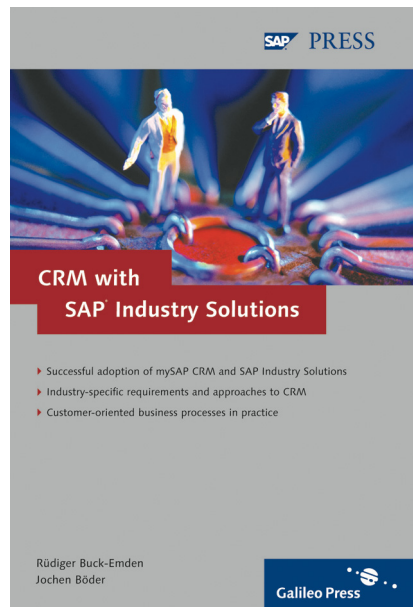


Rüdiger Buck-Emden, Jochen Böder

CRM with SAP Industry Solutions



SAP PRESS

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Foreword: SAP and Industries

Of the five biggest providers of company-wide business applications, SAP is the undisputed market leader. This success represents a great achievement on the part of SAP, but also creates new challenges for the company to continue to meet customer requirements in the future by further developing and improving its products.

Why is there such a high level of acceptance of SAP products? The answer to this question lies not only in the software itself—which provides a comprehensive range of business functionality, consistent process integration, and leading platform technology—but also in SAP's excellent customer service and, in particular, the entire company's consistent approach to meeting customer-specific requirements and the needs of specific industries.

SAP fully understands that medium-sized companies are just as likely as large companies to need industry-specific solutions to improve profitability, reduce operating costs, satisfy customers, and achieve quick return on investment (ROI). Such factors as market requirements, cooperation between customers and partners, available products and services, and company processes can all vary a great deal from industry to industry, and these factors are in a state of continuous development. Technical innovations, changing legal conditions and regulations, and alternative forms of cooperation in individual industries, are constantly creating new business models and placing new demands on business software. For example, deregulation and the associated increase in competition have forced utilities companies in many countries to pay much more attention to individual customers. This has resulted in new projects for the utilities sector, providing software solutions for customer-related business processes. A similar situation is developing in the telecommunications sector, triggered by the privatization of publicly-owned companies.

To provide companies with industry-specific complete solutions, SAP has worked closely with its customers to continuously develop its cross-industry mySAP Business Suite, including mySAP CRM (Customer Relationship Management), mySAP SCM (Supply Chain Management), and mySAP PLM (Product Lifecycle Management), as well as SAP Industry Solutions. SAP's close cooperation with over 19,600 customers worldwide is reflected in the fact that its 23 industry solutions (including automotive, high tech, machinery and plant engineering and construction, chemicals, oil and gas, pharmaceuticals, utilities, banking, leasing, insurance, professional services, public services, consumer goods, retail, media, and telecommunications) demonstrate significantly better in-depth understanding of the

practical challenges posed by different industries than the products of many competitors.

Customer relationship management as a company philosophy has become increasingly important over the past few years. In highly competitive global markets, it allows companies to work more closely with their customers, thereby differentiating themselves from other providers. After all, customers and customer interaction form the basis of all business processes and represent the source of a company's success. This is exactly what makes CRM solutions so valuable; not only do they constitute front-end office applications, but they support every stage of customer-related business processes—from initial contact with the customer to after-sales service—and are tailored to meet the needs of individual industries.

The goal of this book is to assess industries from the perspective of customer-related business processes and to show how each company can benefit from the interaction between mySAP CRM and SAP Industry Solutions. The authors place particular emphasis on use cases within a company, which is discussed within the framework of actual business scenarios and customer projects.

Walldorf, July 2004

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Preface

All customers expect a company to meet their individual needs. Obviously, needs vary from customer to customer in every industry. In addition to meeting general requirements, customer relationship management (CRM) must also be tailored to meet industry-specific requirements. This book describes the challenges of customer-oriented business processes for 19 different industries and shows how SAP Industry Solutions contributes to efficient and customer-friendly processing within a company. We have included successful CRM projects and examples of business scenarios to provide a practical demonstration of the value-added potential of SAP Industry Solutions.

This book would not have been possible without the commitment of many of our colleagues at SAP. Special thanks go to Dietmar Saddei, head of the CRM Business Unit, and Nils Herzberg, head of Solution Management for the Manufacturing Business Service Group, for their full support as well as their many suggestions regarding content. Many thanks to Nils Herzberg for writing the introductory chapter. Thanks also to Tom Shirk and Karl Kesselring for their important contributions to the concept and design of the book. We would also like to thank all our co-authors who, despite their busy schedules, remained fully committed to producing this book: Dorothee Andermann, Sameer Agrawal, Felix Diepenbrock, Martin Ebert, Guido Eichmann, Anja Engelhardt, Manfred Gärtner, Uwe Grigoleit, Werner Huff-Huebner, Gaby Klaas, Oliver Nürnberg, Michael Ott, Martin Przewloka, Eva-Maria Roe, Gabriele Roth, Frank Scholl, Kai Schwiebert, Edda-Leonore Seitz, Tom Shirk, Joachim Stiehl, Jürgen Weiner, and Thorsten Wenzel.

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Rüdiger Buck-Emden

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1 Why Customer Relationship Management for Industries?

1.1 Customer Relationship Management Was Not Invented by the Software Industry

One need only look at the past to recognize that customer relationship management (CRM) has long been a well-known and established concept. It is neither a product nor an invention of the software industry—even if information technology has fundamentally changed the possibilities and the manner in which CRM can be applied [Buck-Emden/Zencke 2003].

The concept of customer relationship management is as old as the idea of business itself. Historically, customer relationship management appears at the same time as economic competition. Four thousand years ago, the Egyptians had a firm grasp of the concepts of customer care, customer satisfaction, and order processing, and of the value of long-term business relationships. Some of today's great commercial empires (such as the Rothschild banking dynasty) built their fortunes via maintaining long-term relationships with the presidents and kings of their times. Although other factors are also important for consistent commercial success (for example, superior product, innovation, the ability to turn ideas into reality, or the ability to overcome commercial risks), maintaining the relationship with the customer is integral to business success. As a board member of an important high tech company summarized this principle: "The customer isn't everything, but without the customer, everything is nothing!"

Driven by the desire and the need to provide their customers with high-value service throughout the customer interaction cycle—marketing, sales, and service—companies invest in CRM. Faced with stiff competition, sellers and traders strive to maintain or improve customer satisfaction in order to increase loyalty. This is the fundamental problem of customer retention: A customer is always loyal, but not always to the same trader or manufacturer!

The basic idea of customer relationship management has barely changed with the passing of time. The Egyptians had to rely heavily on their memories—possibly with the aid of papyrus notes. For many generations, the ability to remember customer details was a driving factor for both CRM and order management. Similarly, the beginnings of the industrial revolution were heavily influenced by the power of the human mind, while also being limited by it. Only with the introduction of mass literacy could broad and systematic documentation of customer-related processes be created. A set of business files sorted by customer can be seen as the first important step toward customer relationship management.

