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Understanding Data Migration in SAP (ECC to S/4 HANA)



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1. Introduction

- Data Migration is one of the most critical and complex phases of any SAP S/4HANA transformation project. When an organization decides to move from SAP ECC (ERP Central Component) to SAP S/4HANA, they must migrate all relevant business data—master data, transactional data, historical records, and configuration-dependent data—into the new SAP S/4HANA system.

In simple words:

- *Data Migration is the structured transfer of business data from SAP ECC into the S/4HANA digital core while ensuring accuracy, completeness, and consistency.*
- This process ensures that when businesses switch to S/4HANA, all essential data required to run daily operations is present, clean, and aligned with the new data model.

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2. What is a Data Migration Project?

- A Data Migration Project is a dedicated workstream within an SAP implementation or conversion project, responsible for ensuring that all required data is:

1. Identified

2. Extracted

3. Cleansed

4. Transformed

5. Mapped

6. Validated

7. Loaded into S/4HANA

8. Reconciled

- The migration team determines which data should move, how it should be transformed, and when it should be loaded into the new system.
- It is not just a technical task—it requires deep business understanding, process knowledge, cross-functional collaboration, and strict validation.

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3. Key Migration Approaches

A. System Conversion (Brownfield)

- Existing ECC system is converted to S/4HANA.
- Data remains, but must comply with new S/4 rules.

B. New Implementation (Greenfield)

- Fresh S/4HANA system is built, and only selected ECC data is migrated.

C. Selective Data Transition

- Hybrid approach – selective migration of processes and data.
- Your book should explain all three because learners often face confusion in interviews.



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4. Why Data Migration is Required When Moving from ECC to S/4HANA

Even though ECC and S/4HANA are both SAP ERP systems, they differ significantly in data structures, database tables, master data concepts, and transaction handling.

Major differences include:

- S/4HANA introduces Business Partner (BP) as a mandatory approach for customers and vendors.
- Tables like MSEG + MKPF are replaced by the MATDOC table.
- Material Ledger becomes mandatory.
- Simplification in Finance with the Universal Journal (ACDOCA).
- Redefined processes like credit management, output management, etc.

Because of these changes, ECC data cannot be simply copied into S/4HANA. It must be transformed to fit the new model.

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5. SAP Recommended Tools for Migration

1. SAP S/4HANA Migration Cockpit (MC)

- The primary tool for data migration in S/4HANA (both cloud & on-premise).

Two methods available:

1. Migration Object Modeler (MOM)

- Used to create custom migration objects.

2. Direct Transfer (ECC → S/4HANA)

- Reads ECC tables directly and migrates standard objects.

2. LTMC (Legacy Transfer Migration Cockpit)

- Used in earlier releases (up to S/4 2020).
- Migrates data through predefined templates (Excel/XML).

3. BAPIs / BDC / IDocs / LSMW

- Used only when needed, especially for custom objects.

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6. End-to-End Data Migration Phases

This is the heart of the chapter — structure it clearly so learners understand the complete cycle.

Phase 1: Data Assessment & Scoping

- Identify what needs migration.
- Master Data:
 - Material Master
 - Vendor / Customer (now Business Partner)
 - Service Master
- Purchasing Info Records
- Source List
- Quota Arrangement
- BOM, Routing
- Transactional Data:
 - Open Purchase Orders
 - Open Production Orders
 - Stock quantities
 - Accounts payables & receivables
 - Open deliveries
 - Contracts & scheduling agreements

Deliverables:

- Migration Strategy Document
- Object List & Data Volume Analysis
- Data Governance Team Formation



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Phase 2: Data Mapping & Transformation

This is where ECC data is mapped to S/4HANA data structures.

Examples:

- Vendors + Customers → Business Partner
- ECC table MSEG + MKPF → S/4 table MATDOC
- Material Ledger mandatory in S/4HANA
- New account model for Finance

You must include Value Mapping Table:

- ECC Plant = 100 → S/4 Plant = 100
- Payment Terms updated
- Material types updated
- UoM conversions

Deliverables:

- Mapping Document
- Field Mapping Workbook
- Transformation Rules

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❖ Phase 3: Data Extraction

Data pulled from ECC using:

- SQVI / SE16H
- Custom programs
- SAP Migration Cockpit direct transfer
- Flat file exports

Common format: CSV / XML

❖ Phase 4: Data Cleansing

One of the most important steps.

