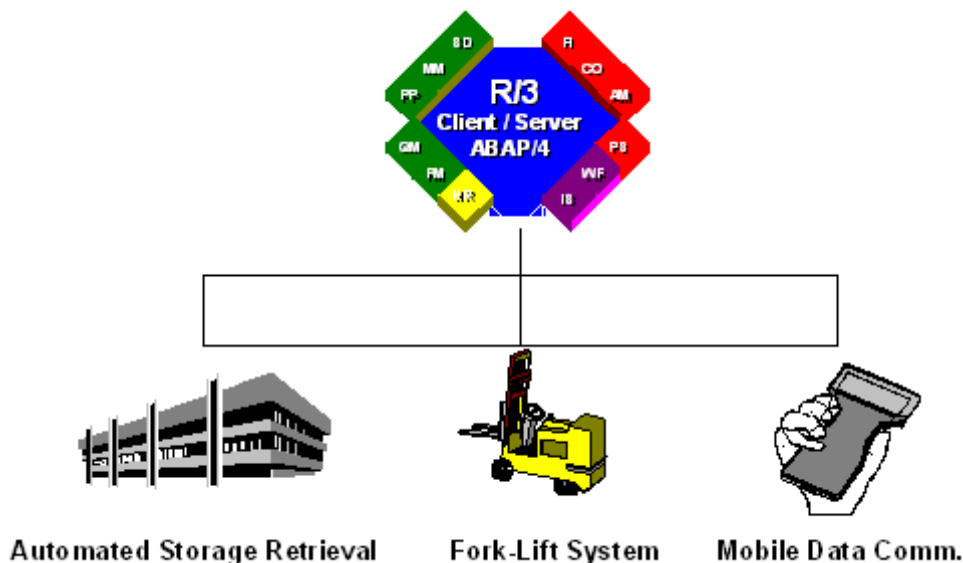


WMS external interfaces

Automating a warehouse

1. The WM system accepts two types of interfaces.
 - The mobile data entry interface, which enables:
 - Mobile entry of data to SAP with or without radio support
 - Wireless barcode readers
 - The warehouse control unit interface, which enables:
 - Integration of warehouse control units in the SAP environment
 - Connection of fork-lift control systems, carousels, and others
2. This presentation deals with possible scenarios for interfacing the SAP R/3 Warehouse Management system (WM) to an external system such as:
 - Secondary storage systems (LSR)
 - Fork-lift control systems (FLS)
 - Production control stations, that remove stock from the warehouse automatically



3. Warehouse automation scenarios
The scenarios can be divided into 3 groups according to the mode of operation:
 - 1) Manual warehouse with Warehouse Management system
 - 2) Semi-automatic warehouse with Warehouse Management system
 - 3) Fully-automatic warehouse with Warehouse Management system
4. Scenario 1: Manual Warehouse
 - The purpose of this scenario is to enhance the WM functionality by implementing an external system such as:
 - A fork-lift control system
 - Picking without documents
 - Reporting of completed goods movements via radio terminal

- The WM system has full control over the warehouse, including:
 - The management of material stocks and storage bins
 - Generation of goods movements for picking and putaway
 - Inventory taking
- The situation is similar to a manual stock placements system, where the storage bin is determined by the warehouse personnel in the warehouse, and then the goods movement is entered using mobile data entry devices and reported to the WM system.

5. Scenario 2: Semi-automatic Warehouse

- The purpose of this scenario is to delegate to an external system the controlling the automatic conveyors.
- In the same way than the manual scenario, the WM system has full control over the warehouse.
- The external system performs the warehouse control functions such as transfers and execution of goods movements. Possible functions in detail:
 - Control of the conveyors and automatic conveyors
 - Control of the material flow
- The external system reports back stocks removal or picking to the WM system.

6. Scenario 3: Fully-automatic Warehouse

- The external system assumes full control of the warehouse and, if necessary, a specific part of warehouse management.
- As in the other scenarios, warehouse management is always carried out by the WM system.
- The external system control conveyors, material flow and optimization of resources.
- The external system can have several degrees of participation, including the selection of picking points according to the movement type and other parameters.