Nevertheless, companies were still restricted in their ability to control complex, multifaceted relationships. The inventions of the telegraph, and then the telephone, telex, and telefax, have enormously increased a company's ability to communicate with its customers, although they do nothing to aid the storage of customer data and subsequent order processing. Only with the invention of the computer was it possible to make a quantum leap in the area of transaction processing: Computer-support of business processes provides an alternative to costly bureaucracy with mountains of paperwork and rows of filing cabinets. It also significantly improves accuracy in transaction processing and provides almost unlimited scalability.

Advances in information technology also led to a drastic acceleration of all business processes. In past centuries, slow means of transport (horse, coach, or ship) meant delays during sales negotiations, ordering, and shipping. Typical key figures—such as the time from order to delivery—were measured in weeks and months. Response times for a request for a quotation made to a medium-sized organization would probably be measured in weeks, with a quotation accuracy level of about 10%. Thanks to the invention of email, electronic data exchange, and integrated business applications, it is now possible to compete almost in real time. In some industries, the time from order to delivery is measured in no more than a few minutes or even seconds, while quotations that are less than 99% accurate can mean economic ruin.

Previously, one company differed from another purely because of the different product it provided. Almost all company investment and, consequently, management interest was directed at the product and how it was manufactured. In other words, there was (and in some places, still is) the belief that competition was based primarily on products, product features, functions, or specifications. With the growth of service industries and the challenges of real-time competition, these "traditional" ways of thinking need to be reevaluated. In the 21st century, competition depends just as much on the immediate availability of accurate information. Companies compete for customers worldwide in a networked, real-time market—the Internet. In B2C (Business to Customer), decisions and product ranges are often based on the quality and immediate availability of information on a Web site. It's true that the quality of the product or service still determines customer satisfaction and loyalty in the end. Nevertheless, in the information age, the ability to successfully attract the customer and thereby get an order is decisively influenced by the information provided by the company.

We live in an age when products are becoming increasingly similar. Therefore, other issues, which are closely linked to the quality of information, are gaining in importance. For instance, how easy do companies make it for their customers to

access all the information they need to make their decision? How simply can sales and service transactions be processed? The label “Easy to do business with” has become a decisive differentiator.

The constant efforts by companies to differentiate themselves from their competition in the eyes of their customers, while also increasing customer satisfaction and loyalty, also require higher levels of efficiency and effectiveness during interaction with the customer. Companies are well advised to exhaust all the methods, tools, and options available for improving customer relationship management.

1.2 Customer Relationship Management as a Competitive Advantage

In the past, the three aspects of competition—time, costs, and quality—were focused primarily on the product or service offered. Today, when competitive advantage is strongly influenced by better information, additional aspects must be taken into account. What are the time, cost, and quality parameters for a decision made on an execution or problem-solving process? These questions become particularly urgent when one considers that customers expect lower unit prices and improved quality.

It is less costly and more profitable to maintain a relationship with an existing customer than it is to establish a new one. In many industries, the costs associated with initial business transactions are often greater than the revenues to be expected from this customer over the first year of the business relationship. In some industry branches (for example, the elevator industry or aircraft engine production), the initial business transaction is used as a lure, intended merely to open the door to a long-term, revenue-generating business relationship, based on the provision of services and replacement parts. Premature failure of the business relationship removes any assumptions made during the initial business transaction about the future profitability of the customer. Furthermore, failure opens the door to the competition, which may then benefit from the profitable phase of the customer relationship without making the initial investment. Therefore, companies need ways to retain and positively influence customer loyalty through knowledge of customer behavior and customer wishes. A company's objective is to serve the customer based on actual or perceived requirements and to meet or even exceed customer expectations over a protracted period of time.

A customer's additional objective—especially in purchasing departments for large companies—is to standardize products or services, making them interchangeable. Standardized goods can be quantified and compared in terms of size, quality, costs, etc. Companies with this objective also influence marketplaces for purchas-

ing. Products and services that are included in a shared catalog from different manufacturers can be considered standardized goods. During purchasing, one usually assumes that the required services or products from different, competing traders can be purchased without serious risk for the resulting product or the reputation of the purchaser. By contrast, innovative CRM concepts are usually applied in an attempt to reverse the effects of homogenization. They allow the purchaser to offer additional services that are valued by the customer and they increase the actual or perceived costs associated with changing to a different provider.

Competition between companies is also a constant struggle against homogenization. In some cases, this struggle also means that the "rules of the game" are constantly changing. New business models (such as leasing, renting, payment after use, and outsourcing of business transactions) are needed to counteract homogenization and to make it harder for the customer to change providers. Vendors attempt to reinforce a relationship of dependency between themselves and their customers while also wanting to be seen as highly valued and trusted partners.

Customers—both those with a B2B (Business to Business) relationship and those with a B2C (Business to Consumer) relationship with their vendors—are becoming increasingly demanding: "I want what I want, when I want it!" While Henry Ford was able to maintain a "Take it or leave it!" approach to his customers, offering his Ford Model T car with just one chassis type and one color, his grandson now presides over a wide range of Ford vehicle models and types. Customers can choose from many alternative manufacturers. This increase in the number of products, models, and types—both in terms of goods and services—increases the pressure on companies to include greater flexibility and responsiveness in their internal processes and performance levels.

1.3 Software Solutions for Customer Relationship Management

Today, companies and organizations can implement high-performance CRM software. They can use this software to identify and win new customers more effectively and efficiently, to ensure the long-term retention of customers through measures targeted at individual requirements, and to optimize every customer relationship [Buck-Emden/Zencke 2003]. Functionality and business scenarios for these kinds of CRM software solutions can be divided roughly into the areas of operative CRM, analytical CRM, and cross-company (collaborative) CRM.

Operative CRM improves and automates the business processes targeted at the customer in the company's marketing, sales, and service departments. As well as

direct online access to the CRM system, other alternative technical interaction channels are supported, such as telephone, Internet, mobile devices, and Interaction Center.

Analytical CRM is used to prepare, support, and optimize customer-oriented decision processes based on a detailed customer database and using Data Warehouse and OLAP (OnLine Analytical Processing) functions, as well as possible additional planning, optimization, and simulation functions.

Cross-company or Collaborative CRM enables long-term cooperation between the company and its business partners, with a view to fully optimizing customer service. An important component of cross-company CRM is the retention of business partners via indirect sales channels (Channel Management).

Implementation of a high-performance CRM software solution can significantly contribute to such company objectives as increased turnover, improved profitability, and greater customer loyalty [Buck-Emden/Zencke 2003]. This, however, is possible only within the framework of a company-wide strategy for customer relationship management that (regardless of the implementation of a software solution) includes the definition of appropriate, customer-related goals and business processes, as well as employee training aimed at instilling a customer-oriented mindset. CRM software projects that are implemented in isolation from a full CRM strategy are generally unsuccessful.

1.3.1 Industry-Specific Aspects of Customer Relationship Management: "One Size Does Not Fit All"

When dealing with customer relationship management and the development of corresponding software solutions, the following questions always arise: "Who is the customer?" "What does the customer want?" "What do companies want to achieve with the customer?" Other questions that immediately follow are: "How are orders processed?" and "How are transactions settled?" When answering these questions, one quickly realizes that there is no *one* CRM solution that can be applied to all industries.

Who Is the Customer?

