Patricia Seybold Group's Executive Series

Patricia Seybold Group

Strategic Consultants & Thought Leaders

An Executive's Guide to CRM

How to Evaluate CRM Alternatives by Functionality, Architecture, & Analytics

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By Patricia B. Seybold *March 2002*

FOREWORD

Understanding CRM: A Moving Target

Customer Relationship Management (CRM) solutions are still the most vibrant area of IT investment in 2002. Why? Because if you don't know who your customers are, and what they care about, you can't retain them. And without customers, you're out of business.

The CRM movement is less than a decade old. Yet the systems and software that are available to help you better understand and serve your existing customers, while enabling you to acquire new, profitable customers, have already gone through four overlapping waves of functionality and IT architecture.

The First Wave of CRM: Single-Function Client/Server Systems to Support Employees

In the first wave, which began in the mid-'90s, many firms purchased and implemented inward-focused, single-function client/server CRM solutions—systems that were designed to support a particular group of employees—technical support personnel, the sales force, call center reps, or the marketing department. Vantive, Scopus, Clarify, and Siebel were among the then dominant players.

Second Wave of CRM: Integrated, 360-Degree Client/Server Systems

In the second wave, corporate customers began demanding more integrated solutions. CRM managers were seeking the holy grail—to create a 360-degree view of their customers' relationships. In response, many of these point CRM solution suppliers began to acquire companies with the additional functionality they needed in order to offer a 360-degree view. Soon, there were fewer, larger players from which to choose. Siebel bought Scopus. Nortel Networks bought Clarify, and so on. Each integrated CRM supplier now offered a full suite of offerings with marketing/analytics, sales, support, service, and call center functionality. The integrated CRM supplier's goal was to enable your employees to provide a single-face to the customer by enabling employees to work from a common set of customer information and to use a set of loosely-coupled customer-facing applications. But this was still an inward-facing approach to CRM. It helped your employees serve customers better.

Third Wave of CRM: Customers Serve Themselves via the Web

At about the same time that CRM firms were merging—the late '90s—the third wave hit. The Internet appeared on the scene. The chances are pretty good that your company, like most others, launched an e-commerce or e-business initiative in 1998. And the chances are also pretty good that, like everyone else's, your e-business venture wasn't linked into your then-CRM initiatives. But what you probably experienced was that, all of a sudden, customers could serve themselves. The third wave of CRM, catalyzed by the Internet, was upon us. Customer self-service and Internet architectures became the next big thing

in CRM. Many people referred to the suppliers that embraced this new wave as e-CRM players. Some of those players are still familiar names like Silknet (now merged into Kana) and ATG. In fact, every e-commerce supplier suddenly became an e-CRM supplier.

However, these customer-touching e-commerce applications and customer support applications quickly hit two major obstacles. The first was the lack of seamless integration into companies' back-end operational systems. If a customer couldn't see what products were currently available in inventory, he couldn't place an order. The second obstacle was the lack of integration across customer-facing interaction touchpoints. Customers expected your call center personnel to have access to the history of their Web transactions and interactions. These two sets of obstacles have now largely given way to fourth-wave solutions.

Fourth Wave of CRM: Leverage Internet Architectures, Span Touchpoints, & Integrate with ERP

We are now in the fourth wave of CRM functionality and architectures, on our way to the fifth. In the fourth wave, the big CRM suppliers have re-architected their integrated application suites to take advantage of the Internet. By using Web browsers and thin clients, they are able to offer much broader access to CRM functionality. Instead of making customer-facing CRM applications available to hundreds or thousands of employees, the new Internet-based architectures enable you to extend the reach of CRM functionality to tens of thousands of employees, to your distribution partners, and even out to customers themselves.

Fourth-wave solutions also begin to tie together customer self-service via the Web with customer service through the contact center. Customers can now begin an interaction online and then pick up the phone and have some hope that the call center rep will be able to see their Web interaction and help them complete the transaction.

In this fourth wave, most CRM buyers are also scrambling to tightly integrate their CRM systems with their ERP and other back-end operational systems. In this fourth wave of CRM, we have a new set of major players who are vying for your attention. Every ERP supplier is now also a CRM supplier. SAP, PeopleSoft (with its Vantive acquisition and integration), and Oracle have now become major CRM players.

The Fifth Wave: CMR—Redesign Your Business from the Customers' Point of View

Next will come the fifth wave, in which you should turn your focus to "what matters most to my customers" in making your decisions about application functionality and IT architectures. We call this CMR—customer-managed relationships. It's the era in which customer portals abound. It's the time when you begin to give customers direct access to all of the information and application functionality they need in order to do business with you. CRM suppliers will be leveraging the next wave of IT architectures—Web Services—to enable this capability. It's also the era when we all redesign our business processes and our customer impacting information in order to make it easy for our customers to do business with us. But, as we move into the fifth wave, we won't be abandoning our customer-centric analytics, our marketing campaign management, our sales force opportunity management, nor our contact center and field service support. Nor will we be walking away from our e-commerce implementations nor our Web-based customer self-

service. We'll want to insure that, as we redesign our business processes to be more customer-centric, we evolve our CRM application functionality and customer analytics to keep pace.

How to Make Intelligent Decisions When CRM Is a Moving Target

This executive guide is designed to help you think through your own CRM choices from a strategic level. In the "What is CRM?" high-level overview, we begin with a timeless introduction to CRM—what it is, why it matters, and how you should be thinking about it. We point out that you can't think about CRM in a vacuum. You really need to think about your CRM applications and business processes in terms of how well they integrate with the rest of your customer-impacting and customer-touching applications and interaction touchpoints.

In "What's Important in CRM Architecture?," we give you a more detailed framework for evaluating alternatives that will help you sort through the options no matter which wave of CRM you're currently taking on. We strongly recommend that you think through your IT architecture requirements very carefully. In a field in which there's been (and will continue to be) such continuous change, the extensibility and flexibility of the architecture you choose far outweighs the functionality of specific CRM applications. Be most careful, however, to look closely at the underlying customer data model for the solutions you're evaluating. Don't think of this as a "techie" exercise. It is the business executive's responsibility to insure that the way customer relationships and information are represented maps closely to the way his business needs to think about its customers. Once you've consigned your precious customer information to the wrong data schema, it will be very difficult for you to understand your customers and to model their behavior in meaningful ways.

Since customer information is so critical for the success of any CRM initiative, we've included a separate framework, "What are Customer-Centric Analytic Applications?," to help you understand the key factors you should be examining in evaluating customer intelligence and customer analytics offerings. It's one thing to have a huge amount of customer information. It's an entirely different thing to be able to use that information to take actions that will yield profitable results. That's the role of customer-centric analytics.

Finally, it's not too early to be thinking about how to get ready for the fifth wave—the point at which you begin to transform your business practices and processes to be more customer-centric. In "What Comes After CRM," you'll find some practical tips and examples that should help you chart your own course.

What's Next?

As you sort your way through your own CRM strategy, we'd be happy to help. We offer a lot of additional research, evaluating the best practices and competitive differentiators of the different players and their offerings against the decision frameworks we've laid out here.

We can advise you on a consulting basis—to provide an objective expert opinion on where you may be missing the boat and/or to help your own CRM team with strategy, prioritization, and system selection.

And we offer a customer-centric methodology, Quality of Customer Experience (QCE)[SM], that will enable you to transform your business and to achieve maximum customer profitability. It comes with tools you can use—Customer Scenario[SM] Design and a Customer Flight Deck[SM] Performance Management framework for monitoring and improving how you're doing on customer metrics in near realtime. For more information, please contact George MacDonnell at gmacdonnell@psgroup.com or (617) 742-5200 x3128.

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Learn More – Contact us at feedback@psgroup.com to find out how our additional research and consulting services can help your organization sort through its CRM strategy.

What Is CRM?

Where Are We? Where Are We Going?

By Mitchell I. Kramer

WHAT IS CRM?

Multiple choice: CRM (customer relationship management) is:

a) Sales force automation applications

b) A marketing buzz word

c) A corporate philosophy

d) Software that implements marketing, sales, and service business processes

e) Implemented by a wide range of applications

f) A way to improve customer satisfaction and increase business

g) The next wave in information technology

h) Very difficult to implement

i) All of the above

j) None of the above

Unfortunately, the correct answer is i), all of the above. We say "unfortunately" because h) is too frequently true, because b) and g) carry too much negative connotation and because a), while correct, is too narrow and, perhaps, even vendor-centric in its correctness. The best correct answers are c), d), e), and f). Here's why.

CRM IS A CORPORATE PHILOSOPHY

CRM is a corporate philosophy because it is a fundamental approach to doing business. That approach is to be customer-focused and customer-driven, running all aspects of your business to satisfy your customers by addressing their requirements for products and by providing high-quality, responsive service. The philosophy extends to support customer managed relationships (CMR) where the customer is in the driver's seat, determining the rules of the relationship. Companies that adopt this customer-focused and customer-driven approach are, thus, customer-centric.

The inverse of customer-centric is product-centric. Can you think of any products that your company could never effectively sell? Innovative though these products may have been, they probably didn't solve any customer problems or address any customer requirements.

CRM Objectives

The objectives of CRM are straightforward:

- Acquire new customers
- Retain the right existing customers
- Grow the relationships with existing customers

No surprise here. These are probably your corporate business objectives, too, or at least your corporate marketing objectives; but the way that you state them and your strategies to achieve them may not be sufficiently customer-focused. As a philosophy, customer-centricity drives you to view your entire business from the perspective of your customers.

CRM IMPLEMENTS MARKETING, SALES, AND SERVICE BUSINESS PROCESSES

CRM implements the marketing, sales, and service business processes—the customer-facing and customer-touching business processes through which you interact with your customers.

All Business Processes Support CRM

Note this important point. While these are the CRM business processes, ***all*** of your business processes, and many business processes of your suppliers and partners, provide critical support for them. That support is achieved through business process automation and application integration. For example, your fulfillment system (or your supplier's fulfillment system) must be integrated with your CRM system so your customers can find out when you're going to ship their orders.

CRM Must Support All Touchpoints

That brings up another important point. Your customers interact with your direct sales reps, contact center reps, and Web applications. These interactions occur through a variety of touchpoints—the phone, face-to-face, a Web site, etc. Your CRM business processes have to support all these touchpoints, supporting a single and consistent view of your customers as well as a single and consistent view of your company.

A single and consistent view of customers is achieved by using the same customer information across all your business processes. This 360-degree view of your customers can be accomplished by defining a single customer data model and customer data implementation or, more practically, by integrating and synchronizing that customer data model across every business process that touches, faces, or supports CRM. Implementing a single and consistent customer view is a critical success factor for becoming customer centric. This implementation is never easy.

A single and consistent view of your company is achieved by providing the same marketing, sales, product, support, and order information to your customers across all the touchpoints through which they interact with you. This consistent "customer experience" can be accomplished in the same manner as single and consistent customer information. It's also a critical success factor for customer-centricity and difficult to achieve. Illustration 1 shows visually the business processes and touchpoints of CRM, the business processes that support CRM, and the single view of customers.

MANY CRM APPLICATIONS

CRM is implemented by a wide range of applications that implement the three direct CRM processes—sales, marketing, and service—and the many business processes that support them. The applications that implement these business processes are considered "operational" applications. They're the applications that "do" your business, delivering offers, generating orders, and responding to customer requests. CRM also has an analytic or decision support dimension. We call these applications customer-centric intelligence applications. Illustration 2 shows these applications and how customers interact with them.

Customer-Facing Applications

The key, customer-facing CRM applications are contact center, sales force automation, and field service, described briefly in Table A. We call these "customer facing" because your sales, fields service, and contact center representatives actually interact with your customers. Customer-facing CRM applications support those staff members.

Customer-facing applications have been around for many years. You probably had sales force and field service automation applications before you even thought about CRM; maybe you even built them before commercial products were available. Those products that do implement these applications also predate CRM, but have now been repositioned to take advantage of the CRM trend. For example, many of the products that implement teleservice were developed as help desk products, dating back to the late 1980s. SFA applications, originally known as contact management applications, have been around even longer.

Because the implementation of these applications predates CRM, they may need to be upgraded to reflect a customer focus. These upgrades should give them that single and consistent view of your customers and your company and integrate them with the business processes that support their marketing, sales, and service functions.

