How to Establish a Manufacturing Pull System for Shop Floor Execution Using ERP or APS

In today's fast-paced manufacturing industry, companies are constantly striving to improve their processes to increase efficiency, reduce costs, and deliver products on time. One way to achieve these goals is by implementing a pull system for shop floor execution. This system, combined with an Enterprise Resource Planning (ERP) or Advanced Planning and Scheduling (APS) software, can streamline operations and improve overall productivity.

Understanding the Pull System

A pull system is a production strategy that focuses on producing items based on customer demand rather than forecasting. The main idea behind this system is to produce just enough to meet customer needs, eliminating excessive inventory and unnecessary waste.

In a pull system, the production schedule is driven by real-time demand signals from customers or downstream processes. The process starts when a customer places an order or when a downstream process signals the need for additional materials. This demand signal triggers the production of the necessary items, ensuring that every item produced has a specific purpose and a customer waiting for it.

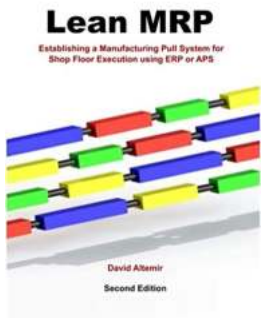**Lean MRP: Establishing a Manufacturing Pull System for Shop Floor Execution Using ERP or APS** by David Altemir (Kindle Edition)

★★★★☆ 4.3 out of 5

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By adopting a pull system, manufacturers can achieve several advantages. It helps in better inventory management, reduces lead times, and minimizes storage costs. It allows manufacturers to respond quickly to changing market conditions, improves product quality, and increases overall customer satisfaction.

Integrating ERP or APS Software

Implementing a pull system manually can be complex and challenging for manufacturers. Fortunately, with the advancement of technology, companies can rely on ERP or APS software to automate and streamline the process.

ERP software, a comprehensive system that integrates various business functions, provides real-time data and visibility across the organization. It can track inventory levels, monitor customer orders, and synchronize production schedules. By using ERP software, manufacturers can gather information about customer demand and initiate the production process accordingly.

On the other hand, APS software focuses on optimizing production planning and scheduling. It can generate optimal production plans based on real-time data, considering factors like inventory levels, machine availability, and resource constraints. APS software ensures that production is aligned with customer

demand signals and helps manufacturers determine the most efficient way to produce items on the shop floor.

Integrating a pull system with ERP or APS software offers several benefits. It facilitates real-time communication between different departments, creates a seamless flow of information, and eliminates data discrepancies. It enables manufacturers to make data-driven decisions, avoid unnecessary inventory buildup, and optimize resource utilization.

Step-by-step Guide to Implementing a Pull System

Now that we understand the importance of a pull system and how ERP or APS software can support it, let's explore the step-by-step process of implementing a manufacturing pull system.

Step 1: Assess Current State

Before implementing any new system, it's essential to understand the current state of operations. Evaluate the existing production process, identify bottlenecks, and analyze the flow of materials. This assessment will help you determine the areas where a pull system can make the most significant impact.

Step 2: Establish Customer-centric Demand Signals

For a pull system to work effectively, you need accurate and timely demand signals from customers or downstream processes. Review your current communication channels and make necessary modifications to ensure smooth information flow. Implement measures to capture customer demands accurately and utilize them to trigger the production process.

Step 3: Create Visual Production Schedules

Visual production schedules, such as Kanban boards or digital dashboards, are essential components of a pull system. These schedules provide real-time visibility into ongoing production, allowing employees to monitor progress and identify any issues. Implement visual production schedules that capture critical information like order status, production stages, and resource availability.

Step 4: Set up Pull Signals

Pull signals are mechanisms that trigger further production when demand signals are received. These signals can take various forms, such as physical cards or electronic notifications. Define the pull signals that align with your specific manufacturing environment and establish a seamless system to communicate these signals to the production team.

Step 5: Implement Real-time Data Collection

Achieving real-time visibility is crucial for the success of a pull system. Invest in technology that allows real-time data collection from shop floor activities. Ensure accurate and reliable data capture from machines, inventory scanners, and other sources. This data will serve as the basis for production decisions and help you continuously improve your processes.

Step 6: Train Employees and Monitor Progress

Implementing a pull system requires training employees on the new processes and creating a culture of continuous improvement. Conduct training sessions to familiarize employees with the pull system principles, use of ERP or APS software, and their roles in the new system. Monitor progress regularly, gather feedback from employees, and make necessary adjustments to enhance the system's effectiveness.