Industries must adapt themselves to completely different customers. In the public sector, citizens are the "customers." The pharmaceutical industry deals with medical professionals and pharmacists, while retail companies supply retailers, and the consumer products industry maintains business relationships with both retailers and consumers. This wide variation determines the form of different CRM concepts.

As an example, let's consider private users as customers—a well-known B2C scenario. For customers who make purchases via a Web shop or use Self-Service, an intuitive and easy-to-use user interface is extremely important. Beyond the basic customer-related processes such as order entry and invoice creation, it is important to synchronize the different customer contact channels and to track the behavior of individual customers, in order to better understand their requirements. The important difference between the B2C scenario and the B2B scenario is that the customer does not have an accounting system. However, the use of software (for example, Quicken) to manage personal finances smoothes the way towards B2B-type relationships in the area of B2C.

Along with the traditional competition-driven relationships between vendors and customers, there are two other important areas in which organizations interact directly with individuals. First, the interaction between national and local governments and the rest of the population, and second, interaction between companies and their employees. Both scenarios involve very little or no competition for the customer. Concepts such as e-government or Business-to-Employee are driven by a need for process optimization and by the fact that governments want to be re-elected, while companies must also consider employee satisfaction to survive in the long term.

On the other hand, most interactions between companies, that is to say CRM scenarios in the B2B environment, ultimately depend on the ability of organizations to exchange business process data. Other factors that impact the size and complexity of CRM scenarios are the size of the customer base compared to the manufacturer or service provider, the number of customer/vendor relationships involved, and whether the customers are external (belonging to a different legal or business entity) or internal.

What Does the Customer Want?

To differentiate between customer requirements, the following questions must be asked: "Does the customer want a simple or a complicated service?" For example: "Is the customer looking for a window cleaning service or several years of IT support service?" "Is the customer looking for a simple replacement part, or a complex, configurable product?" "Will the company make its money by repairing washing machines, where services are offered along with the required materials, or is the product offered also a means for the provision of additional, related services?" "Does the company need to create a project plan as part of its range of services, and will the delivery of goods or provision of services be extended over several business years?" "Will the customer choose from a service catalog (e.g., for

airport service providers or vehicle maintenance companies)?" "Will the customer search through a catalog offering standardized products and everyday items?"

Different types of customer requirements lead to different requirements for a CRM software solution. Industry solutions for CRM must take this into account during the initial stages of design. Generic CRM solutions are inadequate for many industry requirements because they don't meet industry-specific customer expectations.

What Does the Company Want to Achieve?

Customer relationship management is the "umbrella" for all projects that are implemented to optimize customer interaction. Ultimately, the objective is to implement a system that provides seamless support throughout the customer life-cycle within the company. Due to the complexity of this challenge, many companies choose to enter the CRM world one step at a time. These steps include marketing, sales and order processing, customer service, field force management, and management of contracts. Each of these categories can, in turn, be implemented in stages, so that the business processes with the greatest potential for improvement by CRM software are implemented first. Before acting, companies must first ask themselves what potential value they and their customers can derive from the would-be improvements in each area. This means that companies require a clear business case before starting a CRM initiative.

1.3.2 The Importance of Integration

CRM software solutions that are implemented and used as isolated front-office solutions can hardly be expected to meet the high expectations placed on such software. Only a thorough integration of all customer-related business processes in the front office and the back office enables the company to consider the customer's wishes and needs.

Problem Solving Instead of Problem Automation

The first CRM software solutions on the market were primarily tools for problem automation, rather than for problem solution. Isolated sales force automation software and call center solutions are pure problem automation projects. While this may allow a customer complaints center to receive twice as many calls, the improved efficiency has no positive effect on customer satisfaction if the call center agent cannot respond immediately to the complaint. The ability to respond quickly has to do with integration as well as competent personnel, in this case call center employees. For this reason, the synthesis of process automation and the relevant solution mechanisms form the basis for successful CRM. The correct

mechanism for problem-solving depends a great deal on the industry, as the following example demonstrates.

When processing a vehicle insurance claim, the relevant KPI (Key Performance Indicator) is the period between the time at which the insurance claim is made and the time at which the vehicle is repaired. The repair duration is relevant because the claimant must usually be provided with a rental car while his or her vehicle is being repaired—thus creating additional costs. A reduction in the relevant KPI by just one day can significantly reduce costs (scale: number of insurance cases multiplied by average costs of a rental vehicle per day). The CRM key component used for this is a claim management system that is run in close connection with a supplier relationship management (SRM) system. The SRM system displays the repair shops that consistently deliver quick repair times with high levels of customer satisfaction.

Similarly, the ability of an official, a bank employee, or an insurance broker to actively pursue a customer's interests is strongly influenced by his or her ability to access the correct information and customer data. In this case, customer satisfaction depends on the ability of organizations to combine file management and workflows with CRM systems. Additional benefits for customers can be created if customers can be given 24/7 access to the required information and services via electronic terminals or the Internet. This is a requirement created by the classic challenges of multichannel management, which today's consumer goods companies have already had to deal with. These companies need to see and maintain the same customer data, regardless of whether they're selling the customer something via their Web site, from their bricks and mortar premises, or via a retailer.

Order Processing

In the classic environment of industrially manufactured goods, the connection between customer relationship management processes and supply chain management (SCM) processes is vital. An availability check or even a real-time connection to the production plan can determine whether a company gets the next order. Furthermore, networked systems remove one or more levels of data entry and management, along with the associated risks of human error.

Settlement

In most cases, business processes revolve around the customer and the customer order. This immediately leads to the question: "How will the transaction be settled?" Different industries have developed different options—from simple settlement per unit, to complex progress-based billing, innovative billing by usage, or actual cost- and resource-based billing. The connection to order processing and to

settlement is important for all industries. IT experts merely differ over whether a customer order belongs in the front office or the back office.

To summarize, there is a clear need for networked scenarios. CRM concepts do not operate in isolation for a single area; neither does one CRM concept apply to all situations. This book therefore emphasizes differences and similarities in the CRM requirements of the different industries.

1.4 Trends in Customer Relationship Management for Industries

While CRM itself has long been a tried-and-tested concept, information technology now opens up new possibilities for its implementation in advanced business scenarios. When we look at trends that will influence the future of CRM software solutions, it is important to remember that not all industries will be influenced to the same extent by all trends. Acceptance rate and speed of change will vary.

Many of the technologies and solutions mentioned below have the potential to create further significant improvements in the area of customer satisfaction. However, the current economic climate permits only those solutions that are based on a solid business case to be introduced. Some of these trends will allow corporations and organizations to change the rules of the game and to lead to a new competitive dynamic within the industries.

1.4.1 Interaction Channels

The objective of CRM is to provide service to the customer through the entire life-cycle of the relationship, regardless of whether the contact is made via the Internet, an agency, a branch office, or across all interaction channels. Multi-channel concepts are already well established in service industries (banking, insurance, utilities, telecommunications) and are now becoming common in the retail and consumer goods industries. Enabling customer interaction across several channels requires a standardized solution for customer management. Banks, for example, often need to recreate a customer for each business area (for example, once for a current account, once for an investment account, once for an insurance policy). In the worst-case scenario, this could lead to a bank offering a customer life insurance as a pension scheme, when the customer has already invested in a fund for that purpose. The customer then gets the impression that the bank does not know what is going on. Central management of customer data is therefore an important element of the customer relationship.

