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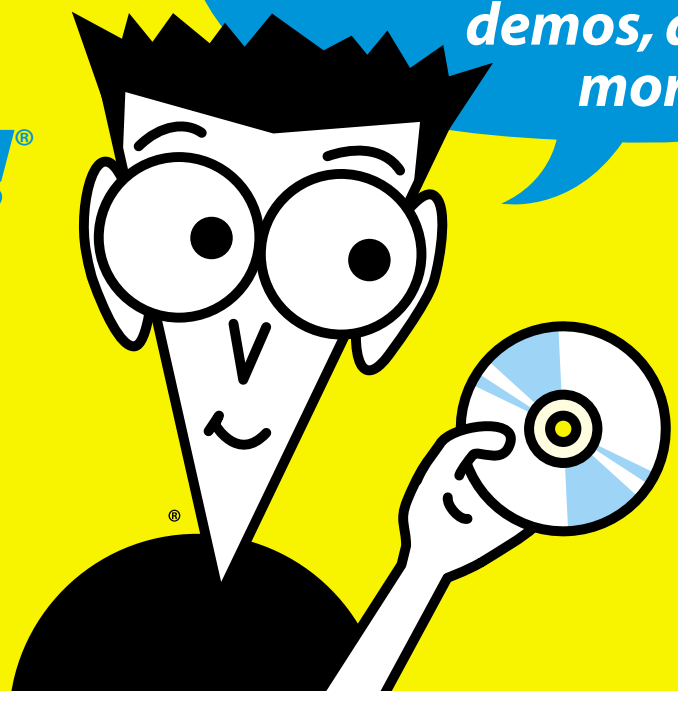

Dan Woods
Jeffrey Word

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SAP® NetWeaver™ FOR DUMMIES®

by Dan Woods
and Jeff Word

Wiley Publishing, Inc.

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SAP® NetWeaver™ For Dummies®

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Chapter 1

SAP NetWeaver: The New Foundation of IT

In This Chapter

- Why we wrote this book
- What is SAP® NetWeaver™?
- Laying out the IT land

Everybody's gotta have a vision. For Columbus it was finding a better route to Asia by sailing west. (Of course, there was a new world in his way.) For Galileo it was inventing a telescope to view the planets and discovering satellites around Jupiter. For you, it might be making sense of all the technoid gobbledygook your company has to deal with day in and day out so you and your IT people don't end up old before their time.

If so, then you'll be glad to hear that at its core, SAP NetWeaver is an ambitious vision for improving Information Technology, including the software and hardware that runs the world of business. But SAP NetWeaver is not just a vision: It's a set of tools and methodologies that can take your company where it needs to go.

Admittedly, SAP NetWeaver is not your normal topic for a *For Dummies* book. It's not a hobby such as yoga, sailing, or personal finance. It's not a word processor or even a programming language. SAP NetWeaver is a super-sized serving of technology and tools made up of products and concepts that are useful to the corporate decision maker and the technologists who work together to solve huge information challenges.

With SAP NetWeaver, you can

- Make one portal that gives each user exactly what he needs from all your applications.
- Provide a unified view of information from every part of your company and deliver it to employees just when and how they need it.
- Knit together into one streamlined interface processes that are distributed in bits across many applications.

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And because it is based on the latest technology and approaches to business processes, SAP NetWeaver also increases flexibility and enables change throughout your enterprise. Not bad, huh?

Why Write a Book about SAP NetWeaver?

Even if SAP NetWeaver isn't a typical topic for a *For Dummies* book, SAP and its customers and partners know that it's a topic that sorely needs the *For Dummies* approach, which puts complex ideas and processes into terms everybody can understand. The world of Information Technology has become so vast and complex that it's hard to keep track of all the techie terms and acronyms and how they relate to each other. Enterprise application integration, data warehouses, enterprise portals, business process management, model-driven development, and service-oriented architecture all fall under the umbrella of SAP NetWeaver. Where does the average guy or gal go to even start to make sense of it all?

This book gives you an option to plowing through the conceptual algebra that you read in the *Harvard Business Review* and the *McKinsey Quarterly.* This book helps you avoid the deep complexity of the technology that makes enterprise applications work. Instead, it provides a clear and simple explanation of the entire landscape of Information Technology by explaining how SAP NetWeaver can help you master this complexity and get more value from your investment.

A Technology Symphony

Sometimes it seems like brain surgery is child's play next to grasping the world of enterprise resource planning (ERP). SAP NetWeaver is such an ambitious undertaking with so many dimensions that it is hard even for experienced IT professionals to quickly understand its structure and potential. But here's a starting point: Think of SAP NetWeaver as essentially an orchestra of technologies with many programs and toolkits, each adding its own voice to the composition to allow you to do things that could never be done before.

