



Uche Nnene

Practical Guide to Data Migration with SAP® S/4HANA Migration Cockpit

- ▶ Data migration scenarios and tools for moving data to S/4HANA
- ▶ Step-by-step guide for using S/4HANA migration cockpit and S/4HANA migration object modeler
- ▶ Plan an S/4HANA data migration using SAP Activate methodology
- ▶ Evaluate S/4HANA migration tools

Table of Contents

Acknowledgements	9
Preface	11
1 Introduction to data migration	13
2 Scenarios for transitioning to SAP S/4HANA	19
2.1 SAP S/4HANA differentiators	19
2.2 Options for transitioning to SAP S/4HANA	20
2.3 What is the simplification list?	26
2.4 Conclusion	27
3 Data management and data quality	29
3.1 Why is data quality important?	29
3.2 SAP data quality assessment	34
3.3 SAP Data Services	37
3.4 Conclusion	38
4 The phases of a data migration project	39
4.1 Preconfigured trial systems	42
4.2 Data requirements	42
4.3 Data migration approach and strategy	43
4.4 Legacy data migration	49
4.5 Quality assurance environment data load	49
4.6 Preliminary cutover plan	50
4.7 Production cutover	50
4.8 Production support after go-live	52
4.9 Conclusion	52
5 SAP rapid data migration best practice for SAP S/4HANA with SAP Data Services	53
5.1 Difference between the toolsets and migration methods	54
5.2 SAP Data Services architecture	59
5.3 Extensibility	73
5.4 Conclusion	74

6	Overview of the SAP S/4HANA migration cockpit and the SAP S/4HANA migration object modeler	75
6.1	Why use the SAP S/4HANA migration cockpit?	75
6.2	Tools and content available (cloud vs on-premise edition)	77
6.3	SAP S/4HANA migration cockpit: migration objects available	93
6.4	Conclusion	97
7	SAP S/4HANA migration cockpit: migration guide	99
7.1	Setting up a migration project	99
7.2	Selecting migration objects	115
7.3	Generating a migration file	121
7.4	Data load	129
7.5	The data transfer process	133
7.6	Data reconciliation	148
7.7	Conclusion	154
8	SAP S/4HANA migration object modeler	155
8.1	Skill set needed for the SAP S/4HANA migration object modeler	155
8.2	Creating/opening a project	156
8.3	Working with the SAP S/4HANA migration object modeler	161
8.4	Adding a custom field to an SAP standard object	182
8.5	Creating a custom migration object	193
8.6	Other features	202
8.7	Conclusion	208
9	Assessment of SAP S/4HANA data migration tools and techniques	209
9.1	Choosing the right data migration approach	210
9.2	Migration tools and techniques	214
9.3	Selecting the right migration tool	228
9.4	Conclusion	229
10	Outlook for the SAP S/4HANA migration cockpit and SAP S/4HANA migration object modeler	231
10.1	Innovations from SAP S/4HANA 1709	231
10.2	Outlook	248
10.3	Conclusion	252

11 Concluding remarks	253
A The Author	256
B Index	258
C Disclaimer	262

2 Scenarios for transitioning to SAP S/4HANA

In this chapter, I briefly introduce the concept of SAP S/4HANA, discuss how it differs from the classic SAP ERP, and explain why an organization might choose to migrate to SAP S/4HANA. I then explain the various transition scenarios provided by SAP. This chapter then closes with the scenario that we focus on for the rest of the book.

2.1 SAP S/4HANA differentiators

SAP S/4HANA is the next generation business suite built on the *advanced in-memory platform*, SAP HANA. The product is built around a digital core and modern design principles with the SAP S/4HANA Fiori user experience and role-based experience in mind.

SAP S/4HANA is an abbreviation of *SAP Business Suite 4 SAP HANA*.

S stands for **SAP Business Suite**, referring to the suite of SAP products on HANA. It represents a simplification of the entire system architecture, the structure of programs, and the complete data model. This simplification is achieved by eliminating indices and aggregate tables, thereby reducing data latency and redundancy. With SAP S/4HANA, data is run **on the fly** in memory.

