ABB Robotics + Westernacher

SAP EWM implementation at a Greenfield Production Site



ABB Robotics + Westernacher

SAP EWM implementation at a Greenfield Production Site

AGENDA

ABB Robotic Campus - Introduction

- Background
- Site Layout – Logistic & Production
- Logistic - Automation footprint
- IT application Landscape
- Project phases with comments
- Signavio

SAP EWM – Key Design Decisions & Implementation approach

- Production staging
- MES Driven staging
- Kitting
- Automation Integration
- Plug n play?
- Next steps

© 2026 Westernacher Consulting Denmark ApS.

ABB Robotic Campus - Introduction



Background
ABB Robotic Campus



- High-tech R&D center
- 50% capacity expansion
- Productivity improvement
- Attracting customers & talents
- Strengthen geopolitical resilience
- Sustainability focus

© 2026 Westernacher Consulting Denmark ApS.

Background
RA footprint consolidation

All ABB Robotics functions moved to one location.



© 2026 Westernacher Consulting Denmark ApS.

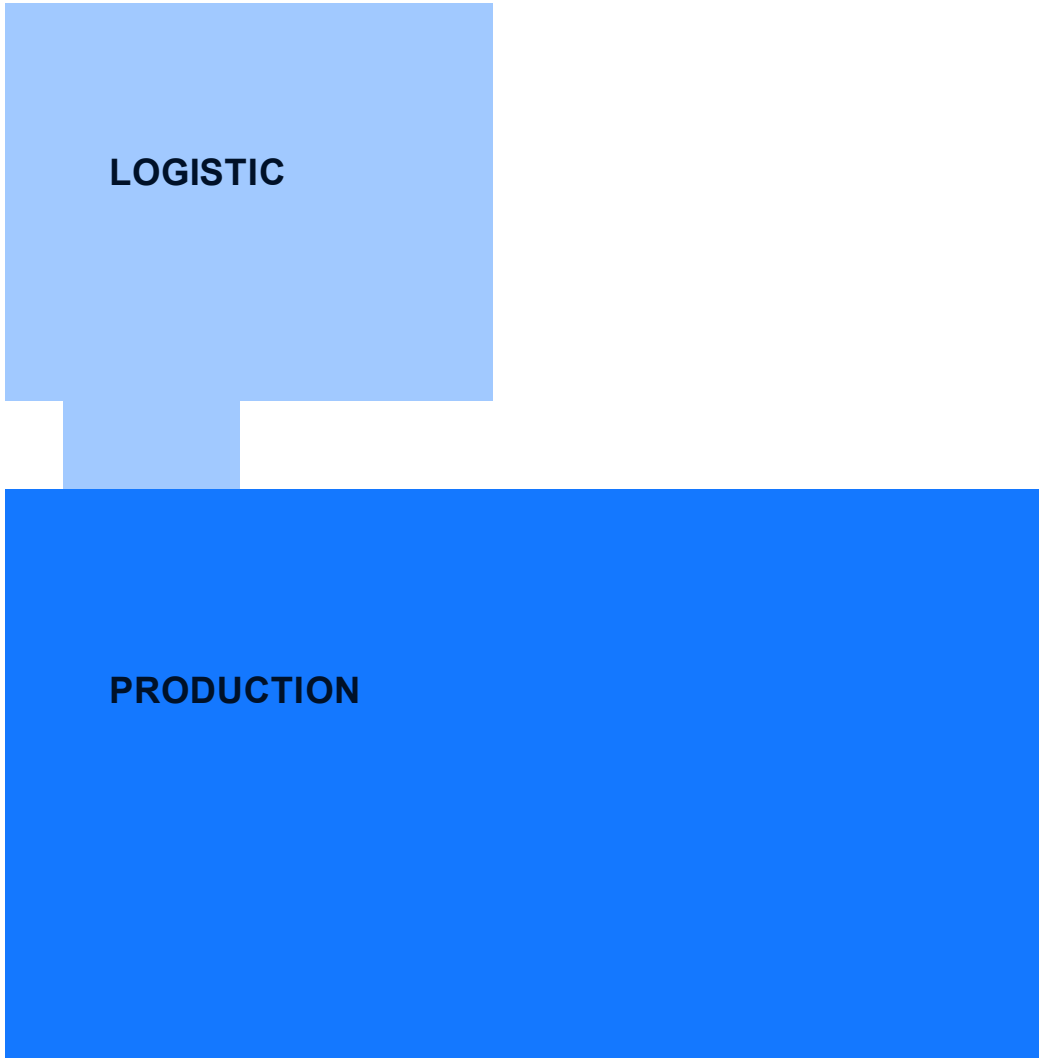
Background
The New ABB Robotic Campus



© 2026 Westernacher Consulting Denmark ApS.

