

## Chapter 2

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# Customer Relationship Management (CRM) System

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What is a Customer Relationship Management (CRM) system? Not only is there little agreement on what it really stands for, there is even less agreement on what constitutes a CRM system, how it should be used, the potential of profitability gain, the impact on customer loyalty, the costs involved, the personnel needed, and the training needed for the CRM personnel. CRM system characteristics are not limited to the CRM products and tools that are currently available in the market, and CRM is certainly not a technique or methodology. There is every reason to believe that the boundaries described for CRM in this book will be constantly enlarging in the coming years (see Section 2.2 “Anatomy of a CRM System”).

### 2.1 Introduction to Customer Relationship Management (CRM) Systems

Notwithstanding all these caveats, a CRM system could be defined reasonably as follows: *A Customer Relationship Management (CRM) System is a suite of pre-engineered, ready-to-implement, integrated application modules that focus on automating and optimizing all customer-centric and customer-responsive functions—sales, marketing, service, and support—of an enterprise and possessing the flexibility for configuring, customizing, and personalizing dynamically the delivered functionality of the package, through any channel of interaction, to suit even the specific requirements of an individual customer. CRM enables an enterprise to operate as a relationship-based, information-driven, integrated, enterprise-wide, process-oriented, real-time, and intelligent customer-centric and customer-responsive enterprise.*

CRM System applications provide the framework for executing the best practices in customer-facing activities; it provides a common platform for customer communication and interaction. The use of CRM System applications helps in improving customer responsiveness and also provides a comprehensive view of the entire Customer Life Cycle. With reference to Figure 1.2,

one can state that CRM Systems, like CRM, are useful to companies that have customers with large variability both in their needs and their value to the company's business.

A CRM System like SAP CRM can provide this comprehensiveness and flexibility because at the heart of the system resides a CASE-like repository that stores all details of these predeveloped applications. These details include every single data objects, business objects, and user-interface (UI) programs that are used by the complete system. It also has additional support subsystems that help it to manage, secure, and maintain the operations of this package on a day-to-day basis.

Off-the-shelf packages, and especially enterprise-wide solutions such as CRM systems, are considered as the best approach for confronting the software crisis of the 1980s (see the following note on customized vs. packaged solutions). This was because

1. CRM Systems ensure better validation of user requirements directly by the user.
2. CRM Systems ensure consistent quality of delivered functionality.
3. CRM Systems provide a cohesive and integrated information system architecture.
4. CRM Systems ensure a fair degree of standardization.
5. CRM Systems provide a consistent and accurate documentation of the system.
6. CRM Systems provide outstanding quality and productivity in the development and maintenance of the system.

Half a decade later, as companies are reporting their experiences in implementing a CRM System, a base of experience seems to support the fact that companies that plan and manage the use of CRM System are usually successful. Today, the recognized management decision is not *whether* to use CRM System, but rather *when* to use CRM System and *which* CRM System to use. As we go through this book, it will become evident that SAP CRM is the best-of-breed product in this genre.

The success of CRM Systems is based on the principle of reusability. The origin of reusability goes back almost to the beginning of the computer era, when it was recognized that far too much program code was being written and rewritten repeatedly and uneconomically. Very soon, most of the programming languages provided for routines or packets of logic that could be reused multiple times within individual programs or even by a group of programs. Databases enabled the reuse of data, resulting in a tremendous surge in programmer productivity. Similarly, networks permitted reuse of the same programs on different terminals or workstations at different locations.

CRM Systems, like ERPs, extended the concept of reusability to the functionality provided by a system. For instance, SAP CRM was based on the essential commonality observed in the functioning of companies within an industry. SAP built a reusable library of normally required processes in a particular industry, and all that implementing SAP CRM customers had to do was to select from this library all those processes that were required by their company. From the project effort and cost that were essential for the development and implementation using the traditional software development life cycle (SDLC), CRM reduced the project effort and cost to that associated only with the implementation phase of the SDLC. Even though the cost of implementing a CRM System like SAP CRM might seem higher than that of traditional system, the CRM system gets implemented sooner and therefore starts delivering all of its benefits much earlier than the traditional systems.

Although there have not been any published results as yet, it has become an accepted fact that enterprises that implemented CRM systems for only a part of their organizations, or for only a few select functions within their organizations, did not benefit greatly. CRM Systems, like ERPs earlier, recognize the fact that business processes of an organization were much more fundamental than data characterizing various aspects of the organization. Most importantly, CRM systems

elevated information systems from a mere enabler of the business strategy of an organization to a significant part of the business strategy itself.

Thus, CRM Systems brought to an end the subsidiary and support role that IT had played throughout the last few decades. But in turn, the very nature of IS has also undergone a complete transformation. Implementing a CRM System within an enterprise is no longer a problem of technology; it is a business problem. CRM Systems have been the harbingers of a paradigm shift in the role of the IS/IT function within an enterprise. This book was motivated by the need to address these fundamental changes in the very nature of IS/IT activity within an enterprise.

The distinguishing characteristics of a CRM system are

- CRM System transforms an enterprise into an information-driven enterprise.
- CRM System fundamentally perceives an enterprise as a global enterprise.
- CRM System reflects and mimics the integrated nature of an enterprise.
- CRM System fundamentally models a process-oriented enterprise.
- CRM System enables the real-time enterprise.
- CRM System enables the intelligent enterprise.
- CRM System elevates IT strategy as a part of the business strategy.
- CRM System represents Advance on the approaches to Manufacturing Performance Improvement.
- CRM System represents the new Department Store model of implementing computerized systems.
- CRM System is a mass-user-oriented application environment.



We have differentiated between the concepts of Customer Relationship Management (CRM) and Customer Relationship Management Systems (CRM Systems) that implement possibly a part of this holistic concept. This book mainly relates to SAP CRM as a system to realize the CRM programs of a company; hereafter, for the sake of convenience, by CRM, we will usually refer to aspects of a comprehensive CRM Program that are embodied into a CRM System like SAP CRM implemented within the enterprise.

### ***2.1.1 CRM Transforms an Enterprise into an Information-Driven Enterprise***

All computerized systems and solutions in the past used past-facing information merely for the purpose of referrals and reporting only. ERP, for the first time in the history of computerized systems, began treating information as a resource for the operational requirements of the enterprise. But unlike the traditional resources, information resource as made available by CRMs (and ERPs) can be reused and shared multiply without dissipation or degradation. The impressive productivity gains resulting from the CRMs truthfully arise from the unique characteristic of CRMs (and, earlier, ERPs) to use information as an inexhaustible resource.

Customer interactions, which are the mainstay of CRMs, create real-time organizational knowledge providing insights into the customer behavior. CRMs enable an organization to use the real-time knowledge and information gained at any touch point to manage and synchronize the communications and marketing messages it delivers to its customers in all its touch point applications.



This is also the root of one of the major problems leading to failures of SAP CRM implementations. Sales persons, sales consultants, and sales managers are extremely possessive of their customers and related interaction information; such withholding of critical customer information prevents the information stored in CRMs to be treated fully as customer relationships and to be leveraged for maximum benefit.

