

MRP Exception-Response

Framework

A practical, nonproprietary procedure for converting planning exceptions into executable production decisions

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PURPOSE

Support consistent review of MRP exception signals by connecting system output to the affected requirement, current data, material readiness, schedule and capacity impact, action ownership, and visible follow-up.

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1. Purpose, Scope, and Relationship to the Earlier Article

SAP describes exception messages as notices of important or critical events and explains that they help identify materials whose planning results may require manual reprocessing ^[1]. Oracle explains that planning exceptions provide visibility into problem areas that may need attention ^[2].

The message identifies a condition; the operating decision still requires context.

This framework develops the five-step response framework presented in the August 2, 2026, article, “From MRP Exceptions to Executable Production Decisions: A Practical Response Framework.” The five steps are retained and expanded with defined exception families, signal-validation dispositions, a five-dimensional material-readiness review, impact-based triage, response-option preconditions, a reusable response record, escalation triggers, closure criteria, and a worked synthetic example.

WHAT THIS FRAMEWORK IS

A general, adaptable planning resource for production schedulers, master schedulers, material planners, MRP controllers, supply planners, and cross-functional partners involved in exception follow-up.

WHAT THIS FRAMEWORK IS NOT

It is not a procedure prescribed by SAP, Oracle, ASCM, any employer, or any standards body. It does not replace approved work instructions, ERP logic, engineering or quality controls, safety requirements, contractual obligations, procurement policy, delegated authority, or management approval.

2. Core Terms

TERM	MEANING IN THIS FRAMEWORK
Exception	A system-generated signal that a planning condition may require review.
Signal	The information content of the exception, considered separately from the message display.
Artifact	A signal caused by stale, incomplete, or inaccurate data rather than a current operational constraint.
Constraint	A current condition that limits execution of the plan as stated.
Affected requirement	The specific order, commitment, or dependent demand potentially exposed by the exception.
Operational proximity	How soon the affected requirement reaches the relevant execution window.
Recoverability	Whether the current plan can absorb the condition without changing a commitment.
Action owner	The named person responsible for the next action.
Open risk	A constraint that has been identified but is not yet resolved or incorporated into an approved updated plan.

3. Exception Families and Design Principles

The exact terminology varies by planning system and configuration. The families below organize review; they do not determine priority. Priority is assigned later based on the affected requirement and the ability of the plan to absorb the condition.

EXCEPTION FAMILY	WHAT THE SIGNAL MAY INDICATE	REVIEW FOCUS
Timing and rescheduling	Supply timing may no longer align with the requirement date.	Whether a proposed date change is realistic and what else it would affect.
Material shortage and coverage	Supply may be insufficient or unavailable when required.	Quantity, timing, allocation, location, condition, and competing demand.
Past-due condition	An assumption, date, order status, or record may require review.	Understand the cause before changing the displayed date.

EXCEPTION FAMILY	WHAT THE SIGNAL MAY INDICATE	REVIEW FOCUS
Capacity and resource	Material may be available while labor, equipment, tooling, line time, or supplier capacity is constrained.	Whether the resource condition affects execution and what alternatives are feasible.
Excess or cancellation	Changing demand or supply may justify reducing, delaying, reallocating, or reconsidering supply.	Whether the supply supports another requirement or existing commitment.
Data and master data	Status, parameter, lead time, allocation, or transaction timing may be inaccurate.	Validate the record and address repeated data or parameter issues through the organization's approved process.

Design principles

PRINCIPLE	PRACTICAL MEANING
Impact determines priority	The operational consequence to the affected requirement matters more than the message label alone.
Validate before acting	Some exceptions may result from incomplete, outdated, or inaccurate planning data. Validate the signal before changing the plan.
Readiness is multidimensional	Availability should be assessed by quantity, location, condition, timing, and competing claims.
Ownership is named	Each open issue should have a responsible person, a next action, and a review time.
Unresolved risk stays visible	Discussion does not equal resolution. Keep risk visible until the condition is resolved or reflected in an approved plan.
The output is an executable decision	The objective is not simply to clear messages. It is to support a plan that affected functions can execute.