ABB Robotic CAMPUS

Layout – Logistics and Production



LOGISTIC

- Inbound area
- Unpacking and decanting area
- Automated Pallet Storage (APS) - ARSR
- Automated Box Storage (ABS) – Miniload
- Material kitting and sequence area
- Washing area
- Manual Pallet Storage (MPS)

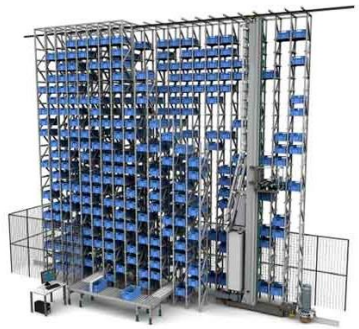
PRODUCTION

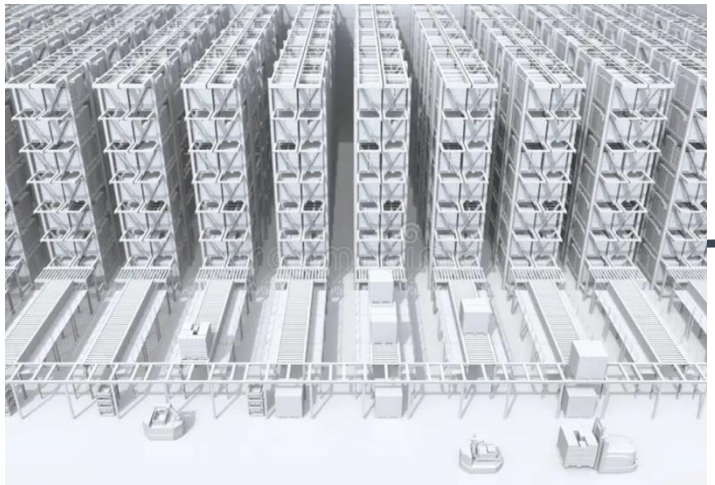
- Assembly of control cabinets
- Preassembly
- Module assembly 1-x
- Final assembly
- System test
- Paint
- Packing
- Other

© 2026 Westernacher Consulting Denmark ApS.