### ***2.1.2 CRM Perceives an Enterprise as a Global Enterprise***

In these times of divestitures, mergers, and acquisitions, this is an important requirement. Unlike some of the earlier enterprise-wide solutions available on mainframes, CRM packages like SAP CRM cater to corporation-wide requirements even if an organization is involved in disparate businesses such as discrete industries (manufacturing, engineering, and so on), process industries (chemicals, paints, and so on), and service industries (banking, media, and so on). CRM packages enable the management to plan, operate, and manage such conglomerates without the impediment of mismatching systems for different divisions.

Although it might seem a minor point, CRM packages also permit the important functionality of enabling seamless integration of distributed or multilocation operations; we consider this aspect in the next subsection.

### ***2.1.3 CRM Reflects and Mimics the Integrated Nature of an Enterprise***

By promoting cross functional processes and work teams, CRM, like SAP CRM, provides a powerful medium for supporting, reconciling, and optimizing the conflicting goals of different functions within an organization. For instance, marketing may want production of more customized products to cater to the requirements in the market, whereas production function will want to standardize products for reducing setup times and related costs. The tussle between these two functions may result in releasing products that incur (say) five times the normal failure rates, the brunt of which is borne by the service function. Thus, marketing and to a large extent manufacturing obtain their short-term sales forecasts at the expense of the service function. The longer-term adverse effect on customer retention and loyalty may not even become evident until after many months have elapsed.

Companies interact with their customers across a variety of channels: offline channels such as branch stores and direct mail, as well as online channel as call centers, e-mail, and the Internet. In any CVM strategy, all of these interactions are part of an integrated communications strategy to realize the full value-creation potential of these interactions. In fact, as customers continue to use more channels to interact with the enterprise, the company must ensure that it has the infrastructure to provide consistent and optimal marketing messages across each of its touch point applications.

CRM provides an integrated view of an enterprise's customers to everyone in the organization so that the customer can be serviced effectively throughout the customer life cycle. For instance, if marketing runs an outbound campaign, all the information about the customers and the program should be retained for

- The salespeople to follow up
- The customer service people to answer any queries
- Technical support to provide any field support

Similarly, CRM enables even the customer to experience that they are dealing with the different functions of the same enterprise rather than independent departments that force them to run from pillar to post when trying to meet their demands.

### **2.1.4 CRM Fundamentally Models a Process-Oriented Enterprise**

As organizational and environmental conditions become more complex, globalized, and competitive, processes provide a framework for dealing effectively with the issues of performance improvement, capability development, and adaptation to the changing environment. Process modeling permits the true nature of the characteristic structure and dynamics of the business.

Conventional systems primarily store only snapshots of customer interactions in terms of discrete groups of data at predefined or configured instants of time, along a business process within an organization. *This predominating data-oriented view of the enterprise as implemented by traditional IT systems is a most unnatural and alien way of looking at any area of human activity.* The stability of the data models, as canonized in the conventional IT paradigm, might have been advantageous for the systems personnel, but for the same reason, it would have been unusable (and unacceptable) to the business stakeholders within the organizations. Traditional systems could never really resolve this simple dichotomy of the fact that systems based on leveraging the unchanging data models, although easy to maintain, can never describe the essentially dynamic nature of businesses. This is the post-modern version of C. P. Snow's *Two Cultures*, which he had initially mooted to talk meaningfully about the worlds of humanities and sciences in the middle of the last century. Business processes are the most important portions of the reality that had been ignored by the traditional information systems. The traditional IT process modeling techniques, methodologies, and environments are a misnomer, for they truly model only the procedures for operating on the data associated at various points of the business subprocesses—which themselves are never mirrored within the system.

CRM packages recognized the fundamental error that was perpetuated all these past decades. Although many CRM packages still carry the legacy of the data-oriented view, the parallel view of business process and business rules is gaining prominence rapidly. This is the reason for the rapidly maturing groupware and workflow subsystems within the core architecture of current CRM systems.

### **2.1.5 CRM Enables the Real-Time Enterprise**

The real-time responsiveness of the enterprise coupled with the enterprise-wide integration mentioned earlier also enables enterprises the powerful capability of *concurrent processing*, which would be impossible without systems like SAP CRM. Enterprises can obtain tremendous efficiencies and throughputs because of this ability to administer in parallel many processes that are related but independent of each other. In non-ERP enterprises, such closely related processes are typically done sequentially because they are usually handled by the same set of personnel, who may obviously be constrained to address them only in a sequence.

Customer responsiveness is an outcome of real-time sharing of current, complete, and consistent information on interactions with individual customers. Furthermore, it implies instantaneous, transparent connectivity and visibility between customer-facing processes with the corresponding order fulfilling processes. This visibility not only permits the salesman to give accurate available-to-promise (ATP) information to the customer but also enables him to assess for himself the latest capable-to-promise (CTP) status for a particular order prior to making any commitments. In turn, the various members of the supply chain also have a better visibility and understanding of the

customer requirements and commitments made to the customer, thus ensuring *on-time delivery* (OTD). The tight integration with the fulfillment processes enables coordination, monitoring, and managing of goods across the ECE; it also provides instant notifications and alerts on exceptions and problem that may delay the on-time delivery of the order.

Furthermore, this integration also helps in matching the growing trend of customers postponing the buying decision closer to the purchasing decision with the corresponding ability of the enterprise to postpone the point of product differentiation as close as possible to the point of demand by the customer. Every action of the customer needs to be met by a highly automated and tightly integrated response across the supply chain to fulfill the need. More succinctly, one can say that *sell one, make one* has become the manufacturing watchword and corresponds closely to the current marketing watchword of *the market of one*.

### **2.1.6 CRM Enables the Intelligent Enterprise**

The ability to access, collect, and analyze information in real term is an essential prerequisite of a customer-responsive enterprise. For remaining competitive, providing good customer service, and optimizing e-business operations, enterprises have to enable a *zero latency enterprise* (ZLE) that supports real-term decision processing providing rapid access to information and analyses from any place at any time for making real-term business decisions. Such decision processing systems are also required to integrate with the corresponding business processes to attain a closed-loop system whereby the output of the decision processing applications is delivered as inputs to influence favorably the business operations of the enterprise.

A real-term decision processing system typically consists of

- An event-driven hub that (via messaging and EAI) captures, transforms, and loads operational data into a data warehouse
- An analysis engine that generates business analyses from any place at any time
- A rule-driven decision engine that generates recommendations or e-business action messages in the real term

Business Intelligence (BI) applications are decision support tools that enable real-time, interactive access, analysis, and manipulation of mission-critical corporate information to provide users with valuable insights into key indicators to identify business problems and opportunities. BI enables users to access and leverage vast amount of information to analyze relationships and trends to support real-term business decisions. BI systems enable enterprises to become proactive and *information agile* (see Chapter 1, Sections 1.3.8 “Agile Enterprise” and 7.1.3 “Enterprise Agility”) by delivering information to

- Empower enterprise users in the assessment, enhancement, and optimization of organizational operations and performance
- Deliver real-term business information to users about customer and partners

### **2.1.7 CRM Elevates IT Strategy as a Part of the Business Strategy**

The coming of CRM heralded an enhanced role for IT systems. They are no longer the support functions of the earlier years. If someone is under that illusion, he or she will pay a very high price. Today, the real focus of IS/IT systems is no longer its alignment with the business strategy of the enterprise, but with that of the customer.

