making is the result.
- 8. Reporting tools and analytics for making decisions and monitoring performance.** Pull manufacturing using an eKanban system manages demand across the extended supply chain providing insight into a variety of metrics, including WIP inventory/turns, active velocity and optimal on hand inventory levels.
- 9. Focused Continuous Improvement (CI) efforts.** The reporting and analytics available in an integrated Pull manufacturing environment provide both big-picture insights as well as cost-cutting, granular information to make practical decisions.
- 10. Reduced administrative costs in executing the replenishment loop.** Pull-based manufacturing triggers instant replenishment across the entire supply chain, minimizing the continual cost of adjustments and reforecasting associated with Push systems.



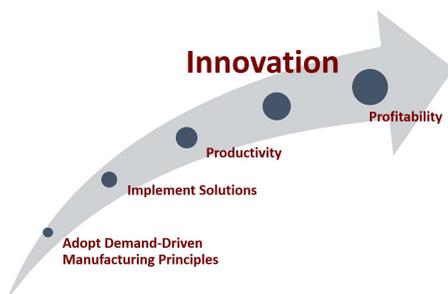
Goal 3: Accelerate Competitive Advantage - Productivity and Enabling Flow

By reducing inventory and increasing capacity through Demand/Pull manufacturing practices, you have cut costs and increased product flow through the organization. You have gained an advantage through enhanced control by automating your replenishment systems and by allowing actual order activity to dictate focused action across your production floor, even in a multisite environment. Your new system also integrates supplier Kanbans to eliminate out-stock situations. It prevents overstocks that force you to slash prices and lose revenue.

Workflow enhancements can come in many forms when you are using Pull as opposed to Push manufacturing practices. The primary deliverable of automating the kanbans and pulling data points from your demand signals is that the data empowers you to find flow issues before they result in customer problems.

Data empowers you to find flow issues before they result in customer problems

Another competitive advantage for a company on an eKanban system is increased competitiveness for bids due to lower labor costs. Manufacturers on Push systems generally have lower operating profits based on additional steps in managing variability and velocity dictated by forecasts instead of real-time demand. You have eliminated the sluggish workflow associated with Push systems that have traditionally been plagued with operator error and a bloated paper trail.



Goal 4: Power Innovation in Processes and Products

When the greatest innovations and productivity improvements happen in your business, you closely guard the secrets to your competitive advantage. You don't want your competitors to know that you have been liberated from the daily grind and that manual errors no longer have the power to pull

resources and slow down progress. Everyone has been given a big-picture view of what's happening across the production floor and even into the suppliers' warehouses. Continuous improvement ideas to grow your business are flowing! As that manufacturing intelligence grows, it inspires innovation in processes and products. Your competitive advantage surfaces in the following ways:

You sell more. Manufacturers who operate a Pull environment are focused on streamlining the steps that limit flow in the production process. Product quality, inventory management, more efficient and effective production and tracking -- all bring added effectiveness to the operation and an overall increase in capacity. This will happen initially in the bottleneck operations and eventually throughout the entire supply chain. People and processes will be freed to take on new projects or new orders and salespeople are armed with more information to develop new offers for your customers' advantage.

You take on other value-adding operations in-house to serve customers better. A creative and lucrative by-product of increased capacity in your operations is the ability to up-sell with a variety of value-added services. For example, an injection molding company that only produced component parts was able to move to expanded assembly operations, thanks to Pull manufacturing and improved productivity. The business managers saw a need and were able to act upon it. Their customer was thrilled to offload these operations to them and they now have a new offering to explore with other customers.

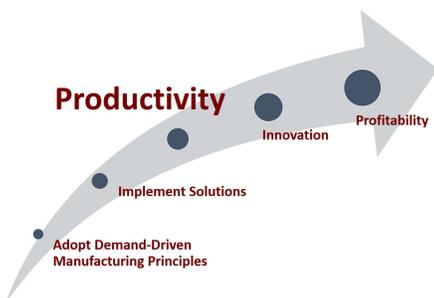
Product quality, inventory management, more efficient and effective production and tracking -- all bring added effectiveness to the operation and an overall increase in capacity.

You deliver on-time because you have complete transparency across the supply chain and can make adjustments in real-time. Your customer service ratings and brand health will soar as your demand-driven process enables order fulfillment flexibility and on-time delivery. In addition, supplier relationships are now decidedly collaborative rather than adversarial. You can jointly explore additional areas of optimization, and create fresh opportunities to enhance productivity and processes.

When you fill the gaps in your ERP system with specialized solutions, you gain a competitive advantage.

You increase operating profits by going beyond just cutting costs and waste. Manufacturers are reducing waste and improving their operations through “Lean manufacturing” practices. Smart manufacturers know that those efforts, while ongoing, will produce diminishing incremental returns. You beat your competitors with an innovative mind-set. When you cut costs by strategically managing risk and variability within the manufacturing process, you can “unclog” those processes that do not yield the greatest benefit to the bottom line.