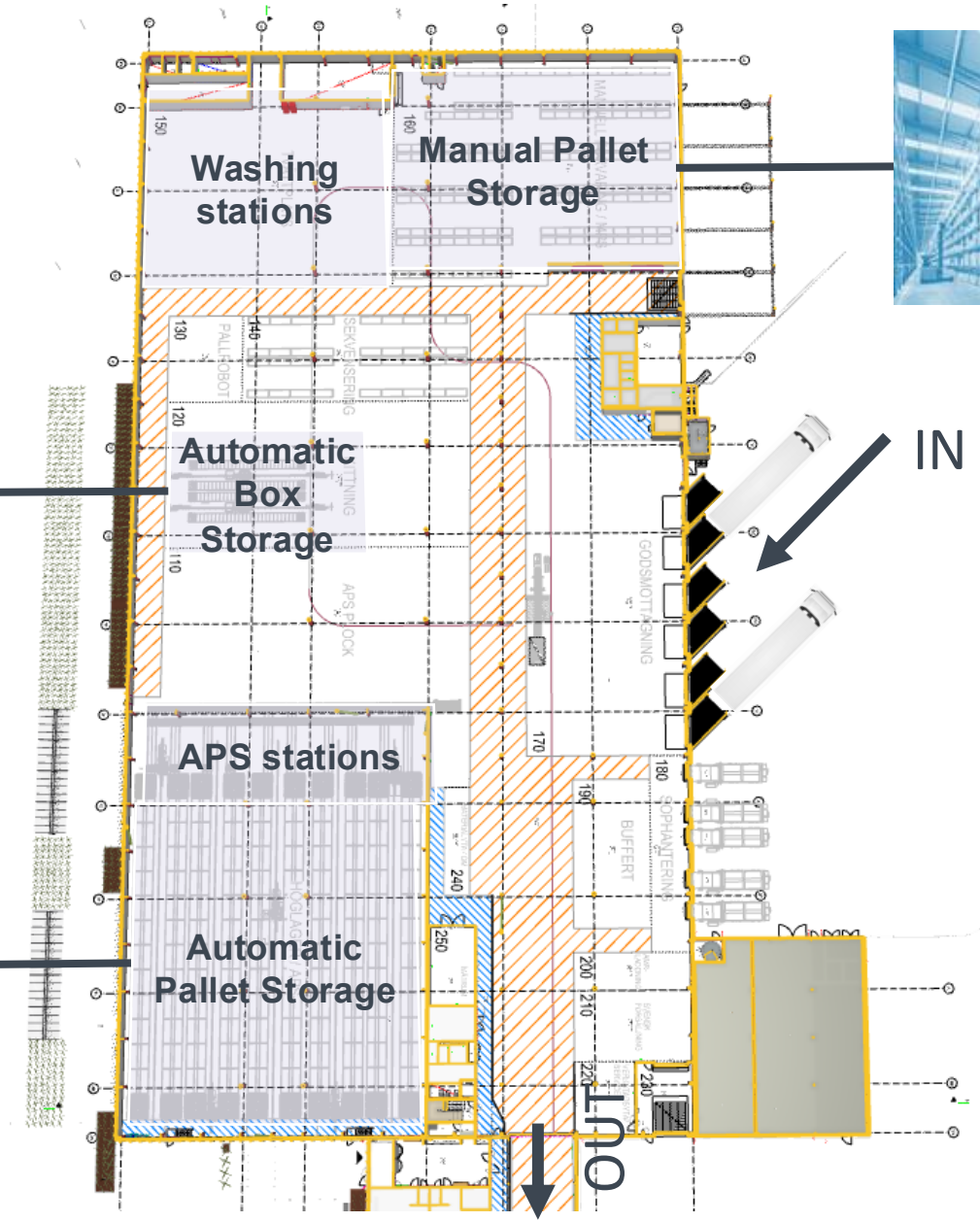
ABB Robotic CAMPUS

Detailed Layout – Logistics





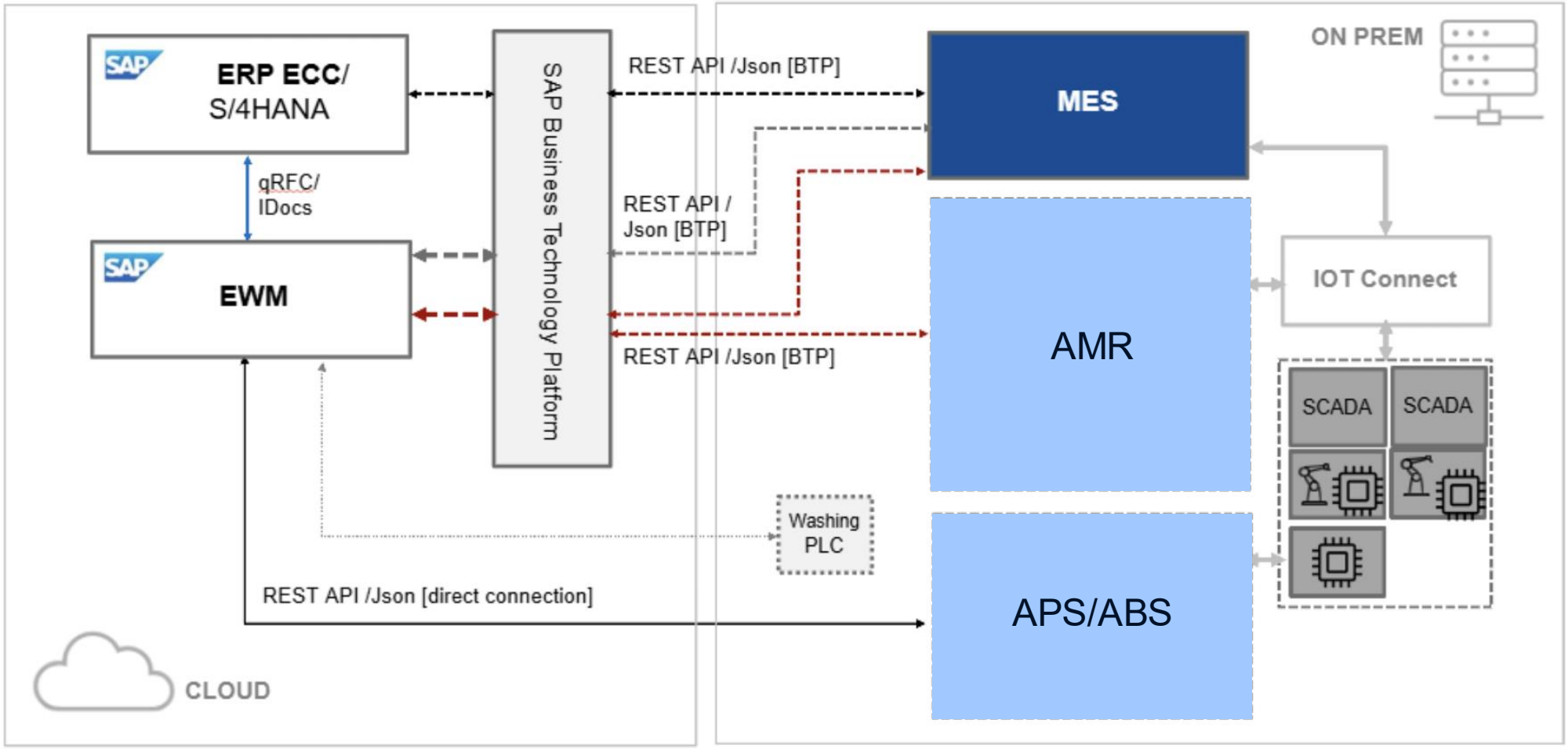




© 2026 Westernacher Consulting Denmark ApS.

