



# Implementing SAP S/4HANA

A Framework for Planning and  
Executing SAP S/4HANA Projects

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Sanket Kulkarni

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## ***Implementing SAP S/4HANA***

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Printed on acid-free paper

*To my lovely wife, Archana,  
and kids, Rohan and Anika*

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# About the Author



**Sanket Kulkarni** has more than 18 years of experience in implementing SAP solutions worldwide. He has consulted with many customers on complex SAP transformations involving multiyear rollouts. He has worked across a range of industries including consumer goods, oil and gas, semiconductor, and transportation. Over the last few years, he has been coaching customers on SAP S/4HANA-driven digital transformations.

# About the Technical Reviewer



**Dinesh Mukundu Mohan** is a Solution Architect with more than 20 years of IT work experience including 16 years of hands-on SAP experience implementing finance, controlling, planning, consolidation, budgeting, and forecasting solutions using S/4HANA, SAP BPC Optimized for S/4HANA, BPC 11 and 10.1, BW-BPS & IP, and BW and FICO, he has successfully delivered multiple S/4HANA, BPC, and BW implementations and S/4HANA migrations.

He has experience solutioning and enabling clients with decisions on the right range of applications, including S/4HANA, BW4HANA, BPC 10.1, and BPC 11, along with integration of Fiori and BO reporting tools like Lumira 2.X, Design Studio, Analysis for Office 2.X, and Web. His experience extends to working in multiple regions, including North America, Germany, Dubai, Australia, Mexico, Europe, China, and Thailand.

# Acknowledgments

In the small world of SAP consulting, you meet two types of people: rocks or rock stars. You know a rock star when you encounter such a person. The rock star is the one who is passionate about SAP, loves helping customers, and is always learning.

This book would not have been possible without the rock stars who shaped my worldview and ignited my passion for SAP throughout my consulting journey. Thank you to Rajesh Ray, Sangeeth Parvatham, Katja Keller, Steffen Bruckner, John Walsh, Christine Kakoti, and Eishvinder Ratra, to name a few.

As they say, it often takes a village to produce a book. Writing is just one portion of it. Thank you to the Apress team (Divya, Nikhil, and Matthew) for professionally handling the rest and making this book happen.

# Introduction

SAP released SAP S/4HANA amid much fanfare in February 2015. It demonstrated the promise of the new in-memory computing database HANA, a sleek user interface (UI), Fiori apps, and enhanced functionality. Since then, SAP has improved the S/4HANA suite of products with best practices, industry templates, more than 7,000 Fiori apps, Embedded Analytics, and close integration with Leonardo.

As compared to the SAP ECC system, S/4HANA is a much more advanced enterprise application, well suited for intelligent enterprises. With its leading-edge tool set, possibilities with S/4HANA are limitless. Traditional SAP enterprise resource planning (ERP) systems often excelled at being systems of record. S/4HANA aspires to be a system of intelligence.

What does it mean for organizations embarking on the journey of S/4HANA? How can they plan their journey and not be derailed by the full range of information and choice available?

The days of superspecialization in the SAP space are slowly ending. If you are implementing S/4HANA, you should not only know about the business process, but also the SAP user experience, technical architecture, and cloud offerings, as well as analytics.

So, why did I write this book? Well, the key for successful S/4HANA implementation is developing an all-around view of the components and assess their impact up front. Most of the books or blogs on S/4HANA provide step-by-step information on a very niche topic, leaving you to figure out the big picture yourself. The purpose of this book is to develop the big picture the right way. It is to help you establish a well-rounded understanding of S/4HANA implementation and its associated components. You can always reach out the blogs and SAP help sites for further details.

# Who Should Read This Book?

If you are considering SAP S/4HANA, either you are already an SAP customer or planning to be one. As such, I assume that you are familiar with SAP, although you need not be familiar with SAP S/4HANA.

If you are a vital stakeholder or executive who is considering implementing SAP S/4HANA, you will find this book useful, as S/4HANA is going to be the future of SAP as well as your business. This book is the first step in your S/4HANA journey.