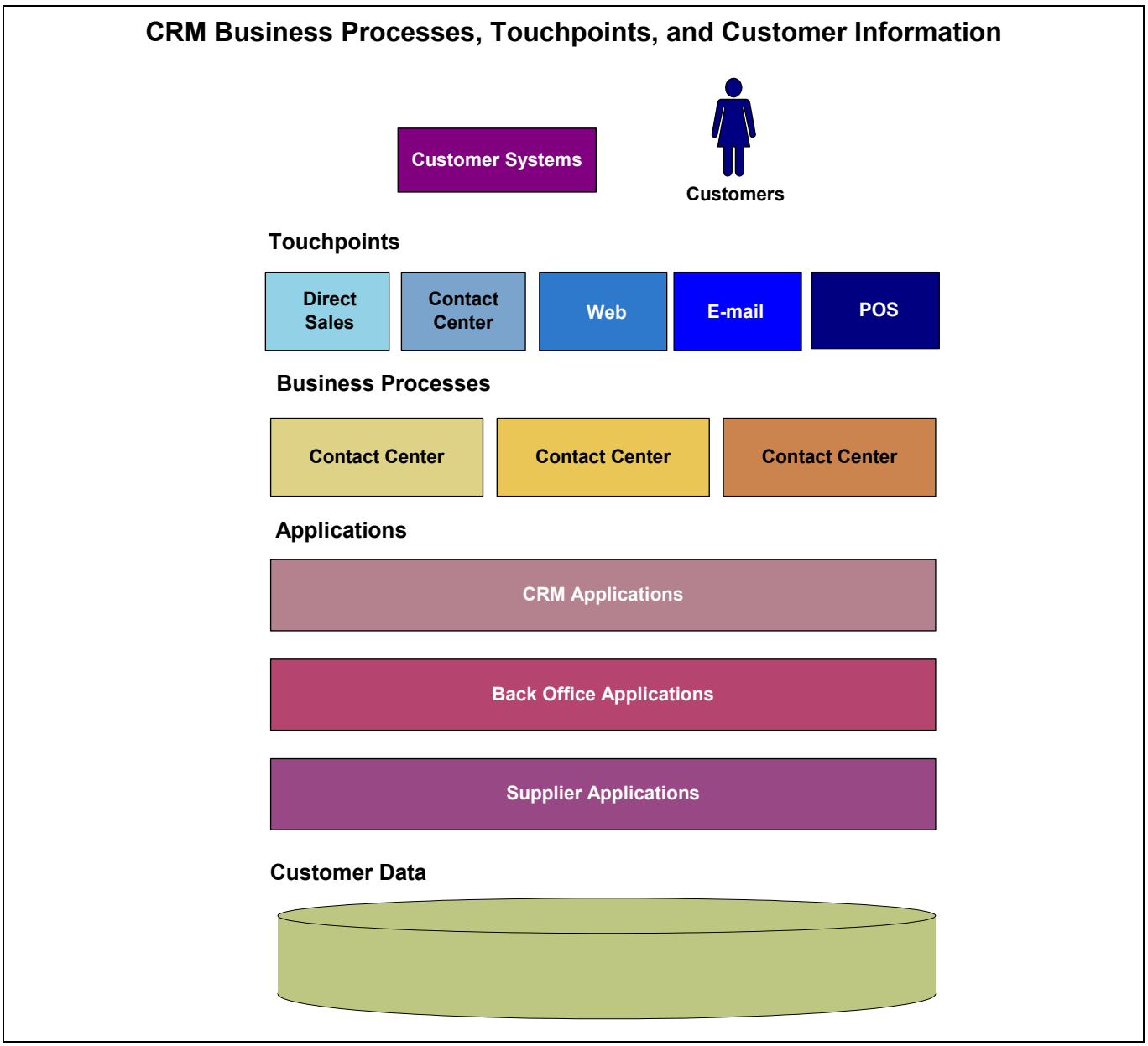

Illustration 1. This illustration shows the business processes and touchpoints of CRM, the business processes that support CRM, and the single view of customers.

Customer-Touching Applications

The key customer-touching CRM applications are campaign management, e-commerce, and self-service customer support, described briefly in Table B. We say "customer touching" because your customers interact directly with the applications rather than through a company representative.

Customer-touching applications are relatively new—certainly much newer than customer-facing applications. Most date from the mid to late 1990s. It's not inconceivable that your company has not implemented any or all of these applications. Campaign management was the first attempt to automate the marketing business process, allowing companies to deliver offers to more markets more (cost) efficiently, more effectively, and more frequently. Electronic commerce was a breakthrough application. It gave companies a new touchpoint and a way to ex-

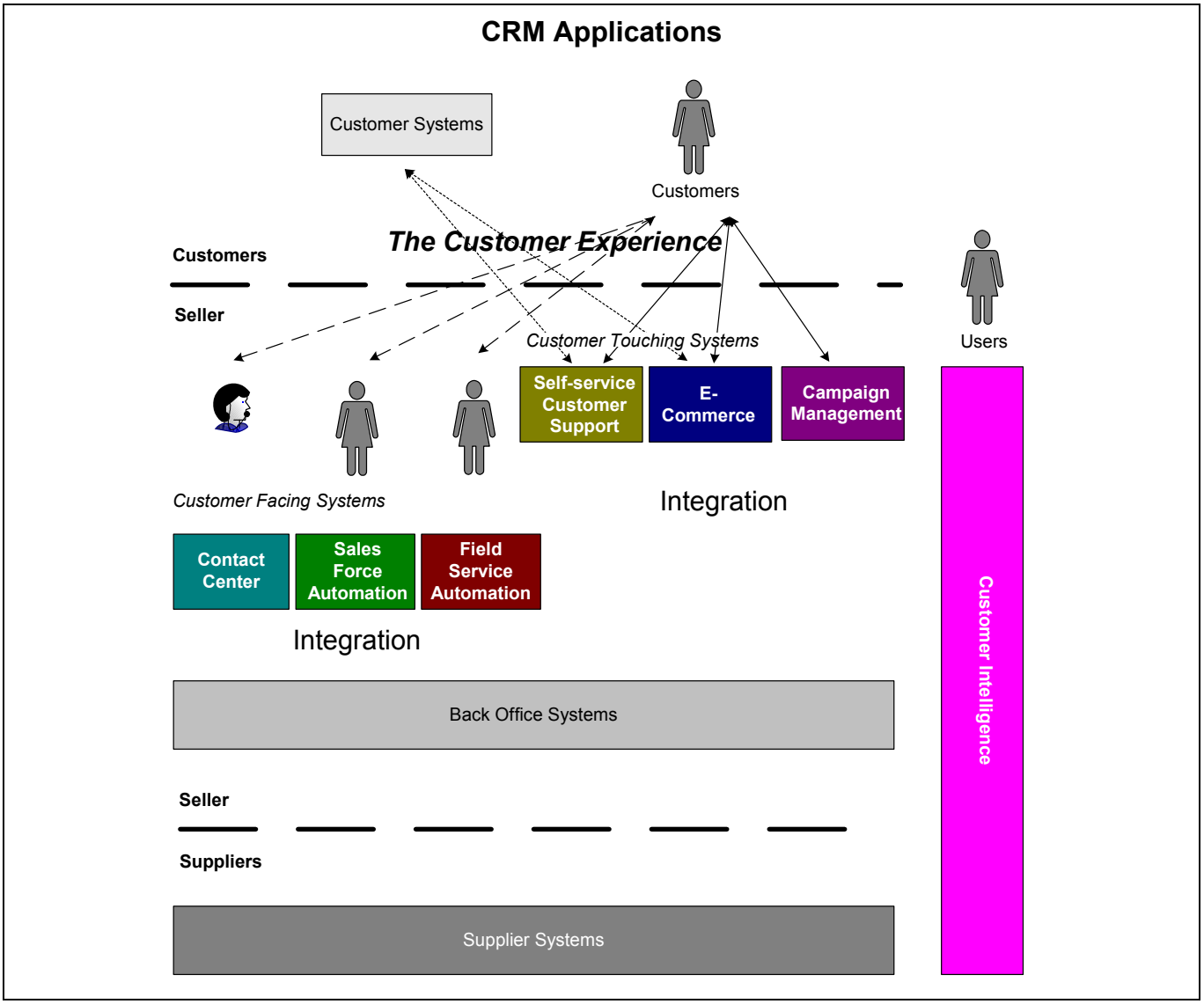

Illustration 2. This illustration shows customer-facing, customer-touching, and customer-centric intelligence applications and how customers interact with them.

pand their market reach and presence, automating completely the online marketing, sales, and service processes. Electronic commerce also gave us automated personalization, a customer-centric approach to treating each customer as a market of one. Self-service customer support was the next step for customer service. While contact center applications brought help desk capabilities to customers, self-service customer support applications put this functionality online, enabling customers to access it 24 by 7.

All customer-touching applications let customers help themselves—one of the basic principles of our Customers.com philosophy. Your customers may prefer to interact in this self-service way. You can increase your throughput through self service. You can also improve the quality of the experience that you provide by balancing functions between touching and facing touchpoints, allocating skilled marketing, sales, and service staff to perform the highest payback tasks or to support your best customers, supporting basic tasks and less than best customers through customer self-service interactions.

Customer-Facing CRM Applications	
Application	**Description**
Contact Center	Contact center applications are telephony applications that support marketing, sales, and service—all the CRM business processes. These applications implement telemarketing, telesales, and teleservice functions. Telemarketing is usually an outbound activity—your telemarketing reps contact your customers. Teleservice is typically an inbound activity—your customers contact your support center and speak with your customer support reps. Telesales may be either an inbound or outbound activity. Telemarketing presents offers to leads, prospects, and customers using predefined scripts. Telesales presents product information and quotes to prospects and customers or responds to customer requests with product information and quotes. Teleservice responds to requests with service instructions found in a knowledge base or with incidents that represents requests for service that can't be handled through the contact center.
Sales Force Automation	Sales force automation (SFA) applications support the selling efforts of your sales force, managing leads, prospects, and customers through the sales pipeline or sales funnel metaphors.
Field Service Automation	Field service automation applications support the customer service efforts of field service reps and service managers. These applications manage customer service requests, service orders, service contracts, service schedules, and service calls. They provide planning, scheduling, dispatching, and reporting of field service reps for service calls.

Table A. The three key customer-facing CRM applications are described in this table.

Customer-Touching CRM Applications	
Application	**Description**
Campaign Management	Campaign management applications automate marketing campaigns. They present offers to targeted leads, prospects, and customers on demand, on a schedule, or in response to business events through direct mail, e-mail, contact center, field sales, and Web touchpoints. Ideally, these applications should be able to record responses to offers.
Electronic Commerce	Electronic commerce applications implement marketing, sales, and service functions through online touchpoints, most typically the Web. These applications let sellers market products through online catalogs and associated Web content. They let customers shop for products through a virtual shopping cart metaphor and purchase the products in their shopping carts through a virtual check-out metaphor. Customers may also perform self-service support tasks such as order status and history inquiry, returns processing, and customer information management.
Self-Service Customer Support	Self-service customer support applications let customers help themselves to product support information, create service requests, manage information about themselves, and manage their orders.

Table B. The three key customer-touching CRM applications are described in this table.

However, customer-touching applications ***must*** have excellent performance and provide a great customer experience. This isn't as vital for customer-facing CRM applications because your great reps can insulate customers from not-so-great applications.

Customer-Centric Intelligence Applications

Customer-centric intelligence applications are analytic applications that analyze the results of operational processing. Their results can be used to improve the efficiency and effectiveness of operational CRM applications. Customer-centric intelligence (what we have, in the past, called Customer Intelligence) is the term we use to describe customer-focused analytic functions, but you might be calling these same applications business intelligence, decision support systems (DSS), or analytic CRM applications. The name is less important than their capabilities. These capabilities, described in Table C, should include these high-level functions:

- Data warehousing
- Reporting
- Analytic applications

Customer-Centric Intelligence CRM Applications	
Application	**Description**
Data Warehousing	Data warehouses provide the input to customer-centric intelligence applications. Data warehouses that support these applications must contain: • Customer information used by all operational CRM applications • Customer information used by analytic applications such as customer values and customer scores • Information about your products and services • Information about the channels and touchpoints through which you offer products and services • Information about your marketing, sales, and service initiatives • Information about customer behavior in response to those initiatives • Information about customer requests • Information about your responses to customer requests • Information about customer transactions.
Reporting	Reporting presents the information that you have loaded into the data warehouse in order for managers and analysts to view and analyze it. Reports provide a range of tabular and graphical presentation formats and optionally allow analysts to interact with the report presentation, changing its visual format, drilling up into summary information and/or drilling down into detail. Reports support manual analysis.
Analytic Applications	Analytic applications automate both the analyses that managers and analysts perform manually on reports and analyses based on statistical and pattern recognition algorithms. Analytic applications process data warehouse data, whereas reports merely present that information. Analytic applications are your tools for analyzing the performance, efficiency, and effectiveness of your operational CRM applications. Their output should enable you to improve the operational applications that deliver your customer experience in order to achieve the CRM objectives of acquisition, retention, and growth. For example, analytic applications may be designed to provide insight into customer behavior, requests, and transactions as well as into customer responses to your marketing, sales, and service initiatives. Analytic applications also create statistical models of customer behavior, values of customer relationships over time, and forecasts of customer acquisition, retention, and desertion.

Table C. The three key components of customer-centric intelligence CRM applications are described in this table.

DATA WAREHOUSING. Customer-centric intelligence applications depend on a data warehouse for input. The data model required for customer-centric intelligence applications is likely to differ from your existing data warehouse schemas in the areas of customer information, customer behavior information, and information about your marketing, sales, and service initiatives.

REPORTING. Reporting is the tried-and-true approach for understanding your customers. You probably have your favorite reports and your favorite formats. Your colleagues or your counterparts in other business areas have their favorites. These differences and different approaches to analysis may no longer work when you become a customer-centric company. You must have a single view of your customers and provide a consistent experience to all of them. Thus, you must be generating and reviewing reports on a consistent set of information throughout the organizations.

ANALYTIC APPLICATIONS. Analytic applications should reflect the way that your organization approaches analysis. Some organizations rely on statistical analysis and disdain data mining approaches such as clustering or neural networks. Other organizations distrust everything except the empirical information in the data warehouse. Look at analytical applications as your tool set for understanding your customers. It should contain a wealth of tools, some of which you may never use.

THE CRM PLAYERS

Implementing CRM applications with the goal of becoming a customer-centric company will likely involve purchasing application software packages. Building your own applications is not a viable nor practical option given the breadth, depth, and quality of available packages. There are three types of CRM software suppliers:

- CRM suite suppliers
- CRM point solution suppliers
- E-commerce suppliers

CRM Suite Suppliers

CRM suite suppliers offer a suite of CRM products that implements all the key customer-facing, customer-touching, and customer-centric intelligence applications. While application functionality varies across the suite, some products offering richer functionality than others. Suites usually have the advantages of providing a single and consistent view of the customer, integration across touchpoints, a single architecture, and support from a single vendor. The leading CRM suite suppliers are (alphabetically) Oracle, PeopleSoft, Siebel, and SAP. E.piphany also provides a CRM suite that implements all the CRM applications except e-commerce as do a number of smaller players such as Talisma. Oracle, PeopleSoft, and SAP have the additional advantage of tight integration between CRM applications and their ERP and supply chain applications, facilitating the automation of the business processes that support marketing, sales, and service.

CRM Point Solution Suppliers

CRM point solution suppliers offer products that implement one or two CRM applications. The advantages of a point solution approach are the ability to implement best-in-breed functionality and the ease of adding incremental applications to existing CRM environments. There are dozens of CRM point solution suppliers. For example, NCR and Unica offer products that implement customer-centric intelligence applications. MarketFirst and Revenio specialize in marketing automation solutions, and companies such as SalesLogix focus on SFA tools.