Industries with extended logistics chains, such as the retail or consumer goods industries, must also synchronize their vendor network with these different distri-

bution channels. Currently, inadequate order management often goes hand in hand with excessive warehouse stock. Architecture for Extended Order Management can, however, help to address the risks associated with obsolete warehouse data and the need for greater flexibility in order processing. This architecture ensures "one face to the customer," while different supply chain systems, including ATP availability checks, are connected in the background.

1.4.2 Extended Sales Scenarios

Simple purchasing and sales scenarios are characterized by a connection between the sales price and the cost of the product (or the service), as well as the subsequent transfer of ownership of the product or the intellectual property from seller to purchaser. Extended sales scenarios, however, break one, several, or all of the conditions for a "simple" scenario. While most business transactions processed today are simple "buying and selling" scenarios, the proportion of transactions that belongs to the category of "extended sales" scenarios is growing.

For example, usage based billing (UBB) originated in the copying industry, but is now common for investment goods. Public and private organizations try to reduce their investments and synchronize their costs as dynamically as possible with their production and consumption rates. A characteristic of the UBB model is that product ownership is not transferred to the purchaser. The seller's options for generating revenue don't depend solely on the customer; they also depend on aspects such as a lack of copy paper or downtime due to device errors. There is a greater level of dependency between seller and purchaser, which allows the seller to provide value-added product services based on a better understanding of the purchaser's behavior.

The concept of subscription is well known in the media industry and is now being introduced in the software industry and all service industries. Customers want costs that can be estimated—for this reason, traditional, "payment per product" revenue concepts are up for discussion. Companies are increasingly confronted with the challenge of providing goods or services within a subscription contract. They must learn to understand the value of subscriptions to the customer and to put mechanisms into place to monitor both contractual use and misuse.

Leasing and rental are other scenarios that don't fit into the framework of "simple" buying and selling. In these cases, ownership of an object does not pass from one contract party to another; there is merely a contractual right of usage. The contract must also be managed, where the complex fixed asset remains in the "seller's" balance sheet. Depending on the leasing/rental duration and the value and number of goods in the "seller's" inventory, additional high-performance

software solutions may be needed for the management of suppliers and capital goods.

1.4.3 Extended After Sales and Customer Service Scenarios

A simple after sales and customer service scenario is similar to a sales scenario in that it comprises a business transaction that connects the costs for the service (or product), the subsequent provision of service (or product), and invoice creation. A clear distinction is made between the service provider and the service recipient.

Concepts such as "design, build, and operate" in machinery and plant engineering and construction, or the extended sales scenarios described above have significant consequences for customer service. Customer service can be just as complex and varied as the aforementioned sales scenarios, while also concealing additional challenges such as warranty, sub-contracting, and rotables management. Many companies generate considerable revenues and profits via customer service.

Today, agreements on guarantees, binding service agreements, or additional service and support contracts are an important component of contract negotiations and investments. These negotiations basically deal with spreading risk between the contract parties. CRM concepts are applied to monitor and manage both the options and the risks of long-term contracts.

1.4.4 The Influence of Mobile Devices

The current generation of mobile devices is mainly used offline. The bandwidth for transferring data is limited and expensive. Employees synchronize data from mobile devices once or twice daily, but are not part of the "real-time company." Without mobile online devices, field force sales personnel cannot reach agreements based on real-time data, and service personnel have no direct access to the worldwide information network. Service employees are sometimes unable to diagnose problems because they don't have access to current instructions, configuration data, or diagnostic programs. Meanwhile, delivery personnel work with daily schedules that may require updating during the course of the day, leading to additional work and possible errors.

Because mobile network providers in most countries are working on minimizing cost and bandwidth restrictions, it will become increasingly easy for the mobile employee to become part of the real-time company in the future. This applies equally to white collar and blue collar scenarios, such as for Direct Store Delivery or field force service employees. Real-time connections with mobile devices offer many options for efficient daily time management and regular updating of relevant information about the activities of mobile employees, including current loca-

tion and work progress. Finally, mobile employees will have the same access to information and transactions as office-based employees.

1.4.5 Service Level Monitoring

CRM can be seen as the efficient management of customer orders, wishes, and requirements. In some cases this involves special contract agreements that regulate areas such as service windows or response times (e.g., Service Level Agreements or SLAs). In cases where no SLAs have been made, or where they would be impractical (for example, too many customers), organizations and companies can set their own internal goals.

In extremely complex service contracts, even simple questions about subjects such as response times can be the source of serious disagreements between suppliers and customers. For this reason, it is important to collect sufficient data on customer behavior and on the behavior of the company's own service department. These valuable facts can be used both as "ammunition" for annual supplier reviews and for dealing with complaints due to non-compliance with the relevant SLAs.

Section 1.2 describes CRM concepts as a means for countering product homogenization. In the same way, CRM applications (especially Service Level Monitoring) represent a counterbalance to customer's supplier relationship management systems.

1.4.6 Real-Time Connections to Customer Installations

Querying information from vehicles (for example, status, user profile, current location) or loading large data quantities from buildings, houses, and machinery or installations for the purposes of diagnosis and maintenance (for example, Software Monitoring Services from SAP) are all examples of how suppliers can gain a better understanding of usage, behavior, and performance of their products and services.

The implementation of this scenario is extremely expensive, and usage is primarily restricted to projects with large investments or critical systems such as aircraft or medical devices. Standards such as OSGi (Open Service Gateway Initiative) will, however, help to reduce connection costs for individual devices. This means that real-time connections will become a profitable option for appliances such as printers, washing machines, or vending machines.

1.4.7 Loyalty and Reward

Airlines have clearly demonstrated how customer behavior can be influenced by loyalty and reward systems. These systems are often introduced in markets where there is strong competition and little scope for differentiation by other means. Systems for rewarding customer loyalty are already used in retail, but are also worthwhile in other areas such as mobile telephony, courier services, or credit cards.

1.4.8 The Future of CRM

In the future, considerably more data will be available on customers and customer behavior. Data derived from real-time connections to installed devices, Service Level Monitoring, or goods marking using RFID (Radio Frequency Identification) will provide many more options for collection, storage, analysis, and forecasting. However, this increase in customer information requires careful and confidential handling of such data and compliance with all known data protection guidelines. You can find advice on the correct handling of sensitive data in [Buck-Emden/Zencke 2003].

3 Software Solutions for Customer Relationship Management in Industries

3.1 Core Requirements

The underlying principle of *customer relationship management (CRM)* is to raise company profitability by establishing close and personalized customer relationships. CRM software solutions support customer relationships throughout their duration: not only during the first contact, but across all subsequent business transactions. Customer relationships run in interaction cycles of several phases, from waking customer interest to sales negotiations, and finally to order settlement and service offers.

CRM software solutions support those processes most geared toward the customer in each interaction phase. The interaction cycle typically begins with marketing efforts, which are directed at particular customer groups. Enterprises classify their customers into customer groups using various attributes. Segmentation functions help to direct marketing activities precisely toward the target group. Enterprises use marketing campaigns and consumer promotions to obtain information about potential customer leads, which through further processing can be identified as actual sales opportunities. Campaign monitoring helps when judging the success of marketing promotions and is the basis for comparing campaign benefits against campaign costs.