1690	Division of Labor	Adam Smith
1890	Scientific Measurement	Frederick Taylor
1900	Mass Production	Henry Ford
1920	Industrial Engineering	F. Gilbreth and Frederick Taylor
1930	Human Relations Movement	Elton Mayo
1950	Japanese Quality Revolution	J. M. Juran and W. E. Deming
1960	Material Requirement Planning	William Orlicky
1970	Manufacturing Resource Planning	Oliver Wright
1970	Focused Factory	Wickham Skinner
1980	Total Quality Management	Philip Crosby
1980	Just-in-Time	Taiichi Ohno
1980	Computer Integrated Manufacturing	
1980	Optimized Production Technology	Eliyahu Goldratt
1980	ISO 9000	NASI
1980	World Class Manufacturing	Richard Schonberger
1990	Mass Customization	Stan Davis and B. Joseph Pine II
1990	Lean Manufacturing	Jones and Roos
1990	Business Process Re-Engineering	Michael Hammer
1990	Enterprise Resource Planning	
1990	Customer Relationship Management	Frederick Reichheld

**Figure 2.1** Timeline of performance improvement movements in the twentieth century.

### ***2.1.8 CRM Advances on the Earlier Approaches to Performance Improvement***

CRM is the latest in the succession of approaches that have been adopted throughout the history of enterprises for the improvement of enterprise-level performances. CRMs have realized the failed dream of improvements that were expected from the MRP-II-based Manufacturing Resource Planning systems of the 1970s. CRMs have enabled combining the *hard* approach of Quality Function Deployment (QFD) with the much broad-scoped *soft* approaches to customer satisfaction like support and services that were widely adopted during the 1980s in the last century. Figure 2.1 gives a list of major enterprise performance improvement movements during the last century. CRMs like SAP CRM provide the basic platform for devising techniques and tools for better implementations of the earlier approaches.

### ***2.1.9 CRM Represents the New Department Store Model of Implementing Computerized Systems***

The coming of packaged solutions like CRM (like the ERP before them) has been the death knell of the development model of IS systems. Along with it went the concept of requirements capture, modeling languages, development of software programs, testing, and so on that have

usually been associated with the conventional developmental model. In its place, for the first time, is the end-user friendly model of what one could call the Department Store model of computerized systems: you pick and choose the functionality you require from the array of functional goodies on display!

Today, an organization solves critical information management need by purchasing the best-of-class application software package available in the relevant domain. This package is then configured, customized, and integrated to its specific requirements. The benefits of such an approach over the traditional full custom development project include

- Immediate access to the best technologies and industry practices, that is, typical package represents the synthesis of many years of business analysis and software engineering
- Quick return on investment (ROI) because the organization can begin to implement and deploy a packaged application immediately
- Lower software application life-cycle costs in every aspect: business and technical expertise, initial configuration and customization, maintenance, and future enhancements
- Mitigation of financial and delivery risks
- Much higher probability of overall success due to the use of a proven solution

A comprehensive CRM, like SAP CRM, is the analog of the great Department Store of functionalities or processes required within an organization. CRM makes the transition from the world of carefully engineered and running systems to the world of consumers, in which the value of the delivered functionality is based not on its pedigree, but only on what, how, where, and when it can be used gainfully.

This then is the final commoditization of the IS/IT products and services!



In the past few decades, all of us have witnessed a procession of different methodologies, tools, and techniques emanating from this industry that have had tremendous impact on the very nature and operations of business enterprises. But in the midst of all this turmoil, one fact has remained constant, and that has been the lack of productivity improvements, irrespective of the extent and nature of computerization.

But right from the start, there was an even more basic problem in terms of the number of software applications that were actually completed and implemented successfully. Much has been written on the software crisis that was engulfing information service groups in the 1980s. The reasons were multifold:

- With the advent of PC-like functionalities, users were becoming more aware and demanding.
- Consequently, applications were becoming more bigger and complex.
- Correspondingly, productivity was reducing rather than increasing.
- Software development times were increasing, and cost and time overruns were fairly routine.
- Quality, trained professionals were always in short supply, resulting in increased costs for programmers; hence, systems development costs were ever increasing.
- Mortality of systems was very high.



On average, out of the total number of IT systems under development, more than half used to be canceled; out of the remaining half, only about two-thirds were delivered. Half of the delivered systems never got implemented, whereas another quarter was abandoned midway through the implementation. Out of the residual quarter of the delivered systems, half failed to deliver the functionality required by the management and, therefore, were scrapped. Only the remaining half of the systems were used after great modifications, which entailed further delays and costs in an almost never-ending process.

One of the root causes identified for these problems was the inherent weakness of the phase in which requirements were captured and analyzed. This phase never seemed to get the correct and complete requirements. As a result, completed projects never seemed to deliver on the promised functionality and had to be recycled for more analysis and development. Maintenance and enhancements were called for indefinitely and became harder to undertake as time passed by. Because individuals often changed midway, both on the development and user sides, system requirements changed frequently, and the whole process continued indefinitely. This is primarily because there is a fundamental disconnect between the business and the IT/IS people. Notwithstanding how much both the parties try to bridge the gap, there is a fundamental chasm between the perception of a business user and what is understood by the systems staff; both classes of people speak different languages. Even if the systems personnel tried to increase precision by using methodologies and specification tools, because users were unfamiliar with these tools, they were never able to ratify the documented requirements completely.

Typically, surveys found that 50%–80% of the IT/IS resources were dedicated to application maintenance. The return on investments in IT were abysmally low by any standard of measurement and expectations. With IT/IS budgets stretching beyond the capabilities of most organizations, there was a compelling need for a radically new approach that could result in actual usable functionality that was professionally developed, under control, and on time.

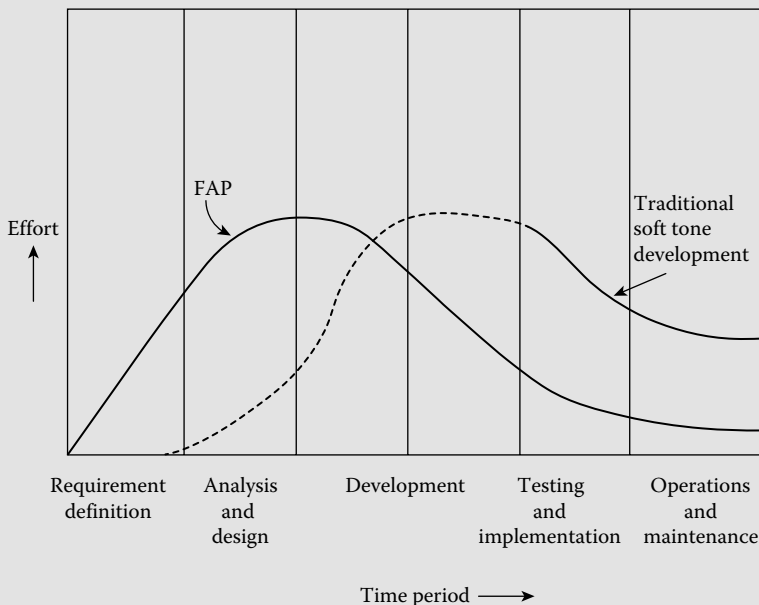
The traditional software implementation involving the development of applications was characterized by