ABB Robotic CAMPUS

Factory LE Systems



© 2026 Westernacher Consulting Denmark ApS.

ABB Robotic CAMPUS

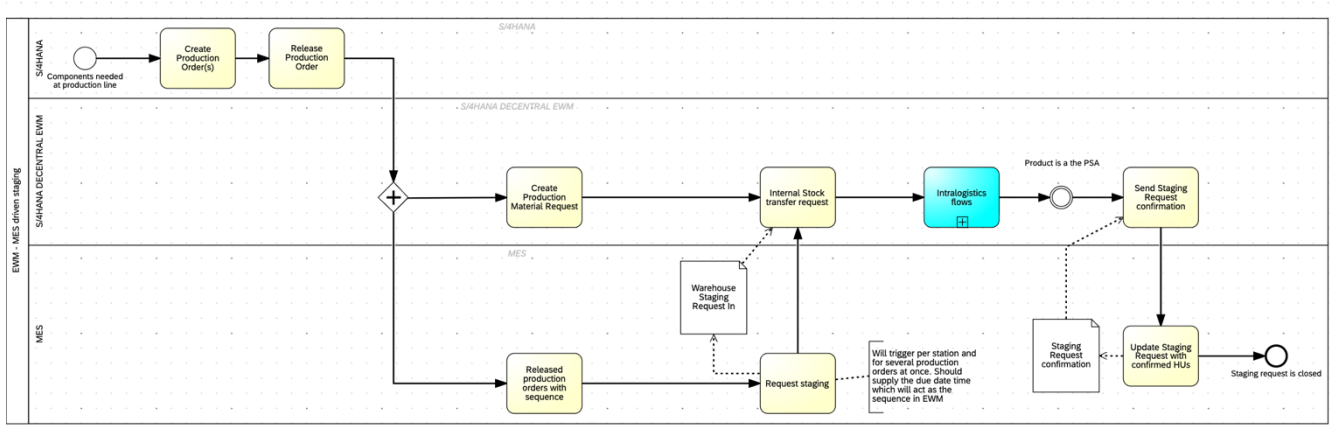
Project phases – with comments

Discover & Prepare	• ABB Gate model • SAP Activate • Greenfield project Waterfall with an agile twist
Explore I **Requirements**	• Map process flows in Signavio • DEMO SAP EWM best practices
Explore II **Design**	• Finalize process flows in Signavio • Include RICEFW • Complexity/Dependency/Estimation
Realize **Sprints**	• Create an agile sprint plan (8 sprints) with manageable scope based on readiness/ dependencies towards other teams/applications • System test & System integration test with simulation tools
Deploy	• Train-the-trainer • User Acceptance Test • Cut over
Run	• Hypercare

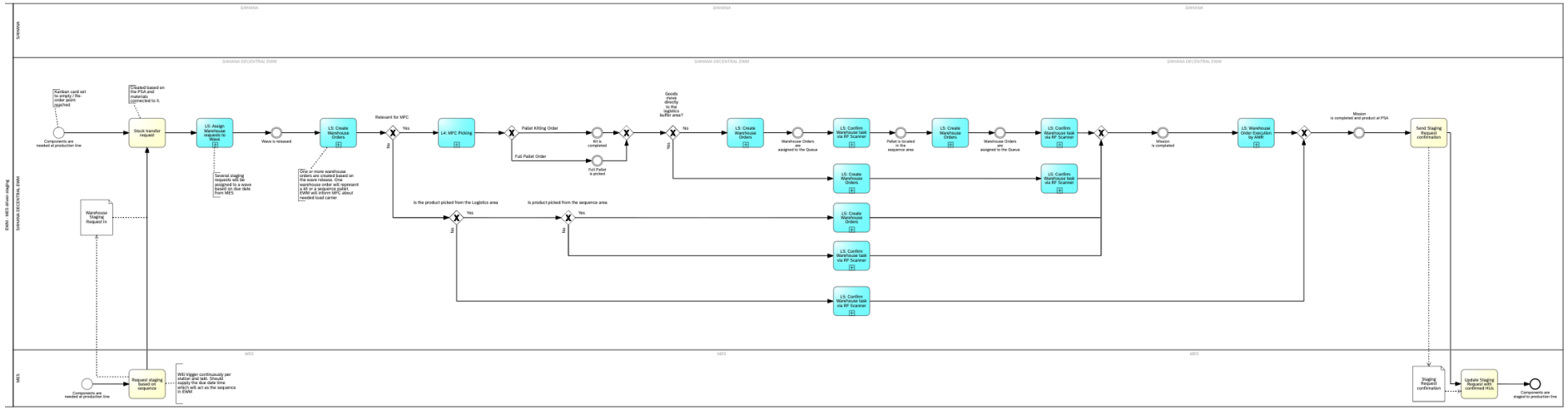
© 2026 Westernacher Consulting Denmark ApS.

