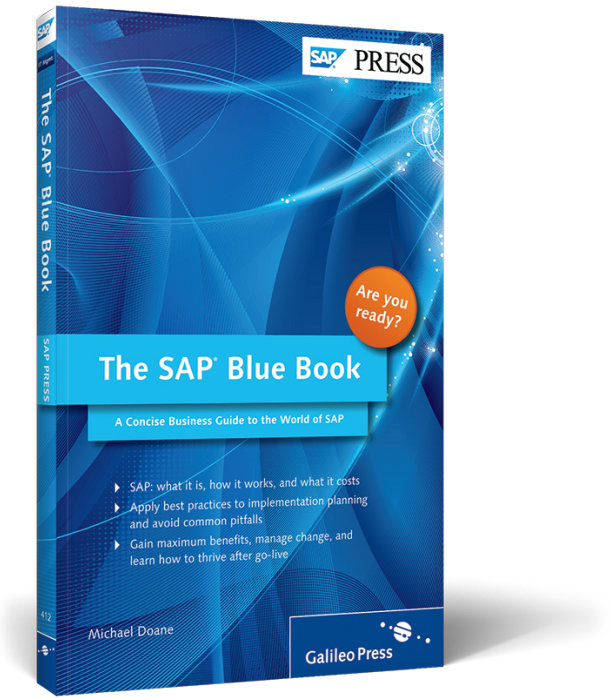
Michael Doane

The SAP® Blue Book

A Concise Business Guide to the World of SAP



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Contents at a Glance

Contents

2 What Is SAP?

As any good SAP-watcher knows, no moss grows under those munchkin feet in Walldorf, Germany, and Palo Alto, California, where SAP research and development takes place. Even as I type this paragraph at 120 words per minute, ABAP code is coursing through SAP pipelines and wrapping itself into beta releases and *SAP.com* announcements. No printed resource could possibly keep up with a thousand bit-byte ABAP zombies, and this book will not try. Even as this book goes to print, new SAP releases will render any description of the product somewhat outdated.

This first section of this chapter covers some of the basics of SAP, the company, and its array of products. If you already are familiar with the basics, skip to the next section.

2.1 Reading with the SAP Alphabet

Within the world of SAP, there are many variations on the meaning of the letters S-A-P.

To a concerned project manager, "Say A Prayer." To a disgruntled customer, "Shut Up And Pay." To the competition, "Sulk And Pout." To an SAP consultant, "Suitcase And Passport."

Ess Ay Pee is how it is pronounced, not "sap," as in "rap," "cap," or "slap." Your computer hardware wasn't made by "ibem," but IBM. Eds are not casual Edwards when you are talking about Electronic Data Systems (EDS). Anyway, what SAP really stands for is Systems, Applications, and Products (loose translation).

SAP AG, headquartered in Walldorf, Germany, is the supplier. The core ERP product we will be referring to through the remainder of this book is collective (SAP ERP, SAP Business Suite, SAP

NetWeaver). If you are at a point at which those distinctions matter, you may want to pass by some parts of this book.

Just to be clear, the world at large still refers to both the company and the product as SAP, as in "We decided to implement SAP because of its integrated database."

Beyond these distinctions, there is a vast world of initial-speak in the world of SAP, beginning with the applications. Financials (FI) are referred to as Eff Eye, Sales and Distribution (SD) as Ess Dee, and Materials Management (MM) as Em Em.

Consider some of the SAP components that are routinely abbreviated in Table 2.1. You'll notice that not all short names are the exact initials of the components.

Short Name	SAP Component
FI	Financial Accounting
SD	Sales and Distribution
MM	Materials Management
PP	Production Planning
HCM	Human Capital Management
CO	Controlling

Table 2.1 SAP Abbreviations

As will be seen (to the point of distraction), the applications are tightly integrated, so initials are often glued together to better define terms. Someone working in the Process Industry version of Production Planning will be referred to as a PP-PI. If you see SD-MM, you will understand that it refers the elements of Materials Management that are integrated with Sales and Distribution.

If you are an apprentice to SAP, there is no need to learn all of the initial-speak. Through the remainder of this publication, I will make every effort to spell things out where possible.