- Requirement-driven functional decomposition
- Late risk resolution
- Late error detection
- Use of different languages or artifacts at different phases of the project
- Large proportion of scrap and rework
- Adversarial Stakeholder Relationship with non-IT users
- Priority of techniques over tools
- Priority of quality of developed software rather than functionality per se
- Great emphasis on current, correct, complete, and consistent Documentation
- Great emphasis on testing and reviews
- Major effort on change control and management
- Large and diverse resource requirements
- Schedules that are always under pressure
- Great effort on projected or estimated target performance
- Inherent limitations on scalability
- Protracted integration between systems

Many alternate strategies were devised like CASE and prototyping; however, none were able to cross this basic hurdle. CASE provided more rigorous environment for requirement analysis and design and automated to a large extent the subsequent development of code, testing, and documentation efforts. The increased time spent on requirement definition with the users was envisaged to lead to systems that were closer to the users' actual requirements. On the other hand, prototyping was designed to address the requirement capture issue by making the users directly participate in the process of defining the requirements. This was mainly focused on the screen and reports design because these were the elements that could be visualized directly by the user. But none of these strategies really resolved the problem. Packages like ERP and CRM adopted a totally different approach by providing the most comprehensive functionality within the package. Company personnel were only expected to pick and choose whatever was required by the company actually using the package. Thus, ERP/CRM packages effectively short-circuited the whole issue of capturing requirements. The traditional project life cycle consisting of analysis, design, development, testing, and implementation was transformed to the ERP/CRM implementation life cycle consisting merely of requirement mapping, gap analysis, configuring and customizing, testing, and implementation. Figure 2.2 shows a comparison of efforts expended during ERP/CRM and the traditional Software Development life cycle.

This ultimately led to the ERP revolution that we are witnessing today.

Unlike the traditional systems, the CRM software implementations, involving the implementations of preengineered ready-to-implement application modules, are characterized by



**Figure 2.2 Comparison of efforts expended during ERP and the traditional software development life cycle.**

- Primacy of the architecture; process-oriented configurability
- Primacy and direct participation of the business user
- Early risk resolution
- Early error and gap detection
- Iterative life-cycle process; negligible proportion of scrap and rework
- Changeable and configurable functionality
- Participatory and cohesive stakeholder relationship with non-IT users
- Priority of functionality over tools followed by techniques
- Quality of the functional variability and flexibility of the available functionality
- Great emphasis on current, correct, complete, and consistent documentation of customizations
- Great emphasis on integration testing
- Actual demonstration of functionality at all phases of the project
- Twin categories of resource requirements: functional and technical
- Schedules devoid of long-term cascading impact
- Demonstrated performance
- Larger span of scalability
- Efficient integration between systems

### 2.1.10 CRM Is an End-User-Oriented Application Environment

Compared to the degree of involvement of functional managers and end users in traditional software project implementations, their participation as recommended here in SAP CRM implementations might seem unusual. CRM brings computerization and decisions to the desktops and in this sense is an end-user-oriented environment in the true sense of the word (see Table 2.1). Unlike traditional systems in which users accessed the system directly only in well-defined pockets within the enterprise, in CRM, end users are truly the personnel actually involved with the

**Table 2.1 Back-Office Automation Technology versus Relationship Building Technology**

	<i>Traditional Back-Office Automation Technology</i>	<i>Relationship Building Technology</i>
1. Strategic focus	Internal: Operational efficiency	External: Customer relationship
2. Key business benefit	Control Cost	Drive corporate performance
3. Expertise required to develop applications	Algorithmic optimization	Business knowledge (e.g., sales, marketing, customer service)
4. Industry focus	Manufacturing	Services
5. Nature of process flows	Structured, deterministic	Unstructured, spontaneous
6. Process focus	Transactional	Relationship Building
7. Number of internal users	10s–100s	1000s to millions
8. Number of external users	10s–100s	Millions

operations of the business. Because of the intense involvement of a sizable portion of the workforce of the company with the CRM implementation from the beginning, the probability of users embracing the system (and not struggling against it) is much higher. Users also act as the advocates and facilitators during and after the implementation phase.

## 2.2 Anatomy of a CRM System

A comprehensive CRM system is massively complex. As mentioned in Section 2.1 “Introduction to Customer Relationship Management (CRM) System,” CRM essentially treats an application development environment as an application *in itself*. The integrated application repository holds a full set of correlated information regarding the application as well as the data that will reside in the system when it’s in production, which also greatly facilitates documentation, testing, and maintenance. In this section, we briefly give an overview of the various systems that constitute a comprehensive CRM like SAP CRM. Every system described in the following has two simultaneous aspects: managing the application data and also the metadata related to the very nature and configuration of the implemented CRM itself.

The exhaustive list provided as follows illustrates the complexities of modern off-the-shelf packages. It can also act as a reference list when we look at the issues related to the evaluation and selection of CRM packages in later sections of this chapter.

### 2.2.1 Application Maintenance–Related Systems

#### 2.2.1.1 Application Repository System

The application repository system forms the core of the CRM system. It provides the essential information on the structure and design of the whole application to all other modules or systems. It records the information regarding the information model of the system in terms of the entities, attributes, relations, processes, views, user scenarios, and so on. It also promotes a methodology that is native to the development and maintenance of the CRM system. It contains information on every single program, file, and data item in the system. This includes information on the various components and elements: identity, purpose, type and nature, defining attributes, *where-used* list, tables accessed, processing cycles and times, and sizing.

This module provides facilities to check the consistencies and integrity of definitions for all system components and elements within the CRM.

The application repository needs analysis and design modeling subsystems. It also needs a graphics environment to represent the processing requirements of the company operations. The graphic module provides a diagram representation of the processes that enable rapid changes whenever necessary. Detailed requirements can be defined and stored in a related database that can be analyzed for dependencies, consistencies, impact analysis, and so on. This is usually called the *data dictionary* and provides support for the database and data tables or file design (including forming data tables, normalization, indices, and referential integrity).

#### 2.2.1.2 Fourth-Generation Language Development Environment

This environment provides facilities to customize or extend the CRM system’s functionality to meet the specific requirements of an enterprise. This has the standard tools set for the development, testing, debugging, and documentation of the programs, especially data entry programs.

### 2.2.1.3 Query Management System

This system provides extensive querying facilities on the system details stored in the application repository (and data dictionary). These details include process information, entities, data tables, programs, and also the data stored in the tables of the application database. This query management system enables the painting of query screens; the specification of tables to be accessed, fields to be displayed, and their sequences; the selection of a set of records to be displayed; and so on.

### 2.2.1.4 Report Management System

This report management system is similar to the query management system, except that it permits the queried information to be printed for reference. It defines customized reports for specific requirements of the company related to preprinted documents like purchase orders and invoices. It provides advanced features for rapidly programming break totals, page breaks, line details, and so on within a report.

### 2.2.1.5 Configuration Management System

This permits the CRM to be configured to the specific organizational structure of a company. This may include the physical locations, operational divisions, profit/loss (P/L) entities and accounts, the fiscal period, the taxation and discount structures, and the categories of customers, suppliers, and products. All subsequent reporting and analyses are based on the details of configuration defined at the time of inception. This system also customizes the CRM system to embody the various functions and processes specific to an enterprise.