You exceed the performance of existing systems by seamlessly integrating Pull processes such as eKanban. It is critical that eKanban systems easily integrate with the larger ERP system for streamlining the operation. When you fill the gaps in your large ERP system with specialized solutions, you gain a competitive advantage. Once the bridges are built and all of the data resides in one, easily accessible location, each member of your team is empowered with more information. The people “on the ground” can come up with ideas and input that can make your system even more valuable in the long run.



Goal 5: Reach New Levels of Profitability

At the end of the day, most business managers need to see a fast return on their investment. Fortunately, prospective changes to a Pull manufacturing process allow them to build an argument that will make the finance folks very happy.

Change that impacts the balance sheet negatively, even for a short time, is hard to justify in this economy where customers expect lower prices and shorter lead-times. (It is worth noting that inventory is posted as an asset on the balance sheet and that subsequent drops in the level of inventory based on the lower inventory levels involved in Pull is definitely something to manage before you begin). The investment in eKanban must be translated very quickly into revenue for the company to compete effectively—there is no time for down-time when retrofitting. Mistakes in any part of the process can too easily translate into brand reputation damage, which is very harmful to bottom line.



At the very least, operating profits should immediately spike based on lower cross-shipping inventory levels and cost efficiencies due to fewer fluctuations in on-hand inventory levels and costs related to expediting orders, cross shipping and the less expensive “customize-on-demand” production method.

When you get right down to it, the most valuable yield of a good Pull system is not only on-time deliveries, it’s “bankable,” actionable information. In the hands of your company’s sales team, the data-driven reports of a fully automated eKanban system, in concert with real client testimonials, create compelling stories that they can use to cement current client relationships and entice new prospects.

Enabling the sales team to use your data involves arming them with client success stories that ring true to prospects because the narrative includes “pain points” they have felt themselves. The success story starts with a challenge, moves to a solution, and ends with shared success among the organization, customers and suppliers. However, success stories need one final component to make them competitively compelling: the quantifiable payoff. Many companies stop one step short of creating the perfect success story—the step that delivers a percentage improvement or dollar sign. These ring true for the prospect and really allow the message to hit home.

Product innovations will arise from the creative use of smart manufacturing intelligence gathered from every point of the supply chain, from consumer preferences through production and delivery mechanisms.

How can you leverage the system strategically to grow your business? Product innovations will arise from the creative use of smart manufacturing intelligence gathered from every point of the supply chain, from consumer preferences through production and delivery mechanisms. The knowledge that businesses gain through process innovation will transfer far beyond the doors of manufacturing into the services sector at every level, delivering better pricing through improved process efficiency and economies of scale. That knowledge transfer will, in turn, yield broader use of smart manufacturing technology — and the application of new technology and new information to disparate fields.

Summary

Empowering your company to open up a true competitive advantage through Pull-based manufacturing starts small and practically: Most companies need to start at their points of constraint - the bottleneck areas that are causing the most concern. After these “red zone” areas are addressed and the system is completely entrenched among each Kanban loop in your environment, the system will replace time-consuming, stop-gap measures such as responding to material/parts shortages, shuffling priorities and expediting orders. Pull-based systems managed with eKanbans provide enhanced visibility that instantly make existing or potential trouble spots more evident and allow you to respond in an efficient way. You will also free personnel to work on big-picture problems and identify ways to add value to their customer and supplier networks.

Remember these best practices for implementing an eKanban system:

- 1). It is important to work with a software provider that has satisfied clients who are willing to speak to you before you begin. These happy customers will have priceless, real-life advice about what went wrong and what went right during the process. The partner that you choose should have many examples of the savings they enabled for previous clients after they implemented the new system, including timeframes as to when you might realize similar results yourself. (See Dynisco example on the next page.)
- 2). Costs and budgets for your new system should include “red zone” opportunities first, addressing areas of constraint and cleaning up the current mess before trying to fix what isn’t broken. However, don’t forget to include timelines and resource allocation for less crucial areas that you want to get to down the line.
- 3). Start communicating with your supplier network early in the process to ensure good integration from the start. Make no mistake; you may have to make some hard choices about where you source your materials. Problem suppliers do not change just because you give them a new and more effective tool. But those suppliers that are already awesome partners will usually be thrilled with the result of integrating with your eKanban system.

Takeaways:

- Competitive advantage arises when effective manufacturing processes open up new capacity “on the floor” and allow managers to identify areas of “customer pain” and their company’s ability to remove areas of customer pain
- Implementing systems that provide real-time visibility of demand signals allow companies to remain proactive and thus protect both supplier and customer relationships, and their brand reputation
- Productivity gains on the manufacturing side can develop into expanded opportunities for revenue and relationships, gaining competitive advantage and enhancing profitability

4). Set the pieces in place so that the company can be responsive to customer demand. Determining costs, establishing budgets, developing the inventory supplier network and assessing manufacturing capabilities and capacity are still required regardless of the type of planning used. The real difference in a Pull/Kanban-based system is in the execution process.