4. Five-Step Exception-Response Workflow

1	Identify the affected requirement Determine the material or item, affected order or requirement, quantity, required date, production location, first affected operation, and downstream commitment.
2	Validate the planning signal Check currency, demand integrity, expected supply, order status, planning parameters, allocations, and recurrence. Classify the signal as an artifact, constraint, or indeterminate.
3	Review material readiness Evaluate whether the required supply is available in the correct quantity, location, condition, and time window after considering competing claims.
4	Assess impact and choose a response Assess operational proximity and recoverability, then consider only responses permitted by the organization's procedures and delegated authority.
5	Assign ownership and monitor unresolved risk Name the action owner and review date. Keep the issue visible until closure criteria are met.

Step 1 record

FIELD	QUESTION ANSWERED
Material / item	What is potentially constrained?
Affected order(s)	Which production, purchase, transfer, or customer requirements are implicated?
Requirement date and quantity	When and how much is required?
Downstream commitment	What build, shipment, stocking target, or dependent demand may be affected?
Production location / operation	Where does the impact first appear?

DECISION GATE

If the affected requirement or operational consequence cannot yet be determined, record the missing information and proceed through validation. Do not assume that a displayed message is either harmless or actionable without context.

5. Step 2 — Validate the Planning Signal

Validation distinguishes the displayed message from the current operating condition. Use available and authorized information, and follow organizational rules for any data correction.

DISPOSITION	MEANING	NEXT ACTION
Artifact	The signal is driven by stale, incomplete, or inaccurate data rather than a current supply-demand constraint.	Correct or route the data issue through the approved process. Do not change the operating plan solely to clear the message.
Constraint	The signal reflects a current condition that limits execution.	Proceed to material-readiness and impact review.
Indeterminate	Available information is insufficient to confirm either an artifact or a constraint.	Assign an owner and review time to obtain the missing information. Maintain visibility until validation is complete.

Validation checks

CHECK	QUESTION
Currency	When was the planning run? Have receipts, confirmations, demand, allocations, or order status changed since then?
Demand integrity	Is the requirement still valid, current, and correctly dated and quantified?
Supply integrity	Is expected supply confirmed or merely planned? Does the date used by the system match the best authorized information available?
Order status	Does the system status reflect partial receipts, issues, closures, holds, or inspection status accurately?
Parameter plausibility	Are the current lead time, lot size, safety stock, scrap factor, and other relevant parameters plausible and approved?
Allocation / pegging	Is visible supply already committed to another requirement?
Recurrence	Has the same signal occurred repeatedly? If so, route the possible data, parameter, or process issue through the appropriate corrective channel.

CAUTION

Repeated correction of the same artifact can consume planner capacity without addressing the underlying cause. Where authorized, recurring issues should be documented and routed for root-cause review.

6. Step 3 — Review Material Readiness

Availability is not only an on-hand quantity. Review the five dimensions below against the specific affected requirement.

DIMENSION	QUESTION	POTENTIAL ISSUE
Quantity	Is enough uncommitted supply available for this requirement?	Aggregate on-hand may already support other requirements.
Location	Is the supply at the correct plant, warehouse, or line-side point?	Transfer time may make stock unavailable when needed.
Condition	Is the supply released, inspected, usable, unexpired, and free of relevant holds?	Quality, inspection, quarantine, or blocked status may prevent use.
Timing	Will usable supply be available by the requirement date?	A receipt may arrive before shipment but after production needs it.
Competing claims	What other requirements need the same supply in the same window?	Two orders may be planned against the same units.

Readiness verdict

VERDICT	DEFINITION
Ready	The requirement can be executed as planned with confirmed usable supply.
Ready with action	A permitted transfer, release, inspection, expedite, or other authorized action can make the supply ready in time.
Not ready	No confirmed and authorized path currently makes the supply usable by the requirement date.

7. Step 4 — Assess Impact and Choose a Response

The matrix below is a starting point, not a universal standard. Each organization should define its own horizons and response windows. **For purposes of this general framework, “Immediate,” “Near,” and “Far” are organization-defined planning horizons. Any adopting organization should establish applicable time boundaries before using the matrix.**

OPERATIONAL PROXIMITY	NOT ABSORBABLE	ABSORBABLE
Immediate	P1 — same-day decision and owner	P2 — same-day review; decision within 24 hours
Near	P2 — decision within 24 hours	P3 — current planning cycle
Far	P3 — current planning cycle	P4 — monitor and review at the planned cycle

Response windows indicate time to a documented decision and assigned owner, not necessarily time to full resolution.