2.2 Features of SAP

The allure of SAP software is not found in its business components alone, but in its overall features. Functional comparisons of SAP to its smaller competitors often lead to misconceptions because an apples-to-apples comparison of applications fails to take into account the enterprise-wide nature of SAP. Indeed, it is often said that competitors' packages for individual applications stack up nicely against SAP but, as discussed in Chapter 1, individual applications are less and less cogent to business as we know it.

In this section, we explore the operational and business features of SAP that have contributed to its phenomenal success and its status as the least understood business product of its generation.

Consider the following features:

- Complete suite of integrated applications
- Open systems architecture
- Global business architecture
- Transparency between SAP and PC applications
- Audit trail and data integrity controls

Let's explore each one now.

2.2.1 Complete Suite of Integrated Applications

This is by far the most alluring and powerful feature of SAP software and hinges on two operative elements: complete and integrated.

Numerous competitors offer integrated applications, but none compare to the vastness of SAP's list of business applications. Beyond core business functions (Financial Accounting, Sales and Distribution, Materials Management, etc.), SAP includes Plant Maintenance, Quality Management, Project System, Human Capital Management, Production Planning, and much, much more. Further, there are industry-specific solutions for oil and gas, chemicals, retail, and a host of other industries. SAP tries very

hard to be all things to all companies, and although it fails to supply everything under the sun, there is a continual flow of new applications, upgrades, and industry-specific bolt-ons.

What is fairly magical, however, is that all of these applications still work with a single, integrated database. The significance of this feature cannot be understated.

- Ensured data integrity
- Simplified data handling and maintenance
- No interface requirement between applications
- Transactions are updated across the board on an immediate basis. Thus, management information is up to the minute, not as of the last batch run.

SAP is not alone in providing real-time data updates, but it does stand alone in providing real-time updating in an integrated fashion throughout a complete applications suite.

When a wing nut drops on a production line, SAP hears a ping in accounting, materials management, and possibly one or two other applications.

2.2.2 Open Systems Architecture

Since the beginning of cyber time, applications have been written according to the house rules as laid down by the platform on which the software will run. Each hardware vendor used to offer a different operating system that worked with different programming languages. A company with IBM hardware that wanted to purchase software that only ran on Hewlett Packard platforms was out of luck. Other software firms have closed the gap in this regard, but SAP was the first to provide truly open systems architecture, and this fact alone fueled sales in the mid-1990s.

Large firms that have distributed their processing across disparate sites have by and large developed heterogeneous computer parks, mixing IBM with Hewlett Packard or Dell with NEC Global.

SAP's use of an open systems architecture eliminates the platform question because it functions on several different platforms. These include Hewlett Packard, IBM, and various other platforms. Further, clients have a choice of database and operating systems.

The immediate phenomenal success of SAP R/3 would have been seriously compromised if the software had not been built with such open systems architecture. Acquiring and implementing SAP software is costly enough; if clients are also required to change over entire computer parks, the pill may be too large to swallow.

The "portability" of SAP software will also have an effect on the lifecycle of your system. As your company expands or contracts, the hardware base will expand or contract, but you will be able to jiggle SAP into any size environment without having to give it a makeover. In similar fashion, if your company expands through acquisition, and the acquired firm has different hardware, SAP can probably fold it into your organization without major new hardware expense.

2.2.3 Global Business Architecture

Facture, factura, rechnung, invoice. These are all the same to SAP. Though made in Germany, the software is now fully global and is the only applications suite on the market that can make this claim.

Its global features are numerous and include the following:

- **Screens and language**
  The language appearing on screens, online help, and online documentation can appear in whatever language the user's logon dictates. Obviously, not all languages in the universe are available. You can read documentation in English, French, German, and Swedish, but not yet Urdu. You can have Japanese, Italian, Spanish, Arabic, Dutch, Greek, and Texan. You

cannot have Latin, but you can see Roman numerals on occasion. As of this writing, SAP software is said to be available in more than 30 languages.

The fact that language is user-driven means that users in various countries can all be logged on at the same time, each working in their local language, using whatever parts of the system they want. This means that an order can be entered in German in Hamburg, the materials can be ordered from Paris in French for delivery in Dutch to Brussels for manufacturing, and invoiced in English to the customer in Des Moines.