ABB Robotic CAMPUS

Business process mapping - Signavio



Instead of extensive word documents no-one updates we use Signavio as our main repository and only document RICEFWS in detail.



© 2026 Westernacher Consulting Denmark ApS.

SAP EWM – Key Design Decisions & Implementation approach

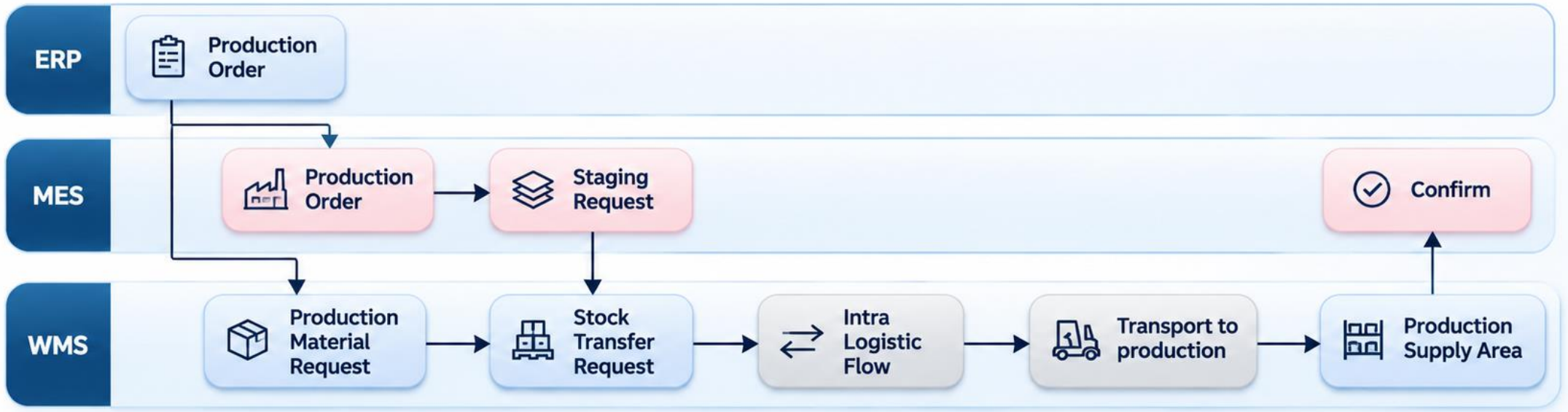


Logistic Scope
Process flows



© 2026 Westernacher Consulting Denmark ApS.

Production staging
Introduction



Production Staging

- Options
- MES Drive Staging

Intra Logistics

- Automatic Pallet Storage
- Automatic Box Storage
- Pre-picking
- Kitting

Transport

- Manual
- AMR

© 2026 Westernacher Consulting Denmark ApS.

Production staging
Manual







Pros

- **It is flexible and responds to immediate needs.** Ad-hoc staging lets warehouse personnel move materials without a formal request from the production system, based on immediate needs or observations.
- **It doesn't depend on upstream system data.** Staging is based on production orders, requirements and what staff see on the shop floor. That makes it a workable fallback when the order sequence or start times from ECC and iPlanner are unreliable.
- **Production operators can trigger it themselves.** Operators or warehouse staff can create the warehouse tasks directly, which suits specific use cases where ad-hoc staging is applicable.

Cons

- **It is labour intensive.** Staff must check production schedules, physically locate the materials and move them to the supply areas, which ties up warehouse resources.
- **It is error prone.** Relying on manual checks and decisions raises the risk of staging the wrong material, in the wrong quantity or at the wrong time.
- **It was ruled out as the main method.** The conclusion was that manual staging in EWM is not viable for ABB's production operations, and ad-hoc staging should not be the main way to supply components. This conflicts with the goals of improving operational efficiency, reducing errors and allocating resources more effectively.

© 2026 Westernacher Consulting Denmark ApS.

Production staging
Scheduled







Pros

- **Materials are ready before production needs them.** Staging is planned ahead of actual use, so the line isn't left waiting.
- **Tasks follow the production schedule.** EWM generates warehouse tasks from production orders, setting when and where to pick and move materials, so warehouse work lines up with production timelines.
- **Proactive planning replaces reactive firefighting.** In principle, work is organised in advance rather than triggered when a shortage appears.