4 represents the **fourth generation innovation** after SAP R/2 and SAP R/3. SAP S/4HANA is an entirely new product based on a completely new code line. Customers who choose to adopt SAP S/4HANA are not just taking on a simple system upgrade.

HANA points to fact that the entire suite is based on the **SAP HANA technology and platform**. SAP S/4HANA is pretty much a new product line and not simply a successor to the classic SAP ERP business suite (which will still be available until 2025, according to the SAP roadmap). There are some unparalleled changes between SAP S/4HANA and classic SAP ERP:

- ▶ SAP S/4HANA is based on the in-memory database SAP HANA. It runs natively on the HANA platform, providing access to advanced

text mining, predictive analytics, enhanced performance, and powerful decision support. In layman's terms, this means that transactions or reports that used to take a long time to run—such as asset depreciation—now run in a fraction of the time as both *online transactional processing (OLTP)* and *online analytical processing (OLAP)* are combined into a single database.

- ▶ SAP S/4HANA provides instant insights based on real-time data. Through the power of embedded analytics in SAP S/4HANA, users can gain access to real-time operational reports, thereby enhancing user efficiency and effectiveness.
- ▶ Many SAP S/4HANA core applications have been re-designed and simplified. For example, the introduction of the universal journal provides a simple data model that combines and harmonizes the best qualities of accounting components.
- ▶ SAP S/4HANA now has enhanced user experience with Fiori user interfaces embedded with exception-driven analytics. The apps provided allow the user to execute transactions (*transactional apps*), gain insight and take action (*analytical apps*), view factsheets and contextual information (*factsheet apps*), and finally, users can analyze and evaluate strategic or operational KPIs (*SAP Smart Business cockpits*).
- ▶ SAP S/4HANA also offers different deployment options in line with business strategy and an organization's level of risk and reward from the deployment option. SAP S/4HANA can be delivered as follows: as a public cloud (where application software and hardware is completely managed by SAP, thus allowing less flexibility with regard to software modification but providing greater scalability and deployment agility); as a managed cloud (where application software is managed by SAP within the customer's own cloud tenant and the customer has some flexibility with regard to software modifications); and as on-premise solutions (where software is managed completely by the customer, thus allowing the greatest flexibility with regard to software modifications).

2.2 Options for transitioning to SAP S/4HANA

There are three different scenarios for transitioning to SAP S/4HANA, as shown in Figure 2.1:

1. System conversion

2. New implementation
3. Landscape transformation

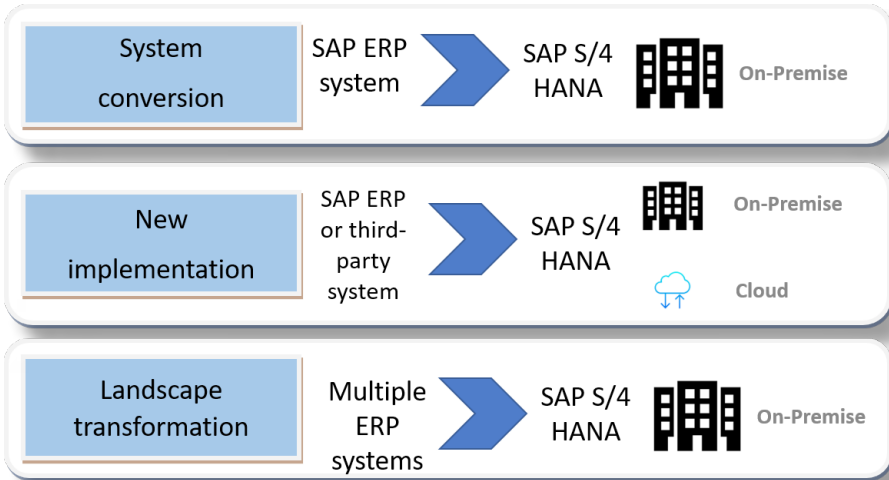


Figure 2.1: Options for transitioning to SAP S/4HANA

2.2.1 System conversion

A *system conversion* scenario for transitioning to SAP S/4HANA can be viewed from a concept perspective at least as similar to an upgrade but it is **NOT** an upgrade (see Figure 2.3). A system conversion can be viewed as a complete technical conversion of an existing SAP Business Suite ERP system to SAP S/4HANA. With this approach, you **convert** your current ECC system to the new SAP S/4HANA system. This approach can be adopted only on-premise and could be done either in an organization's own data center or as part of an *Infrastructure as a Service (IaaS)* model.