E-Commerce Suppliers

E-commerce suppliers provide, obviously, the customer-touching e-commerce application, and their offerings are far richer in e-commerce functionality than the e-commerce offerings of CRM suite vendors. In addition, the latest versions of their products package campaign management, contact center, and customer-centric intelligence capabilities—everything except sales force and field service automation, and the product support aspects of contact center. They also all do an excellent job of integrating external applications and automating supporting business processes. We've been following e-

commerce since 1996. The leading suppliers and products are (alphabetically) ATG Dynamo, Blue Martini 4, BroadVision Business Commerce and Retail Commerce, IBM WebSphere Commerce Suite, and Microsoft Commerce Server.

Selecting CRM Products

Given the array of supplier types, the very large number of available products, and the strategic nature of the applications that they implement, your selection of CRM products is a critical and potentially complex decision. These are the critical decision factors to consider when making your product choices:

- **FUNCTIONALITY.** What the products do should closely reflect the way that you do business.
- **SINGLE AND CONSISTENT CUSTOMER VIEW.** The products should minimize your efforts to integrate and synchronize customer information.
- **INTEGRATION ACROSS TOUCHPOINTS.** You've got to provide a consistent customer experience. You don't want to code it yourself.
- **AUTOMATION OF SUPPORTING BUSINESS PROCESSES.** The tighter the integration with back office and supply chain systems, the better the customer experience. This integration is about the most complex task in CRM implementation. The more that's "in the box," the better.

HOW TO SUCCEED WITH CRM

Implementing the CRM products that you select, and becoming customer centric through their integration and usage, are complex and strategic efforts that should touch every aspect of your organization. CRM projects require careful planning and meticulous execution. Here are a few key points to remember:

- Adopting a customer-centric philosophy and implementing CRM products will involve major cultural and organization change. You will meet a lot of resistance.
- CRM products automate business processes and tasks that you might never before have automated. They introduce additional organizational change and, perhaps, technological change.
- CRM should be enterprise-wide in scale and scope. Few organizations have the staff, skill, and budget to do it all at once. Take an incremental approach, one CRM application at a time, following a CRM pilot that you know will succeed.
- Many CRM products are new. You might be a pioneer for technology, products, and/or suppliers. There are significant rewards for pioneering, but there are significant risks, too.
- Supplier claims and user expectations for CRM can be unreasonable. Be skeptical of vendor claims. Have vendors prove their claims with references. Take small steps toward customer-centricity and have reasonable and demonstrable expectations for those steps.

CONCLUSION

Improved Satisfaction, Increased Business

And finally, here's the bottom line reason for "doing" CRM (answer "f" in our multiple choice quiz). CRM truly is a way to improve customer satisfaction and increase business. If you offer products and services that customers need (at a fair price), then they'll do business with you. If you make doing business with you an easy, efficient, responsive, and quality experience, then those customers do business with you over and over again. They become loyal customers, and you have profitable relationships with them. Remember that you must continuously earn their loyalty, never taking these customer relationships for granted. The continuous effort to earn loyalty will help maintain your customer focus and will grow those relationships. That's CRM.

An Executive's Guide to CRM

What's Important in CRM Architecture?

A Framework for Evaluation and Comparison

By Mitchell I. Kramer

NETTING IT OUT

While you should select a CRM product primarily on its functionality, its architecture should be a key consideration in your decision. Why? Because a CRM product's architecture will significantly influence the quality of the customer experience that your CRM systems provide. It will determine how easily a new CRM application fits into your existing operational and analytic application environments. And it will be a major factor regarding the time and cost to implement a CRM application.

We've created a framework to help you evaluate the architecture of individual CRM and/or e-CRM products and to facilitate their comparison with the other CRM products on your short list. Our framework has six evaluation criteria: environments, organization, infrastructure, structure, customization, and integration.

This report describes and discusses the evaluation criteria of our framework for CRM architecture.

WHAT IS ARCHITECTURE?

Architecture examines how products are built, how they're deployed, how they can be customized, and how they can be integrated with external applications. You should select a CRM product primarily on its functionality, but its architecture should be a significant influence on your decision. For example, the examination of architecture will let you understand: how well a CRM product will fit easily into your existing environment, whether it uses well-proven and widely-used technologies, how easy it is to customize, and what it takes to integrate with your existing business systems and the business systems of your customers and suppliers.

We've been examining architecture for a long time. Over the years of evaluating many types of software products, we've created and refined an approach that considers six areas of architecture. The approach has demonstrated the ability to identify differences among products, and those differences are the key to helping selection decisions. The six areas are:

- **Environments**, which are the Web servers, server platforms, and databases that a CRM product supports.
- **Organization**, which identifies a product's major components and the interfaces between them. Interfaces are always between two components)
- **Infrastructure**, which is the set of runtime services that support request handling, application processing, and database access.
- **Structure**, which is what's inside the product's major components, particularly the Web pages, application logic, and database.
- **Customization**, which is the adaptation of the components to address site-specific requirements.
- **Integration**, which complements and completes processing with the functionality of external applications.

In this report, we'll examine each of these areas, describing them in more detail, and presenting, in general terms, how CRM products should implement them.

Customer Data Model Key for CRM Architectures

For CRM products, one of the most important aspects of architecture is their customer data model. Customer data models are the key element of a product's structure. They will determine, to a large extent, the customer-centricity of the product, the ease or difficulty you'll have in integrating a new CRM product with your existing applications, and the quality of the customer experience that you'll be able to provide.

ENVIRONMENTS

Environments are the simplest architectural criteria to evaluate in your CRM product selection decision process and can be the easiest differentiator. Environments are the Web servers, server platforms, and databases supported by a CRM product. You shouldn't change server platforms and database standards to accommodate a new CRM product. You've likely made too large an investment in particular products to even justify a change. So a CRM product must support the environments that are already supported by your organization. Table A lists the leading suppliers for CRM environments. Illustration 1 shows them visually.

ORGANIZATION

A product's organization is the set of its major, components, the interfaces between them, and the protocols they use to communicate. It's also the way to describe or characterize an architecture. For example, to characterize the architecture of a fictitious "product A," we would say that product A is built on a three-tier, Web-based architecture.

You can get a feel for a product's availability, scalability, and manageability by examining the number and types of components and how they communicate with each other. Look for products that are coarsely granular with several components from both organization and structure perspectives, not so few components as to make the product monolithic, nor so many of them as to make difficult to implement and maintain. Look for interfaces that are standards-based and that support replication and distribution, characteristics that promote reliability and scalability.

Most operational and analytic CRM products follow the example of fictitious "product A." They're built on three-tier, Web-based architectures. Analytical CRM products follow three-tier client/server architectures as well as Web architectures. With fewer concurrent users and more intensive processing and database access, client/server architectures are not necessarily a disadvantage for the deep analysis functionality of these products, but they are a disadvantage when it comes to displaying the results of analytics or in using these to drive dashboards.

CRM Architecture Environments

Environment	Leading Suppliers
Web Servers	• Apache • IPlanet (Sun) • Microsoft
Server Platforms	• Microsoft Windows NT/2000 • IBM AIX • Hewlett-Packard HP-UX • Sun Solaris • Compaq Tru64 Unix
Databases	• IBM DB2 UDB • Microsoft SQL/Server 2000 • Oracle 8i, 9i

Table A. The leading suppliers of the key environments for CRM product are listed in this table.

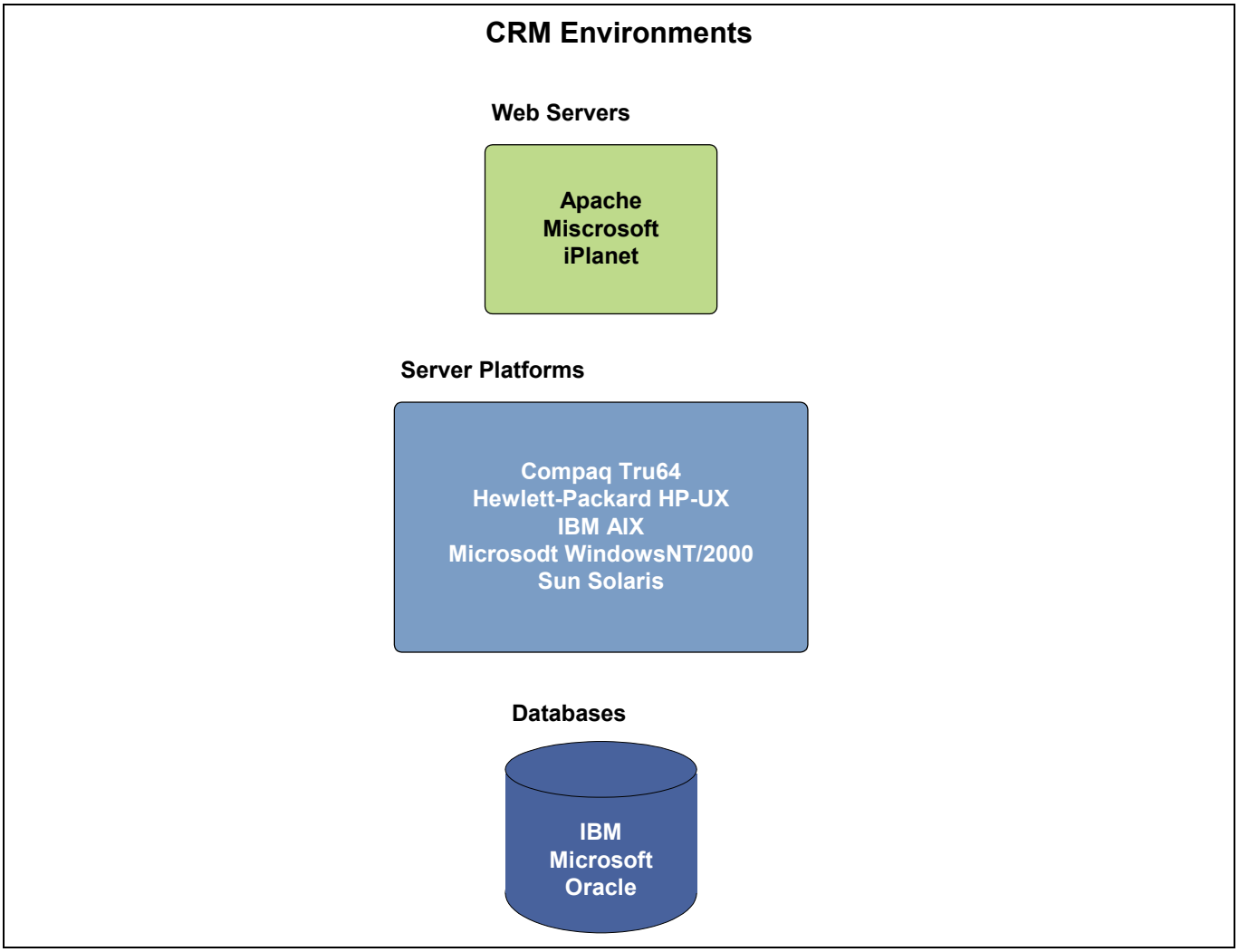

Illustration 1. This illustration shows the environments criterion of CRM architecture and the leading suppliers for Web servers, server platforms, and databases.

In general terms, CRM products have the following types of components in their three tier organizations:

- Clients
- Application server
- Database

In all the products that we've seen, CRM clients are always thin clients, either Windows desktops or Web browsers. We describe them as thin because they handle only the presentation of CRM applications. All processing is handled in the application server. Among the Web-browser clients, there's recently been a lot of noise by CRM suppliers about exactly how thin their clients are. Oracle claims it has 100 percent Internet clients. PeopleSoft touts its "pure Internet" clients. Siebel has begun pushing the "smart Web clients" of Siebel7.

What's the difference? Not really that much. The clients in the PeopleSoft Internet Architecture are just HTML—no client applets or components, no client-side script. They have the advantages of maximum portability, the lowest bandwidth utilization, and the minimum client processing. Siebel7 clients are DHTML, D for dynamic. They're richer and more interactive than HTML clients at the cost of some client-side processing.

The clients in Oracle E-Business Suite 11i are made up of HTML, JavaScript, and Java applets.

They're visually richer than PeopleSoft and Siebel clients, and they also provide more interactivity. However, the addition of Java applets can increase latency and client overhead.

Clients should provide a visually rich and interactive environment. These characteristics make for a superior customer experience. However, they can also be the cause of slow response and a less–than-intuitive user interface, which can ruin that superior customer experience. On balance, we prefer clients that offer the potential for visual richness and high interactivity, but that can be configured to optimize latency and response.

Application servers are the most complex component in organization because they perform all application and system processing. They manage user requests, providing appropriate security, routing, and dispatching. They control the execution of application logic and database access that represents the response to user requests. And they return these responses to the user. Application servers most typically perform a broad range of functions: the transfer requests and responses with users, application processing, security, request management, dispatching, memory management, process management, database access, access to external systems, load balancing, failover, and many others.

Application Servers handle the transfer of requests and responses. The application, itself, does application processing and database access. Web application servers handle the processing for all the system functions. We'll discuss application servers in more detail in the section, "Infrastructure," below.

Recently, we've seen a trend toward handling requests and responses and security through portals that are implemented between Web servers and the application. Portals provide infrastructure through which users can access a range of applications and data. They offer an advantage for CRM applications because users typically access multiple CRM applications, view a range of reports, or examine business performance across many dimensions through a dashboard. They don't invoke just one application and work within its UI; doing their jobs requires them to bounce in and out of multiple applications and to access a range of information. Portals provide application and data integration at the UI-level. All of the CRM suite suppliers, as well as the e-commerce suppliers, offer portal-based UIs.

CRM databases have three dimensions. The first supports operational applications. The second supports data warehousing-based analysis. The separation between operations and analysis is as important for CRM as it has been for ERP and supply chain applications. The third database dimension supports design and development for configuring and customizing CRM applications as well as for integrating them with external applications.