- **Multiple currencies**
  Beyond language, SAP takes into account country-specific considerations. Multiple currencies can be handled in a variety of ways (fixed rates, rates updated via an external database, average periodic rates, etc.). Further, tax considerations by jurisdiction (country, province, state, NAFTA, GATT, EC) are addressed as table-driven system controls.

2.2.4 Transparency Between SAP and PC Applications

Microsoft and SAP have long been engaged in a fairly serious partnership and, as the Windows standard for graphical user interfaces has come to dominate the world, SAP offers exceptional integration between Microsoft applications and its own applications. With the flexibility afforded by multitier client service, Microsoft (or other PC-based) applications can be run separately or within the context of SAP.

For example, data can be extracted with standard SAP tools and manipulated with Microsoft Word, Excel, Access, or whatever. If your firm has a Microsoft background and users are already familiar with Windows navigation and standards, SAP software will not look all that foreign to them.

This Microsoft/SAP transparency was upgraded with the 2007 announcement of Duet, which provides great synchronization between Outlook, Microsoft Exchange, and SAP processes.

2.2.5 Audit Trail and Data Integrity Controls

SAP software is an auditor's dream. Every transaction is logged and "fingerprinted," which creates a record of who made the transaction (user ID), when it was made, and what it was. Further, there is no way to simply void or delete errors. Mistaken input has to be backed out of the system; error checking can include the matching of transactions that lead to an error and its subsequent resolution.

The system disciplines are rigid, which often leads people to complain about how inflexible the system can be. Sometimes this argument comes from the same people who seldom follow an agenda during meetings, push on doors marked "pull," and never order what's on the menu.

2.3 Core Business Applications of SAP

We will first zoom in on the hardy perennials, the absolute core of the applications suite, and then some of the other key applications (referred to herein as SAP Business Workflow applications) and focus solely on the characteristics and features important to management.

The core business applications offered by SAP are the same as those offered (individually, in most cases) by traditional package software vendors: Financial Accounting, Controlling, Sales and Distribution, Materials Management, Production Planning, and Human Capital Management. SAP ERP Financials has a solid reputation of being at the top of the charts in the world of software, and is most often cited as the equal of any stand-alone financials package you can find. The Sales and Distribution component was criticized by some in years past as "heavy" and difficult to master. This is because SAP is one product intended to serve diverse masters. Sales and distribution processes vary widely between retail, build-to-order, manufacturing, health, banking, and other industries. Such diversity has its natural consequences to Materials

Management (MM) and Production Planning (PP), since industry-specific considerations require SAP to dance with several feet at once. When you seek implementation, there is at first a tangle of sorts that SAP unravels, with increasing success, through its industry-specific templates and aids.

Few companies implement much more than these core applications at first. Most begin with FI and then carry on. Others implement all of these core applications in one go. Still other companies implement some of these core applications and interface them to legacy systems; this does not always make good sense but adds a mountain of consulting hours and keeps people busy.

2.4 Work Flow Applications

Plant Maintenance, Project Systems, SAP Workflow, and Quality Maintenance represent a second tier of SAP components. Whereas Plant Maintenance is more of a functional application, the others relate directly to the flow of work throughout an enterprise. Plant Maintenance and Quality Management are just that—plant and quality maintenance. Each has industry-specific wrinkles and is tightly integrated with Production Planning and, to some degree, with Materials Management.

The SAP Workflow component allows for an automation of business processes, combining human and computer "events" or activities that trigger one another to the conclusion of a process. After basic business process reengineering (that box-arrow-box exercise), the system can be configured to address horizontal business flow. However, SAP Workflow, shown in Figure 2.1, takes this a step further by automating the process. Each event or activity is assigned to a person or the system, its duration is fixed, and work that is relative to a defined process is routed throughout an organization.