### 2.2.1.6 Change Management System

This system provides the facility to register, release, and control all changes introduced into the system. This permits control over system components being changed or tested and those that are released in the production environment for access and use by all. It also enables gathering and monitoring details on dates, persons, and the duration required for affecting changes. This helps both in the security and in the productivity of the CRM operations.

### 2.2.1.7 Version Management System

This system provides facilities to keep track of the current versions of the various systems constituting the CRM. This enables prompt diagnosis of any malfunction that may arise because of incompatible systems, wrong interfaces, noncompliant systems, and so on.

### 2.2.1.8 Application Programming Interface (API) System

This system provides facilities for a standardized interface of the CRM to upload or download data from legacy systems; specific application systems like supply chain management (SCM), customer relationship management (CRM), and electronic data interchange (EDI); high-end project management systems; or scientific and industrial application systems. These interfaces could be in batch or asynchronous modes or, for ongoing operations, in synchronous mode. Even multiple

installations of the same CRM at different sites for the organization will need such interfaces. These may also be needed as basic enablers for such sophisticated facilities like data replication and database mirroring.

## ***2.2.2 User-Interface-Related Systems***

### ***2.2.2.1 Graphical User-Interface (GUI) Management System***

This module provides the standard facilities of any presentation manager in terms of layouts, navigation among and within screens, help features, error recoveries, and so on. The graphical user-interface (GUI) management system controls the design and functioning of the dialog flow on the screen, validations and table lookups, default values, lists of values, and so on. This system will usually be one of the standard Relational Database Management Systems (RDBMS) like Oracle and DB2.

### ***2.2.2.2 Menu Management System***

This system presents the various choices that are available in various areas of functionality. It also lets you dynamically define the choices that are available to a particular user, depending on his level of access and authorization in different areas within the CRM.

### ***2.2.2.3 Help Management System***

This system provides the specific or contextual help at every field or processing step within the system. At any moment, it provides information on programs, screens, or particular fields of interest. This system also incorporates the architecture to report on errors and warnings, as well as give more specific diagnosis or suggestions on resolving problems encountered during the usage of the system.

## ***2.2.3 Application Management–Related Systems***

### ***2.2.3.1 Database Management System***

This module is responsible for the storage of information required or supplied by all other modules of the CRM product. This will usually be one of the standard RDBMSs like Oracle and DB2.

### ***2.2.3.2 Application Administration and Management System***

This provides facilities to guide and assist in installation, upgrades, system maintenance, printer/spool management, and so on. This application administration and management system interfaces with other related systems for managing software distribution, configuration and change releases, versions, security and authorization, disaster recovery, archival, and so on. It also provides facilities for operational requirements of performance monitoring, backups, background processing, creating and managing jobs, and so on.

### ***2.2.3.3 Software Distribution Management System***

This system enables the facility to upgrade the client-based software automatically from a centralized place. The system can enforce the access and authorization profiles at the various users' PCs.

#### *2.2.3.4 Security and Authorization Management System*

In an integrated environment of CRM, this system provides the architecture for the security and hence the access and usage available to the system. This enables maintaining the profiles of authorized access, assigning such profiles to specific user accounts, authenticating the users in the production environment, logging user access and usage, tracking attempts to breach the system security, changing access profiles and passwords, and so on.

#### *2.2.3.5 Audit Management System*

This system provides monitoring for user access and usage, system processing and updates, system and data changes management, error logs, and so on.

#### *2.2.3.6 Disaster Recovery Management System*

This provides the facility to define the alternate disaster recovery servers and systems, triggering or initial response procedures, databases' recoveries, activating backup resources, full recovery procedures, and so on.

#### *2.2.3.7 Archival Management System*

This provides the facility to archive system and application data that have been identified as essential for future reference. This defines details on data, the data sources, duration, frequency, the target archival system, and so on.

#### *2.2.3.8 Communications Management System*

This provides the communication layer for the CRM system. It provides features like distributed processing, distributed databases, and security.

### ***2.2.4 Application Support–Related Systems***

#### *2.2.4.1 Online Documentation System*

This provides the ability to make system documentation available on the system while one uses it and, more importantly, in the context of the particular functionality being used at any moment. This system provides links to related issues as well as the facility to pursue individual topics in full detail.

#### *2.2.4.2 Print Documentation System*

This provides facilities for printing the full technical details and the application design of the system for offline reference. Moreover, it enables updates to this documentation depending on upgrades, enhancements, and new releases of functionality in any of the aforementioned systems.

#### *2.2.4.3 Online Tutorial, Training, and Demonstration Management System*

This system provides an online tutorial carefully designed to highlight the comprehensiveness of the application and also advanced features that are available within the system. This training and

demonstration system provides a path to be followed during the learning phase on the CRM. The system also provides the ability to measure and assess the progress made by the trainees during such exercises.

#### *2.2.4.4 Implementation Project Management System*

This system provides integrated capabilities for monitoring and managing the progress during the implementation of the CRM. It provides the capability to define the work steps, dependencies, schedules, estimates on duration and effort, work in progress, work completed, work under testing, and so on.

### **2.2.5 Miscellaneous**

#### *2.2.5.1 Office Automation System*

This system provides the functionalities provided by word processors, document formatters, spreadsheets, and so on. This office automation system is used for recording annotations on the system or for project management, defining preformatted letters generated by the systems, and so on.

#### *2.2.5.2 Groupware and Workflow System*

This system provides extensive communication between users of the CRM system. More significantly, it provides direct interfaces between itself and the mail system in order to inform and alert concerned personnel about predefined events occurring during processing, like released purchase orders, dunning notices, and alarms on exceeding credit limits.

This system also provides for broadcasting mail to multiple persons, routing mail in the operating sequence, triggering reminders at various stages along the workflow, soliciting approvals or authorizations, and so on.