We dissect SAP NetWeaver in detail in Chapter 3. In Chapter 1 we explain SAP NetWeaver's goals, how to make sense of all the pieces, and what it can do — that is, just what kind of music you can make with it!

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SAP NetWeaver 101

When in doubt about the meaning of things, most folks usually revert to the dictionary. So, we start your SAP NetWeaver education with a little definition.

SAP NetWeaver is a set of capabilities that are provided by many different SAP products constructed to work with each other to make applications work together, build new applications on top of existing applications, and lower the total cost of owning applications.

Okay, granted it's a mouthful. So, for you visual learners out there, we drew you a picture. Figure 1-1 shows the most common way that people explain what SAP NetWeaver does.

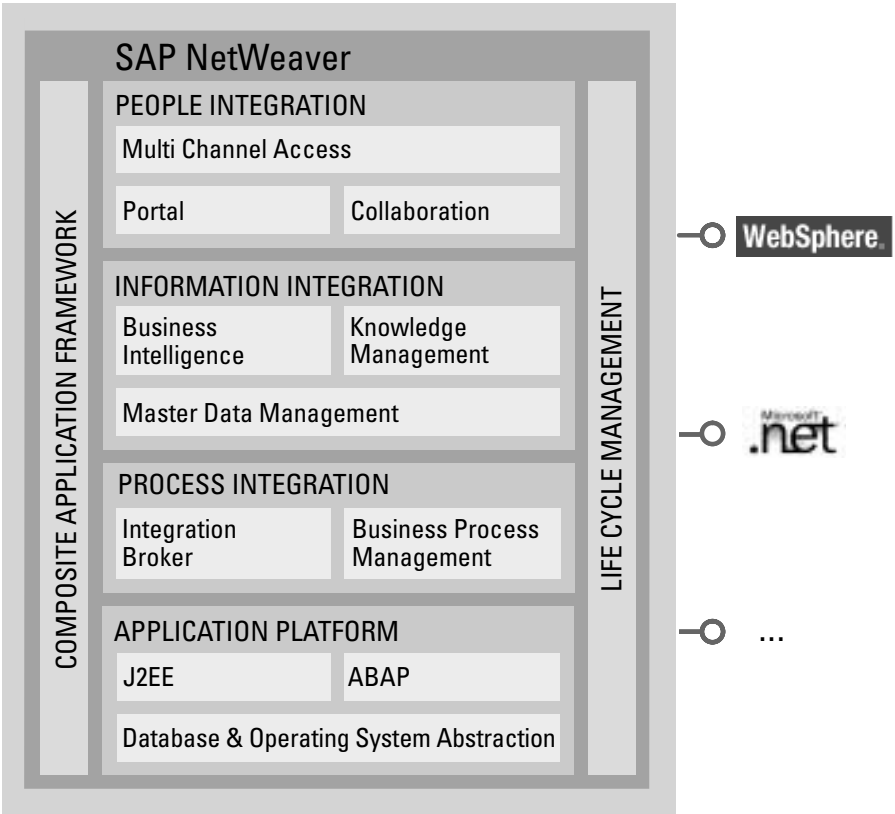

Figure 1-1: SAP NetWeaver offers a wealth of capabilities.

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What you're looking at are the core capabilities of SAP NetWeaver: the integration of people, information, and process. When we say SAP NetWeaver has a capability such as *people integration,* it simply means that it enables you to bring people together and help them work more efficiently. Following the same logic, *information integration* means you can bring together information from a variety of locations and have it make sense in the context of what your folks do everyday. Okay, now you can do this last one yourself: *Process integration* means . . . that's right, coordinating the flow of work across departments, divisions, and between companies.

A closer look at Figure 1-1 reveals that each type of integration breaks down into different capabilities. This book has several chapters dedicated to explaining the products that SAP has created to deliver these capabilities.

See Chapter 3 for a detailed overview of which capabilities are provided by which product.

What's in it for me?

So, if a capability enables you to do something, how exactly do you use that capability to get your work done? The answer is that SAP paid attention to how people really do their jobs and designed its products to make technology easier for people to use.

- **SAP® Enterprise Portal:** Helps create software that brings together all the data and software tools that a person needs to do her job in one consistent user interface.
- **SAP® Business Intelligence:** Provides tools for information integration, so what your people see is consistent and accurate. (That is, the info somebody in the Sales department sees about a customer matches what somebody in Customer Service or Shipping calls up on the screen.)
- **SAP® Exchange Infrastructure:** Integrates processes and helps applications talk to one another.