An S/4HANA system conversion requires no (real) data migration (i. e., no physical extraction or transformation is required). Instead, a technical data migration that migrates elements such as the material ledger and transaction data to the *universal journal* as part of the post-S/4HANA conversion step is performed, as shown in Figure 2.2. For those not conversant with the terminology, the universal journal is a ledger of all accounting entries of business transactions in Finance (FI) and Controlling (CO) and it represents the single source of truth in SAP S/4HANA.

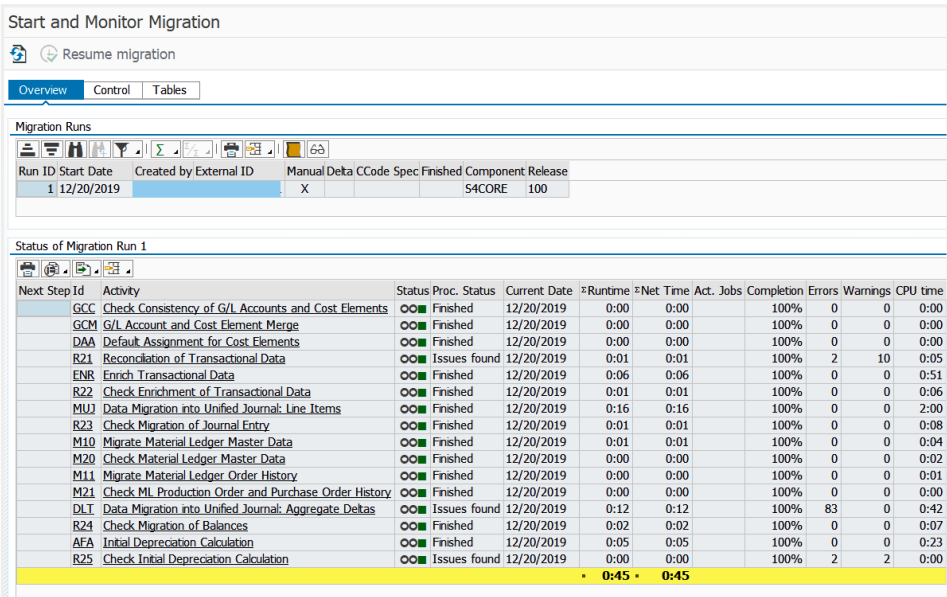


Figure 2.2: Migration as part of an S/4HANA conversion

Figure 2.3 provides a diagrammatic representation of the process for converting an existing SAP ECC system, with the steps typically involving:

- ▶ Database migration from a non-HANA database (AnyDB) platform from SAP ERP 6.0 and above, and from an SAP HANA database to an SAP S/4HANA database
- ▶ Conversion of the data model from ERP core (SAP Business Suite ERP 6.0) to SAP S/4HANA core, or from SAP S/4HANA Finance (formerly known as Simple Finance) to SAP S/4HANA
- ▶ Conversion of old application code and tables to new applications and structures; this also includes adapting the customer's custom code so that it is compliant with the new data structures
- ▶ Creation of *compatibility views* (known as *Core Data Services (CDS) views*) to make the old reports and interfaces still function as normal
- ▶ Configuration adaptation in the areas of master data, the Financials, Logistics, Human Resources, Portfolio and Project Management, Procurement, Sales and Distribution modules, as well as industry-specific functions (for example, in New Asset Accounting, additional currencies, parallel valuation, material ledgers, etc.) based on the SAP *simplification list* (see Section 2.3 for further information on the simplification list)

- ▶ No forced migration from Classic GUI to Fiori except where transactions are no longer supported in GUI (refer to the simplification list)