#### *2.2.5.3 Data Warehouse and Data Analysis System*

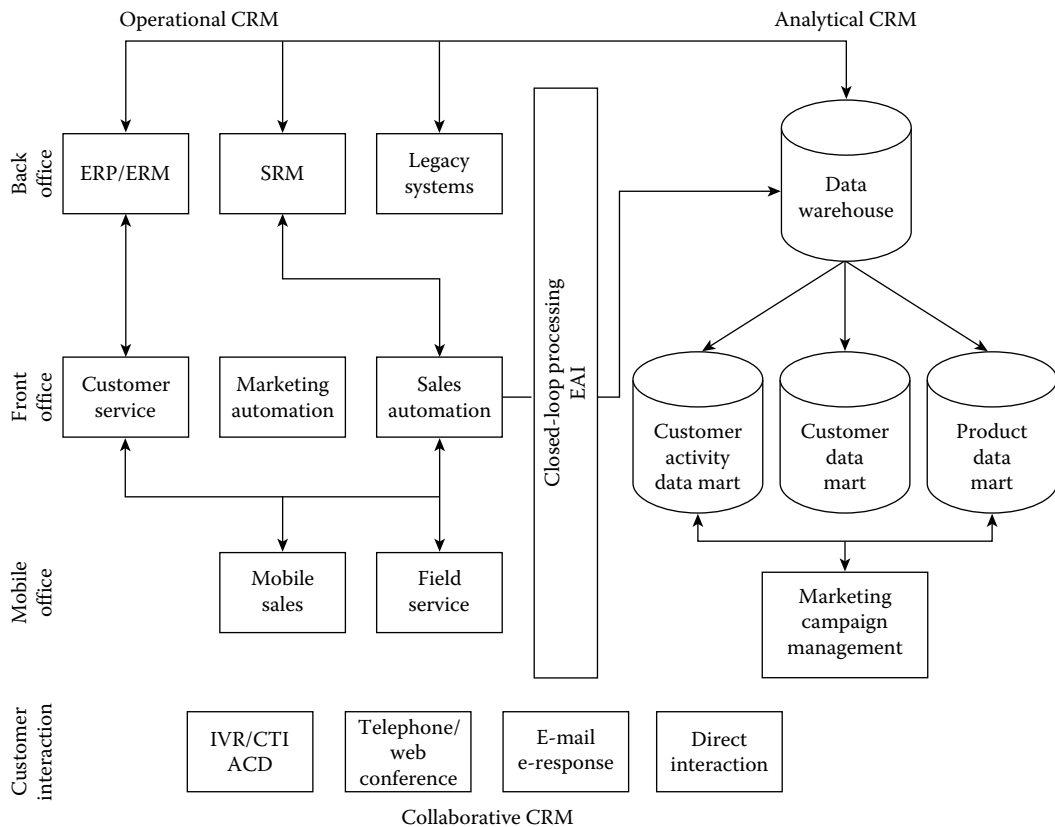
This system provides for mapping and populating operational data from the CRM tables into the multidimensional tables of the data warehouse for manipulation and analysis. It provides advanced tools for detecting data patterns, trends, correlations, and so on within the available data and prospecting for any significant relationship between data across the organization.

## **2.3 Types of CRM Systems**

The CRM ecosystem is comprised of three categories of applications:

1. *Operational CRM*: These applications help the salespeople in becoming more productive and effective. These include automation software for sales, marketing, and services. These systems hold transactional level data on individual products, customers, and transactions. They provide support for customer-facing processes done by direct mail, phone, the Internet, third-party agents, and field sales. These applications are also referred as the front-office applications.





**Figure 2.3** Types of CRM systems.

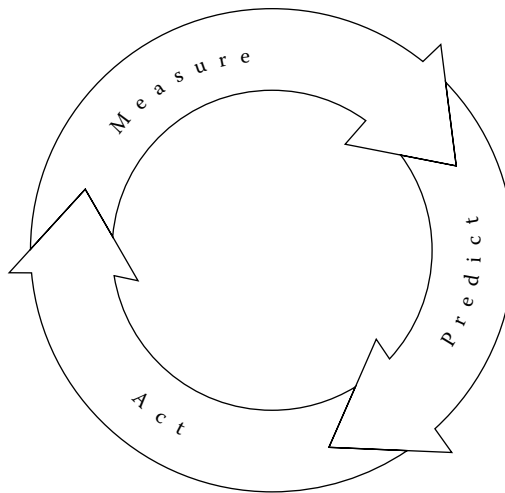
2. *Analytical CRM*: These applications support the *one-to-one* customized marketing programs. These systems hold aggregated data where the unit of analysis is the campaign, market segment, key account, and market or product group. These applications provide support for the strategic planning processes.
3. *Collaboration CRM*: These applications help in smoothing the dialogs with the customers. These constitute the traditional and new groupware/web technologies to facilitate customer, staff, and business partner communications, coordinations, and collaborations.

Figure 2.3 shows the relationships between the three categories of applications.

### 2.3.1 Closed-Loop CRM

Closed-loop CRM systems not only enable execution of customized marketing campaigns but also measure their effectiveness, which in turn is used to improve their performance even further (the next time around).

Closed-loop marketing consists of three basic steps that lead to an ever-improving marketing performance:



**Figure 2.4** Basic schema of the closed-loop CRM system.

1. *Measure*: The effectiveness of the marketing effort in terms of the resulting customer profitability.
2. *Predict*: Analyze the available data for modeling the consumer behavior and predict consumer behavior close to the actual observations. These models are then used to focus and refine the design and configuration of the future marketing campaigns.
3. *Act*: The CRM systems then assist in executing the modified marketing campaigns along with the corresponding changes in measurements for ascertaining the success of the new campaign.

Figure 2.4 presents the basic schema of the closed-loop CRM system.

### 2.3.2 Why Use CRM?

The implementation of CRM engenders the following business and technical advantages:

- Reconciles and optimizes the conflicting goals of different divisions or departments for consistent and coordinated customer interactions and fulfilling experience at all customer touch points.
- Standardizes business processes across all constituent companies and sites, thus increasing their efficiencies.
- Provides the ability to know and implement global best practices and provides the best means for benchmarking the organization's customer-centric competitiveness.
- Alters the function-oriented organization toward a more team-based, cross functional, process-oriented organization, thus leading to a more flexible, flatter, tightly integrated, and customer-responsive organization.
- Provides a responsive medium for undertaking all variants of process improvement programs and methodologies, including process innovation, process improvement, and interaction channels.

- Provides a responsive medium for quality improvement and standardization efforts including QC, QA, TQM, and QFD.
- Is process oriented and therefore is a fertile ground for implementing Activity-Based Management (ABM) efforts, be they for budgeting, costing, efficiency, or quality.
- Provides the best conduit for measuring the benefits accruing to an organization by monitoring the Return on Investment (ROI) of not only money but also manpower, materials, time, and information. This could be in terms of various parameters like cost, quality, responsiveness, and cycle time. Thus, CRM could assist in the implementation of, for instance, the balanced scorecard within the enterprise.
- Enables an enterprise to scale up its level of operations drastically or even enter into different businesses altogether, without any disruption or performance degradation.
- Enables real-time creation of data directly during the actual physical transaction or processes by the persons who are actually responsible for it.
- Pushes latest data and status to the actual operational-level persons for better and faster decisions, at least on routine issues; empowers and gives ownership to the customer-facing operational personnel at the customer touch points (this automatically goes away with problems associated with the collection of voluminous data, preparation, entry, corrections of inaccuracies, backups, and so on).
- Integrates data of the organization into a single comprehensive database.
- Provides online availability of correct, current, consistent, complete, clear, and authentic operational data across multiple channels and touch points that could be populated into the enterprise data warehouse for analysis and mining.
- Greatly reduces the cost of maintaining systems.

As mentioned in the introduction to this chapter, all these characteristics of CRM implemented in organizations arise primarily from the fact that what they handle is not merely organizational data, but relationships that are of strategic importance to the customer-centric enterprise.

In the next section, we turn to this aspect of the relationship-based organizations.

### 2.3.3 ERP versus CRM

There are two primary chains within an enterprise:

1. The supply chain covers the back-of-office to external suppliers and distributors. This includes functions and processes associated with finance, accounting, inventory, human resources, manufacturing, shipping, and logistics.
2. The demand chain covers the front-of-office to external customers and the channel. This includes functions and processes associated with sales, marketing, service, and support.

The ERP and CRM approaches differ in their focus and tactical objectives. The ERP orientation, for example, views business as a set of rigid back-office processes, and customers are modeled as *resources* that fall under the control of internally focused, command-and-control systems. Because domain expertise in ERP and other back-office applications focuses on algorithmic optimization of structured and deterministic processes, the ERP perspective does not accommodate the random, unstructured, and highly dynamic nature of customer behavior.