8. Response Options and Preconditions

Select only options permitted by the organization's procedures, system controls, and delegated authority. The framework does not authorize any action by itself.

RESPONSE	CONSIDER WHEN	MINIMUM PRECONDITION
Maintain plan	Validation shows no current execution threat, or readiness is confirmed.	Documented basis for taking no change.
Correct data	The signal is an artifact.	Correction is authorized and traceable.
Expedite supply	Confirmed supply exists but is expected late.	A feasible improved date is confirmed through the approved channel.

RESPONSE	CONSIDER WHEN	MINIMUM PRECONDITION
Reallocate supply	Competing requirements exist and one has authorized priority.	Priority rule and authority are clear; the affected lower-priority requirement is reviewed and communicated.
Adjust quantity	Partial coverage may support useful production.	Partial build is permitted by process, quality, and downstream requirements.
Substitute material	An approved alternative may be available.	Engineering, quality, and other required approvals are complete. This is not a planner-only decision.
Resequence production	Another executable order can use the available slot.	Capacity, tooling, labor, changeover, and sequence restrictions have been checked.
Reschedule requirement	No feasible authorized option covers the gap in the required window.	Downstream commitment impact is assessed before changing the date.
Escalate	The response exceeds authority or no feasible option is confirmed.	Escalation includes the record, options considered, and a recommendation where possible.

BEFORE RESCHEDULING

Record: (1) the downstream commitment, (2) the latest date that still supports it, (3) the responsible relationship owner and communication status, and (4) any other requirement affected by the change.

9. Step 5 — Ownership, Monitoring, and Closure

#	RESPONSE-RECORD FIELD	NOTE
1	Record ID	Enables reference and tracking.
2	Date raised	When the risk entered review.
3	Material / item	The item associated with the signal.
4	Affected requirement and date	The order, commitment, or dependent demand at risk.
5	Exception family	One of the six organizing families.
6	Disposition	Artifact, constraint, or indeterminate.
7	Readiness verdict	Ready, ready with action, or not ready.
8	Priority	P1 through P4 using the adapted matrix.
9	Response selected	The authorized action under review or execution.
10	Action owner	One named person responsible for the next action.
11	Next review date / time	A specific checkpoint, not “ongoing.”
12	Closure basis	Evidence that the condition is resolved or incorporated into an approved plan.

Closure criteria

- The constraint is resolved and the plan is executable as stated.
- The plan has been formally updated to reflect the constraint and affected parties have been informed.
- Validation establishes an artifact and the approved data correction is complete.
- The requirement is cancelled or superseded through the approved process.

CLOSURE TEST

Before closing, confirm that the underlying condition is understood, the decision is executable, remaining ownership is clear, affected functions have been informed, and any remaining risk is still visible.

Suggested escalation ladder

PRIORITY	ESCALATE IF UNRESOLVED AFTER	SUGGESTED DESTINATION
P1	1 business day	Planning lead and affected production leadership
P2	3 business days	Planning lead
P3	1 planning cycle	Planning lead at cycle review
P4	2 planning cycles	Review for possible data, parameter, or process issue

Organizations should replace these suggested triggers with approved escalation rules that fit their planning cadence and authority structure.

10. Blank Exception-Response Record

Adapt this form to an approved tracker, workflow, or system. Attach supporting evidence only when authorized and nonconfidential.

Record ID		Date raised	
Material / item		Raised by	
Affected order(s)		Requirement date	
Requirement quantity		Downstream commitment	
Line / work center		First affected operation	
Exception family		Disposition	☐ Artifact ☐ Constraint ☐ Indeterminate
Readiness verdict	☐ Ready ☐ Ready with action ☐ Not ready	True available date	
Operational proximity	☐ Immediate ☐ Near ☐ Far	Recoverability	☐ Absorbable ☐ Not absorbable
Priority	☐ P1 ☐ P2 ☐ P3 ☐ P4	Response selected	
Downstream impact assessed	☐ Yes ☐ N/A	Relationship owner informed	☐ Yes ☐ N/A
Action owner		Next review date / time	
Closure basis		Closed on	

Operating rhythm

Daily exception review. Identify new signals, validate urgent items, assign owners, and ensure P1/P2 risks are visible.