Illustration 2 shows this general CRM product organization.

INFRASTRUCTURE

Infrastructure provides system-level, application-independent services for multiuser, shared resource systems like CRM applications. The services include basic request handling, queuing, routing and dispatching, process and thread management, memory management, database connection management, and transaction management as well as the more sophisticated recovery/restart, failover, and load balancing. All of these (and more) are required for the proper operation of CRM and other applications.

CRM products should leverage the services of commercial infrastructure products, such as J2EE Web application servers or the Microsoft .NET infrastructure for Internet applications. We hope that the days of product-specific, proprietary infrastructures are over. We feel strongly that CRM vendors, especially the smaller ones, should focus on CRM functionality and leave infrastructure to vendors in the infrastructure business. Illustration 3 shows CRM infrastructure visually.

Handling Product Legacies

While J2EE and .NET provide excellent infrastructures for the middle tier application server component of CRM applications, both are relatively new technology. Many CRM suppliers have been offering their CRM and other application products for many years longer than J2EE and .NET infrastructures have been available and viable. Major modifications to organization and application logic would be required for these suppliers to deploy their applications on modern infrastructures. Such a move would be extremely disruptive to their customers, not to mention being a significant R&D investment.

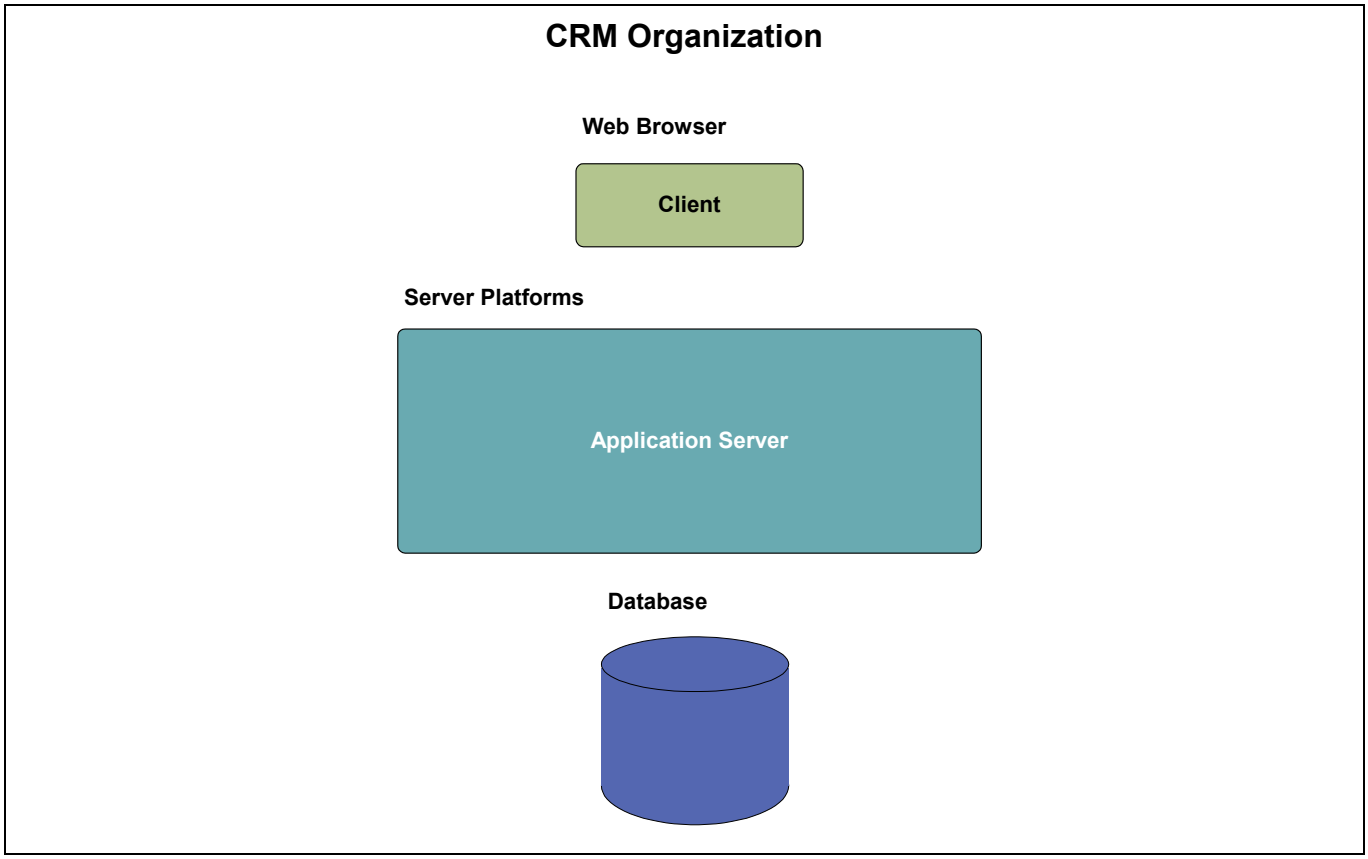

Illustration 2. Most CRM products follow a similar organization of clients, application servers, and databases. That organization is shown in this illustration.

For example, PeopleSoft CRM applications are written in C++ and deploy on a BEA Tuxedo infrastructure. mySAP CRM applications are written in SAP's ABAP 4GL and deploy on a proprietary infrastructure. (With 17,000 customers, this infrastructure might be described as an industry standard.)

Rather than redeveloping their applications on new technologies, the CRM suppliers with long legacies and large customer bases are implementing the new technologies around the edges of their applications. PeopleSoft uses J2EE to handle the UI of its applications and provides the mechanisms to customize application functionality through Java components and to integrate external applications through XML interfaces. In addition, and very importantly, the major CRM suppliers have all announced that they will expose the functionality of their CRM (and ERP and supply chain) applications as Web services and will support the key standards of WSDL, UDDI, SOAP, and XML to enable their discovery, access, and integration.

Many suppliers of analytic CRM products also have product legacies. There's a lot of C++ and client/server among their offerings. They're also moving to the modern Web infrastructures at the edges, UI first.

This legacy preservation approach is a good one. Take care, though, to make sure that the implementation of the new, hybrid infrastructures insulates you from complexity and cost. Look for products that bundle the old and the new application functionality and infrastructure in a single, integrated package at a single price, and avoid products that require you to purchase, implement, and support separate, infrastructure-specific components.

Note that, on the other hand, most of the leading e-commerce suppliers offer J2EE or .NET based products. Those suppliers with legacies, such as

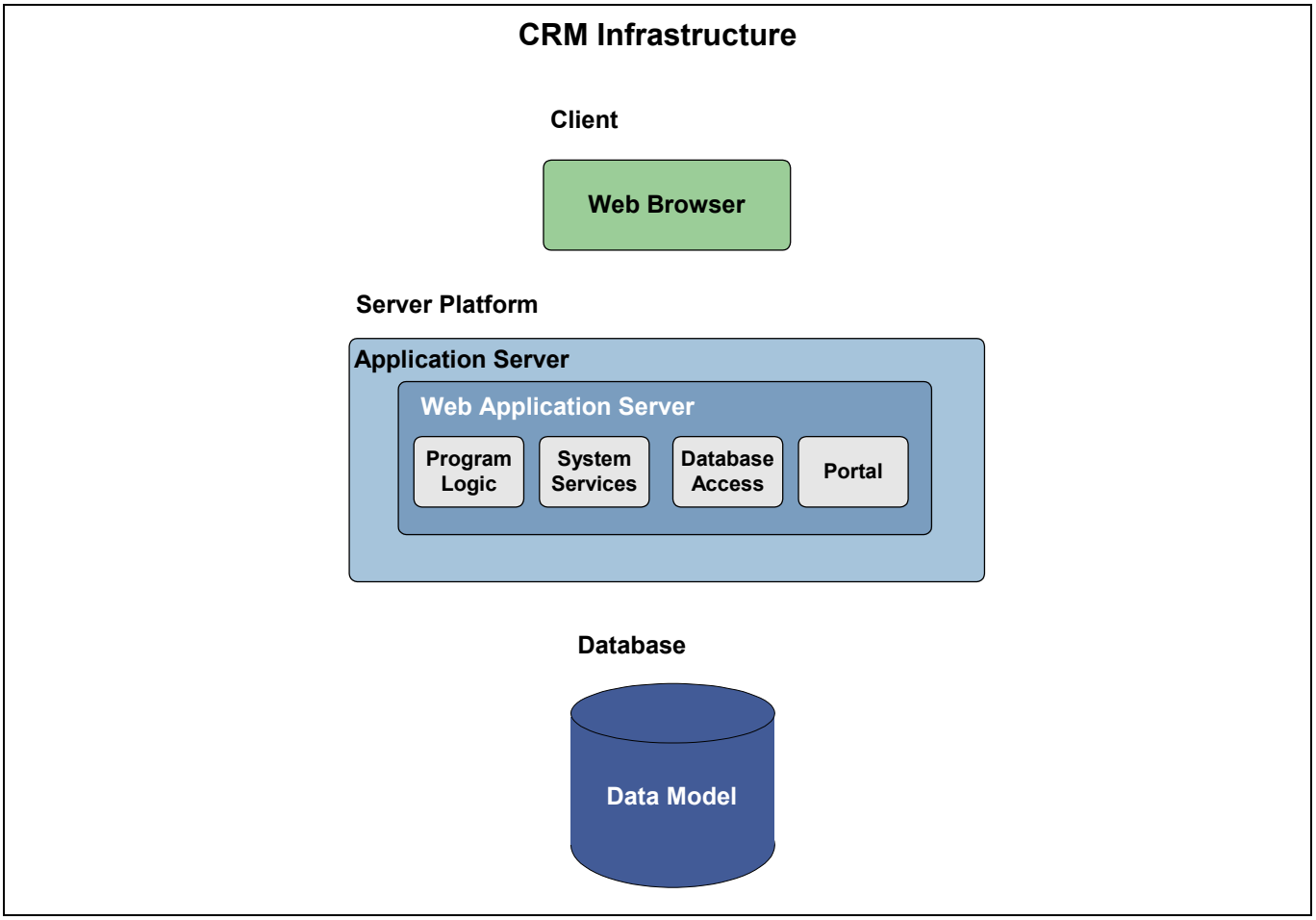

Illustration 3. This illustration shows CRM infrastructure.

BroadVision, have taken an at-the-edges approach to new technology.

STRUCTURE

By structure, we refer to what's inside the major components of a CRM product's organization, how they're built and what they're made of. CRM products with three-tier, Web-based organizations, have three types of components that define and describe its structure:

- Web pages
- Program logic (for both application functionality and application services functionality)
- Data Model

Knowing a product's structure can give you an idea of the skills, effort, and additional resources that you will require to implement, customize (everyone does *some* customization, especially with CRM products), support, and maintain the product as well as to integrate it with external applications. When the structure of a product's Web pages, program logic, and data model is based on standard and popular technologies, and when its program logic is implemented as coarsely-grained components, your work is simplified.

Web Pages

There are standards for the structure of Web pages. Within J2EE infrastructures, Web pages are built on the Java Server Page (JSP) specification that combines HTML, JavaScript, and Java applets. Within .NET infrastructures, Web pages are built on

the Active Server Page (ASP) structure that combines HTML, VBScript or JavaScript, and COM components. JSPs and ASPs are quite similar. They support dynamic, visually-rich, and highly-interactive Web pages.

The CRM product that you select should support either of these industry standards. Both are mature, well-proven, and widely-used. Avoid products that combine HTML with proprietary tags. Note that some CRM products implement JSPs but, in order to simplify administration and to maximize performance, do not include applets within Web page structure. (ASP-based products would analogously not include COM components.) We've discussed these approaches within the section, "Organization," above. Note also that DHTML is not as widely used as JSP or ASP.

Program Logic

The structure of a CRM product's program logic should be coarsely-grained components. Components are object-oriented structures that have interfaces and implementations. A product should not have so many components as to make finding an individual component hard to do in order to facilitate configuration, customization, and integration. There should not be so few as to make a product monolithic. The supplier should publish the interfaces of all a product's components. That's essential for customization and integration. Also, to maximize scalability and performance, components should be organized into stateless components that provide the e-CRM services and stateful components that store and manage the information that changes as a result of performing the services.

The deployment approach is not ideal because business rules and program logic are not in separate modules, but it works.

JAVA? Components are implemented in a programming language such as Java, C++, or a 4GL. Java has become something of an industry-standard language for the program logic of Web applications.

Java has significant advantages, but it's not a requirement for CRM program logic. It's a low-level language. For example, Visual Basic is easier to learn and easier to use, and it supports component-based development. Second, as with their infrastructures, many CRM products have non-Java legacies for the structure of their program logic. Suppliers and customers are frequently better off leveraging their investments in legacy technologies. Third, many suppliers, including many with non-Java legacies, such as PeopleSoft and SAP, generate component-based program logic from metadata specifications. Developers almost never touch code, working instead with easier-to-understand metadata code descriptions.

BUSINESS RULES. Business rules represent an organization's policies and business practices. They qualify an operational CRM application's program logic at runtime at key points during processing. Like application logic, business rules should also be implemented as coarsely-grained components that integrate seamlessly with the components that implement application logic. However, the components that implement business rules are developed and deployed separately from program logic so that they can be modified independently. Their development environment should be visual and easy to use so that business managers, not developers, may specify them. Their tools should provide easy-to-use deployment mechanisms because you'll change them frequently.

In practice, we've seen among the large CRM suite suppliers that business rules are specified and implemented within the metadata of CRM applications. The metadata is then used to generate application modules or components which combine program logic and business rules. As a result, changing business rules requires regenerating the entire application module. Metadata development environments are quite visual, and it's usually quite clear how to make business rules changes. The deployment approach is not ideal because business rules and program logic are not in separate modules, but it works.

ANALYTIC APPLICATIONS. It's critical that operational CRM applications have component-based program logic. You will be customizing them and integrating them with external applications. It's far less important that analytic applications have these same structural characteristics for program logic, mostly because they're not typically customized or integrated.