Table 2.1 compares the traditional back-office automation technology like ERPs with that of the Relationship Building Technology like CRM.

ERP vendors have been acquiring or building new modules for Sales Force Automation (SFA) and CRM to front-end traditional Sales Order, Billing, and Accounts Receivable (AR) application modules. This streamlines the information flow from the initiating sales forecasting activity to servicing an established customer. While this extends the business functions and activities supported by information processing, it also extends the reach of the traditional back-of-office ERP products. However, this does not necessarily deliver functionality of a true CRM. Extended ERP is seldom more than a vendor's best-of-breed and piecemeal application add-on functionality intended simply to extend the market share of their ERP product. Front-of-office applications grafted on an ERP may not be as functionally rich as SAP CRM but may have a certain advantage in terms of the in-built provisions for integration with back-of-office modules. A judicious balance needs to be struck between these aspects to evaluate and select the most appropriate vehicle for delivery of CRM functionality for the enterprise. These issues are the focus of Chapters 3 "CRM Evaluation" and 4 "CRM Selection."

## 2.4 CRMs as Keepers of Customer Knowledge Assets

CRM implementations must ultimately be business driven and not dictated and driven by technology issues. The survival and success of an enterprise depend on how it differentiates itself and its products and services from those of its competitors. In this era of mass customization, what organizations need is not more standardization and generic processes, but the ability to be more dynamic, more flexible, more proprietary, and more customized. Because the CRM strategy basically embodies the *theory of business* of a company (à la Peter Drucker), it must also mirror these differences in strategies and processes. To leverage their competencies, distinct advantages, edges, or competitive advantages, companies cannot abandon the corresponding differentiating processes and will have to incorporate such fundamental variants in their CRM implementations or interface with such systems. SAP's Industry-Specific (IS) solutions are primarily efforts driven by recognition of this fundamental need of its customer organizations.

All of these unique value propositions and differentiating factors are information assets of an organization and are captured and configured into the CRM system. These information assets include the business rules and procedures or methods of operations, customer analytics, parameters of analysis, ranges for defining credit limits, credit periods, discounting structures, and ratings. Like any other assets, CRM packages like SAP CRM register, maintain, monitor, and report on these informational assets. This helps in maintaining these assets current and useful.

### 2.4.1 Collaborative Enterprise

CRM provides the design and architecture for the collaborative enterprise as has been discussed in this chapter. It provides the basic platform for enabling the enterprise-wide, integrated, information-based, process-driven, real-time intelligent enterprise. This has a direct impact on many aspects that traditionally have been more relevant to issues of organizational development:

- *Vision:* CRM enables the realization of an organization that has a customer-centric vision to be competitive by raising the level of skills and competencies of its personnel so that they can respond better, faster, and at the optimal cost to the changing customer expectations every day.
- *Strategic goals:* CRM enables access to customer-sensitive data to all customer-related personnel to keep track of the organization's overall performance, with reference to the company's

customer-centric goals as well as their own contribution to the same on a daily basis. This engenders a sense of involvement and transparency that was not been achievable earlier.

- *Culture*: CRM truly makes it possible to operate a collaborative, value-add driven, and customer-centric organization in a real-time mode. CRM permits learning happening in any part of the enterprise to be incorporated into the system, even on a daily basis.
- *Structure*: CRM system provides visibility to the responsibility-oriented organization structure rather than the designation-oriented structure of earlier times. It provides instant communication and interaction with all customer-facing members irrespective of their reporting department or designation.
- *Systems*: CRM provides for adequate control without encumbering the work that directly contributes in the value-add delivered to the external or internal customers.
- *Processes*: CRM enables the process-oriented enterprise that might not always be feasible to realize physically, for instance, by locating all concerned members of a team in one place. It makes it possible for members to participate in multiple customer interactions efficiently and effectively.

### **2.4.2 Extended Collaborative Enterprise**

The future of CRM is closely related with the efforts to reengineer such interenterprise interfaces and foster closer collaborations across multiple enterprises, that is, the extended collaborative enterprise (ECE). This is in quite contrast to the traditional adversarial relationships that have been known to exist among the suppliers, manufacturers, distributors, and retailers. The true economies of production can only be gained by the economies of cooperation. The virtual organization that we referred to in Chapter 1 spans all such members of the traditional supply and demand chain.

In the 1990s, the enterprise resource planning systems or ERPs focused attention on enhancing performance within the enterprise, yet more than 50% of the variable costs that affect the performance of an organization are mainly driven by decisions outside the boundaries of the organization. After benefiting from streamlining and re-engineering the internal processes, enterprises will address the potential for major gains obtainable from these cross company processes. But why is this extended value chain considered important for the next quantum leap in organization performances? Enormous opportunities for enhanced efficiencies exist at the interfaces between contributing value chain partners, as also the potential for a greater level of customer satisfaction.

Like the non-value-adding hand-offs within an organization, many of the interfaces and hand-offs between partners are non-value-adding, efficiency depleting, and time consuming. The customer ends up paying for all these inefficiencies, regardless of how far removed or hidden he or she may be from the source. Similar to the inefficiencies associated with typical internal processes (before the implementation of enterprise-wide solutions like SAP CRM), value chain inefficiencies can easily account up to 25% of the company's operating costs.

Thus, an ECE differs from a traditional supply chain in the extent to which a company can integrate with its partners.

### **2.4.3 Extended Relationship Management (ERM)**

ERM provides a unique global view that consolidates all information about stakeholders, their interactions, and activities into a centralized repository for both real-time and analytical use. The objective of Extended Relationship Management (ERM) is to build and maintain profitable

business relationships with all key stakeholders of the company, namely, customers, suppliers, partners, and employees. Relationships that continually engage, satisfy, sustain, and enhance these relationships across all channels and touch points result in greater loyalty, revenues, and profitability. ERM enables an integrated business experience that spans service, marketing, and commerce and extends outside the enterprise to incorporate customers, partners, and suppliers in collaborative business processes. By integrating and sharing information and processes across various constituents, the enterprise enables precisely targeted marketing campaigns, increases up-sell and cross sell opportunities, and ensures consistent and personalized treatment of every customer throughout this extended value chain. Such an extended dialog between its stakeholders creates collaborative relationships that yield greater customer loyalty.

Unlike the problems that confronted the traditional supply chain, today the issues extend beyond the conventional static and predefined individual supply chains. This is because of the dynamic reconfigurations that are possible by the Internet. The Internet enables the formation and dissolution of momentary supply chains even for individual customer transactions depending on the optimal combination of collaborations to deliver a product and/or service triggered by the customer. More than supply chains, these will be a network of suppliers and partners. The extended collaborative enterprise will be more like a community of enterprises guided by the major value-adding players within the communities. Instead of the competitive advantage of individual enterprises, the competition today will exist among different communities of enterprises, that is, ECEs. The success of an enterprise will depend on the *collaborative advantage* of the corresponding supply chain or, more correctly, the supply network to which it belongs. Since the threat of substitution is available not only to the end customers but also to the other constituents of the ECE, it may become vital to become a valued member of a successful supply chain.