Cons

- **It depends on a reliable order sequence, which you don't have.** Production orders start at the same date and time, because SAP ECC has no capacity planning or sequencing and iPlanner doesn't update ECC with the right start times. Many orders then compete for the same limited resources, which causes confusion and shortages in staging areas.
- **It handles delays poorly, even in the best case.** When a specific production order is delayed, EWM can't respond effectively, so staged materials no longer match actual needs.
- **Resources are used suboptimal.** EWM struggles to group staging requests into waves or kits, so staging activity drifts out of sync with the shop floor.

© 2026 Westernacher Consulting Denmark ApS.

Production staging
MES Driven







Pros

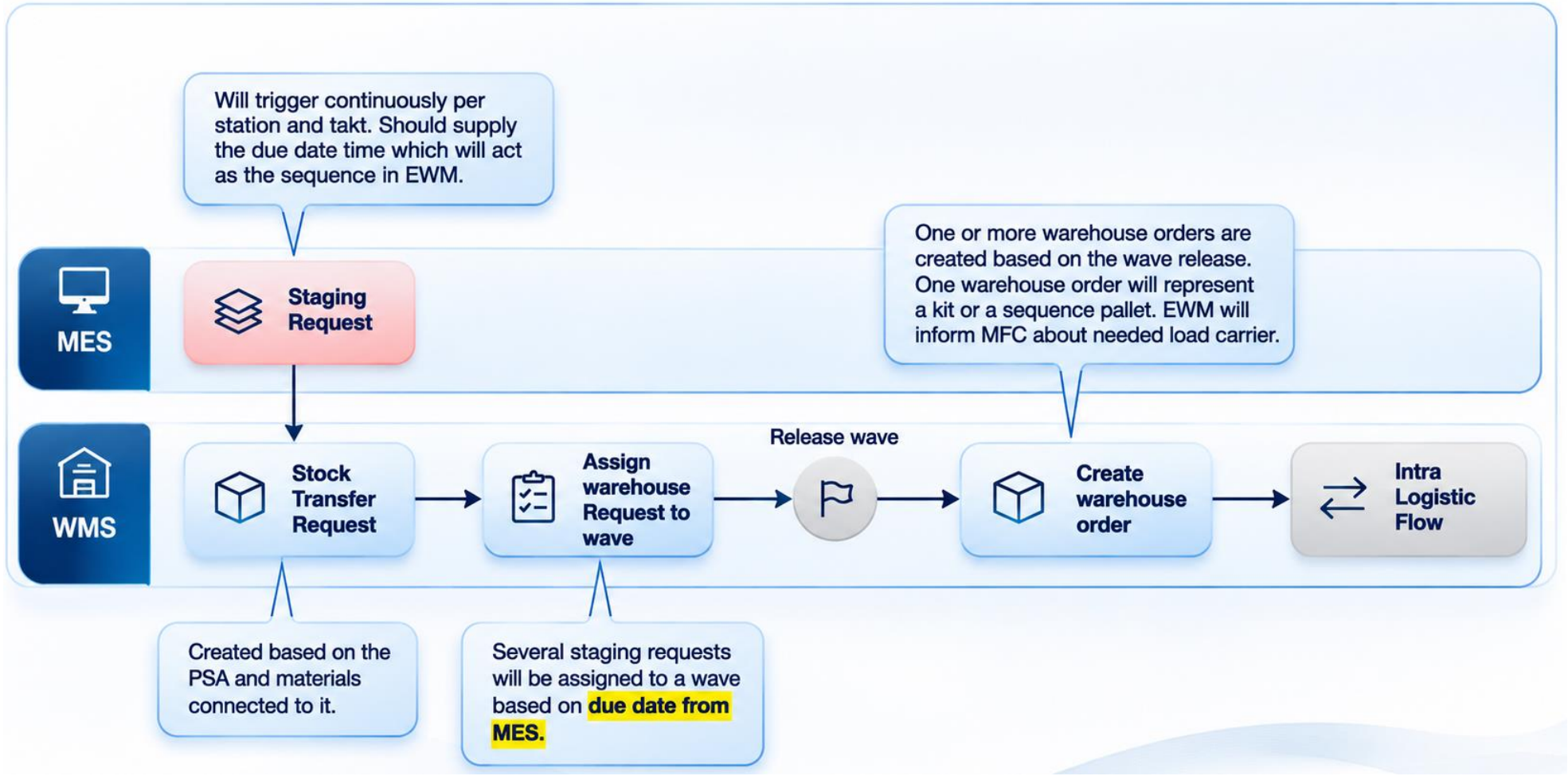
- **Staging is streamlined and automated.** As production orders are created, the MES can communicate with EWM to stage the raw materials without manual intervention.
- **It gives real-time visibility.** The MES tracks raw materials as they are staged, so you can see precisely what is in the production supply area (PSA).
- **Staging is driven by actual production needs.** The MES generates material requests from production schedules and requirements, and it can consume components and report produced SFG/FG so goods receipts are posted. This avoids the sequencing gap of scheduled staging.