Other products help in different ways. Parts II and III give a detailed explanation of what each product can do, along with examples of how each is used in the real world.

Take another look at Figure 1-1 and you see that the people, information, and process-integration capabilities of SAP NetWeaver all sit on an application platform called the SAP® Web Application Server (SAP Web AS). This is a tool for building and running applications. The SAP Web AS is the technical guts of the platform and the foundation of all the other stuff that goes on top.

Another important part of the SAP NetWeaver equation is the SAP Composite Application Framework (CAF). The SAP CAF is a tool for creating new

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applications by combining pieces of existing applications to do entirely new things. Finally, Lifecycle Management is a set of utilities that help make the process of installing software, running it, upgrading it, and fixing bugs as smooth as possible. These two boxes were placed on the right and left sides of the box in Figure 1-1 to show that they play an important supporting role in SAP NetWeaver.

Making music with Information Technology

Another way to think of SAP NetWeaver is to understand its goals. SAP NetWeaver is designed to

- **Enable change** through increased business flexibility and adaptability.
- **Increase usability** by making it easier for end users to work with all their systems. This increases user adoption, cost savings, and productivity.
- **Enhance integration** by making it possible for a collection of enterprise applications to work together.
- **Enable innovation** by allowing new applications to be constructed on top of existing applications.
- **Save money** by reducing the expense of owning and maintaining your existing systems.

As you find out more and more about SAP NetWeaver, it's useful to consider how every feature helps meet these goals.

Bringing all the instruments together

So, now you understand something about the pieces of SAP NetWeaver and what goals the folks at SAP had in mind when building it. But what, exactly, does this thing do?

To understand that, you have to grasp the importance of a little thing called prepackaged integration. As you'll read more about in Chapter 2, making applications work together is vitally important to most companies. That's where prepackaged integration comes in.

Prepackaged integration simply means that all of the products in SAP NetWeaver were built to work together out of the box. The integration was done at the factory, when the products were created, not after the fact. This represents a huge savings in both money and time when it comes to making

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applications work together. In the past, companies spent gobs of money just to make programs work together that weren't intended to. SAP NetWeaver eliminates this financial hemorrhage from your IT budget.

Another benefit of prepackaged integration is that SAP NetWeaver comes ready to work with the mySAP™ Business Suite, a collection of enterprise applications. These applications arrive at your office ready to plug into many of the products in SAP NetWeaver, which saves you yet more time and money.

It's important to remember that none of this prepackaged integration prevents integration with products and tools from other vendors. This flexibility simply makes it cheaper and easier to connect SAP systems with each other as well as connecting with non-SAP systems.

So, with the concept of prepackaged integration in mind, you can begin to grasp exactly what can be done with SAP NetWeaver: It is an excellent tool for integrating existing applications and building new ones.

Most people who have used SAP NetWeaver will tell you it can do absolutely anything, but in more practical terms, here's how it's actually being used out there in corporate land:

- Companies use SAP NetWeaver to create portals that bring together functionality from many different programs and present them in one consistent, easy-to-use interface.
- Companies use SAP NetWeaver to create one consistent version of the vital data for a company by collecting it from many different applications.
- Companies use SAP NetWeaver to start a process in one application and then provide one user interface as the process continues through other applications, or even through other companies' systems.

Because companies create these applications based on prepackaged integration, they cost much less to extend and maintain. The bottom line is that these advanced development tools enhance productivity and increase savings.

Want to hear more specifics about what SAP NetWeaver does out there in real-world businesses? The chapters in Part IV describe different scenarios that show how SAP NetWeaver creates real value.

IT: The Lay of the Land

Before we get too far into our explanation of SAP NetWeaver, it's important that you get a feel for the world in which SAP NetWeaver exists, the world of Information Technology (IT to you). So, we devote the rest of this chapter to helping you understand what IT encompasses.

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Very simply, *Information Technology* is the application of technology (including telephony and computer technology) to create, store, exchange, and use information in all its forms to help your organization run better.

How big is IT? Well, IT spending accounts for about 3 to 5 percent of the revenues of most companies, which means that total global IT spending runs into the hundreds of billions of dollars, euros, yen, or what have you, every year.