## 2.5 Electronic Customer Relationship Management (eCRM)

The Internet has altered forever the ways in which enterprises interact and work with their customers, suppliers, and even their own members. The Internet has enabled a dramatic reduction in the cost of transactions and interactions between the enterprise and its customers. Online customers expect shorter sales cycles, personalized information, quicker resolution of issues, and added value at each stage of the transaction. Internet-supported Customer Relationship Management (eCRM) is rapidly emerging as the *killer app* of the Web of the 2000s.

eCRM provides a standard-based Web architecture for information, process, and application integration so that the enterprise can integrate information and processes across marketing, commerce, and service. The enterprise can integrate existing databases, legacy applications, and systems to create a virtual centralized information repository so that the company can market, sell, and service its offerings more effectively. And the Web's architecture scalability and flexibility enable it to be more responsive leading to rapid growth.

### 2.5.1 Data Warehouse and Customer Analytics (ERM)

Many enterprises find it necessary to complement their CRM systems, as well as their ERP systems, with Business Intelligence (BI) tools that support decision making. BI includes a range of tools such as query and reporting, business graphics, online analytical processing (OLAP), statistical analysis, forecasting, and data mining. Data Warehouse, OLAP, and Data Mining are the *killer apps* for CRM. CRM tries to capture information from each customer touch point and store it

in a single repository so that all customer-facing personnel have a complete understanding of the company's relationship with each customer.

More than merely gathering of the information, it's the accurate analysis of the information that gives businesses the opportunity to improve their customer relationship and maximize their bottom lines. OLAP software helps an enterprise to maximize the profits from its customer base by focusing on

1. What is done, when, and how (processes, activities, and communications)
2. To whom (i.e., to which specific segment of the customer base)
3. Its effect on the behavior, loyalty, and value of the targeted customers

Being able to monitor the effect that various actions have on the customer base will allow a company to make sure that they retain the *best* customers and that the candidates with the best growth potential are identified and appropriately targeted.

Chapter 15 describes SAP Business Intelligence and Business Warehouse (BW) solutions from SAP.

### 2.5.2 Data Mining

Data mining is of great interest because it is imperative for enterprises to realize the competitive value of the information residing within their data repositories. The goal of data mining is to provide the capability to convert high-volume data into high-value information. This involves discovering patterns of information within large repositories of enterprise data. Enterprises that are most likely to benefit from data mining

- Exist in competitive markets
- Have large volumes of data
- Have communities of information consumers who are not trained as statisticians
- Have enterprise data that are complex in nature

More traditional Business Intelligence (BI) tools enable users to generate ad hoc reports, business graphics, and test *hunches*. This is useful for analyzing profitability, product line performance, and so on. Data mining techniques can be applied when users don't already know what they are looking for: data mining provides an automatic method for discovering patterns in data (see Delmater and Hancock 2001).

Data mining accomplishes two different things:

1. It gleans enterprise information from historical data.
2. It combines historic enterprise information with current conditions and goals to reduce uncertainty about enterprise outcomes.

Customer-centric data mining techniques can be used to build models of past business experience that can be applied to predict customer behavior and achieve benefits in the future. Data mining provides the following insights:

- Learning patterns that allow rapid, proper routing of customer inquiries
- Learning customer buying habits to suggest likely products of interest

- Categorizing customers for focused attention (e.g., churn prediction, prevention)
- Providing predictive models to reduce cost and allow more competitive pricing (e.g., fraud/waste control)
- Assisting purchasers in the selection of inventory of customer-preferred products

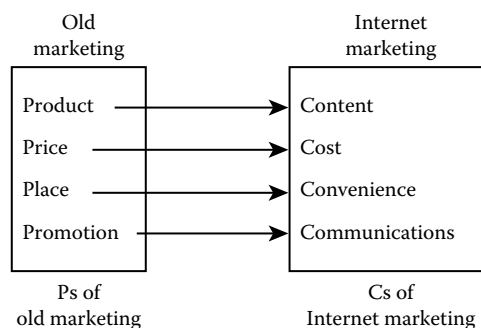
## 2.6 Customer-Triggered Company

The Internet has engendered a dramatic shift in the business environment from a production-centric model to a customer-centric one. It has led to a tidal wave that has swept the market beyond the model of a customer-driven company to the more recently witnessed phenomenon of what I term as the customer-triggered company. The outstanding potential for the survival and success of customer-triggered companies is amply demonstrated by the ubiquity of customer-centric e-commerce services companies.

Currently, more than computers and computing, it is the customer that is all pervasive. The pervasive customer wants

1. Personalized attention
2. To buy in smaller quantities
3. Customized products
4. To postpone the buying decision closer to the purchasing decision
5. To enjoy the buying experience at any convenient time or place with any convenient mode of payment
6. Easy access to the status of the order
7. Instant gratification
8. Increased excellent service and support at a lower cost

In the Internet-based economy, success hinges on establishing a *pull*. In this century, instead of the four Ps of marketing (product, price, place, and promotion), the four Cs (content, cost, convenience, and communications) would reign, all centered on the individual customers, rather than the products earlier. Figure 2.5 shows the old and the new marketing mix. The content includes the information on the products and services as well as the direct context of the presentation.



**Figure 2.5** Internet marketing mix.



Never before has it been so easy for a customer to find a desired product or service along with contextual data necessary to make an informed purchase decision. Companies need to truly focus on sensing, feeling, thinking, relating, and acting to each individual customer. This is the best example of a *high-tech and high-touch* organization. Customers are no more than a click away from a world of comparative information about products, prices, and alternatives that are resulting in heightened competition among the suppliers. Companies need to respond rapidly and profitably to this generation of net-savvy and opportunistic customers who are perpetually on the verge of switching or clicking to alternate suppliers.

The power of the customer will continue to grow to unprecedented levels with the ever-increasing ability to shop and buy anything from any one at any price at any time anywhere.

### 2.6.1 Event-Driven Business Systems

Unlike the make-to-stock strategy that has dominated since the 1980s, the millennium enterprises must adopt the strategy of make-to-order, or even beyond to a *sense and respond* to the customized requirements of individual customers. In fact, the JIT philosophy for increasing the efficiencies and effective responsiveness of the supply chains would have to surpass itself to become synchronized with the actual event of an order being placed by the customer, which will truly become the universal point of purchase (POP). It is in this sense that the market is moving rapidly toward the event-driven enterprise where all actions are actually triggered by the click of the customer on the personalized WUIs of enterprises.

All actions of procurement, production, dispatch, and collection will result from the subsequent cascade of events triggered within the enterprise and the extended enterprise. The lines among the CRM, eCRM, ERM, and back-of-office systems like ERP and SCM are blurring. This will lead organizations to shed the monolithic, vertically integrated infrastructures of the past and embrace loosely coupled, independent, and Internet-agile organizations that engage collectively to address a momentary customer transaction.

## 2.7 Summary

The real power of this concept can be seen when we go beyond the boundaries of an enterprise. In the last chapter of this book, we look beyond the physical confines of an enterprise to include its partners like vendors and customers into an extension of the enterprise to the next higher level of what we term as the Extended Collaborative Enterprise (ECE). We also introduced the powerful notion of the *Customer-Triggered Company* as an event-driven enterprise where all actions are triggered by the *click of the customer* on the personalized Web user-interfaces WUIs of the enterprises. SAP has adopted a symbiotic strategy to go beyond simple integration to collaboration between the customer-centric enterprises.