Data Model

A data model is an application's logical representation of the information that it processes. Data models for CRM, ERP, and supply chain applications represent the business entities involved in the processing that they perform. For example, a supply chain application's data model will typically represent catalogs, products, purchase orders, invoices, advanced shipping notices, and the like. Most significantly, the data models for all these applications represent customers. Their customer data model is their architectural key to customer-centricity.

Customer Data Model

CRM products should help you become a more customer-centric organization. From the perspective of architecture, a CRM product's or product suite's customer data model is a critical element in evaluating the customer-centricity of that CRM offering. Remember that being customer-centric enables your business to be driven primarily by your customers, not by your internal processes and requirements. Your goal is to provide the best possible experiences for your customers whenever and wherever they interact with you (directly, through the contact center, through the Web, or through e-mail). The best experiences result in the most satisfied and loyal customers, and the most satisfied and loyal customers are willing to do more business with you.

So how does a customer data model enable customer-centricity? It's absolutely true that the better you know your customers, the better the relationships that you can create with them, the more satisfying those relationships can be for your customers, and the more profitable those relationships can be for you. It follows that the better the customer data model of your CRM systems, the better your CRM systems will embody your knowledge of your customers. But what makes a "better" customer data model? We believe that there are four factors:

- Richness
- Openness
- Flexibility
- Consistency

The customer data model is actually the metadata that describes your customers and their relationships with you. The model is implemented within operational CRM systems in a manner that maximizes responsiveness for concurrent, shared access and supports online transactions. The model should also be implemented in customer-centric intelligence systems in a manner that both facilitates the execution of analytics and maximizes complex query performance.

RICHNESS. Richness is the key factor. By richness, we mean the amount of information in the customer data model and the breadth and depth of that information in representing every possible aspect of your customers' identities, their business relationships with you, the transactions between them and you, and the marketing, sales, and service interactions among you. This information will differ slightly for B2B and B2C customers. Table B lists and describes through examples the important characteristics of customer data model richness.

Customer data model richness is mirrored by equivalently rich functionality, and functional richness is one of the major reasons that you select a particular CRM product or suite. Also, the more that's predefined, the less that has to be modified or extended, and the easier it may be to integrate and synchronize customer information with existing applications.

Customer data is the most private and sensitive information that you manage. Access to it should be very carefully controlled. We like schemes that provide role-based access with privilege levels that control the operations that can be performed within roles. Customers should have the appropriate roles and privileges to access the data that you manage about them. They should even be able to update and delete some of it. On the other hand, most marketing information should be protected from customer access.

Richness of Customer Data Models	
Richness Characteristic	**Description**
Identification	Identification information should include name (salutation, first, last, title, qualifier, nickname), address (sold-to, bill-to, ship-to addresses), company, company organization, company organization relationships (regions belong to divisions, for example), and company organization person contact for B2B, household and household relationships for B2C, preferences, demographics for B2C.
Relationship	Relationship information represents the terms and conditions of any ongoing business between you and your customers. For B2B relationships, this information represents the contracts between you and your customers. Contracts have product, price, quality of service, and payment terms. They are associated with a customer's organizational entity, and they have identification, role, and authority information for contacts and administrators (different than identification contacts). For B2C relationships, this information might represent warranties or service contracts that include product, price, and quality-of-service terms, as well as contact identification information.
Marketing	Marketing information should include customer value, customer profitability, the segments to which a customer belongs, and scores and indicators for loyalty, satisfaction, recency, frequency, and wallet share, It should also include a history of all the campaign offers that you've made to the customer and the customer's responses to those offers.
Sales	Sales information should include the quotes and proposals that you've made to customers and the orders that your customers have placed with you. It should include complete quote, proposal, and order histories, all quote, proposal, and order details (as you represent them), and an indication of the touchpoint with relevant touchpoint information such as sales rep through which each quote, proposal, and order was placed.
Service	Service information represents your customers' requests and your responses for product support and service, order management actions such as returns and complaints, and customer management actions such as identification information changes. This information should include outstanding requests and their priority, the histories and details of these interactions, the touchpoints through which they occurred, and identification information of relevant personnel.

Table B. Key characteristics of customer data model richness.

OPENNESS. The customer data model should be made available to you. You and your developers can study its design in order to facilitate customization and integration. Your customers are being represented within this data. You should understand that representation in detail.

FLEXIBILITY. You should be able to modify and extend the customer data model in order to address your business requirements. You should reflect the customer data models of your other operational applications as they are integrated with new CRM products in order to provide a consistent customer experience across all touchpoints and business processes. You must, of course, provide the functionality to reflect these modifications and extensions.

CONSISTENCY. For operational CRM applications, the customer data model and the values of its attributes must be accessible consistently across all the touchpoints through which you interact with your customers and across all your CRM applications. You want to be able to treat your customers the same way no matter how they decide to interact with you. For analytic CRM applications, the customer data model and the values of its attributes must be consistent across all data warehouses and data marts. The conclusions that you draw about historical customer behavior, the predictions that you make about future

customer behavior, must have a common and consistent foundation.

CUSTOMIZATION

All CRM applications get customized. In fact, all operation applications get customized to reflect the characteristics and nuances of implementing a company's business processes and information structures. We've heard you say it. "We're from (name of your company), and our requirements are unique." You customize application software packages in order to address those unique requirements. What gets customized are the elements of an application's structure, its Web pages, program logic, and data model.

We differentiate customization from configuration. CRM products are designed to be configurable. Configuration changes application processing from the outside in, typically through the specification of predefined parameters. Customization changes the way those parameters are handled from the inside out or even specifies new parameters to be specified.

ANALYTIC APPLICATIONS. While operational CRM applications are almost always customized, generally, analytic applications are not. You don't change their program logic (which is frequently proprietary intellectual property), and their user interface and data models are designed to be configured to address your requirements.

Customization Tools

Customization tools are development tools. The same tools that you use to create Web pages, code application logic, and implement a data model in a database are used to customize CRM products. For example, customizing a JSP requires an HTML editor, script editor, and, if the JSP includes applets, a Java coding tool or development environment. When the CRM product's structure is built on standard or popular technologies, there's a wide range of tools for its customization.

When a CRM product is built on proprietary structures, you're forced to use the supplier's tools for customization. That's not a disadvantage if you've already invested in other products from that supplier. It can be a significant disadvantage if you haven't. When structure is metadata driven, such as it is for PeopleSoft, SAP, and Siebel CRM products, that disadvantage is mitigated to some extent.

INTEGRATION

CRM systems provide a business with a wide range of customer-touching and customer-facing functionality. CRM products must be customized to reflect the look and feel, business processes, and information structures of the companies that implement them. The products also require integration with both *internal* and *external* business systems in order to automate business processes.

By internal business systems, we mean your other operational CRM applications and your back-office systems, as well as your data warehousing and analytic applications. By external business systems, we mean the CRM systems of your sales and marketing business partners and the back-office systems of your suppliers. For example, an e-commerce application should provide integration with inventory systems in order to present availability and lead times to online shoppers and customers. A contact center system should provide integration with order management systems so that customer service representatives can answer customer questions about current order status or historical order details. In addition, it is becoming increasingly important to integrate with the external business systems of customers and suppliers—a seller should be able to receive and process purchase orders from its customers, sending back a purchase-order acknowledgement; similarly, a seller should be able to have the same exchange with its suppliers.

Most significantly, CRM products should provide an integrated view of your customers, collecting customer information from its numerous and heterogeneous sources and providing consistent access across all applications. CRM suites can address this requirement more easily than point products that implement individual applications because suites "own" more of the customer experience and likely have roots in ERP and supply chain applications which own even more. While integration of customer data is a key requirement, it is your hard data integration and synchronization work that will address it.

Integration Is a Critical but Complex Task

Integration is one of the most difficult tasks that you'll face in implementing CRM products. To address this issue (and the business opportunity that it represents), the industry has spawned an integration market. There are many integration technologies and products available. There are emerging standards in messaging protocols and business process specifications. Integration is becoming easier as more companies recognize the business benefits of responsive customer service and supply chain management, but don't underestimate its complexity and the time and effort needed to do it effectively.

Look for integration capabilities in CRM products that implement operational applications that simplify integration tasks through:

- A range of integration approaches—synchronous, realtime program-to-program integration, asynchronous, message-based integration.
- Integration of both internal business systems and external customer and supplier systems.
- Support of integration standards such as XML and, minimally, plans to implement functionality as Web services. (We're still early in the implementation and adoption of Web services.)
- Packaging of integration technologies and products that minimize development.

Selecting a CRM product from one of the leading suppliers can have significant advantages in integration. The market influence of these suppliers has resulted in many other CRM suppliers and all the integration suppliers offering integration with their offerings. Integration with PeopleSoft, SAP, and Siebel is provided in this manner.

ANALYTIC APPLICATIONS. For analytic applications, integration is not as important an evaluation criterion. Analytic applications are typically not linked into automated business processes. Rather, most of them execute in separate, offline data warehousing environments. However, we are seeing the use of analytics in line with operational applications to implement realtime analysis is areas such as cross-sell, up–sell, and retention. Realtime analytics are only effective if they can be integrated with operational applications and integration approaches, requirements, and issues are those discussed above.

CONCLUSION

Architecture should be a significant factor in your selection decision for CRM products, both operational products that implement customer-touching and customer-facing applications and analytic applications that help you understand your operations and improve their efficiency and effectiveness. Using the six criteria of our framework for evaluating the architecture of CRM products can optimize and shorten your selection process.

An Executive's Guide to CRM

What Are Customer-Centric Analytic Applications?

A Framework for Evaluation and Comparison

By Mitchell I. Kramer

NETTING IT OUT

Customer-centricity is an approach to doing business that ensures that you retain and grow your best customers. Customer-centric analytic applications are tools that can help you become more customer-centric. They can help you understand your customers and improve the effectiveness of your customer experience to make your customer relationships stronger and more profitable.

Selecting the customer-centric analytic applications that are best for your company can be a complex and risky process. There are dozens of technologies and products that are described as analytic applications, and all of them promise to deliver the benefits of customer-centricity faster, cheaper, and simpler than the next.

This report documents a framework of criteria that you should use to evaluate customer-centric analytic applications and to compare those evaluations in order to make optimal product selections. Our evaluation framework looks at four dimensions of customer-centric analytic applications:

- Functionality
- Architecture
- Product marketing
- Company viability

ANALYTIC APPLICATIONS AND CUSTOMER-CENTRICTY

Customer Centricity Is the Best Strategy in These Tough Economic Times

Times are tough. In today's economic climate, budgets—especially IT budgets—are extremely tight (and, many think, getting tighter), and ROI on new strategic systems must be achieved in six months or less or those systems are not acquired. Competition is brutal. Prices are being slashed and margins are disappearing as sellers fight for every deal. For so many companies, cost reduction has become a key strategy because it's so hard to improve the top line.

Customer-centricity, a customer-focused approach to doing business, can be a better strategy for today's tough times. Why? Customer-centricity ensures that you retain and grow your best customers. Thus, it's a way to reduce costs; it's far more costly to acquire new customers than to deepen business relationships with the ones you already have. Customer-centricity can reduce competition. Satisfied customers are loyal customers. They might even pay a little more for your products because they know that the service you provide is so good and creates value above simple price differences (and that improves your bottom line). Customer-centricity can even drive revenue, improving your top line. By knowing your customers and by streamlining your business processes from a customer perspective, you can offer the right customers the products and services that they need when they need them (and that results in more sales).

Customer-Centric Analytic Applications Are Tools to Help You Become More Customer-Focused

Customer-centric analytic applications are tools that can help you become more customer-focused. Their implementation and usage in your business can help you:

- Understand the behavior of your customers and how they prefer to do business.
- Understand the products and services that your customer need and the ones that they buy.
- Identify your best customers.
- Identify your most loyal customers.
- Understand how efficient and effective your marketing, sales, and service business processes, and the applications that implement them, are in addressing your customers' needs.
- Tune your marketing, sales, and service business processes and the applications that implement them to better serve your customers.
- Understand what aspects of your back-end business processes and applications affect the Quality of the Customer Experience (QCE^{SM}) your company delivers to customers.
- Improve and monitor the aspects of your back-end processes and applications that may adversely affect the QCE you deliver.

By helping make you more customer-centric, customer-centric analytic applications can become the mechanisms for understanding, strengthening, and growing the relationships that you have with the customers.

Yes, customer-centric analytic applications are those tough-to-justify strategic systems, but their benefits are significant and can be achieved rapidly, enabling you to justify the cost of their acquisition and implementation and to demonstrate ROI quickly. You should think of them as tools for creating customer centricity.

Many Customer-Centric Analytic Applications, Many Claims

So, now that we have your interest in customer-centric analytic applications, here's the catch. There are dozens of technologies and products that are described as analytic applications, and all of them promise to deliver the benefits of customer-centricity faster, cheaper, and simpler than the next. Identifying which ones of the dozens really are customer-centric analytic applications and, then, selecting the one that's best for you can be a difficult, time-consuming, and risky process. We'd like to give you some help.

As we've done for so many other types of strategic software—visual application development tools, relational, object, and object/relational databases, electronic commerce servers, and Web-based query and reporting tools—we've created a framework-based approach to help you evaluate and compare customer-centric analytic applications. The objective of the approach is to shorten the time and reduce the risk for you by narrowing your section decision to a short list of two or three products. The approach is, itself, a framework of evaluation criteria to apply against customer-centric analytic applications products. Our continuing research and analysis of technologies and products, our work with the suppliers of these technologies and products, and, most significantly, our work with companies that can and have benefited by the implementation of customer-centric analytic applications are the foundations for specifying the criteria. Your use of the evaluation framework is reinforced by our evaluation of the leading and the innovative customer-centric analytic applications against the framework.

WHAT ARE CUSTOMER-CENTRIC ANALYTIC APPLICATIONS?