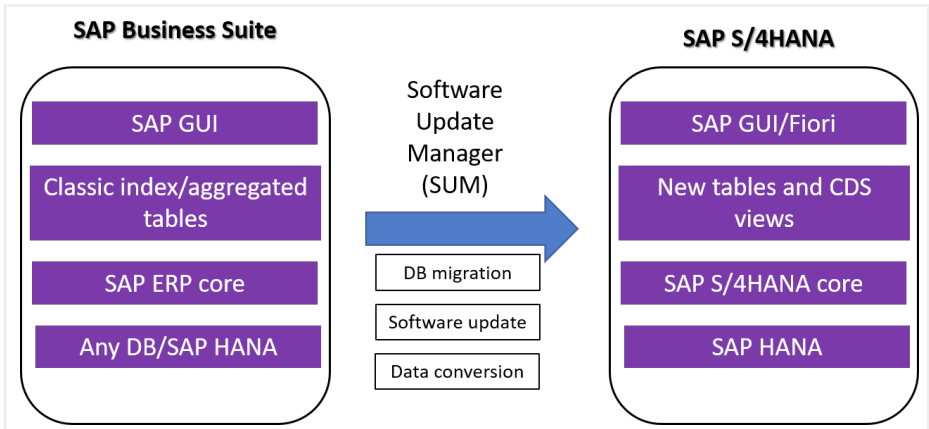


Figure 2.3: System conversion

Why choose this option?

Choose this option if your organization's strategic goal is to:

- ▶ Bring existing processes to the new platform
- ▶ Perform a complete technical conversion of the existing SAP ERP system to SAP S/4HANA
- ▶ Keep investment in custom code and technical debt
- ▶ Mitigate the risk and investment involved in a big-bang conversion project
- ▶ Retain recent investment in SAP Business Suite, with no business need to transform existing processes
- ▶ Adopt innovation at the organization's own pace
- ▶ Adopt SAP Fiori for SAP S/4HANA to enhance user experience, mobility, and flexibility at the organization's own pace

You should also choose this option if your organization has no strategic vision for migrating its SAP system to the cloud.

B Index

A

ABAP 155
Activate methodology 35, 39, 49, 76
Agile Data Preparation 209, 226
Agile methodology 40
Analysis 251
API 223
Append 182
Append structure 196
Archiving 212
Assessment scope 36
Auditability 252

B

Bank 125
Bank country key 141
Basic type 216
Batch Data Communication (BDC) 214
Batch input session 221
Batch recording 215
Business Application Programming Interface (BAPI) 218
Business-critical 163
Business partners 29, 45

C

Capital expenditure (CAPEX) 24
Central Finance 26
Check table 198
Cleanse 66
Client 219
Cloud 231
Cloud deployment 78
COMMIT commands 195
Company code 171

Compatibility views 22
Completed 139
Compliance risk 31
Construction Industry Scheme (CIS) 31
Content 251
Control record 216
Convert values 137
Cost center 89
Custom 216
Customer open items 127
Custom field 182
Custom objects 93

D

Data 29, 210
Database memory 211
Data compliance 31
 compliance officers 31
 Tax compliance 31
Data Dictionary 198
Data entity definition (DED) 185
Data extraction 61
Data import 145
Data management 29
Data mapping 65, 115
Data migration status monitor 252
Data model 20
Data privacy 31
Data profiling 225
Data quality 29, 31, 59
Data quality assessment 34
Data Record 131
Data remediation 226
Data Services 36, 37, 55, 74, 216, 224
Data source 113
Data steward 64

- Data templates 76
- Data transformation 65
- Data types 123
- Data validation 136, 148
- Deduplication 38
- Deploy phase 50
- Dialog box 145
- Digital core 19
 - core applications 20
- Direct input method 215
- Directory 62
- Discover phase 42
- Documentation object 119
- Download 120
- Drag and drop 168
- Dress rehearsals 51

