

Planning for Success

Effective Production Planning Strategies





An effective planning strategy will improve the efficiency of your production process by increasing your output, meeting customer demands more effectively, reducing lead times, and improving your bottom line.

This white paper has been prepared to guide you through the most common planning strategies to help you determine the best course of action for your facility while simultaneously addressing manufacturing pain points.

When planning your production, it is worth considering these strategies to optimize your production and address common manufacturing pain points.

01

How to decide which planning strategy to use?

To choose the most appropriate production strategy for your facility it's important to understand the common strategies, their typical uses, and their pros and cons.

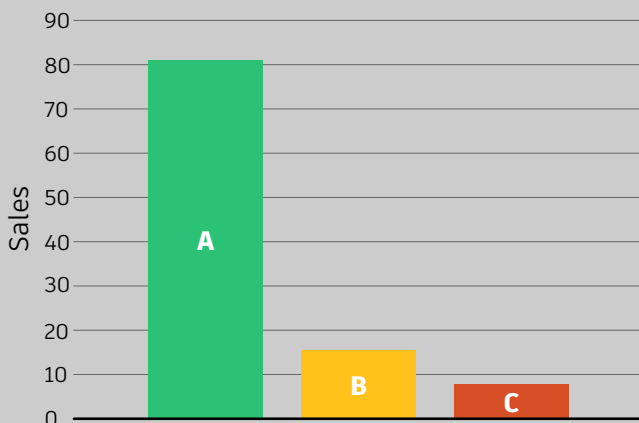
Once you have this background, you can analyze your production capabilities to determine which strategy is best suited for your business. In addition, researching a Manufacturing Execution System can provide valuable data and insights to identify opportunities for improvement and optimize your production processes.

One of the most common methods for finding the best production strategy is to run an "ABC Analysis."

ABC Analysis

This method aims to easily identify a good planning strategy for each product, depending on its frequency and the volume of acquisition.

Start by grouping references in families, considering their demand. Usually, the end result will look similar to the graphic below:



After running this analysis on your Production, you will reach the following conclusions:

- **References "A"**, are responsible for 80% of sales (10 to 20% of all references)
- **References "B"**, are responsible for 15% of sales (20 to 30% of all references)
- **References "C"**, responsible for 5% of sales (50 to 70% of all references)

Once the analysis is complete, it becomes possible to organize the product families into a matrix using a format similar to the one presented below:

	A	B	C
X	MTS		
Y			
Z			MTO

And now?

It's time to decide which Planning Strategy works best for each reference of your production, considering it's demand.

02 Planning Strategies

Make to stock

(MTS)

This strategy is ideal for products requiring quick delivery to maintain a high service level. Typically, a single inventory is maintained for each product or subproduct. The main advantage is a shorter delivery lead time.

This approach can allow for a more streamlined production process, as production can be more closely aligned with customer demand. Additionally, having a single inventory can make it easier to manage and monitor inventory levels.

However, the cost of accumulating stock can be significant, particularly if there is an unexpected drop in sales.

Make to order

(MTO)

Unlike other strategies, MTO doesn't involve creating an inventory, and production begins only after an order is received and confirmed, with the customer usually specifying the products or custom

requirements. With this strategy, customers must wait through the entire lead time before receiving their products.

This strategy is ideal for highly customizable products, and it may be the only viable strategy for such products. You will also not be able to use a Pull Plan (Read more about Push and Pull Plan in the next chapter).

One of the primary benefits of this strategy is the low amount of stock in the value chain. Since production is triggered by customer orders, MTO can help reduce waste by producing only what is needed, leading to more efficient use of resources including labor, materials, and equipment.

Guaranteeing an optimal service level can be challenging, as high delivery lead times can easily occur. This is because the production schedule can be more difficult to predict and plan due to the inherent nature of this production strategy.

To address this, it may be necessary to have more flexible resources, such as a flexible workforce or multi-purpose equipment, in order to respond quickly and efficiently to customer orders.



Hybrid system

(MTS/MTO)

Companies that adopt the Hybrid Strategy typically combine Make-to-Order and Make-to-Stock approaches based on their products' specific characteristics. This approach is more flexible and manageable, catering to different product profiles or types of purchase.

For instance, for a product in high demand that can be stocked at a low cost, a Make-to-Stock approach may be preferred to ensure sufficient quantity for fulfilling future orders.

Conversely, for a perishable or highly customized product, a Make-to-Order strategy can be employed, with the production process starting only upon receiving a customer request. The Hybrid Strategy allows for manufacturing flexibility, enabling facilities to adapt to varying product demands and customer needs.

Assemble to order

This is another possible strategy that can save you some lead time and also avoid stock accumulation. When products can be produced (and stocked) to a certain point or when individual components can be manufactured for later assembly, it is possible to implement this production strategy.

As an example - if you're a bookshelf manufacturer who takes customer orders - you can produce the shelves, but you will have to receive the purchase order to know what dimensions to build the frame to.

Following this strategy, you will still need to take control of your inventory to avoid unnecessary stock accumulation. You will also need an agile process to be able to deliver the final product with a lead time that keeps your customer satisfied.

Engineering to order

This strategy is particularly suitable for products with production requirements that are only known upon receipt of an order. This is often the case for prototyping and minimum viable product creation. Since these designs usually require substantial design and engineering analysis, this process becomes a significant part of the product lead time.



03 Production Models

Push flow

(MRP Model)

This production method relies on a combination of forecasts and order grouping, with both production and purchases being issued by a Central Planning team in accordance with a standard Material Requirement Planning model.

Under this approach, resource planning can be challenging as production is driven by forecasted sales rather than actual customer demand, which can limit the ability to allocate resources efficiently in response to changes in demand.

While this method can lead to the production of large batches (which may appear to increase overall efficiency) it can also mask underlying setup or quality issues.

However, for companies with manufacturing capabilities and assembly lines with intermediate stocks, it's advisable to avoid push flow production wherever possible. As this approach can lead to the accumulation of obsolete inventory and may also obscure operational issues by basing production on projected rather, than actual, demand.

If you can't have intermediate stocks, use the Push Flow and produce based on fixed orders – using FIFO or other strategies for execution.

Pull flow

(Toyota Model)

The Pull flow method operates on the principle of replenishment, with the customer acting as the trigger for production. As soon as one unit is consumed, another is produced to replace it. This customer could be the end customer or an internal customer, such as the next operation in the production process.

In the case of finished products, the Pull flow method involves starting production of a new item from scratch once a finished good is consumed/sold. Alternatively, if intermediate and leveled stocks are in place, each step in the process pulls an item from the previous step.



There are many different Planning Strategies that can fit a Pull Flow Model:

Pick to Order (PTO): According to this strategy, you will supply for the stock you have built.

Assembly to Order (ATO): It is assembled to order, if you have an order that is waiting for the last part of the process, the assembly.

Build to Replenish (BTR): According to this strategy, you will produce a product entirely from the beginning.

Conclusion

To optimize your manufacturing process and improve efficiency, it's crucial to select planning strategies that align with your product type and available manufacturing processes.

Implementing an intuitive Manufacturing Execution System will enable you to plan and schedule operations effectively and utilize resources efficiently. By utilizing such tools, you can maximize your manufacturing capacity and ensure that all aspects of your production process are streamlined and optimized.