Periodic open-risk review. Review each open record against its next checkpoint and approved escalation rules.

Pattern review. Examine recurring signals, items, root causes, and parameters to determine whether corrective action is needed through the appropriate process.

11. Fully Synthetic Worked Example

SYNTHETIC EXAMPLE

Every company name, person, item, order, quantity, date, and condition below is fictional. The example contains no actual operational data from any employer.

11.1 Scenario and Steps 1–2

Northline Components is a fictional discrete manufacturer of hydraulic assemblies operating two assembly lines. On August 3, 2026, an MRP run produces a shortage-and-coverage exception for Item NXH-7426, a machined housing. The example shows how the five-step framework converts that signal into a documented planning response.

Step 1 — Identify the affected requirement

FIELD	SYNTHETIC VALUE
Material / item	NXH-7426, machined housing
Affected order	Production Order 118842, Assembly A-9
Requirement date	August 6, 2026
Requirement quantity	120 units
Downstream commitment	Customer Order 55190, planned ship date August 10, 2026
Production location	Assembly Line 2
First affected operation	Operation 20, housing subassembly

WHY STEP 1 MATTERS

The signal is not evaluated only as a housing shortage. The affected production order and downstream shipment establish the operational consequence that must be considered.

Step 2 — Validate the planning signal

VALIDATION CHECK	SYNTHETIC FINDING
Currency	The MRP run completed at 3:00 a.m. on August 3. No receipt has posted since the run.
Demand integrity	Customer Order 55190 remains confirmed and unchanged.
Supply integrity	Purchase Order 90233 for 200 units shows a planned receipt of August 5, but no supplier confirmation is recorded.
Order status	Production Order 118842 is released and has not started.
Parameter plausibility	The displayed 21-day lead time is treated as plausible for purposes of this fictional example.
Allocation / pegging	All 45 on-hand units are committed to Production Order 118790, required August 4.
Recurrence	A comparable NXH-7426 signal appeared previously; the recurrence is noted for pattern review.

The fictional buyer obtains an updated supplier confirmation showing arrival on August 7 rather than August 5.

Disposition: Constraint. The signal reflects a current timing and availability condition rather than only a display or data artifact.

11.2 Steps 3–5

Step 3 — Review material readiness

DIMENSION	SYNTHETIC FINDING
Quantity	45 units are on hand, but all 45 are committed to another order. Uncommitted quantity: zero.

DIMENSION	SYNTHETIC FINDING
Location	Incoming supply routes first to a central warehouse. Estimated internal transfer time: one day.
Condition	Incoming NXH-7426 units require dimensional inspection. Estimated inspection time: one day.
Timing	Supplier arrival Friday August 7, plus one business day for inspection and one for internal transfer, produces an estimated usable line-side date of Tuesday August 11 (August 8–9 fall on a weekend).
Competing claims	Production Order 118790, required August 4, has the earlier claim on the existing 45 units.

READINESS VERDICT

Not ready. The estimated true available date is Tuesday August 11 — after the August 6 production requirement and after the August 10 planned shipment.

Step 4 — Assess impact and choose a response

Operational proximity: **Immediate**. Recoverability: **Not absorbable** under the current plan. Initial priority: **P1**, requiring a same-day documented decision and owner under this illustrative matrix.

OPTION CONSIDERED	SYNTHETIC ASSESSMENT
Expedite supply	The supplier indicates August 7 is already the earliest feasible arrival. No further improvement is confirmed.
Reallocate 45 units	Rejected. The 45 units support Production Order 118790 and an earlier customer commitment. Reallocation would transfer the shortage to the earlier requirement rather than remove it.
Adjust quantity	Rejected. No uncommitted units are available for a useful partial build.
Substitute material	Not selected. No formally approved alternative is established in this example.
Resequence production	Feasible subject to organizational authorization. Production Order 118851 is shown as materially ready; tooling, labor, and changeover conditions permit use of the August 6 slot.
Reschedule requirement	Necessary for Order 118842 if NXH-7426 is not usable until August 11. Downstream impact must be assessed before the date is changed.

