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Replanning and Revision

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Replanning and Revision

1. Meaning and Purpose of Replanning

Replanning refers to the process of updating supply, demand, and capacity plans when actual performance deviates from approved plans. In dynamic environments, changes in customer demand, supply constraints, or production delays make replanning essential to maintain alignment with business objectives. The purpose of replanning is not simply to re-run planning systems but to ensure decisions reflect the most accurate information. A strong replanning process enhances responsiveness, reduces uncertainty, and maintains service levels. It also helps planners quickly highlight priority issues and take corrective actions that preserve stability with minimal disruption.

2. Demand Changes and Their Impact on Planning

Demand fluctuations—such as sudden increases, cancellations, or order rescheduling—are a common trigger for replanning. Planners must understand how these changes propagate through MPS, MRP, CRP, and purchasing plans. Even minor updates to the forecast can create nervousness if not managed carefully. Understanding the ripple effect of demand variation helps organizations adjust safety stock, modify production schedules, or negotiate with suppliers. Successful planners differentiate between short-term demand variability and long-term trend shifts, using statistical methods and customer insights to determine whether the master plan should be revised or kept stable.

3. Supply Changes and Disruptions

Supply changes such as delayed deliveries, quantity shortages, quality issues, or supplier capacity constraints require rapid evaluation and revision of existing plans. Planners must assess how each disruption affects dependent and independent requirements. For example, a raw-material delay may cascade into multiple component shortages, requiring rescheduling or alternative sourcing. Effective supply-change management includes risk assessment, supplier communication, and scenario planning. When handled properly, replanning helps minimize disruptions, maintain continuity of operations, and update purchasing and production schedules to reflect realistic lead times.

4. The Role of Planning Time Fences

Time fences determine when and how changes can be made to the master schedule. They support stability by restricting modifications in near-term periods while allowing flexibility further out. Demand and planning fences help planners manage the trade-off between responsiveness and efficiency. When replanning, changes must respect time-fence policies to prevent unnecessary production disruption, overtime, inventory buildup, or expediting. Understanding the purpose of each fence allows planners to negotiate exceptions only when necessary, maintaining both schedule integrity and customer satisfaction.

5. Overplanning and Nervousness

Nervousness occurs when small changes in demand or supply cause disproportionately large fluctuations in

planning outputs such as planned orders, reschedules, and cancellations. Overplanning—frequent or unnecessary plan revisions—can increase nervousness. Excessive changes disrupt production, confuse suppliers, and increase costs. Therefore, planners must design planning parameters (lot sizes, time fences, buffers, and cycle times) that dampen nervousness. Understanding how to identify and control nervousness helps maintain plan stability while ensuring responsiveness to genuine changes. ASCM emphasizes preventing nervousness through disciplined planning processes.

6. Exception Messages and Priority Planning

MRP generates exception messages that recommend actions such as expediting, delaying, canceling, or releasing orders. These messages guide planners in identifying which parts of the plan require intervention. Exception-based planning reduces manual effort by focusing attention on deviation from expectations. During replanning, understanding the meaning and severity of exception messages helps planners evaluate whether plans should be revised, whether alternative solutions exist, or whether issues can be ignored. Effective planners classify exception messages into priorities aligned with business goals such as customer satisfaction, cost reduction, and capacity utilization.

7. Pegging and Root Cause Analysis

Pegging identifies the source of a requirement—for example, which MPS order or customer order created a particular component demand. During replanning, pegging helps planners trace the root cause of shortages, lateness,

or excess inventory. Rather than reacting to symptoms, planners use pegging to understand the true source of the issue, enabling more effective revisions. Pegging also supports communication with production, sales, and suppliers by explaining why changes are required. This capability enables precise corrective actions and reduces unnecessary plan adjustments.

8. Managing Rescheduling Activities

Rescheduling involves adjusting planned or released orders to respond to changes in demand or supply. Rescheduling may include expediting, delaying, or canceling orders. Planners must evaluate the feasibility, cost, and operational impact of each adjustment. Frequent rescheduling increases shop-floor congestion, supplier confusion, and administrative burdens. Therefore, planners must determine when rescheduling is necessary and when it should be avoided. Replanning ensures that rescheduling decisions align with approved lead times, capacity limits, and customer priorities.

9. Lot Sizing and Its Impact on Replanning

Lot-sizing rules—such as EOQ, lot-for-lot, and period-order quantity—affect the frequency and magnitude of order changes. Some lot-sizing methods reduce nervousness by smoothing order patterns; others may amplify it. During replanning, planners must understand how lot sizes affect inventory levels, cost efficiency, and stability. Selecting appropriate lot-sizing techniques ensures that replanning outputs are realistic, operationally viable, and aligned with long-term strategy. Choosing the wrong lot-sizing policy can create sudden demand spikes that require extensive plan revisions.