Marketing activities are followed by sales processes. CRM software solutions simplify these sales processes with planning functions that enterprises can use to determine their sales strategy. Also, the division of regional responsibilities can be mapped through a territory management system that allows for the dynamic assignment of responsibilities to employees. Moreover, it should be possible to structure sales areas hierarchically according to user-defined grouping criteria. The management of all relevant customer information and the processing of all sales activities is supported by customer and contact management across all phases of the sales process. The sales phase ends with the quotation creation and acceptance or with the signing of a contract.

For order processing with procurement, shipping, and transport, the integration of the CRM software with the logistics processes in back-end systems is necessary. Customers expect reliable price and delivery information on the basis of up-to-date availability checks. Billing, payment processing, and receivables management complete this phase of the customer interaction.

After the contract and delivery have been concluded, the service phase begins. One particular difficulty here is planning the personnel capacities appropriately

and responding to urgent service requests at short notice. Many enterprises attempt to make their service processes more transparent by routing service notifications centrally through an interaction center that has access to detailed information, such as customer installation data.

All phases of the customer interaction cycle can be processed through various technical communication channels. Field employees make use of mobile terminals. Interaction center agents communicate using telephone, fax, or email, for example. Internet applications are directed at Web users. Many industries incorporate channel partners for marketing, sales, or service tasks as part of a cross-company collaboration.

CRM software solutions must offer substantial analytical functions that enable the continual monitoring of all customer relationship management measures, as well as optimization of all customer-related processes through a closed loop of planning and execution.

A detailed representation of all aspects of CRM software solutions can be found in [Buck-Emden/Zencke 2003].

3.2 Industry Requirements of Software Solutions for Customer Relationship Management

Even if many requirements of customer relationship management are valid across all industries, industry-neutral CRM software solutions are not enough. Each industry has needs that make the industry-specific design of CRM software solutions necessary. These include variations in the business partner environment with all parties involved in the customer interaction, the type of products and services offered, and the industry-specific business processes.

3.2.1 The Business Partner Environment

The business partner environment of an enterprise—in other words, the type of customers, suppliers, marketing, sales, and service partners that are relevant for the enterprise—determines to a large extent the enterprise's requirements for CRM software solutions.

The Customer—The Most Important Business Partner with Many Different Needs

Enterprises perform services to satisfy certain customer needs in their industry. The areas in which the enterprise operates are as numerous as the demand profiles of corporate customers or consumers. For example, they range from satisfying basic needs such as food or clothing to the production of high-quality capital

and luxury goods, and to complex high-tech products, loans, and the marketing of intellectual property.

Commercial customers purchase all production factors that they don't possess themselves and that they need to maintain the business and to produce the goods and services from their trading partners. These include basic factors such as "equipment," "materials," and "labor." In addition, many industries purchase information or rely on the intellectual property of others, such as rights, patents, or licenses.

On the other hand, business relationships with consumers have human requirements. While the type of products required to cover the basic physiological needs is largely predefined, there are no limits as to what the higher levels of the hierarchy of needs [Maslow 1970] encompass (see Figure 3.1). Insurance companies, for example, benefit from the security needs of their clients. The telecommunications industry profits from the consumer's desire for contact and communication. Purchasers of prestigious properties or automobiles hope for recognition and respect. The tourism industry, manufacturers of sporting goods, or universities respond to their customers' desires for self-actualization.

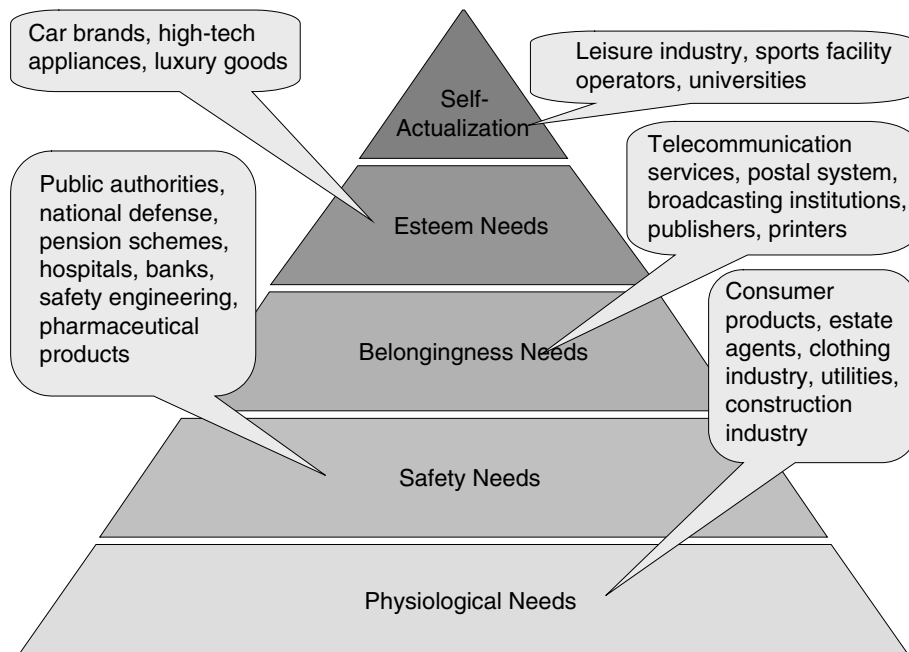


Figure 3.1 Industry-Specific Approaches to Satisfying Requirements of Consumers Along the Hierarchy of Needs

Corporate customers want to be treated differently from consumers. Private buyers are typically initially uninformed about an enterprise's offer portfolio and unsure of their needs. Especially during the first business contact, they are reliant on guidance and have particular expectations in this respect.

On the other hand, extra mutual efforts toward the coordination of logistics processes are dispensable since consumers, unlike B2B (Business-to-Business) partners, don't have their own logistics chain. With B2B relationships, the opposite is true: Continuity of processes in delivery, goods receipt, and billing is more important for the buyer. Meanwhile, the performance specification is often predetermined by the manner of the additional processing or the conditions of use of the services.

Differences between customers and industries also result from the preference for long-term, continuous business relationships as opposed to occasional business transactions (spontaneous business). If customers tie themselves to a supplier with long-term contracts, they cannot use short-term quotation changes to switch to a better-value alternative. Contract customers expect other types of advantages, be they particular services, early participation in product innovations, or extra accommodation when requesting unusual product characteristics. However, if a customer leaves himself or herself open to a spontaneous change of supplier, the advantages of a one-off purchase, such as attractive price or special express delivery, must be apparent for the customer. Being able to influence future product developments is not important in this instance.

Pan-Enterprise Partner Relationships

While many industries prefer direct customer contact, others deal with their customers through different types of business partners. Financial service providers frequently use the services of brokers. In the automobile industry, licensed dealers operate in regional markets. Due to the diverse expectations for professional partners, it is not usually advisable to use just one partner for various task groups. Enterprises with many branches use different partners for marketing, sales, or service tasks. These enterprises allocate tasks to those partners that have the greatest expertise and thus make use of the task-specific experience of the individual partners. In this way, multi-level partner networks are developed.