# How Is This Book Organized?

We begin with the introduction of SAP S/4HANA and discuss the value it brings to the table. We then outline fundamental implementation approaches such as Greenfield and Brownfield at the end of Chapter 1.

The S/4HANA journey starts with an assessment of existing capability vs. the functionality offered by S/4HANA. Chapter 2 discusses various types of assessments done during the planning phases. We then move toward a discussion of the functional aspects of S/4HANA and tools offered by SAP including simplification lists and best practices in Chapter 3.

Once customizations are shortlisted as part of the functional assessment, development is done either through custom code remediations or new SAP objects and apps. We discuss S/4HANA development standards and remediation aspects in Chapter 4.

Data conversion plays a significant role regardless of your implementation approach, whether Greenfield or Brownfield. SAP also offers tools for S/4HANA migration in the case of Brownfield implementations. We discuss data conversion strategy, including extract, transform, and load aspects, in Chapter 5.

Testing is an integral part of every project phase in S/4HANA, beginning in the planning phase. Overall, S/4HANA implementation is

testing intensive, with various cycles being run in parallel—regression, performance, integration testing, and so on. Chapter 6 discusses a variety of test cycles and dependencies among them.

Migration to a cloud infrastructure is often combined with S/4HANA implementation. Various technical architecture aspects such as sizing, datacenter management, S/4HANA migration, and security are discussed in Chapter 7.

S/4HANA changes organizations in many ways. Organization change management (OCM) is often sidelined as organizations struggle with low rates of user adoption and subsequent delays in deployment. Chapter 8 presents you with various approaches to improve user adoption and change management.

SAP Fiori is one of the key value propositions of S/4HANA. Chapter 9 discusses the Fiori architecture, ways to implement Fiori apps, and methods for customizing it.

Embedded Analytics offers real-time reporting via analytical apps. Views developed using Embedded Analytics can also be accessed by other reporting applications. Chapter 10 touches on an SAP analytics strategy and how Embedded Analytics can help.

S/4HANA implementation is one of the most important IT projects you will ever run. It requires proper considerations of program governance and deployment strategy. We discuss many options for deployment and program governance in Chapter 11.

All of this information culminates in the business case for S/4HANA. It is an objective assessment of the effort it takes to implement vis-à-vis the benefits it brings. Chapter 12 offers you guidelines to develop and manage a business case for S/4HANA implementation.

Finally, Chapter 13 discusses some unique aspects of S/4HANA implementation if you are going for a central finance implementation or S/4HANA on the cloud.



## INTRODUCTION

All of the topics covered deserve a separate book by themselves if explored in detail. As stated earlier, the purpose of this book is to help you develop a navigational map for S/4HANA implementation, rather than spoon-feed you every step.

## From Here

In the third century BC, Greek writer Plutarch put it best when he wrote, “Mind is not a vessel to be filled, rather a spark to be lighted.” I hope that as a reader of this book, you embark on the S/4HANA journey with a quiet confidence that comes only from your knowledge. I hope you enjoy the book.

## CHAPTER 1

# SAP S/4HANA Overview

How would you like to trade your old enterprise resource planning (ERP) system—SAP or non-SAP—for a sleek new SAP S/4HANA implementation? It is not a yes-or-no question anymore. The question is not “why,” but instead it is about “how.” That does not mean that you should forget why altogether. Rather, it is important to consider the why of SAP S/4HANA before the hows. The purpose of this book is to circumvent all the marketing behind SAP S/4HANA; you probably have had enough of it over the last few years. The purpose is to help you with insightful action, making an educated decision and executing your SAP S/4HANA business case seamlessly. The purpose is to get the big picture on SAP S/4HANA right and leave the details to the experts and subject matter experts (SMEs) who specialize in particular scope areas. It should help you build a strong SAP S/4HANA implementation framework (or tool set) supported by a strong business case. If you eventually get excited about the new era with SAP S/4HANA while being reasonably confident in your ability to execute, then I would say that the book has served its purpose.