10. Lead Times and Replanning Stability

Lead times—purchasing, manufacturing, and cumulative—determine how far ahead planners must consider potential changes. Inaccurate lead times result in unrealistic planned order dates, causing repeated replanning. Maintaining accurate lead-time data is essential for stable scheduling. When changes occur, planners must evaluate whether updated lead times require recalculating dependent requirements. Understanding lead-time variability also supports buffer creation, risk management, and more reliable promises to customers.

11. Use of Firm Planned Orders (FPOs)

Firm Planned Orders (FPOs) prevent MRP from automatically recalculating order dates or quantities. They provide stability by locking certain plans—even if inputs change. During replanning, FPOs are useful when component availability, capacity considerations, or customer commitments require maintaining production dates. However, excessive use of FPOs restricts system responsiveness. Planners must understand when to apply firming policies and how to strike a balance between stability and flexibility.

12. Planning Cycles and Replanning Frequency

Planning frequency—daily, weekly, or continuous—affects supply-chain performance. Overly frequent replanning increases nervousness and administrative effort; infrequent replanning reduces responsiveness. Organizations design planning cycles based on product characteristics, demand variability, and system capabilities. Understanding how planning cycles influence MRP outputs helps planners

determine when changes are necessary and when they should be deferred. Cycle counting also affects how safety stock and buffers are revised.

13. Cumulative ATP and Replanning

Available-to-Promise (ATP) and cumulative ATP determine whether customer orders can be committed without violating the master schedule. During replanning, ATP must be recalculated to reflect updated supply and demand. This ensures customer service teams make realistic commitments. Maintaining accurate ATP prevents overpromising, backlogs, and late deliveries. Understanding the impact of replanning on ATP values ensures coordination between planning and customer-facing teams.

14. Using Buffer Management in Replanning

Buffers—inventory, time, or capacity—absorb variability in the supply chain. During replanning, buffer status indicates whether plans are performing as expected. If buffers are consistently consumed or replenished beyond limits, planners may need to revise forecasts, capacity plans, or supplier schedules. Buffer management also helps prioritize issues when multiple items require attention. Incorporating buffers into the planning process reduces nervousness and provides a structured approach to handling variability.

15. Engineering Change Control

Engineering changes—such as new materials, revised specifications, or updated routings—affect BOMs, inventory requirements, and production plans. Replanning ensures that engineering changes are effectively incorporated into MRP runs without disrupting ongoing operations. Planners

must understand the timing of changes, the disposition of old materials, and how revisions impact dependent requirements. Poor engineering-change management leads to mismatches between design and production, excess inventory, and schedule delays.

16. Forecast Error and Replanning Adjustments
Forecast error increases the need for replanning. Understanding forecast accuracy metrics such as MAPE, bias, and tracking signals helps planners identify when planned values are significantly off track. When errors exceed thresholds, replanning ensures the master schedule and MRP reflect corrected demand signals. Managing forecast error reduces inventory imbalances and improves schedule reliability. Planners must interpret forecast performance and adjust planning parameters to minimize disruptions.

17. Data Accuracy as a Foundation for Replanning
Accurate data—inventory balances, BOMs, routings, order statuses, and lead times—is essential for reliable planning outputs. Poor data quality leads to repeated replanning because the system continually "corrects" inaccurate assumptions. Planners must routinely audit data, reconcile inventory, and coordinate with cross-functional teams to maintain accuracy. Strong data governance reduces nervousness, improves customer service, and enhances planning credibility. ASCM emphasizes that effective replanning is impossible without strong master data management.

18. Synchronization Between MPS and MRP

MPS and MRP must operate in harmony to ensure consistent signals across the planning hierarchy. If MPS revisions are not properly communicated to MRP, planners may encounter excess inventory, shortages, or conflicting priorities. Replanning ensures synchronization by updating MPS inputs, incorporating demand changes, and reviewing dependent requirements. Understanding the interactions between these levels helps planners maintain stable workflows and avoid bottlenecks.

19. Evaluating the Cost of Changing Plans

Changing plans affects cost elements such as labor overtime, expediting fees, inventory carrying cost, and supplier penalties. During replanning, planners must assess whether the cost of modifying a schedule is worth the benefit. Cost-benefit analysis guides decisions on whether to expedite components, alter batch sizes, or delay production. Understanding total cost impact helps planners choose revisions that support profitability and efficiency.

20. Aligning Replanning with S&OP Decisions

Replanning must remain consistent with the strategic direction established during S&OP. Local adjustments that contradict S&OP undermine supply chain performance and create organizational conflict. Planners must ensure that revised plans support overall business priorities such as service level targets, inventory goals, and capacity constraints. Understanding the alignment between S&OP, MPS, and MRP ensures that replanning serves organizational objectives rather than creating isolated optimizations.

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