Dynisco, a company with seven manufacturing facilities worldwide, created significant savings and opened up new possibilities for revenue when they implemented SyncKanban™. According to the company, they were able to link their new eKanban system to an existing MRP system easily and cut excess inventory and find ways to better manage their cash flow during operations. Dynisco also was able to automate parts of its purchase order processes and utilize personnel for higher-level tasks.

Creating Opportunities, Overcoming Barriers

Throughout this series of papers, we have been able to identify the varied benefits of moving from Push- to Pull manufacturing and the exponential benefits of doing so using an eKanban system. We explained how enhanced control allows you to “right-size” inventory without unnecessary activity linked to expediting orders and responding to emergencies. We also identified how additional clarity based on well-managed data drawn directly from real-time triggers allows you to see how to not only manage production flow but to view where your varied environments, suppliers and customers fit into the big picture.

We also explored the confidence garnered through actionable data and the decision-making and value-add activities that are born from quality analytics. Finally, we explored how your company is empowered to achieve competitive advantage through Pull-based, automated eKanban management, giving you more to offer your customers; establishing you as a valued supplier partner; and freeing up your outward-facing employees to sell additional capacity and promise on-time delivery. Everyone involved in the supply chain process can also look for ways to develop new offerings for customers. Most important, enhanced reliability will definitely enhance customer satisfaction and your company’s brand reputation.

Getting Past Your Current Barriers

You may suspect that all of these wonderful benefits come at a cost. Practical, but surmountable barriers exist: If you sit and think about it, there’s probably a to-do list a mile long to get through before you even begin. In our paper, *Overcoming the Barriers to eKanban Implementations*, we discuss common barriers to moving from Push to Pull manufacturing and to implementing an eKanban system. Leveraging our experience in many different environments, this paper will include common pitfalls, useful tips and creative solutions to empower you in your drive to get “Leaner.”

Additional Resources

Case Study
[Dynisco Plastics](#)

Video
[SyncKanban eKanban Software](#)

White Paper
[Gaining Control: Exploring Push v. Pull Manufacturing](#)



About Synchrono and the Authors

Synchrono[®] LLC is a leading provider of demand-driven manufacturing software and services that simplify complex manufacturing environments and transform business results. The company's planning, scheduling, execution, and eKanban inventory replenishment software are powerful on their own, and when combined with its operations systems under the Synchrono Demand-Driven Manufacturing Platform, clients synchronize their workforce, methods, machines, resources, information and more to enable flow from order inception through production and delivery. Aggregating information from its own applications as well as from both machine-level and disparate enterprise systems, the Synchrono Demand-Driven Manufacturing Platform provides a real-time visual information system that empowers everyone - from the top floor to the shop floor - with actionable information.

Synchrono helps clients manage constraints, improve flow, drive on-time delivery and maintain a competitive edge. Look to Synchrono for software that meets your demand. Sync with us at www.synchrono.com.

About SyncKanban

[SyncKanban software](#) from Synchrono keeps instantaneous supply chain signals moving through your organization at lightning speed. This automated, Pull-based inventory replenishment system sends signals to suppliers to deliver materials, helping to reduce the costs and waste associated with excess inventory and replenishment process administration. For many, that means up to a 50% reduction in inventories, on-time production, improved cash flow and a distinct competitive advantage. See for yourself – try SyncKanban for free at www.synchrono.com.

John Maher

John Maher has more than 20 years of experience working in manufacturing environments and has been with Synchrono since the company's inception. John's subject matter expertise in ERP, MRP, APS, supply chain, manufacturing planning, and scheduling systems and constraints management drives

continuous refinement of the company's Lean and constraints management-based software and services. John is responsible for providing strategic direction for the Synchrono product roadmap and oversees the technology and delivery functions within the organization.

John earned his BBA in production/operations management from University of Wisconsin, Whitewater, and an MBA from the University of Minnesota, Carlson School of Management. He has APICS CPIM certification in production and inventory management and Jonah certification in Theory of Constraints from the Goldratt Institute.

Rick Denison

Rick Denison is a software implementation consultant in Minneapolis/St. Paul, Minnesota. He is an operations and logistics professional with applied knowledge and hands-on experience in leading change in companies through Lean manufacturing, Six Sigma, and TOC techniques. This experience has been obtained through 25 years leading industrial operations in industry and consulting in a diverse range of manufacturing environments and products. Rick has a strong background in process improvement, change management, project management, information systems implementation, and profitability analysis. He currently serves as a Senior Implementation Consultant at Synchrono Manufacturing Software.