E

- Employee address 66
- Enterprise Information Management (EIM) 225
- Enterprise Resource Planning (ERP) 15
- Enterprise Semantic Services (ESS) 227
- ERP Central Component (ECC) 15
- ERP system 27, 29
- Error 136
- Error messages 130
- ETL 225
- Execute stage 193
- Explore phase 49
- Export content 101
- Extensibility 73, 89
- Extensibility capability 59
- Extraction, transformation, and load (ETL) 48, 53
- Extraction, transformation, and Loading (ETL) 113

F

- Field attributes 183
- Field List tab 123
- Field mapping 168
- File Details 131
- File import 220
- Filter 171, 201
- Fiori 20
 - Analytical apps 20
 - Factsheet apps 20
 - Transactional apps 20
- Fiori apps 78, 215
- Fixed values 171
- Flat files 62
- Foreign key 198
- Functional design 185
- Function module 165, 194, 196

G

- General Data Protection Regulations (GDPR) 31, 49
- Graphical User Interface (GUI) 23
- Greenfield approach 24
- Guided configuration 78
- Guided migration 145

H

- HANA 226
- HANA database 111
- HANA rules framework 227
- Hybrid deployment 213

I

- Identifiers 176
- IDocs 68, 215, 225
 - IDoc segments 217
 - inbound IDocs 216
- Inactive 139
- Information 137

Information Lifecycle Management (ILM) 212
Information Steward 225
In-memory 19
Innovation 19, 231
Intelligent ERP 32
Intermediate document (IDoc) 55
Internal orders 182
Introduction tab 122
ISO 9000 quality management 29

K

Key Performance Indicators (KPIs) 20

L

Landscape transformation 209
Large Enterprise 54
Logical architecture 59
LSMW 215, 219
LTMC 99
LTMOM 155

M

Main object tab 124
Mandatory 163
mandatory field 126
Mass transfer ID 112
Master data 43, 127
Migration audit 145
Migration cockpit 54, 76
Migration object 78, 200
 Migration object view 163
Migration object modeler 54
Migration object transfer 146
Migration project 99, 100
Migration strategy 210
Model Company 42

N

New implementation 24, 209
 Cloud implementation 24
Notifications 136
Not Visible 163
Null values 226

O

Object attributes 220
OData 215
Open 139
Operational expenditure (OPEX) 24
Outlook 231

P

Parameter 196
Parent-child hierarchies 198
Parse 251
Partner profile 216
Plausibility checks 251
Port 216
Pre-assessment planning 35, 36
 Monitoring 37
Production 101
Project 158, 160
Proxy 234
Purchase orders 222

Q

Quality assurance 101

R

Rapid data migration 52, 58, 225
Readiness assessment
 Risk assessment 47
Readiness assessment 47
Realize phase 49
Reconciliation 73
Relationships 198

Remote Function Call (RFC) 216
Repeat simulation 144
RFC connections 223
Rules 173
 Event-based rules 173
 Field-based rules 173
 Internal rules 173
Run phase 52
Runtime 53
Runtime object 162, 179

S

Sample template 81
SAP best practice 54, 94
SAP best practices 213
SAP Cloud Platform (SCP) 232
SAP S/4HANA migration object
 modeler 155, 239
Scenario 249
Search 104, 201
Secondary object tab(s) 126
Simplification list 22
Simulation 143
Simulation run 144
Single European Payment Area
 (SEPA) 31
Small Medium Enterprise 54
Smart data integration 227
Smart data quality 227
SOA services 215
Source structure 112, 161, 187,
 196
Staging area 65
Staging table 112, 232
Staging tables 82
Standard objects 93
Status 130, 143, 225
Structure mapping 166
Subprojects 159
Success 137
System conversion 21, 209
System landscape transformation
 26

T

Target environment 70
Target structure 163
Template 127, 180
Test phase 152
Tools 209
Total cost of ownership (TCO) 210
Transaction data 120, 127
Transition scenarios 19
Translation object 175
Trial load 69

U

Unique Tax Reference (UTR) 31
Upload 120
User experience 19
 Fiori user interfaces 20
 role-based experience 19

V

Value conversion 148, 192
Value mapping 250

W

Warning 137
Warning messages 130
Waterfall approach 40
Web Intelligence (Webi) 72

Z

Zip file 129