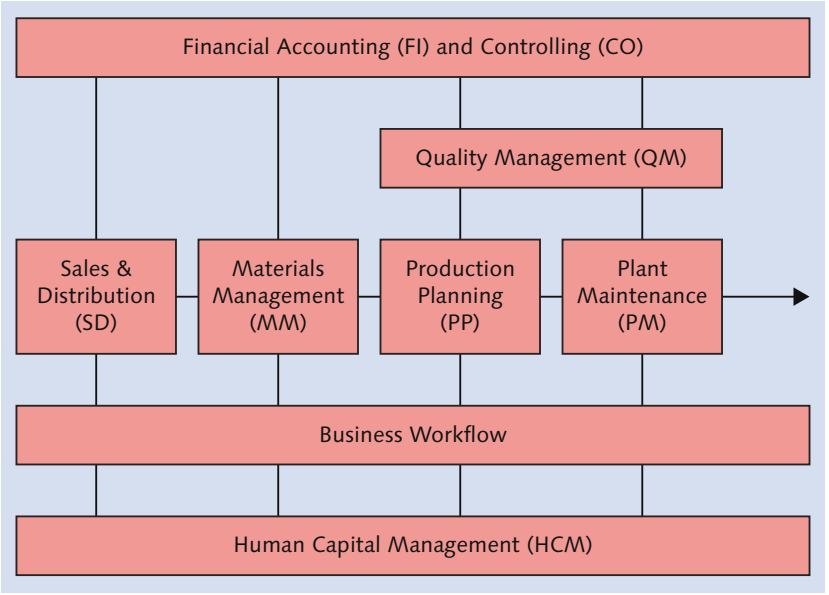

Figure 2.1 Automating Workflow

In the preceding sections, we have described primarily SAP ERP components, but SAP's offering spans much wider than ERP. SAP rolls out next technology quite frequently, so for the full menu, you should reference *www.sap.com*.

2.5 Accelerated Solutions with SAP NetWeaver

Since 2003, SAP has invested heavily in the development of SAP NetWeaver, which is the foundation for service-oriented architecture, or SOA. This architecture offers increased levels of adaptability, flexibility, and openness. *Openness* means that SAP applications can work with non-SAP applications. Such openness is one of the key distinctions between SAP and the various components of the Oracle offering. While Oracle wants its clients to

have nothing but Oracle software under the hood, SAP recognizes that most organizations will necessarily have other applications software and therefore need an architecture that will enable complete integration in terms of application processing, business intelligence, and data integrity and harmonization.

Some of the key components of SAP NetWeaver are as follows:

- SAP NetWeaver Portal provides a complete portal infrastructure along with knowledge management and collaboration software. An enterprise portal gives end users access to multiple types of information and applications through a standard interface.
- SAP BusinessObjects Business Intelligence makes information actionable by helping companies identify, integrate, and analyze disparate business data from both SAP and non-SAP sources.
- SAP NetWeaver Process Integration provides open integration technologies that support process-centric collaboration among SAP and non-SAP components both within and beyond enterprise boundaries.
- SAP NetWeaver Application Server is a development and deployment platform that supports web services, business applications, and standards-based development based on key technologies such as J2EE and ABAP.

Figure 2.2 shows these SAP NetWeaver offerings and how they interact with each other.

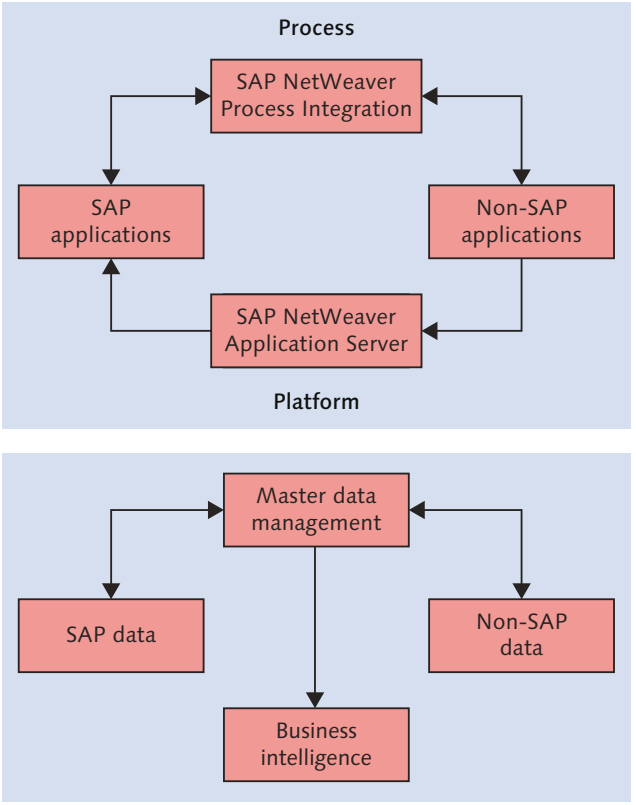

Figure 2.2 SAP NetWeaver Offerings

2.6 And All the Rest

Despite having offered a cursory overview of the company and the features and applications of SAP, we cannot state that we have told you what SAP is. In both breadth of scope and depth of functionality, the software is seemingly boundless, and SAP itself offers fat 9-inch-by-12-inch color-coded volumes for each of the applications.