Types of Analytic Applications

In terms of classification, customer-centric analytic applications belong to the business intelligence (BI) or decision support (DSS) domain (we use these terms synonymously). They're not software that you use to *do* business. Rather, they're software that you use to *analyze* business. Further, within BI or DSS, there are many types of analytic applications—

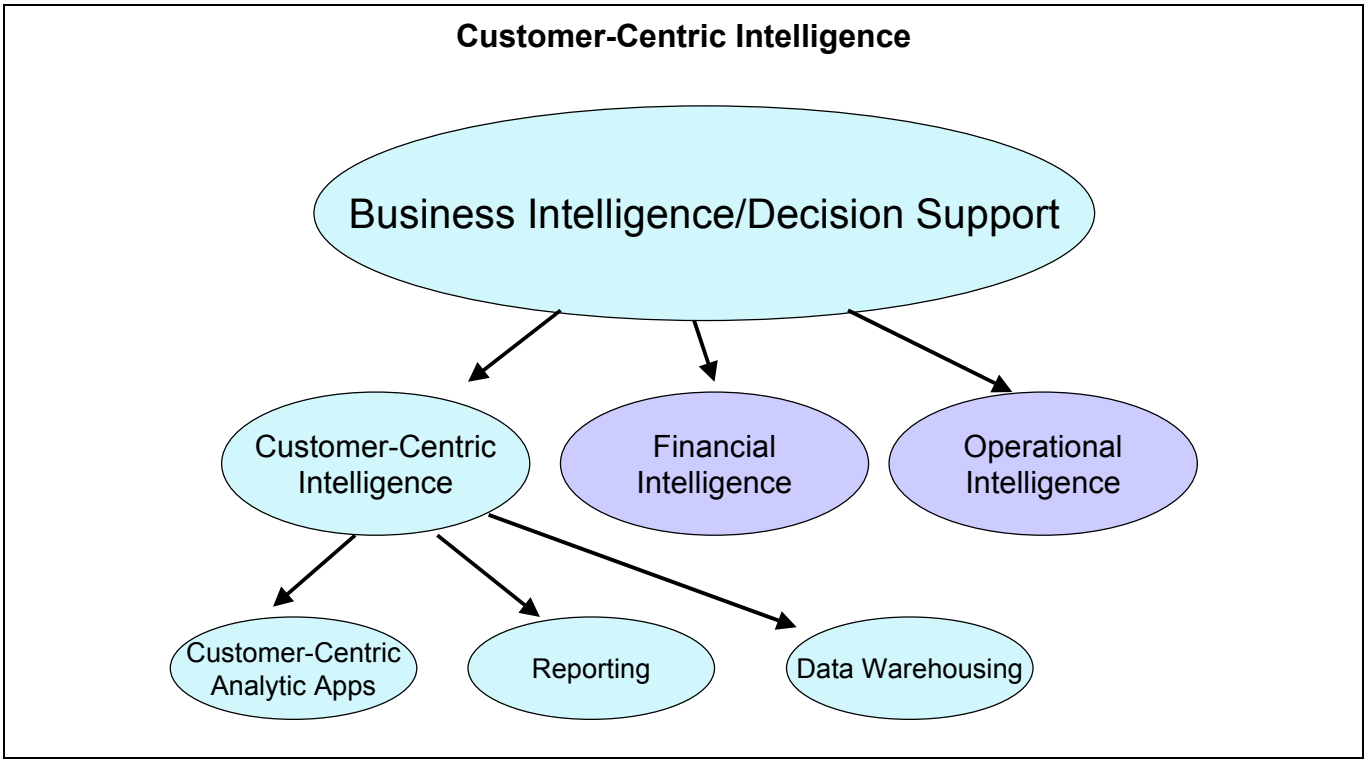

Illustration 1. Customer-centric analytic applications are one category of customer-centric intelligence tools. Customer-centric intelligence is a subset of business intelligence which focuses on customer-specific information.

customer-centric or CRM analytics, business operations analytics, financial analytics, and supply chain analytics, just to name a few.

Because our interest, really our corporate focus, is on the customer, we consider the domain to be *customer-centric intelligence*, and we're most interested in customer-centric analytic applications, also commonly called CRM analytics or analytical CRM (see Illustration 1). Customer-centric analytic applications are tools that help make you more customer-focused. Their usage can help you understand the performance, efficiency, and effectiveness of your operational CRM applications and of the other operational applications that impact your customers' quality of experience. Their usage can also help you understand you Quality of Customer Experience (QCE). QCE is our approach to measuring and monitoring how your business processes and the systems that implement them contribute to the service that your provide to your customers and with the level of satisfaction your customers have with that service.

Processing Sets them Apart

Processing is what makes analytic applications what they are. That is, they include program logic; they do computing. Processing differentiates analytic applications from reports. Beware of reports. They're quite commonly positioned and marketed as analytic applications, but they're not. Reports simply present information as it exists in a data source and allow users to interact with this presentation. Reporting is a very important analytical tool, and, in fact, reports are commonly the output of analytic applications, but reports themselves do no processing.

Processing defines analytic applications and gives them significant advantages. Processing in analytic applications, as in any applications, creates automation. Automation gives you speed, efficiency, and consistency in the analysis of operational systems and in the decision-making that improves their efficiency and effectiveness Processing also improves the breadth, depth, scope, and scale of analysis.

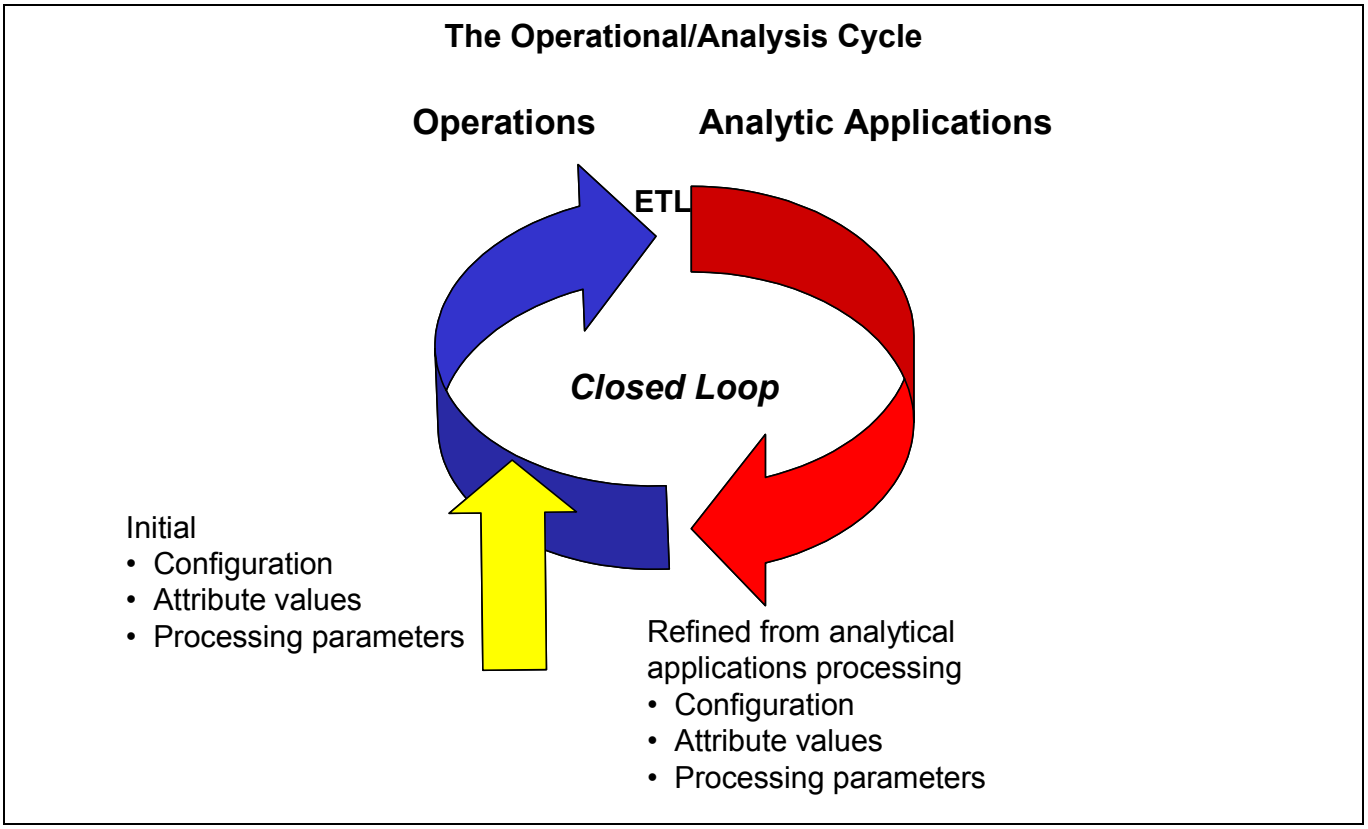

Illustration 2. This illustration shows the operational/analysis processing cycle.

While we're on the topic of processing, let's discuss OLAP. OLAP is a very useful analysis technique. It's the interactive, visual navigation of hierarchies of de-normalized information—drill and pivot, slice and dice. Many feel that OLAP is an analytic application. Its operations are certainly analytic in intent. Many others feel that OLAP is a form of reporting. It simply presents information that exists in a data warehouse or data mart. We side with OLAP as a form of reporting. OLAP can't provide the consistency of analysis possible with analytic applications because the decision-making of which path of analysis to follow is left to the user, not determined by program logic. But we're not too uncomfortable calling OLAP a form of analytic application, although the lowest, simplest form. Analytic applications should do so much more than OLAP in terms of automation and depth of analysis, and, of course, consistency.

The Operations/Analysis Cycle

Customer-centric analytic applications are customer-centric intelligence applications they analyze the results of the operational CRM applications that you use to do business with your customers. Customer-centric intelligence applications work in a two-phased, closed-loop cycle with operational applications. The two phases are operations and analysis. The loop between them is closed because, after an initial operational phase, the result of operations becomes the input to analysis, and the output of analysis is used to improve operations. Illustration 2 shows the operations/analysis cycle, its phases, and the flow of control and data between the phases to create the cycle.

Operational systems and analysis systems are separate. While they work together in a closed-loop cycle, they have separate execution platforms, processing characteristics, data sources, data access characteristics, and types of users. Their purposes and processing are most significantly different. For ex-

ample, operational systems are designed to provide fast response to many concurrent users. They access and update small amounts of data and do short bursts of processing. That processing is often transactional in nature. On the other hand, analytic systems are designed to perform complex and long-running processing to a few concurrent users. During the processing, large amounts of data may be accessed, usually in read-only mode, with complex queries. Processing and database technology has yet to be developed that can balance between these two types of processing without compromising operational responsiveness or analytic performance. As a result, each should run in its own environment.

Real-Time Analysis?

Historically, it has always taken a long time to run analytic applications due to their complex processing and access of large amounts of data. With new emphasis on customer-touching applications such as campaign management, e-commerce, and self-service customer support, as well the capability to interact directly with customers through these applications or through contact center dialogs the concept of real-time analysis has cropped up. The idea behind real-time analysis is to provide optimized responses to customer requests as those requests are being made. Analytic applications do the processing to optimize those responses, and, because the requests made within an interactive dialog, the responses must be made in real time.

In theory, real-time analysis is a great concept. It lets you take advantage of the precious time that your customers are in contact with you and makes the experience that you deliver to your customers the best that it can be. For example, you're probably familiar with real-time analysis for cross-sell recommendations within e-commerce applications. Based on what you have previously purchased, based on your customer profile, based on what others similar to your profile have purchased, or based on similar purchases, an e-commerce system automatically and in real time recommends cross-sells to you while you're shopping or at the time of purchase.

In practice, real-time analysis can have significant disadvantages. Some analyses involve the execution of sophisticated algorithms that consume significant CPU resources. Other analyses involve the execution of complex queries requiring significant database processing and the retrieval of large volumes of data. Other analyses combine the two. Clearly, real-time use of these types of analyses would compromise a system's responsiveness and result in a poor customer experience. On the other hand, there are analyses that are simple enough to be performed in real time. Our question about these analyses is whether they really add value to the customer experience. They might be so trivial that they add little value. You should try to seek a balance—understand the resources required to perform the analyses that really add value. If you can execute them in real time with a minimal impact on responsiveness, then go for it. If not, execute them offline, and use their results in real time.

Another disadvantage of real-time analysis, especially real-time analysis that results in the supposed improvement of operational systems, is that it may also change your marketing, sales, and service programs and campaigns in real time. Take care not to change programs and campaigns before you've had a chance to measure and understand their effectiveness. Make sure that they run long enough so that you know whether they've succeeded or failed before you change them.

Bottom line—take care in using real-time analysis.

Closed Loop?

We described the operational/analysis cycle as a closed-loop cycle. We don't mean to imply that the cycle is automated. It may not always be possible to actually change operational systems with the results of analysis or the output of predictive modeling. It's no easier to integrate an analysis system with an operational system than it is to integrate two operational systems. More significantly, the potential to improve operational effectiveness should never compromise your change-management practices. Improvements must always be tested, promoted, and staged into production systems.

A FRAMEWORK FOR EVALUATING CUSTOMER-CENTRIC ANALYTIC APPLICATIONS

A Hierarchy of Dimensions and Evaluation Criteria

We have identified four dimensions for evaluating customer-centric analytic applications. By dimensions, we mean broad evaluation areas that serve to organize specific evaluation criteria. The evaluation framework is a hierarchy of dimensions and evaluation criteria within each dimension. The framework hierarchy is shown visually in Illustration 3. The four dimensions of the customer-centric analytic applications framework are:

- Functionality
- Architecture
- Product marketing: product viability (customer base, length of usage), price, plans
- Company viability: customers, financials

FUNCTIONALITY

By functionality, we mean what customer-centric analytic applications do, the capabilities that they provide. Functionality is the most important evaluation dimension. How well a product provides the capabilities that you need should be your primary selection factor. Also, many customer-centric analytic applications products will offer functionality beyond your requirements. This functionality makes products more attractive. While running your business on the basis of a product's functionality is not a good idea, expanding your current analyses with these additional capabilities may help you become more customer-centric and more effective at being so.