Cleansing Examples:

- Remove duplicate vendors
- Fix incorrect material descriptions
- Normalize UoM
- Delete unused materials
- Correct tax codes
- Standardize address formats

Output:

- Clean Data Set Ready to Load

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📌 Phase 5: Load Preparation

Prepare migration templates.

Common tasks:

- Fill predefined SAP templates
- Validate structure
- Check mandatory fields
- Convert legacy codes → S/4 codes

This step prepares LTMC templates or MC XML templates.

📌 Phase 6: Trial Loads / Simulation (Mock Runs)

You perform multiple trial loads:

- Mock-1 → Basic
- Mock-2 → Medium complexity
- Mock-3 → Near-to-production
- Mock-4 → Final Dress Rehearsal

Purpose:

- Identify errors
- Fix mapping issues
- Improve load scripts
- Validate data volumes

• Outputs:

- Migration Results Log
- Error Report with corrections



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📌 Phase 7: Cutover Preparation

During the cutover phase:

Key tasks:

- Freeze ECC transactions
- Extract final open POs
- Extract final stock quantities
- Migrate balances
- Migrate open vendor/customer items

Deliverables:

- Cutover Plan
- Data Freeze Plan
- Roles & Responsibilities Matrix

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📌 Phase 8: Final Migration & Go-Live

Data is loaded into the S/4HANA Production system.

Activities include:

- Execute load
- Validate data
- Business sign-off
- Reconcile stock / balances / open POs

After successful validation → Go-Live decision.

📌 Phase 9: Post Go-Live Support

Important activities:

- Data validation
- FI reconciliation
- Solving data inconsistency
- User issues
- Performance monitoring

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7. Migration Objects in SAP S/4 HANA

Provide a detailed list in your book so learners feel "complete knowledge".

MM Objects

- Material Master
- Batch Master
- Classification
- BOM
- Purchasing Info Record
- Source List
- Quota Arrangement
- Service Master
- Vendor Master (BP Structure)
- Open Purchase Orders
- Contract / Scheduling Agreement
- Inventory Stock



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FI Objects

- GL Master
- Cost Center
- Profit Center
- Bank Master
- Vendor & Customer (BP)
- Open items

SD Objects

- Credit Management
- Open Sales Orders
- Customer Master (BP)



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8. Common Errors & How to Fix Them

This section is necessary for practical learning.

✗ Missing mandatory fields

- → Add values in templates

✗ Wrong UoM Conversion

- → Maintain UoM mapping table

✗ BP conversion errors

- → Ensure roles FI & MM are assigned properly

✗ Material Ledger active errors

- → Ensure cost estimates + prices correct

✗ PO migration issues

- → Open vs History PO separation

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9. Consultant Responsibilities

Perfect section for interview and real-time understanding.

1. Functional Consultant

- Prepare mapping sheets
- Validate templates
- Conduct UAT
- Reconcile migration results
- Train end users

2. Technical Consultant

- Develop extraction programs
- Enhance migration objects
- Validate logs
- Handle errors

3. Business Team

- Clean data
- Provide master data
- Validate final migrated data

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10. Why Data Migration Projects Fail

If not executed properly, failures can occur due to:

- Poor data quality
- Incomplete mapping
- No mock loads
- Lack of business involvement
- Ignoring dependency objects
- Incorrect cutover planning



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11. Importance of Data Migration in Overall S/4HANA Success

Without accurate data, even the best-designed S/4HANA system will fail.

Data migration is the foundation of:

- Smooth business operations
- Accurate financial reporting
- Successful UAT cycles
- On-time go-live planning
- Post go-live stability

This is why data migration is considered the critical path in every S/4HANA project.

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12. Final Summary

- A Data Migration Project in SAP (ECC to S/4HANA) is a comprehensive, multi-phase process that ensures that all required business data moves from the old ECC system into the new S/4HANA system accurately, completely, and in a business-ready manner.

It involves:

- Understanding old & new data models
- Cleansing and transforming data
- Using SAP migration tools
- Executing multiple mock loads
- Ensuring a smooth cutover
- Supporting business after go-live

Data migration determines the success or failure of the entire S/4HANA transformation, making it a core competency for every SAP consultant.

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