Everybody's a specialist

Now being a big, complex thing (about the size of the known universe at last count), IT naturally has many specialties and subspecialties that essentially fall into the following groups:

- **Data Center and Network Operations:** Involve running the computers, telecommunications networks, and software that run the world. Huge refrigerated rooms containing racks of servers, disk arrays, routers, switches, and network hubs are supported by operators, system administrators, and network engineers, who act as the babysitters and mechanics for the systems behind credit cards, bank accounts, shipping companies, and Web sites, to name a few.
- **End-User Computing:** Involves making the computers and software on our desktops, such as word processors, spreadsheets, and e-mail programs, work for us, rather than driving us crazy.
- **Software Development:** Involves creating new programs using computer languages and many others tools (such as integrated development environments, databases, and networks) to perform calculations or automate processes.
- **Enterprise resource planning** involves great big programs, usually created by software vendors, that automate and organize complex tasks such as accounting, financial planning, customer-service management, supplier interaction, product development, and many other activities.

Understanding the different specialties is a start to understanding IT. The next step is understanding the different types of people and organizations that take care of all this technology.

Who are the players in the world of IT?

The reason that the field of IT exists is that companies need help in solving the problems that all this wonderful technology carries with it — problems of compatibility, communication, and conflicting protocols. The IT industry provides this help in many different forms.

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So just who are these wonderful people who solve (or try to solve) all your technology problems? Here's a rundown. *Platform vendors,* or what SAP calls simply *technology vendors,* sell general purpose tools for creating software. This includes

- **Operating systems** such as MVS, Unix, Linux, or Microsoft Windows
- **Databases** such as Oracle, DB2, SQL Server, MySQL, or MaxDB
- **Application servers** such as IBM WebSphere or SAP Web AS
- **Development tools** to help write programs like Eclipse
- **Data warehouses** to massage, analyze, and make sense of huge amounts of data
- **Enterprise application integration** products that send XML messages back and forth between programs
- **Business process management systems** that allow processes to be described and automated
- **Portal software** to bring together the functions of many programs into one consistent interface

Application vendors sell programs built on the various platforms, many of which automate specific business tasks such as crunching numbers and writing memos nobody reads. *Suite vendors* sell many different applications that are designed to work together, such as the Office 2003 suite from Microsoft. Large-scale applications meant to help run businesses and bring many suites, applications, and systems into synch are called *enterprise applications.* (That's the business SAP started in.)

Here's a quick rundown of the categories that IT vendors fall into:

- **Hardware manufacturers** sell computers, printers, networking equipment, storage, and other devices. Examples are Dell, Hewlett-Packard, Sun Microsystems, and IBM.
- **Platform vendors** sell software toolkits that are the foundation for building and running programs. Examples include SAP, Microsoft, and IBM.
- **Application vendors** sell programs that people use to get their work done, such as Office-like suites and databases. Examples of vendors are Microsoft, SAP, PeopleSoft, Oracle.
- **Systems integrators** provide programming and business consulting services to help make all the technology that you spend your hard-earned dollars on work. Examples of these include Accenture, Bearing Point, and Cap Gemini/Ernst & Young.
- **Analyst firms** study businesses and technology and recommend ways to use technology. Examples are Gartner Research, Forrester Research, META Group, and IDC.

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- **Trade presses** publish magazines and newspapers about technology so that you can try to make sense of it all. Examples are *Computerworld* and *Computer Reseller News.*

In order to understand the subsequent discussion of the IT marketplace and how SAP NetWeaver fits in, look over the rundown of these players in a bit more detail.

Platform vendors: Stack attack

Platform vendors sell general-purpose applications called *operating systems* for creating and running software.

Typically, the concept of a stack explains how the different layers of software that are used in a business work together. The applications at the top of the stack depend on the ones below them. A *platform,* or operating system, usually sits at the base of the stack supporting a series of applications.

Figure 1-2 shows how the applications stack is most frequently described.

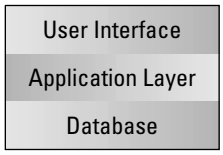

Figure 1-2: A very simple application stack.

Of course, in the world of IT, nothing is simple. So, we give you another reasonable way to look at an application stack with even more little pieces to contemplate in Figure 1-3.

Figure 1-3: The complete enchilada application stack.

In the stack in Figure 1-3, the user interface uses the process logic, which coordinates the business logic, which is protected from messy details by the integration logic, which does its job with the application server utilities, one of which allows the program to talk to the database, and the entire shooting match sits on top of the operating system (the platform).

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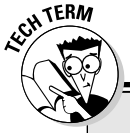

Finding a vendor in a tech stack

We brought up the idea of the stack because it helps explain the differences between different types of platform vendors. (See, we do have a method to our madness!)