There are five evaluation criteria within the functionality dimension:

- Analysis
- Prediction
- Business performance measurement
- Business performance monitoring
- Output

Analysis

Analysis is the most important evaluation criterion with functionality. After all, analytic applications *do* analysis. At a minimum, analysis capabilities should include:

- Segmentation and profiling
- Analysis of proactive customer behavior in marketing, sales, and service
- Analysis of reactive behavior in response to marketing and sales
- Analysis of transaction processing

These analyses should be supported for both B2B and B2C, and their functionality should support all touchpoints and all of your business systems. They should be customer-focused, enabling you to better understand your customers and the relationships that they have with you.

How these analyses are implemented and how many and what types of analyses are packaged within these general types can't be specified as an evaluation criteria. There are just too many implementations and too many analysis types that can address your requirements. As a result, look for products that provide a broad range of analyses. At a minimum, the product should have the analyses that you currently use. The analyses include algorithmic processing such as statistics and data mining in order to uncover hidden or unsuspected aspects of your customers and to help you analyze large amounts of data.

With a broad range of analyses, it's critical that products provide some guidance into what analysis to use for what purpose and how to interpret its output. Samples are a great aid for demonstrating these points to users.

Prediction

Where analysis is an approach to gaining insight from the historical results of operational processing, prediction uses both the output of historical operational processing and the output of historical analysis to control key aspects of future operational proc-

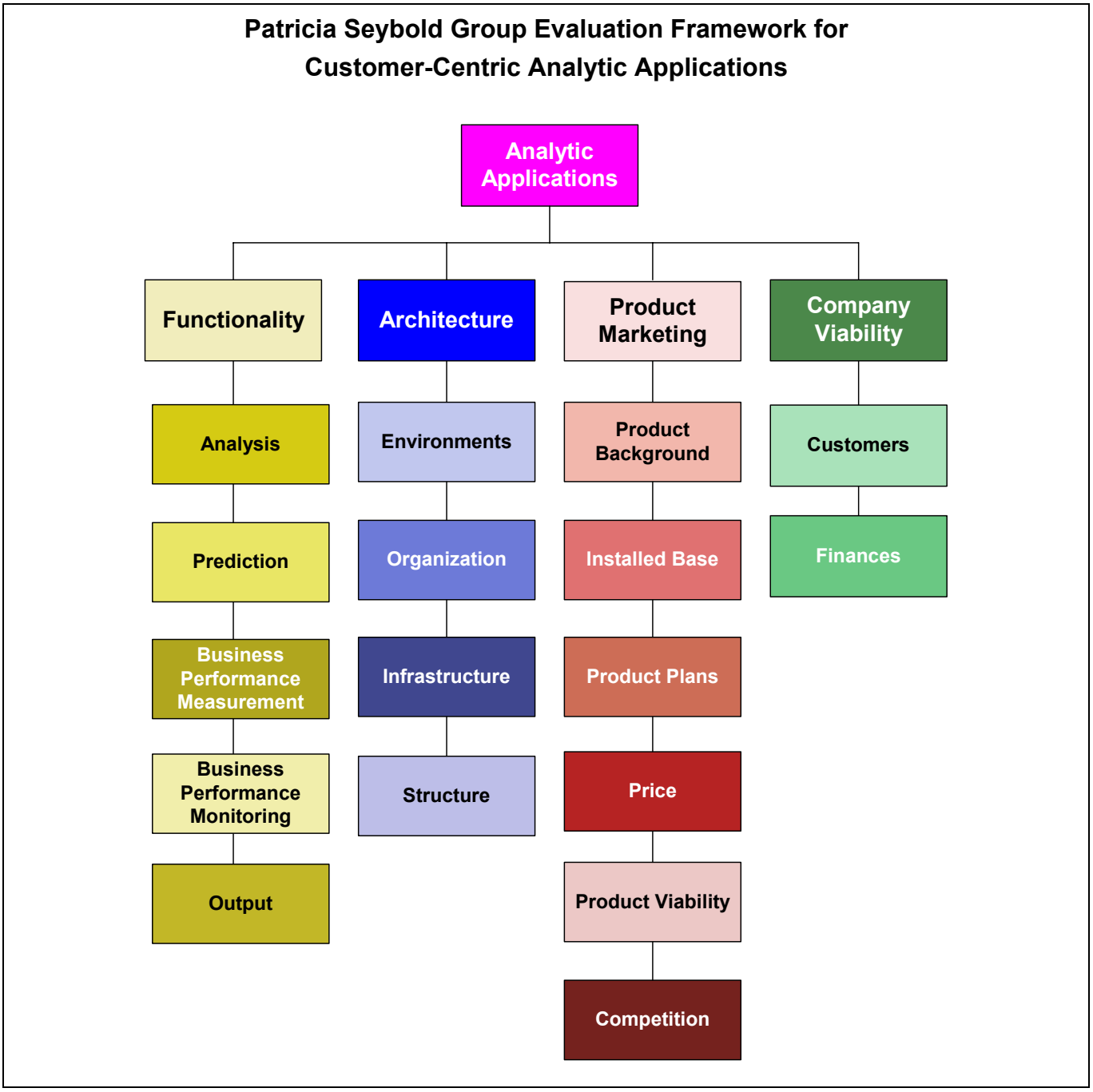

Illustration 3. The Patricia Seybold Group evaluation framework for customer-centric analytic applications is shown in this illustration.

essing. For example, prediction is commonly used to estimate lifetime customer value, identify customers likely to desert, or identify customer most likely to respond to an e-mail campaign offer. Prediction is another key evaluation criterion, although not as important as analysis and not as commonly found in analytic application products.

Prediction is implemented by several types of algorithms. Evaluating which type is best for a particular customer-oriented purpose is beyond the scope of this framework. Look for customer-centric

analytic application products that support the types algorithms that you already use or that support a range of types.

Business Performance Measurement

Customer-centric analytic application products measure the business performance of your customer experience. Because their input represents all your customers, all your systems, and all your touchpoints, they provide a 360-degree view of the entire experience. This type of performance measurement is based on metrics, which are sometimes also called key performance indicators (KPIs). KPIs include average order size, average time between orders, number of complaints, frequency of complaints, and so on. You should determine the metrics for the unique customer experience that you provide, but customer-centric analytic applications will typically package most of those metrics because they apply universally to any customer experience.

Performance measurement involves the specification of metrics, the automated recording and updating of their values over time, and the presentation of them within a report or an executive dashboard.

Analytic applications should package a large number of metrics and should support the specification of company-specific custom metrics. The products should track values for packaged and custom metrics and should include the mechanisms to present metrics in automatically generated and distributed reports or e-mails.

Business Performance Monitoring

Business performance measurement is good, but business performance monitoring is better. Monitoring adds automated decision making to measurement. Rather than simply tracking the values of metrics, monitoring compares those values to configurable threshold values and, if the threshold values are crossed, a business event is triggered. The business event may generate notifications that invoke programs or send notifications. Further, the notification processing may be qualified by the execution of business rules.

Performance monitoring is a nice bonus in analytic applications. Most don't offer this functionality. Minimally, look for capabilities that build on performance measurement packaged and custom metrics and flexible presentation. Expect little or no automation.

Output

There should be a range of output types for customer-centric analytic applications. The range should include:

- Reports
- Dashboards
- Notifications

Notifications are the output of business performance monitoring functionality. They should include e-mails, telephone pages, changes to dashboard displays, and, ideally, the execution of programs that automate the response to events rather than ask a user to respond.

Dashboards, cockpits, or, as we prefer, flight decks are the output of business performance measurement functionality. They are typically continuous, customizable, visual displays of the information most important to a particular user—all the customer service metrics for the customer service executive, for example. Dashboards can add a minimum level of performance monitoring by changing display characteristics when metrics cross thresholds.

Reports are the output of analysis and prediction. Customer-centric analytic application products should package reports that reflect the insight produced by each of its analyses and predictions. The reports should be visual, provide several formats, and support good interactivity. Reports should be created with the popular reporting tools and these tools should be usable to customize packaged reports and create new ones.

DISTRIBUTION. The output of analytic applications is important to many users, not just the analysts who run them. For example, dashboards are a terrific management tool. In addition, personnel in marketing, sales, and service organizations will want to understand their contributions to your customer experience. Also, you might want your customers to see your analysis of their behavior. Similarly, your suppliers play an important role in your customer experience. As a result, the reporting functionality within customer-centric analytic applications should include report distribution outside the enterprise.

There are several attractive distribution approaches including e-mail and Web portals.

ACCESS CONTROL. While many users of many types will be interested in the output of customer-centric analytic applications, not all of them should be able to see all the reports. After all, some of them contain very sensitive information. Access control is required in order to enable broad access to analytic application output while, at the same time, protecting sensitive information. Access control capabilities should include user authentication, role-based authorization, and privilege-based access to individual reports. Access to the customer-centric analytic applications, themselves, could be included in this approach, although most of these users should not be able to execute the applications.

GLOBALIZATION/LOCALIZATION. If you run a global business, then the users of customer-centric analytic application output, especially when they're your customers, partners, and suppliers, will like to see that output localized to the language and currency that they use. Globalization is the support of a range of languages, language implementations, and currencies. Localization is the ability to deliver a specific language implementation and currency to a particular user.

Overall, globalization/localization is a nice-to-have capability for customer-centric analytic applications, although it might be a mandatory requirement for you. We don't feel that it's as important to be able to localize the implementation, execution, and support of the customer-centric analytic application itself.

Level of Functionality

The level of functionality can be an important evaluation criterion. By this, we mean the skills needed to use the products. Some analytic applications are quite sophisticated and complex. Their use requires skills and experience in the algorithms that the products use. Other analytic applications abstract this complexity in an effort to make their capabilities more accessible. Complexity is not necessarily a disadvantage. Complex analytics that require high levels of skill may be your ideal; abstracted analytics might not generate the insight that your business needs.

ARCHITECTURE

Architecture defines how products perform analytic application functionality. Architecture is not as important for customer-centric analytic applications as it is for operational systems or analysis systems with large user communities. We have six architecture evaluation criteria:

- **ENVIRONMENTS.** Environments are the Web servers, server platforms, and data warehouses required by the analytic application.
- **ORGANIZATION.** Organization is the product's major components and the interfaces between them. For example, a customer-centric analytic application might have a client/server organization or a three-tiered Web organization.
- **INFRASTRUCTURE.** Infrastructure is the set of services that supports the deployment and execution of a customer-centric analytic application. For example, an analytic application might deploy on a J2EE Web application server or on Microsoft .NET.
- **STRUCTURE.** Structure examines what's inside the major components—how are they built and what was used to build them. For example, an analytic application might be built of coarsely grained components that are specified in Java.
- **CUSTOMIZATION.** Customization examines whether and how you can change the internal structure of an analytic application to address your requirements. You likely won't be customizing customer-centric analytic applications.
- **INTEGRATION.** Integration examines how a customer-centric analytic application can be adapted to work with external systems.

For analytic applications, the key architecture evaluation criteria are environments, organization, infrastructure, and structure. For environments—the platforms and databases required by an analytic application product—it's important that a customer-centric analytic application fit into your existing analysis environment. For example, you won't be too willing to implement a new data warehouse da-

tabase just to run a customer-centric analytic application. For organization—the product's major components and the interfaces between them—again, a match with your existing environment is important. If you've standardized on thin-client Web applications, you won't find a client/server analytic application product very attractive. Customer-centric analytic applications must also support your specific deployment infrastructure, such as IBM WebSphere or Microsoft .NET.

If you're going to do real-time analysis, then structure and customization come into play along with integration. In real-time analysis environments, the analytic applications must integrate loosely with operational systems. Implementation of that integration might require customization, and customization gets into structure. Ideally, the customer-centric analytic application supplier has packaged this integration with it product, and the packaging supports the operational systems that you use, such as contact centers and e-commerce systems. If not, integration can be a complex and costly effort.

DATA. Data is the most important aspect of organization and infrastructure of a customer-centric analytic application. Data is the analytic application's input. It determines the product's breadth of analysis (functionality determines depth of analysis). For complete analysis, data must represent all touchpoints, all operational applications, and all customers. Data is also the only component for which structure really matters. Structure is what's inside a component. For customer-centric analytic applications, structure is the data model, the richer the better.

The data that is the input into customer-centric analytic applications is the output of customer focused operational applications. However, the input is not taken directly from the operational applications' online databases. Rather, the information relevant to analytic processing is *extracted* from operational databases, *transformed* into a uniform structure and format (every operational system likely has its own characteristic representations of the same information), *cleansed* to eliminate duplicate and inconsistent data, and *loaded* into a data warehouse. In other words, a data warehouse provides the input to customer-centric analytic applications.

Customer-centric analytic applications don't have to package their own data warehouses, but they should define a data model for a data warehouse, provide the mechanisms for implementing that data model in one or more database servers that implement the data warehouse, and provide connection and access to the data warehouses.

We really mean a data warehouse, not a data mart. Customer-centric analytic applications must have input that represents all customers, all customer-facing and customer-touching systems across all touchpoints, and all supporting back-end and supply chain systems. Those systems create your customer experience. Its analysis must be comprehensive. Data marts that reflect a single touchpoint or fewer than all you customer-facing and -touching applications will not support the analysis that you need to do.

PRODUCT MARKETING

Within the product marketing dimension, we consider the business aspects of customer-centric analytic application. Product marketing evaluation criteria are much easier to evaluate than functionality criteria, but they can be deal breakers. There are six product marketing evaluation criteria to consider:

- Product background
- Installed base
- Product plans
- Price
- Product viability
- Competition

Product Background

When we perform an evaluation, we consider the history of the analytic application product in terms of the timing of its major versions and, if applicable, its acquisition history. These are factors that contribute to product viability.

Installed Base

The installed base of a customer-centric analytic application product provides an idea of its success and acceptance in the market and contributes significantly to our assessment of product viability. In this section of an evaluation, we present the number of customers and customer references for the product.