Even connections between different providers who work together to market their products or services are increasing. In the telecommunications industry, for example, network operators and hardware manufacturers are cooperating to form synergies. This collaboration gives results in complementary offers that generate value for the buyer.

3.2.2 Industry-Specific Products and Services

The main distinguishing characteristics between enterprises from different industries are the products and services that they offer. These characteristics determine to a large degree how the enterprise deals with potential buyers and must be taken into account by CRM software solutions.

For example, the goods produced by discrete manufacturing industries differ according to whether a bulk good is being offered to all customers in the same form or customers can influence the product characteristics, for example, as with an automobile order that can be upgraded by optional extra packages but does not allow custom package combinations (for example, either air conditioning or sunroof) and does not allow individual package components to be chosen separately.

The opposite of homogeneous mass products are customer-contract-manufactured products, which in the extreme case are designed and built for a single customer and take all individual customer requirements, within the bounds of technical possibilities, into account. Plant constructors fall into this category of production. Even when the product is not a unique creation, characteristics such as product number often make it into an individual object that the manufacturer wants to track over the duration of its life to be able to carry out product recalls more easily or to offer the customer highly specific services. Automobile manufacturers, as well as software companies, identify their products using the chassis or installation number, and assign additional product characteristics such as mileage or activated software modules (see also Chapter 4, Section 4.1.4).

Due to the non-discrete properties of their goods, process providers do not have any countable, piece-related product units. However, the production characteristics often depend on the batch being processed. Batch attributes cannot be reproduced exactly for each production process. For this reason, the documentation for a batch belonging to a sales transaction helps the customer to re-order identical or at least broadly similar attribute specifications (see also Chapter 5, Section 5.1.2 f.).

For service providers who do not offer any material products, neither individually identifiable goods nor production batches are of importance. The customer interactions of service enterprises generally refer to non-material goods such as services or financing. Unlike the manufacturing industry, these companies' "goods" cannot be stocked and cannot be appraised in advance. The provision and consumption of goods and services occur simultaneously. Only after the conclusion of the business transaction can the customer decide whether the service was satisfactory or not. The relationship of mutual trust between provider and consumer

is vital with such goods, which is why the long-term maintenance of customer relationships is so important.

3.2.3 Industry-Specific Business Processes

An employee in the procurement department checks the reports created by the purchasing department each month and decides together with the head of the department that listing the purchases structured by use in the company's product sector should be omitted in the future for cost-saving reasons. The employee does not realize that enterprise controlling is very interested in this type of listing and, when this report is no longer produced, has to painstakingly research the data with a great deal more effort than the procurement department, which is familiar with the data sources and knows how to create the report.

Can examples like this be disregarded as exceptions? No. Similar scenarios were commonplace in many enterprises around the globe until the middle of the eighties. However, this has changed. It has been recognized that splitting work processes into smaller and smaller units provides the benefits of specialization and experience, but the big picture is no longer retained. If every department optimizes only its processes internally, there is no longer transparency as to which tasks are expendable from the entire company's point of view or whether changing a task would improve the processes in one department while impairing those of another department [Hammer 1996]. A process-oriented view has the advantage that the actual work process is optimized regardless of the organizational assignment. After all, it is the processes that result in increased value for enterprise and customer.

However, the customer-related control and creation of company-internal processes alone is not enough. For example, in the manufacturing industry, if the recipient and the supplier do not collaborate, even a slight fluctuation in demand can lead to deliveries not arriving in time for processing because the supplier was not expecting a larger delivery quantity. This in turn means that all suppliers carry a larger stock—a cost-intensive strategy given the rising storage costs due to interest losses. This can be countered by coordinated procurement processes and a mutual supply chain management in which all suppliers are promptly informed about imminent changes and have time to adjust to new delivery requirements. Ultimately, the business partner at the last stage of the value chain who is nearest to the customer only has valid information about demand when he or she evaluates customer data using information from the marketing, sales, and service areas. This closes the customer relationship management loop.

Many software solutions do integrate customer processes with company-internal processes to varying degrees, but base this integration on general business pro-

cesses and not on ones that are aligned to specific expectations. In doing so, they often miss the requirements of enterprises whose business partner relationships differ according to the industry in which they operate. Sales promotion measures in the retail trade, such as trade promotions, are of principal interest for industries in which customers are usually anonymous. Bill supplements about a provider's new service packages are a logical choice for customers who have little personal contact with an enterprise, such as in the case of utilities. Contract management tools are needed by enterprises that do business using long-term business ties, such as the oil and gas industry. A software solution can meet these requirements only if, like SAP's solution portfolio, it tackles the industry needs and provides processes for customer relationship management that are aligned to these needs.

3.3 Customer-Related Business Processes with SAP Industry Solutions

3.3.1 Each Enterprise Has Individual Requirements

A single specialized software product for Enterprise Resource Planning (ERP), Customer Relationship Management (CRM), or Supply Chain Management (SCM) cannot satisfy all enterprises in all industries. Software manufacturers therefore develop industry solutions that cover the requirements of individual industries. However, common industry business processes do not always suit each enterprise equally well. Best practices mapped in the industry solutions offer valuable support for each industry enterprise, but do not cover all company-specific requirements. Companies want to distinguish themselves from their industry competitors through better and more individual business processes in core areas.

This can be achieved by internally developing a company-specific software application. However, such in-house software development frequently leads to higher development and maintenance costs than those incurred by purchasing external applications. Also, in-house developments are tailored to the current business situation. If the business process upon which the in-house software is based changes even slightly, costly additional development is required.

Many enterprises therefore choose a basic solution from a respectable manufacturer that satisfies both generic and industry-specific requirements and is built in such a way that it can be customized to suit the individual enterprise. Such a solution combines the advantages of standardized software with the possibility of customizing the solution to meet company-specific requirements.

3.3.2 Structure of SAP Industry Solutions

SAP offers 23 industry solutions for different branches of industry (see Chapter 2, Table 2.2). The brand *SAP for Industry* describes the entire portfolio of SAP solutions and services for the industry in question and does not refer to only particular applications or components. Typical industry processes and characteristics not only influence CRM but also the requirements of the ERP backbone, the formation of logistics chains, and the analytical evaluations in SAP Business Information Warehouse (SAP BW). In this way, an SAP industry solution encompasses various solution components that can be combined as required to create an enterprise-specific solution.

For example, *SAP for Automotive* covers the marketing, sales, and service processes in collaboration with wholesalers, sales partners, and customers, as well as specific just-in-time (JIT) procurement strategies, production control, and appropriate analytical scenarios. *SAP for Automotive* is not an isolated software component, but rather a solution portfolio comprising applications, technologies, and services that are tailored to the needs of enterprises in the automobile industry.

