

## Scheduling -Technology 2 – Finite Scheduling

Finite Scheduling is a production planning and scheduling method used in manufacturing and other industries to allocate resources and time for completing tasks within a specified timeframe. The primary goal of finite scheduling is to optimize the utilization of resources while meeting production goals and deadlines. In the DMC use case, Finite Scheduling is being used to determine the correct order of production, cleaning and maintenance to meet key business objectives within the constraints of resources, throughput and plant availability.

Pros	Cons
<ul style="list-style-type: none"> <li>• Accurate achievable throughput is known with current stock and plant.</li> <li>• Ability to plan maintenance activities will still delivering production orders.</li> <li>• Continuous improvement tool.</li> </ul>	<ul style="list-style-type: none"> <li>• The ERP system needs to be kept up to date with stock and plant availability.</li> <li>• Poor data will result in incorrect schedules.</li> <li>• Large amount of setup effort required.</li> </ul>

**Technology Cost range:** \$50,000 - \$100,000, depending on the complexity of the production process, number of inter-connected equipment and maturity of the ERP system.

**DMC Technology Cost:** \$50,000

### DMC Cost Assumptions:

- Limited to 1 Filling line.
- Simple and well-known manufacturing process.
- Internal costs for end user staff involvement have not been included.
- Single design and build iteration.

**What situation would this technology usually be adopted in?** Finite Resource Planning (FRP) systems are typically adopted in manufacturing environments where efficient utilization of limited resources such as raw materials, production capacity, labour, and machinery is crucial. Industries such as discrete manufacturing, process manufacturing, and job shops often implement FRP systems to optimize resource allocation, minimize waste, improve production scheduling, and enhance overall operational efficiency.

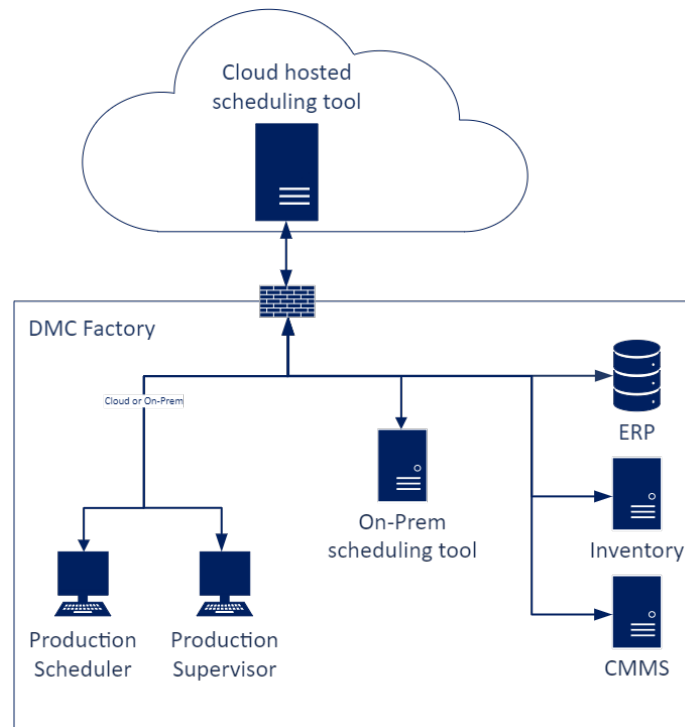
**RoI Considerations:** Implementing Finite Resource Planning (FRP) systems can lead to significant returns on investment by reducing production costs, minimizing inventory levels, improving on-time delivery performance, increasing throughput, and enhancing overall resource utilization efficiency. The ability to optimize resource

allocation and production scheduling helps manufacturers meet customer demands more effectively while reducing operational costs and maximizing profitability.

**What skills are required to implement & run this tech?** Implementing and running Finite Resource Planning (FRP) systems in manufacturing requires expertise in production planning, operations management, supply chain management, inventory control, scheduling algorithms, and software implementation. Additionally, proficiency in data analysis, mathematical modelling, and understanding of manufacturing processes is essential for successful implementation and utilization of FRP systems.

**Pre-requisites for successful adoption:** Successful adoption of Finite Resource Planning (FRP) systems in manufacturing requires a clear understanding of production constraints, identification of key performance indicators (KPIs) for resource optimization, data collection and validation, integration with existing enterprise systems, training for personnel on system operation and utilization of planning tools, and alignment of production plans with business objectives and customer demands. Additionally, continuous monitoring and refinement of planning algorithms and parameters are essential for effective utilization of FRP systems over time.

### Typical Tech Stack



**Who can help with this technology?** Various entities can assist with the implementation and optimization of Finite Resource Planning (FRP) systems in manufacturing, including FRP software vendors, supply chain

consultants, operations research experts, system integrators specializing in production planning and scheduling, and engineering firms with expertise in lean manufacturing and process optimization.

**What to google when researching this technology?** When researching Finite Resource Planning (FRP) systems for manufacturing, key terms to search for include "finite capacity planning software," "production scheduling systems," "resource optimization in manufacturing," "constraint-based planning," "advanced planning and scheduling (APS)," and "capacity-constrained production planning."