The first question is why someone would want to move to SAP S/4HANA. As you survey your existing ERP landscape, you see a highly customized system well-tuned to your way of conducting business. It is like a made-for-each-other system, working just for you. Reasons to migrate can be distilled down to two broad-based drivers. To be clear, it is not only

about the innovations or sleek UI or faster reporting that comes along with SAP S/4HANA. It is rather about your way of doing business and how it will be changed by technology and business forces in the future.

As you would agree, the last ten years have been somewhat pathbreaking for the technology industry. Cloud computing came into the mainstream as early as 2006. That was followed by mobile computing, then big data analytics, as computing power became cheap and on demand. On the enterprise systems side, the proliferation of cloud services and better tools for rapid prototyping has reduced the time between idea and execution. Software-as-a-Service (SaaS) offerings were built specifically into these developments, so it is now possible to get best-in-class enterprise tools in seconds. The ubiquity of cloud vendors means that your infrastructure can be hosted anywhere and be scaled in a matter of days.

On the IT project execution side, the waterfall was the norm by which ERP projects were delivered. It took a long time before even end users could see the final product. Collaborative philosophies like Agile and DevOps have now become the norm. These enabled faster, user-centric developments across the enterprise space.

By far the most important factor is that technology has become ubiquitous. With the power of mobile handsets, customers quickly moved to mobile-centric applications to buy, compare, and rate. End customers and users expect a rich technology experience anytime, anywhere. The way they interact with your organization has completely changed. The ways you buy, sell, and stock goods have changed due to these technology drivers.

If your customers have moved ahead of the technology curve, would your existing ERP remain behind? If the pace of the technology changes continues, then you will need a new-age ERP system that is easy to scale, cloud-native, and more user-centric than ever. That's where SAP S/4HANA fits in. Even if you forget marketing rhetoric for a bit, there is a bit of truth

in saying that so far, your ERP system has been acting as a system-of-record. With SAP S/4HANA, you can make it a system-of-innovation. With a faster computing HANA database that can be hosted on the cloud, improved user experience via role-based, responsive Fiori apps, and real-time reporting, it is now much easier to generate operational insights on the go.

SAP, as the leading ERP vendor, has been observing technology trends from the front lines. Since the days of the mainframe-centric SAP R1 in 1972, SAP has always been interested in finding faster, more efficient ways for the ERP application layer to communicate with the ERP database layer. This led to multiple models such as client/server architecture with SAP R/3, service-oriented architecture, and then early experiments with HANA, in-memory computing with Business Suite on HANA (SOH) in 2013. SAP Simple Finance followed in 2014 and then the full ERP suite of products evolved, what we call SAP S/4HANA henceforth.

## **New in SAP S/4HANA**

So, what has changed with SAP S/4HANA? The next sections cover the new features.

### **New Architecture**

SAP S/4HANA operates on top of HANA using the new concept of in-memory tables, with simplified data models and embedded analytics. Time-consuming processes, such as period-end closing, can now be done on the fly. It eliminates reconciliation efforts between functional areas such as Finance, Procurement, Production and Sales. It gives you real-time analytical reporting based on Embedded Analytics.

## Process Simplification

Although most of the product functionality in has been retained, there is new way to look at the processes with the redesign of tables along with available best practices. For example, Universal Journal in the SAP finance area has led to much better reporting and much needed simplification.

## New User Experience

This is supplied via SAP Fiori or self-service tools like Lumira. SAP S/4HANA has introduced role-based apps accessible via smartphones, tablets, and desktops.

## Deployment Choice

SAP S/4HANA comes with On-Premise and Cloud editions. You can have the On-Premise edition hosted on cloud, thus reaping the benefits of your existing cloud vendor relationships. Cloud-native ERP such SAP S/4HANA will mean that its scalable, application programming interface (API)-driven by design.

## Summary of Changes

Please note that I refer the On-Premise Edition of SAP S/4HANA for all discussion purposes, but the majority of this information would also apply to SAP S/4HANA Cloud Edition as well. There are two separate product development tracks managed by SAP:

- 1809 is the latest On-Premise Edition.
- 1902 is the latest Cloud Edition.