We have not yet mentioned Assets Management, Inventory Management, Warehouse Management, or Service Management. Beyond these subjects, there are report and query aids, SAPScript, Data Warehousing, and more. But this is a concise business guide, not an exhaustive technical text, so let's simply carry on in that vein, confident that the SAP pool is far deeper than this chapter cares to dive.

Further, SAP has extended its product well beyond the realm of pure ERP (as described thus far). There is a robust SAP Customer Relationship Management (SAP CRM) suite as well as SAP Advanced Planning and Optimization (SAP APO), advanced portals capability that allows for the comingling of various software on a single user's screen, advanced web middleware, and much more. This book is not intended to cover the entire SAP product galaxy and should remain only a point of entry into the subject. For more details on the full gamut of SAP products, browse with confidence through *www.sap.com*.

2.7 Critical Distinctions Between SAP and What You Know

When in the field, consultants tend to repeat certain phrases over and over. Often, these repetitions include sighs of exasperation, but the phrases must be repeated time and again because of the distinctions between SAP and what you have known in the past.

These are some of those phrases:

- "SAP is a business project, not an IT project."
- "We're not programming here, we're configuring."
- "It is integrated software, so what you do in [fill in department name] will immediately affect [fill in department name]."

Often, the difficulty in getting key messages across lies in the experience of the audience. Nearly everyone involved in an SAP

implementation has already participated in at least one traditional IT project and will probably rely on that experience as instructive. It may well be, but only partially so.

Do not entrench yourself into a Maginot Line of past experience and recite how you won the last war ad nauseam. To accelerate a conversion to SAP thinking, you should absorb and retain the lessons of this chapter, which will take a great strain off both yourself and your consultants.

2.7.1 Critical Distinction #1: SAP is a Business Endeavor, Not a Computer Endeavor

As elaborated in the first chapter, business folks are no longer the hostages of computer technology. In this light, there are multiple distinctions between SAP and what you know.

The first is that business people, not information technology people, directly determine what the systems should do. Further, business people also bend existing software to their wills. This is done by configuring SAP software according to established rules and methods.

The distinction between programming and configuring is of huge import. Programming requires technical knowledge, whereas configuring requires business knowledge.

Configuring is the setting of business tables that determine the format, the nature, the location, and the destination of information. Figure 2.3 shows an example of a configuration table in the Payroll component, in which the user is providing information about a new wage type to be created.

In contrast with configuring, programming is the creation of codes that manipulate the format, the nature, the location, and the destination of information.