Product Plans

Customer-centric analytic applications are a new and rapidly evolving class of products. Many products are in their initial versions. As with any strategic software, don't buy just on the features of the current release. Get an idea where the vendor hopes to take the product in the future. Make sure the vendor's view of the future is same the same as your. Look for planned improvements in areas where the product is currently weak.

Price

Customer-centric analytic applications are expensive. Figure on spending a few hundred thousand dollars on software. For your money, make sure you get the functionality that you need. Don't pay for abstraction if you don't need it. Don't buy complexity if you won't use it. Beware of indirect charges such as add-on products for extraction, loading, and transformation (ETL), data warehousing, or reporting. They can cost as much, if not more, than the analytic application products themselves.

Product Viability

Product viability is our assessment of the overall risk in implementing customer-centric analytic application product. In making this assessment, we take into consideration such factors as installed base, product version, track record for performance, scalability, reliability, and technology. For example, new products built of new technologies are quite risky, whereas products in their fourth version with large installed bases have little risk and raise no viability issues.

Competition

Understanding the products that compete with a particular customer-centric analytic application product can really accelerate the section process. In our evaluations, we present an analysis of competing suppliers and competing products, highlighting major advantages and disadvantages.

COMPANY VIABILITY

A company's viability can be assessed by examining two criteria: customers and financials. As with product marketing criteria, company viability criteria are relatively easy to evaluate, but they too can be deal breakers. Issues in these areas create risks that should affect your acquisition decision. These risks have typically come into play only when the company that offers a product is so small or so unstable as to introduce a business risk when buying its products, but, in today's economic climate, even large, successful companies have had problems. Decision-makers must weigh functional and architectural advantages of products from newer and smaller companies versus the risk of doing business with companies that might not have staying power.

WHO OFFERS CUSTOMER-CENTRIC ANALYTIC APPLICATIONS?

Three Types of ISVs

Customer-centric analytic application products are offered by three types of ISVs:

- CRM suite suppliers, such as E.piphany, Oracle, PeopleSoft, SAP, and Siebel. For example, the SAP Business Warehouse packages a range of general-purpose data mining algorithms and tools as well as several types of analytic applications.

- E-commerce server suppliers, such as Blue Martini and Microsoft. For example, Microsoft Commerce Server 2000 uses the decision trees algorithm packaged within the SQL Server 2000 database to make real-time product recommendations to online shoppers.

- Point solutions providers, such as Business Objects, Teradata, and Unica. (Teradata and Unica also offer campaign management capabilities.) For example, Teradata CRM packages six analytic applications, and the Teradata Warehouse Miner complements this offering with general-purpose data mining algorithms and tools.

We plan to document our evaluations of many of these offerings against the framework that is detailed in this report.

CONCLUSION

Customer-centric analytic applications can help your company become more customer-focused. These are tools that can help you better understand your customers' behavior so that you can improve your knowledge of them. Improved knowledge can improve the customer experience that you provide. And, with better experiences, come higher satisfaction, greater loyalty, and more profitability.

There are many customer-centric analytic application products from which to choose. The framework documented in this report has been designed to help you select the analytic application that is best for you, minimizing the time and risk of that selection.

An Executive's Guide to CRM

What Comes After CRM?

Customer-Led Business Transformation

By Patricia B. Seybold

NETTING IT OUT

In today's tough global economy, businesses are focused more than ever before on retaining their existing customers and on lowering their operating costs. Customer Relationship Management (CRM) strategies and systems, once thought to be the silver bullet that would catapult companies to higher profits, are now coming under increasing management scrutiny. The "problem" with CRM, if there is one, which we doubt, is that capturing customer information and acting upon it is only one piece of a much larger challenge confronting today's businesses. Customers don't just want to be marketed to, they want to be well-served. Our companies are notoriously ill-prepared to meet the challenges posed by today's increasingly demanding business and consumer customers.

What do we need to do beyond installing CRM systems to help us better understand our customers and to better market products to customers, sell them to customers, and support customers? Actually, there's a lot beyond CRM that we need to do. Despite our investments in customer-facing Web sites, customer portals, and CRM systems, our businesses are still designed from the inside out as product-centric and functional fiefdoms. This drives our customers nuts! Until we actually begin redesigning our entire businesses to be customer-driven and customer-led, we won't be able to meet the needs of 21st century customers.

IT'S A RECESSION: DO YOU KNOW WHERE YOUR FOCUS SHOULD BE?

You've already got a customer-facing Web site or portal. No doubt, your company is also in the midst of a major CRM initiative to pull together and to mine much of your customer information so that you'll be better able to target your most profitable customers with relevant offers and to aim your marketing campaigns at more likely acquisition targets.

But customers aren't buying right now. And your sales cycles have gotten longer and longer for smaller and smaller returns. You've trimmed staff, lowered prices, gotten rid of excess inventory, and your management is looking for the next place to cut costs. You're looking for the best opportunity to bring in revenues and profits without increasing costs-to-serve. You're both looking for improved results. What's the answer?

Go Beyond CRM

Guess what? CRM isn't the silver bullet that will yield more effective sales, greater wallet share, and faster profitability. There's only one thing that will really do that. You're going to have to let your customers drive your business—all the way through.

Pulling together customer information and mounting better marketing campaigns won't make it easier or more enticing for customers to do business with you.

Let Your Customers Transform Your Business

Face it. Your business is broken (from your customer's point of view.) Your customers can't get consistent information across your Web site, your contact centers, your retailers, and your channel

partners. They can't easily locate the products they need. They have to make several attempts to resolve problems and to get questions answered. Your business, like any business, is designed inside out. It's designed for you to develop, build, and sell stuff. It's not designed to help customers buy stuff from you. The problem is as simple as that. And as hard.

So what SHOULD you be doing? Where SHOULD you be investing your scarce resources? How do you transform your business from a collection of product line silos and functional fiefdoms to a streamlined, efficient customer-driven pipeline—one where customers' needs and requests appear at one end, and product development, delivery, and service take place in a transparent and dynamic Value Web?

The good news is that there IS a proven way to transform your company to be lean, clean, and customer-centric. And you can do it one step at a time. This transformation starts with the Web and with your other customer-facing interaction touchpoints. Then it ripples through your entire organization, your partner chain, and your supply chain—in fact, your entire Value Web. (At some point in the past five years, supply chains became supply Webs; the same thing happened to demand chains. Instead of a series of one-to-one causal relationships, we now realize that each customer request or need fans out through an entire Web of organizations, each of which may participate in providing the solution.)

The people who are leading the customer-transformation of their companies tend to be the same people who have spearheaded their companies' e-business initiatives.

Clearing the Way

But, in order for this customer-centric transformation to take place, you need to remove barriers, solicit high-level support, and seize tactical opportunities. Once customer information and requirements begin to drive your business in real-time, the path forward becomes clearer and clearer and more and more compelling.

WHO SHOULD LEAD THE CHARGE? The people who are leading the customer-transformation of their companies tend to be the same people who have spearheaded their companies' e-business initiatives. Usually, they're strongly backed by the CEO, aligned with their company's IT visionary and with the global marketing executive, and have a strong business P&L sponsor—usually in an organization that is already organized around a major customer segment.

Occasionally, as at Delta airlines, the major transformational trigger comes out of the need to streamline operations. (Delta began the revamping of its internal systems in order to gain a better real-time view of its fuel needs. Then the company was able to use its business events-based "digital nervous system" to proactively improve customers' experiences when the inevitable travel disruptions occurred[1].

Learn the Survival Skills from Customer-Centric Organizations

If you look at the evolution of the customer-driven transformations that have rippled through the today's most successful companies, you'll see some interesting similarities. Here are some of the patterns that I've noticed.

- **Focus on a Key Customer Segment.** At Wells Fargo, Dudley Nigg, who led that company's transformation, was initially responsible for the bank's high net worth customers. At American Airlines, John Samuel focused on frequent business travelers. At Boeing, Bill Barker began his odyssey with customers who purchased replacement parts. At General Motors, Chet Huber at OnStar and Paul Comfrey at Vauxhall both targeted customers who valued convenience. At Fidelity, Steve Elterich focused first on his retail customers. At Hewlett-Packard, Leslye Louie focused on consumers who are multi-touchpoint shoppers (research on the Web/purchase in the store; shop in the store; buy online; get pre-sales and post-sales help on the phone and on the Web). Phil Gibson at National Semiconductor began by focusing on design engineers. Scott

[1] See John Mann's "Customers Experience Your Internal Operations," July 19, 2001, www.psgroup.com/doc/products/2001/7/CS7-19-01CC/CS7-19-01CC.asp.

Eckert at Dell focused first on large business customers. Sue Steel and Marc Tennessee at Cisco Systems targeted their largest resellers first. Brad Lewis at Snap-On targeted consumer customers—a market that Snap-On wasn't serving at the time.

- **Offer Web Self-Service for the Key Scenarios Customers Care About.** For Boeing, this was, "give me my company's negotiated price, your time-to-delivery, and the current location of the part I might need." For Cisco, this was, "let me configure a system and get an accurate quote," and "show me the status of all my orders, and let me change the ones you haven't shipped yet." For Fidelity, it was, "let me roll over my IRA easily" and "show me my combined retail holdings and those in my company-sponsored Fidelity retirement account." For HP, it was, "let me download a printer driver for my new printer," and "how do I order supplies?" and "it's not working, how do I get this fixed?" For Dell, it was, "help me manage the computers I've bought from you" and "send me 2,000 computers with the following software configurations to these 18 offices in 10 different countries over the next 6 months and let me time the shipments and re-allocate deliveries." For National Semiconductor, it was, "let me design and simulate my new designs online, now show me a bill of materials with your parts and your competitors' parts, and let me order that bill of materials from a distributor that has them in inventory with prices I can afford." With Delta, it was "re-route me and my luggage so that I'll arrive at my destination as close as possible to my original plan."

  Notice that all of these customer scenarios[2] aren't Web-only scenarios. They link directly into the company's (or in some cases, their channel partners') operational systems: inventory, pricing, order entry. And, in many cases, these scenarios also span functional boundaries (sales and manufacturing; retail vs. institutional; customer service and order-entry, and so on).

Today's leading companies are redesigning themselves from the outside in.

- **Combine Contact Center and Web Infrastructures and Organizations.** Wells Fargo built its Web customer self-service infrastructure on top of the application integration infrastructure it had already designed for the customer service reps (CSRs). These CSRs needed to access operational applications across business units and product lines on the customers' behalf. Once CSRs could access the information customers' needed, Wells Fargo enabled customers to help themselves to the same information.

- **Deliver Customer Portals First; Then Turn Them into Employee Portals.** At Boeing, Bill Barker is using the same infrastructure and architecture he developed to give Boeing's customers access to 100 of Boeing's core operational applications. Now, he's enabling Boeing's own employees to see the same information to which customers already have access, along with additional "employee-only" information.

- **Give Customers a Seamless Experience with Your Channel Partners.** Cisco Systems has done a great job of integrating channel partners and customers. Cisco bucked the conventional wisdom that tells us that channel partners need to "own" the customer and "add value." Cisco redesigned its systems from the customers' point of view. Customers configure their systems directly on Cisco's Web site. They then get pricing and delivery commitments from their preferred dealer (without leaving Cisco's site). Cisco configures the system and ships it to the dealer preconfigured to the customer's specs. The customer has visibility into the entire process. The Dealer installs and integrates the systems at the customer's premises. Deliveries are fast. Configurations are accurate. Everyone wins. On the consumer side of the equation, watch HP and Best Buy. This manufacturer and retailer combination are tightly integrating their supply chains

[2] Customer Scenario[SM] Design is a Service Mark of the Patricia Seybold Group.

and their key customer scenarios (e.g., service, supplies, and handling returns).

- **Let Customers Drive Cross-Product Line Integration.** At Fidelity, there had been a Chinese Wall between the giant retail division and the institutional division. One sold to and serviced individuals and their households; the other supported corporate HR and benefits' buyers. However, often, the end-customer is the same. A person who had a Fidelity 401K plan through his company was also likely to have a retail account with Fidelity. In fact, employees have been demanding better self-service and tighter integration. The result for Fidelity is a now-seamless Web environment for both retail and corporate accounts. Customers gain because they have the same user interface, log-ins, and a complete picture of their accounts. Fidelity gains because it is leveraging much of the same Web infrastructure across both divisions.

- **Let Customers Custom-Configure Their Own Products and Services.** We all know that the migration of "build-to-order" is rolling from the computer industry to the apparel industry all the way to consumer packaged goods. We can already design our own custom breakfast cereal online. The ramifications of custom-configured products are enormous. However, to enable this build-to-order capability your firm has to move to lean manufacturing practices. That impacts your in-house and outsourced product design, manufacturing, and supply chain.

- **Measure and Reward Based On What Matters to Customers.** As you're undergoing this infrastructure transformation, you'll also find that you need to put new customer metrics in place. In addition to measuring revenues and profits by product line, you now need to measure profitability by customer segment. That means knowing your costs-to-serve and your costs-to-deliver for each customer segment, each interaction touchpoint, and for most of the activities that impact customers. At the same time, you'll want to monitor very carefully the "moments of truth" in your dealings with customers. For each key customer scenario, there are usually two to three key business events that will make or break the quality of the customer experience. These are the points you want to instrument and monitor very carefully. Finally, you need to reset your corporate compensation structure so that you're rewarding employees based on the quality of the customer experience and its link to customer profitability.

Let Customer-Driven Business Processes Re-Focus Your Organization

You can see that customer-driven business processes are already rippling through many businesses and transforming them dramatically from the inside out. This is a not "just CRM." It's far more profound and impactful. Today's leading companies are redesigning themselves from the outside in. While many of these initiatives I've described started with the Web and with customer self-service, the customer ripple effect has actually impacted these companies' entire business structures. You may be able to move more quickly on the Web side of the business, but in order for true customer-driven transformation to take hold, what you learn from your e-business needs to be used to transform and streamline your entire business.