The Future of Pull Systems and ERP/APS Integration

The manufacturing industry is evolving rapidly, driven by technological advancements and changing customer demands. As a result, the future of pull systems and ERP/APS integration looks promising.

Emerging technologies like the Internet of Things (IoT) and Artificial Intelligence (AI) will further enhance the capabilities of pull systems. IoT devices can provide real-time data on machine performance, inventory levels, and product quality. AI algorithms can analyze this data and make intelligent decisions, optimizing production schedules and improving overall efficiency.

Furthermore, cloud-based ERP and APS solutions are gaining popularity, enabling easy access to real-time data from any location. Manufacturers can leverage these cloud solutions to collaborate with global partners, track supply chain activities, and respond to customer demands quickly.
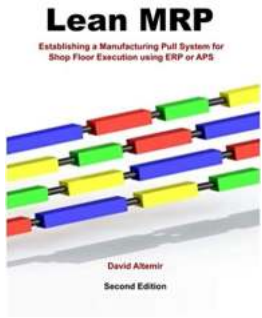
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Establishing a manufacturing pull system for shop floor execution using ERP or APS software is a strategic move that can significantly improve productivity and customer satisfaction. By implementing a pull system, manufacturers can respond swiftly to changing demands, reduce waste, and achieve cost savings. Integrating ERP or APS software streamlines the process, providing real-time data and optimizing production planning. The future holds further advancements, driven by technologies like IoT and AI, which will revolutionize the way manufacturers operate.

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Lean MRP explains how to establish ERP production scheduling that is stable and effective. The fundamental roles of the production schedule for driving shop floor work, predicting manufacturing completions, and evaluating factory capacity are examined. With effective ERP production scheduling in place, an opportunity is created to implement a Lean manufacturing pull system on the shop floor that mimics the behavior of traditional kanbans. This essentially establishes a self-regulating traffic control system that will reduce congestion and travel times for materials and products in a factory.

This is not the usual "yada-yada". The concept of Lean MRP is a novel one, which holds the promise of transformational change, particularly in job shop environments involving deep bills of materials.

In addition to attaining the on-time performance, inventory, and lead time benefits of a pull system, Lean MRP can also help improve the accuracy of forward-looking schedule projections to support the making of reliable promises to the customer.

This book is for those manufacturing managers who have always strived for a Lean operation but nevertheless feel that a computerized ERP system offers a more practical and scalable solution for managing a large, complex, and/or turbulent shop floor. Manufacturers in high mix industries such as contract manufacturing, aerospace, or industrial equipment can particularly benefit from this novel and innovative approach. For them, the prospects of Lean MRP offer an exciting opportunity to positively and comprehensively transform the whole of their operation as opposed to accepting isolated islands of Lean improvement that only skirt the periphery of the scheduling, on-time performance, inventory, and lead time challenges they face.
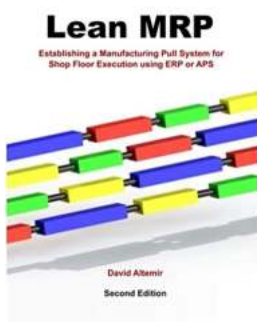
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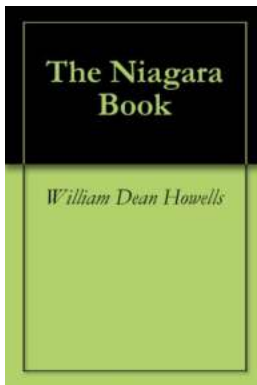
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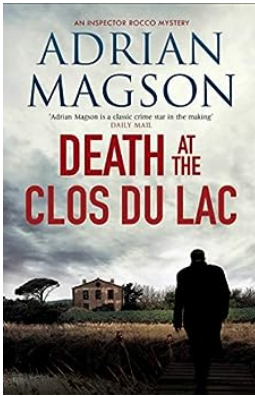
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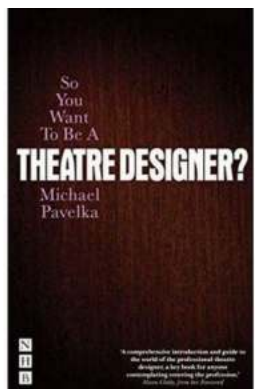
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