Cons

- **It needs new interfaces.** Messages are required in both directions between EWM and the MES: confirmed staging tasks, goods issue, goods receipt, staging requests and staging triggers. Each adds build, testing and maintenance effort.
- **Several design decisions are still open.** You need to decide whether to track staged quantities in the PSA, whether the MES consumes components and posts goods receipts, and which components are MES-driven versus EWM-driven replenishment.
- **It adds integration complexity and dependencies.** Handling unit number ranges from the MES must align with EWM's, and a split between MES-driven and EWM-driven components has to be maintained consistently.

© 2026 Westernacher Consulting Denmark ApS.

Production staging
MES Driven



© 2026 Westernacher Consulting Denmark ApS.

Production staging
Kitting

MES will create a staging request towards EWM for multiple components that is needed at production at a specific time.

Based on these staging requests, EWM will create a warehouse order which will represent one kit or multiple kits.

It could either be picked by MFC or by EWM.

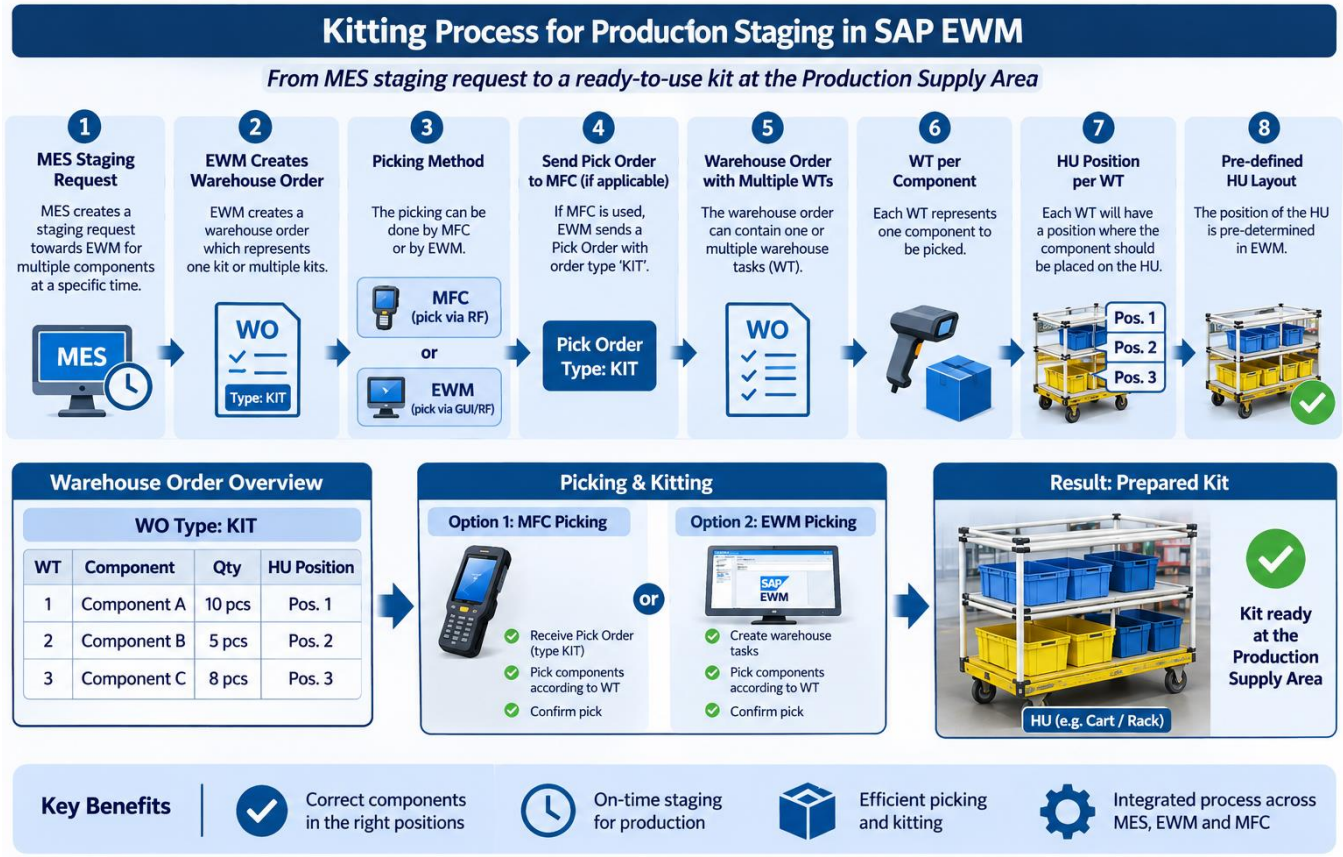
If the picking will be done by MFC, EWM will send it to MFC with interface **Pick Order** with order type as 'KIT' .