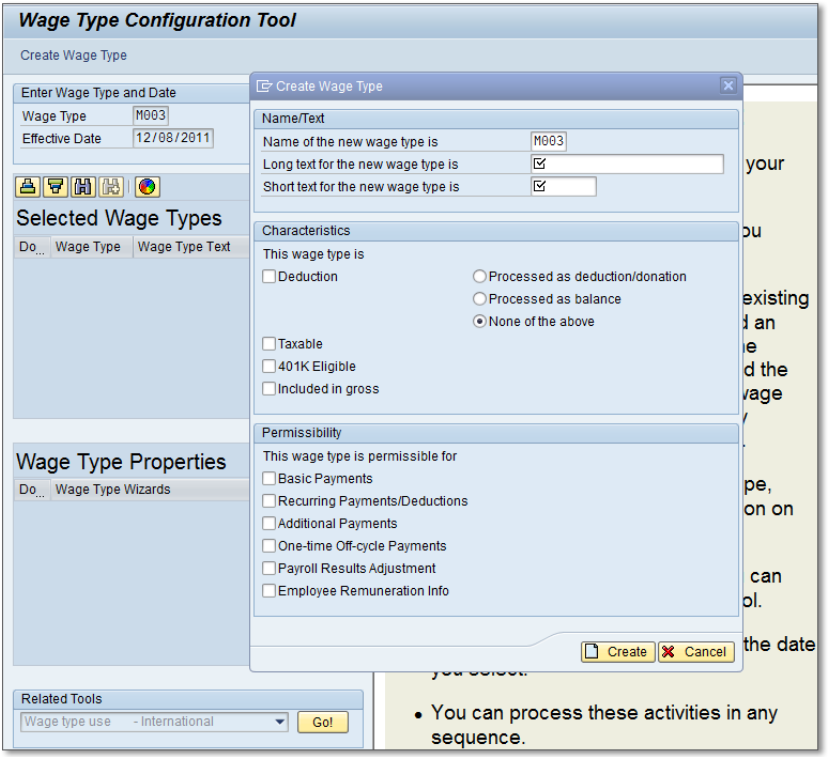

Figure 2.3 Payroll Configuration Example

In essence, SAP software is comprised of hundreds of screens like this one, all of which drive data according to the rules laid down by business people.

This leads to a subdistinction, which is the disappearance of the traditional negotiation between business and IT groups for new information services or changes to existing services. In sum, SAP provides business software for business people, created by business people, and maintained by business people as business evolves.

2.7.2 Critical Distinction #2: Integration = Enterprise-wide = Horizontal Processes

Your project will not succeed if you plan to separately build individual applications as you have in the past. Decisions that you make about SAP Materials Management will certainly have repercussions on SAP Sales and Distribution and SAP Financial Accounting, and possibly on SAP Production Planning.

Further, your core implementation will take you longer than would the implementation of a new accounting package or a customized sales order processing module. Remember, you are not simply installing software; you are reinventing the manner in which your company functions. Thus, your implementation team will be comprised of representatives from throughout the company, and each will be tempted to defend the turf of his or her current domain. Turf protection is harmful to enterprise-wide thinking.

Another factor of an enterprise-wide undertaking is the heightening of risk. The stakes are higher, the potential benefits more dramatic, and the costs more visible than for a traditional systems undertaking. A lot of nervous activity occurs in such an environment. Emotions get jangled and tempers are tested. This is why change management is a subset of SAP projects. (More on this to come.)

2.7.3 Critical Distinction #3: Integration Places an Added Burden on Direct Users

One of the prime sources of resistance to an SAP implementation is the direct (or end) user group. This resistance is often related to a simple fear of change or a loathing to learn another system. This much can be overcome with good project leadership, but another cause for resistance to SAP is the added burden that it places on such users. This burden takes two forms:

1. **Time**
   Compared to most legacy systems, SAP software requires more input and more complex input for the majority of its functions. Users will rightfully complain that for SAP software they are forced to use three screens to fulfill a function that required only a single screen for legacy systems.
2. **Authority/responsibility**
   Work flow eliminates a major portion of supervisory tasks, and the integrated nature of SAP software puts power into the hands of the users. The entry of data is no longer simply a chore of reporting to the system but is now an instigator of action. Someone entering even supplementary data to an existing sales order is virtually working for accounting (cash flow), materials management (requisition), and production planning (for manufacturing and delivery dates) all at the same time.

   Sniff the air and it smells of empowerment. Not that Dilbertville bogus empowerment, but the real thing.

2.7.4 Critical Distinction #4: The System Lifecycle Is Vastly Extended

No longer will you have to envision replacing your software wholesale or in large segments every five years or so. As configurable software, your SAP software should be modified according to changes in business climate and your firm's ambitions. Since these changes should not require reprogramming—or, worse, maintenance of interfaces—system degradation should not occur.

Further, you should be anticipating a new post-implementation organization in which your SAP-savvy staff remains a team that can drive continual business improvement, while your IT group takes on a technical support role.

The beauty and power of SAP are not found in its various parts but in how it can be used to drive better business results. The

power of the software exceeds that of whatever legacy firms you have lived with to date, so you need to be prepared in ways you never did in the past. In the next chapter, we will explore how to assure that preparation across your entire organization.

Index

D

E

F

G

H

I

J

K

L

M

N

O

P

R

S

T

U

V

Y