Quarterly upgrades are the norm in the Cloud Edition, whereas yearly upgrades (optional) are a norm for the On-Premise Edition. Three successive

Feature Pack Stacks (FPSs) are released on a quarterly basis for the On-Premise Edition, which typically include nondisruptive or mandatory features.

Table 1-1 provides a quick summary of the changes implemented in SAP S/4HANA as compared to your existing SAP ERP instance.

**Table 1-1.** *Changes in SAP S/4HANA*

|                                       | <b>SAP S/4HANA</b>                   | <b>SAP Business Suite</b> |
|---------------------------------------|--------------------------------------|---------------------------|
| Data model                            | Simplified – ¾ objects reduced       | Traditional               |
| Database                              | HANA DB                              | Any DB                    |
| Fiori apps                            | 7,000+ as of date                    | 50 (if DB is HANA)        |
| Non-SAP ERP components (EWM, TM, APO) | Merged in S/4HANA core functionality | Separate systems          |
| Programming language                  | ABAP                                 | ABAP                      |
| Embedded Analytics                    | CDS (Core Data Services) Views       | HANA Live                 |

## What Is in IT for Me?

That is always a valid question. SAP S/4HANA is often the biggest endeavor in an IT organization given the scale, impact on business, and complexity of it. How can you be confident that you have the skill sets as well as an appetite to execute such a program? It all starts with defining the business case of SAP S/4HANA.

The benefits of implementing SAP S/4HANA are obvious:

- Reduction in customizations as it encourages a fit-to-standard approach, thus reducing the burden on the organization to maintain and enhance it further.
- Better operational insights via Embedded Analytics.

- Faster business adoption with the rich UI via Fiori apps.
- Faster period-end closing due to better financial and management reporting via functionalities like Universal Journal.
- Better supply chain functionalities with embedded Transportation Management (TM) and Enterprise Warehouse Management (EWM).

When you build a business case, these benefits have to be factored into the numbers. These numbers will eventually justify the investment you will make to implement SAP S/4HANA; this takes up the “how” question.

If you have carefully read through the discussion of technology trends in the last few pages, it might have already dawned on you that the way you will implement SAP S/4HANA will be far different than the last time you implemented your ERP systems. The method you will use to conduct the blueprinting exercise, build and test the system, and deploy it to the cloud is an all-new way of working for your organization, and so it needs to be clearly understood. Once you have a clear understanding of all the scope areas, you will eventually do a bottom-up cost analysis. It will then be fed into the SAP S/4HANA business.

So, you get your costs on the right and benefits on the left. That has what we have been talking about the business case so far.

Now you would ask how does it help me in execution? Well, a clear understanding of what it entails to implement SAP S/4HANA should give you better handle in planning and managing the implementation project, thus better chance of meeting the business case.

# How Should I Go About It?

You can approach the SAP S/4HANA journey in multiple ways. Factors driving the decision are as follows.

- What is your starting point? Do you have an existing SAP ERP system or non-SAP ERP system? It is rather straightforward. If you are starting from the SAP base, you can migrate from old the SAP ERP to a new SAP S/4HANA implementation. For non-SAP, it is always a brand new SAP S/4HANA implementation.
- How customized is your ERP system? It is often a good indicator of complexity inherent in your business processes. Sometimes this is determined just by the nature of the industry you are in; for example, validation requirements in the pharmaceutical industry or complex available-to-promise (ATP) scenarios in the aftermarket industry. Sometimes it's just the factor of continuing the same-old system, thus an opportunity to go back to standard instead.
- Do you have a single instance of SAP ERP across the organization or multiple instances, thus making the case for instance consolidation?
- How much of your data—master and transaction included—would you like to carry over to SAP S/4HANA? As part of the clean-up act, you might want to consider organizational elements you no longer use; for example, if you have closed a sales office in the country and do not need to have one, perhaps that data could be cleaned up.