The various applications of *SAP for Industry* can be combined like building blocks according to each enterprise's current needs and pain points to form a suitable solution. The industry-specific versions of mySAP Business Suite solutions make up the basis of each industry solution. The following applications belong to mySAP Business Suite:

- ▶ mySAP Customer Relationship Management (mySAP CRM) as a platform for customer interaction and customer relationship management in the areas of marketing, sales, and service
- ▶ mySAP Enterprise Resource Planning (mySAP ERP) for the areas of accounting, human resources management, business management, and company-internal services
- ▶ mySAP Supply Chain Management (mySAP SCM) for planning and optimizing logistics chains, in particular, production planning and capacity, stockholding, and order management
- ▶ mySAP Product Lifecycle Management (mySAP PLM) for cross-company product planning, product development, and asset management
- ▶ mySAP Supplier Relationship Management (mySAP SRM) for procurement in the area of B2B

All of these applications are based on SAP's application and integration platform SAP NetWeaver. Alongside the application server for enterprise applications and

an enterprise portal as a consistent user interface, SAP NetWeaver provides integration technologies for people, information, and business processes.

An SAP industry solution contains a wide range of possibilities to map different generic and industry-specific business processes. The business processes access one or more SAP applications. The relevant Solution Map summarizes the business processes offered by an SAP industry solution.

3.3.3 SAP Solution Maps with the Example of the Consumer Products Industry

Industry-specific processes at SAP are structured into business scenarios, business processes, and process steps. A business process comprises a number of logically related activities that work together to achieve a predefined business result [Dav-enport/Short 1991]. The carrying out of a business process can occur across several software components. If one separates a business process into chronological subunits, one arrives at the basic activities (the business process steps) that are carried out by either the user or the software component. The business scenario combines related business processes, which together represent a largely independently executable business task.

SAP uses *SAP Solution Maps* to provide a quick overview of the processes and functions of all industry business scenarios and to display them graphically in various degrees of detail. You can access SAP Solution Maps under www.sap.com/solutions/businessmaps/solutionmaps/. Figure 3.2 shows the SAP Solution Map for the consumer products industry. The uppermost level shows the important processes and characteristics of a solution, the key capabilities. The lower levels describe detailed views of these processes from a customer- or industry-specific perspective and using terminology from the industry (not shown).

Using the example of the consumer products industry, the portfolio of an industry solution appears as follows: The left side of the SAP Solution Map shows its most important process areas and basic functions, which differ from industry to industry. A few of these categories, however, are also cross-industry, such as enterprise management in the first row or business support at the end of the SAP Solution Map. *Enterprise Management* defines the strategic alignment of the enterprise and determines the guidelines for the stakeholders represented in the other rows.

One characteristic of the consumer products industry is that the products are sold to retailers who do not consume the products themselves but sell them to consumers.

Enterprise Management	Strategic Enterprise Management	Management Accounting	Financial Accounting	Corporate Governance	Financial Supply Chain Management	Business Analytics
Consumer	Consumer Insight		Consumer Relations	Consumer Promotions	Media & Advertising	
Customer	Account Analytics		Account Management	Trade Promotion Management	Customer Service	
Product	Program Management	New Product Development	Collaboration	Recipe Management	Quality Management	Product Safety
Marketing	Market Research & Analysis		Brand Management	Product Management	Category Management	
Sales	Sales Cycle Management		Multi-Channel-Sales	Full Service Vending	Sales Force Management	
Sourcing & Procurement	Strategic Sourcing			Operational Procurement	Supplier Collaboration	
Supply Chain Planning	Strategic Planning & Monitoring	Demand & Supply Planning	Production Planning & Scheduling	Distribution Planning	Transportation Planning	
Supply Chain Execution	Manufacturing	Warehouse Management	Order Fulfillment & Transportation	Direct Store Delivery	Foreign Trade & Legal Services	
Business Support	Travel Management	Incentive & Commission Management	Fixed Asset Management	Employee Life-Cycle Management	Employee Transaction Management	HCM Service Delivery

Figure 3.2 Solution Map of SAP for the Consumer Products Industry (SAP for Consumer Products)

Although the supermarket and electronics chains are the first buyers of consumer products, it is the consumer who is the focus of the consumer product manufacturers. The consumer generates the revenue, and the enterprise seeks to bind the consumer to the company. The Solution Map takes this duality of sales endeavor into account by two equally important business process areas that refer to customers: the direct sales partners and the consumers. The *consumer* as a key term in the second row appears in this form only in the consumer products industry. Advertising measures and sales promotion activities are directed at the consumer. In the consumer products industry, customers and retailers, the focus of the third row, are viewed as accounts to whom services are provided and with whom retail promotions are discussed and carried out.

One extremely important means of binding the consumer to a consumer products manufacturer is the range of products offered. The important aspects of this are described in row four of the Solution Map. Consumer products manufacturers constantly have to check their product portfolio and readjust it according to customer requirements. This includes the selection of suitable raw material suppliers and other suppliers, the organization of production, and checks on product quality and safety.

Through the marketing department, products are introduced to the market or are supported throughout their product lifecycle to fulfill customer demands. The image of a product is decisive in the consumer products industry, because when

confronted in a supermarket with a row of similar goods, a buyer will sooner reach for the product that he or she remembers from advertising or associates with characteristics such as quality, pleasure, or comfort. Marketing creates demand by attracting customer attention to a particular brand. For this reason, the brand is the most important capital for a consumer product manufacturer. This area is covered by the fifth row in the Solution Map, with campaigns and sales promotions for consumers and retailers.

Consumer products are traditionally sold through retailers, although nowadays additional sales channels such as the Internet are being used. These sales channels need to replace the personal contact with the sales personnel, the shopping atmosphere, and the accompanying social contacts with a sales experience of a similar value. Among the challenges faced by the consumer products industry are service offers, such as free home delivery (see row six in Figure 3.2). Since customers experience the sales process far more consciously than they do the manufacturer's marketing efforts, sales processes belong to the most important process areas of the consumer products sector.

Rows six, seven, and eight of the Solution Map deal with production and order processing. *SAP for Consumer Products* realizes purchasing, logistics, and production planning, as well as the execution of order processing. The planning focus is on strategic requirements planning along the procurement chain, as well as on production, distribution, and delivery planning. The objective is to coordinate the processes in such a way that the right products arrive at the right place at the right time, thus avoiding a sellout. The processing itself is divided into procurement, manufacturing, stock, and distribution processes, which, in the case of deliveries abroad, also need to take into account the legal export and tax requirements.

These process areas are accompanied and surrounded by processes that support management and are necessary to maintain business operation, including personnel development and asset accounting (see the last row in Figure 3.2).

3.4 From Industry-Specific to Enterprise-Specific Solutions

The goal of SAP Industry Solutions is to provide enterprises with their own customizable business processes. An SAP industry solution therefore encompasses a portfolio of components that can be configured in different ways and that are integrated into a complete solution through SAP NetWeaver. The business processes that build on these foundations can be customized to meet company-specific requirements using various tools. In this way, an SAP industry solution becomes an industry-specific application.

3.4.1 The Application and Integration Platform SAP NetWeaver

SAP NetWeaver provides the prerequisites for the creation, composition, and operation of company-specific solutions. In addition to the application server of mySAP Business Suite—SAP Web Application Server—SAP NetWeaver contains the following central components (see also [Buck-Emden/Zencke 2003]).

SAP Enterprise Portal

SAP Enterprise Portal (SAP EP) offers each user a role-dependent central point of access for transactions and information needed to carry out the task at hand. The portal supports Single Sign-On (SSO), so that the user needs to log on to the portal only once with user name and password. The authentication occurs automatically for all applications in the portal.