Platform vendors usually play at one or two layers of the stack shown in Figure 1-3:

- **The user interface layer** is provided by portal vendors or by tools from application servers that are designed to help construct Web pages.
- **The process logic layer** is provided by business process management systems or tools for managing processes in portals or applications servers.
- **The business logic layer** is generally provided by application vendors, which we discuss in the next section.
- **The integration layer** is provided by enterprise application integration vendors, application servers, or a variety of special-purpose tools such as integration brokers or systems, for extraction, transformation, and loading of data.
- **The application server layer** is provided by application servers.
- **The database layer** is provided by (you guessed it) databases.
- **The operating system layer** is provided by (yes, now you've got it) operating systems.

Notice how the layers at the bottom are provided by products with the same name. This illustrates an important point about IT. As time goes by, each layer becomes more and more understood, and generally, more and more of a standard, with each vendor providing products with similar, if not the same, functionality. When this happens, the products from one vendor can be exchanged for those of another vendor, without disruption. The products have in effect become an interchangeable part, like a spark plug.

If you take away only one point from our fascinating discussion of stacks, layers, and products let it be this: The first thing to understand when a vendor is explaining its product is in which level of the stack the product operates and how it integrates with all the other pieces of the stack.

Application vendors: Programs to solve business problems

Application vendors sell programs that automate a business process or perform a useful task. For example, Quicken is a program that helps keep track of personal finance information. Microsoft Word is a desktop application that processes your words. Both of these are end-user productivity applications.

This book is concerned with *enterprise applications,* programs that are written to help run businesses. One important thing to remember is that the word "enterprise" doesn't really mean anything more than "for companies."

Application vendors fall into two broad categories: *Independent Software Vendors (ISVs),* companies that typically sell one enterprise application; and

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suite vendors, companies such as Microsoft or SAP that sell many different types of applications.

Now you should know that software is a kind of piggy-back affair: Enterprise applications are usually built on software from a platform vendor, for example. Almost all enterprise applications are based on an operating system and a database. Some application vendors build their own application servers or even their own programming language. SAP did this, which allows it to run its applications on top of almost any operating system.

By building all of its products so that they can work on any database, operating system, and server hardware, SAP gives you the most choices about what sort of database or operating system to use. SAP attempts to be agnostic about such choices, so that customers can do what makes sense for them.

The SAP Basis technology, for example, is similar to an application server. SAP used ABAP, a powerful fourth-generation programming language it invented, to write most of its applications. More recently, SAP is also using the ubiquitous Java programming language to write some parts of its applications. SAP's Web AS performs all of the functions of SAP Basis, as well as supporting both ABAP and Java.

(Don't worry: We explain what all of this stuff is in Chapter 4, which discusses application platforms in use at SAP.)

As you can see, software vendors are liable to stray into each other's territory: SAP and other application vendors frequently build software that falls into the platform layer when it makes sense for them to, and platform vendors have been known to invest in creating applications.

Systems integrators: Rent a brain

Systems integrators are consultants who help companies implement and customize enterprise applications; they also do custom development.

Systems integrators make big bucks by being experts in getting the applications and technologies that companies want to use to work. Systems integrators are also valuable to companies because of their skills in software development and in managing large projects.

At most companies, systems integrators are involved with massive projects where the risk of failure is large. For that reason, systems integrators often bring armies of consultants to bear on a project to move things along as fast as they can run.

SAP also has its own consultants who provide traditional project planning, industry-specific, and product implementation services. These guys can also act like S.W.A.T. teams to help fix urgent problems during implementations and to provide super-expert advice to the frontline experts who work at the system integrator companies.

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Analyst firms: Observers from on high

Analyst firms make a living by studying Information Technology and making recommendations to companies about how to use it.

Companies rely on analyst firms for a variety of reasons to help make sense of the complex world of IT and make the decisions that help them keep afloat. Analyst research can help companies rapidly understand new trends. Analysts give advice, for a price, about when to pay attention to certain types of products and when to ignore them. Finally, analysts compare all of the products in a technology space and recommend different products for different circumstances.

Because analyst firms are so influential with companies, IT vendors try to ensure that the analysts completely understand the benefits of their products.

Trade publications: The information newsstand

Trade publications follow the tail of the IT dragon: They publish articles about every aspect of the world of IT, including new product announcements, how technology is being implemented at companies, and how recent news events effect the world of IT.

So, What's Next?

If you've been paying the least bit of attention, you now have a basic understanding of the SAP NetWeaver goals, what it does, and the IT world it lives in. In the next chapter, we take you further into the world of enterprise applications to help you begin to understand SAP's expertise and why you just might need an SAP NetWeaver solution in your own company.