Illustrative response: after the required review and authorization, Production Order 118851 is resequenced into the August 6 slot. Production Order 118842 is replanned to August 11. The downstream relationship owner is informed before the date change and confirms that the revised shipment timing is accepted for this fictional example.

Step 5 — Assign ownership and monitor

#	FIELD	SYNTHETIC COMPLETED RECORD
1	Record ID	ER-2026-0803-07
2	Date raised	August 3, 2026
3	Material / item	NXH-7426
4	Affected requirement	Order 118842; August 6 requirement; replanned to August 11
5	Exception family	Material shortage and coverage
6	Disposition	Constraint
7	Readiness verdict	Not ready; estimated usable date August 11
8	Priority	P1 under the illustrative matrix
9	Response selected	Authorized resequencing review; replan affected order; inform downstream owner
10	Action owner	Named planner to confirm receipt, inspection release, transfer, and schedule update
11	Next review	August 7, 2026
12	Closure basis	Remain open until usable supply and the approved schedule update are confirmed

11.3 What the framework changes

A superficial message-clearing response might move Production Order 118842 to the supplier receipt date of August 7. In this fictional scenario, that date would still not be executable because inspection and internal transfer occur after receipt. The five-dimensional readiness review instead identifies August 11 as the estimated usable date.

The option review also demonstrates why visible inventory should not be reallocated automatically. The 45 on-hand units are committed to an earlier and tighter requirement. Reallocation would relocate the shortage rather than resolve it. The framework therefore makes the competing claim visible before a response is selected.

DEMONSTRATED VALUE OF THE EXAMPLE

The example does not claim proven performance. It demonstrates how the framework structures validation, readiness review, option comparison, authority checks, downstream communication, ownership, and closure evidence.

12. Evaluating the Process

Suggested nonconfidential indicators include the measures below. These indicators are proposed for local evaluation and are not validated performance standards.

SUGGESTED INDICATOR	WHAT IT MAY SHOW
Exceptions linked to an affected requirement	Whether Step 1 is consistently applied.
Artifact rate and recurring-artifact count	Whether data or parameter issues require corrective review.
P1/P2 records assigned within the selected response window	Whether priority decisions lead to timely ownership.
Age of unresolved records	Whether open risks remain visible.
Closures with a stated basis	Whether closure reflects resolution or an approved plan update.
Reschedules with documented downstream review	Whether commitment effects are considered before date changes.
Constraints identified before the requirement date	Whether the process is surfacing risk early enough for action.

13. Limitations and Adaptation

This framework has not been empirically validated and makes no claim that it produces measurable improvement. It is a structured articulation of general planning practice for discrete and repetitive manufacturing. Organizations should evaluate it against their own baseline, system configuration, products, planning horizons, governance, and operational requirements.

- Process manufacturers with campaign scheduling, co-products, or shelf-life constraints may require substantial adaptation.
- Organizations with centralized or automated scheduling may use a narrower response set and different escalation paths.
- The triage matrix is illustrative; planning horizons and response windows should be replaced with approved local rules.
- The framework does not address MRP parameter governance, sales and operations planning, or detailed capacity planning.
- Nothing in this framework authorizes action beyond an individual's delegated authority or overrides approved organizational controls.

14. Reuse, References, and Author Notice

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SUGGESTED CITATION

Opara, U. J. (2026). MRP Exception-Response Framework: A practical, nonproprietary procedure for converting planning exceptions into executable production decisions, Version 1.0.

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Neither SAP nor Oracle has reviewed, approved, or endorsed this independently prepared framework.

AUTHOR NOTICE

Uche Joachim Opara holds an M.S. in Industrial Engineering and the ASCM/APICS Certified Supply Chain Professional (CSCP) credential. This framework is prepared and published in a personal capacity and contains no employer-specific, proprietary, or confidential information.