The warehouse order can contain one or multiple warehouse tasks.

Each WT will represent one component to be picked in the warehouse order.

Each WT will have a position where the component should be placed on the HU.

The position of the HU should be pre-determined in EWM.



© 2026 Westernacher Consulting Denmark ApS.

Automation Integration

Plug and play? Plug and configure, test and tune!

No real bransch standard

- Industry
- Equipment
- Usage & Capabilities
- Technology & Protocol
- Vendor business model

Semantic & Responsibility

- Definition
- Ownership
- Status model
- Exceptions
- Master data
- Timing/throughput

Take aways

Build a One Team Approach between EWM- and Automation/WCS team.

Align on high level business process, capabilities, requirements, data model, with clear application boundaries and ownerships.

Start early with detailed discussion around Semantic and Responsibilities – talk the same language – raise concerns.

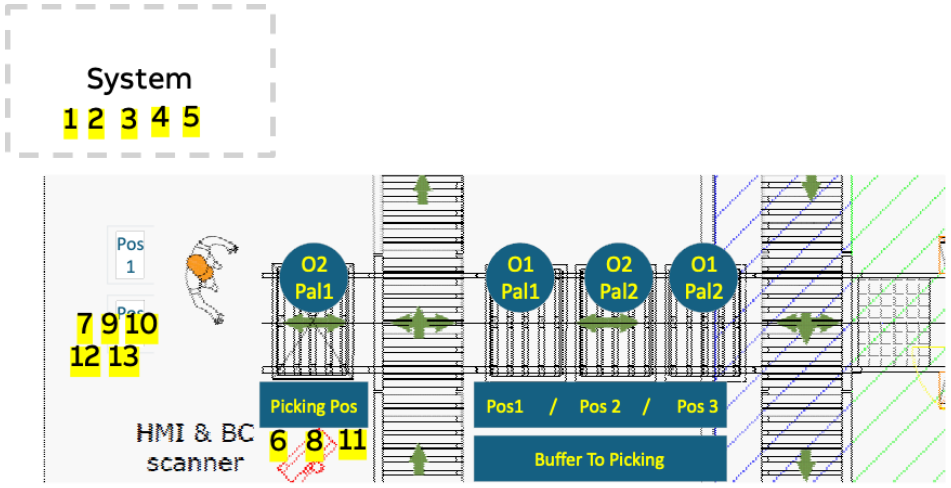
To secure you do not find out about blockers/ defects late in testing.

Invest heavily in One Team System Integration Testing as early as possible. Run complex scenario testing with negative/positive tests.

Build a TEAM that will be successful at go live and hypercare.

© 2026 Westernacher Consulting Denmark ApS.

Automation Integration
Pre-validation



1. Sequence list (sorted by PRT) in EWM
2. Load carrier freed up → PickOrder sent to MFC
3. MFC receives PickOrder
4. MFC allocated PickOrder to workstation
5. MFC retrieves pallets to workstation
6. MFC asks operator to bring wagon type or ID to workstation
7. Operator scans load carrier
8. MFC confirms correct load carrier
9. Operator scans load carrier to workstation (PickOrderState 'started')
10. Operator scans tray if instructed
11. MFC instructs operator to pick material to load carrier
12. Operator picks according to instruction
13. Operator scans picked-to position

Picking (scan) of final SKU to load carrier should generate PickOrderCarrierContet being sent to EWM

- **Standard picking order** Complete a normal picking order from load-carrier scanning through the final picked SKU.
- **Multiple picking orders** Process several picking orders at different workstations at the same time.
- **High-volume picking** Process **30 picking orders** and verify stable operation without lost or duplicated orders.
- **Multiple materials on one order** Pick an order containing several different materials and confirm that every order line is completed.
- **Consecutive orders at one workstation** Complete several orders one after another without resetting the workstation.
- **Full load carrier** Verify what happens when the load carrier becomes full before the complete order has been picked.
- **Multiple operators** Let several operators perform APS picking simultaneously at different workstations.
- **Peak workload** Release many orders within a short period and verify that APS distributes and processes the work correctly.
- **MULTI-pallet picking** Pick different products from same source pallets and verify that materials are placed in the correct load carriers, positions and stock correction are correct from MFC.
- **Inventory accuracy** Compare physical source stock, completed load-carrier contents, and EWM inventory after completing multiple picking orders.

© 2026 Westernacher Consulting Denmark ApS.

SAP EWM implementation at a Greenfield Production Site

Next steps

- Realize phase is ready!
- Continue to test test test
  - System Integration Test
  - Prevalidation Test
- Prepare for Train-the-Trainer
- Prepare for complex User Acceptance Test
- Continue to stay agile, prepare team for go live!

© 2026 Westernacher Consulting Denmark ApS.

Questions?