SAP Mobile Business

SAP Mobile Business enables mobile devices such as laptops, Personal Digital Assistants (PDAs), or barcode scanners to access the applications of mySAP Business Suite. Users can access the information and transactions they need regardless of time or location.

SAP Business Information Warehouse

SAP Business Information Warehouse (SAP BW) is available for analyzing structured business data such as business partner master data, products, or business transaction data. Data extraction and data staging tools form the basis for extensive data analysis and reports, which provide decision-makers in the company efficient access to required information. Business Content in the form of preconfigured and industry-specific reports, analyses, and information models is part of SAP Industry Solutions.

SAP Knowledge Management

The management of and efficient access to unstructured information such as text, image, video, or audio files is becoming more important for company employees. For this reason, *SAP Knowledge Management (SAP KM)* has been integrated into SAP Enterprise Portal. It offers centralized access to information stored in various formats and at various locations in the company. The objects are indexed and classified so they can be found quickly and easily. SAP KM also encompasses tools for information-related collaboration, such as discussion forums and user appraisals assigned to documents.

SAP Exchange Infrastructure

SAP Exchange Infrastructure (SAP XI) enables the standards-based and open, process-oriented integration of heterogeneous application components. SAP XI takes care of the central tasks of synchronous message-based data communication for applications of mySAP Business Suite as well as non-SAP systems. This includes queuing, mapping, recipient determination and routing, and the monitoring of collaborative processes. SAP XI is also the basis for *SAP Master Data Management (SAP MDM)* for consolidation and unification of master data in a distributed system environment.

SAP Solution Manager

SAP Solution Manager supports the implementation and operation of the solution made from the various SAP components. It is a standalone system that is provided to every SAP customer free of charge. SAP Solution Manager contains descriptions of business scenarios that are designed from SAP for customers. The customer can gradually implement the business scenarios relevant to his or her business. The business documentation on the use and process flow of a business scenario is complemented by installation, configuration, and upgrade guides, which provide step-by-step help with the technical and functional implementation. SAP Solution Manager also offers tools for planning and execution of SAP implementation projects. SAP Solution Manager is the central component for monitoring the solution as a whole, and moreover, it serves as an interface to SAP Support. For more details, see [Oswald 2003].

3.4.2 Fine-Tuning of Business Processes by Configuration

The extensive functionality of SAP software solutions can be customized to meet company-specific requirements without modifying the standard program code. This can be performed in three ways:

- ▶ Customizing settings
- ▶ User interface configuration
- ▶ Enhancement of business objects with additional attributes

The user interface is often the decisive factor in the acceptance of software applications by end users. A user interface must therefore be intuitive and clearly structured, while retaining the flexibility to allow for company-specific configurations. SAP Enterprise Portal not only enables the individual layout of the user interface, but also allows for navigation, contents displayed, and page structure to be customized for different user groups using roles. In the application interfaces, data fields, functions, or tab pages can be displayed or hidden. Text replacement

lets the user label the user interface with industry-specific or company-specific terminology.

The SAP standard business scenarios described in SAP Solution Manager can be modified individually by the company using the configuration settings (Customizing). Examples include the definition of transaction types, item types, conditions, or price determination. The configuration parameter settings influence the flow of the business process in the system. For example, one can define price dependency on product groups and organizational data, as well as the extent of this dependency.

In projects, it is often necessary to enhance business objects with new attributes. In particular with customer data, the information that is considered important varies, not just from industry to industry, but from enterprise to enterprise. The CRM business object can therefore be enhanced by *marketing attributes*. The marketing attribute can be, for example, the preferred type of wood for a furniture dealer, the shoe size for a shoe manufacturer, or the customer's investment risk willingness for a bank. From a technical point of view, marketing attributes are additional fields that are generated for the business partner object before being made available to mobile devices and SAP BW. mySAP CRM has tools to carry out field and table enhancements without programming.

If all this is not enough to implement a company-specific requirement, the development tools delivered by SAP can be used to enhance the existing solution with business logic developed in-house. These customer developments are logically enclosed in a customer namespace so that they do not cause conflicts with SAP standard deliveries, such as upgrades. A particular type of custom development is provided by composite applications [Woods 2003].

3.4.3 Flexible Enhancement with Composite Applications

The goal of *composite applications* is to implement additional business processes quickly and flexibly by leveraging existing investments for the company. Composite applications do this by using the functionality of already existing applications. A prerequisite for this is that the functionality of the existing applications is available through standardized interfaces. Composite applications are particularly suitable for supporting process-oriented applications that use various service functions from different applications. If there is no suitable SAP business scenario for a company-specific requirement, the development of a composite application can be an appropriate solution. Business processes that involve close contact with the customer and require operations in various back-end systems are ideal for composite applications [Buck-Emden/Böder 2003].

Service-oriented architectures (SOA), such as the Enterprise Services Architecture (ESA) [Woods 2003a], with their open standardized Web services, form the basis for the development of composite applications. An abstraction layer is necessary between the service providers and the business objects and processes of the composite applications, since the composite applications work with different releases of SAP and non-SAP applications. As a component of SAP NetWeaver, the *Composite Application Framework (CAF)* offers this abstraction layer together with an environment for development and execution of composite applications. Composite applications are thus a particularly suitable method of enhancing and extending SAP Industry Solutions.

3.5 Outlook for the Following Chapters

The chapters that follow address the various industry requirements concerning CRM and provide an overview of the software solutions offered by SAP. Each chapter first describes the industry-specific requirements for customer-oriented business processes. This is followed by a business scenario that describes a customer-oriented process based on the solution components of the respective SAP solution. At the end of each chapter is a list of the most important customer-oriented business scenarios supported by SAP from that particular industry's perspective. For a description of all business scenarios, see [Buck-Emden/Zencke 2003].

The industries are divided according to their CRM requirements into the following groups: manufacturing industry, process industry, pharmaceutical industry, consumer products industry, as well as diverse service industries—entertainment sector, utilities providers, and professional services—and finally financial services and public sector. The pharmaceutical industry is characterized by special sales processes—known as *detailing*—that differ markedly from those in the chemical industry despite a similar product range. Consumer products manufacturers and retail enterprises are constantly confronted with the problem of anonymous customers and contacting these customers when they need to—a challenge that other service providers or sub-sectors in the manufacturing industry face to a much lesser extent. The telecommunications industry and utilities companies seldom have personal contact with their consumers. This contact is normally restricted to the periodic sending of bills, which gains particular importance as a contact medium. Even the customer processes of professional services providers are not comparable to those of other service providers due to the complexity and individuality of their products. The following chapter structure not only reflects differences in the manufacturing processes and the output of different enterprises, but also takes into account CRM peculiarities of certain industries.

Many demands made on customer relationship management affect more than one industry, however, for space reasons, they're described in detail only once. For example, batch management plays a role for all process manufacturers but is described once using the chemical industry in Chapter 5, Section 5.1.2. The management of copyrights and licenses, which is addressed in Chapter 8, is also of interest for software manufacturers. Similarly, the sale of configurable products over the Internet (Chapter 5, Section 5.3.3) or the processing of complaints in the interaction center (Chapter 9, Section 9.1.6 and Chapter 10, Section 10.1.6) is an issue for enterprises in various industries.

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