

## Enabling and Measuring Electronic Customer Relationship Management Readiness

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### Abstract

*This work provides a comprehensive customer-focused evaluation framework that businesses can use to assess their electronic customer relationship management (e-CRM) readiness. The framework is intended to provide a big picture of the overall composition of e-CRM, to facilitate gap analysis, and to support a monitoring and feedback process. Knowledge management, trust, and technology are identified as key enablers of e-CRM. Finally, we propose weighting and rating scales to aid in assessing customer relationship management readiness, and provide examples of their use.*

### 1. Introduction

Customer Relationship Management (CRM) is a broad term for managing a business' interactions with customers. Effective CRM is about acquiring, analyzing and sharing knowledge about and with your customers. Total CRM covers your direct business contacts with customers, your channel partners' indirect contacts with customers, and customer contact management in your supply chain. More importantly, it allows a business to focus on the customer.

Electronic CRM or e-CRM is the customer relationship care component of e-Business. Customer care linkages in the value chain for B2C and B2B electronic commerce are critical elements for successful adoption of new products and for the evolution of existing products [26]. Technology is being deployed to an ever-broadening set of businesses and the challenge for developers is to not only have the correct customer care mechanisms in place, but in order to differentiate themselves from the competition, it must be done either more cheaply or better than its competitors. Customer-focused implies that there is a demand-pull of information that ultimately focuses on the customer.

e-CRM extends to all of the stakeholders that create value for the customer. Value for the customer may be lower prices, higher quality products and services, continuous stream of innovative new products and services, speedier responses, convenience, and

customization of products and services. Value is essential - it is what customers are willing to pay in exchange for some offering. When a company is the customer, Anderson [1] defines value as "the worth in monetary terms of the technical, economic, service, and social benefits a customer company receives in exchange for the price it pays for a market offering." Customer characteristics have changed. Although value is what customers have always wanted, today's customer has greater access to it. The new customer is fickle, demanding, informed, and in the driver's seat.

A natural extension of value that the customer receives is a progression from commodities, through goods and services to 'experiences' - each one progressively adding more value through increased differentiation and increased price willing to be paid. Commodities are fungible, goods are tangible, services are intangible and experiences are memorable [9].

Many studies show traditional companies are insufficiently equipped to meet converging consumer needs, tastes, and preferences in developed economies [25, 11]. With increased market complexity, customer demands for greater quality at lower cost with more expedient delivery, organizational access to new knowledge and capabilities is becoming the critical success factor necessary to compete globally [22]. Nooteboom [24] further proposes that the only way for firms to produce this demanded added value is by using complimentary competencies found within alliance structures.

The CRM framework proposed in this paper can be used for assessment and for ongoing performance monitoring of CRM initiatives. Metrics are used to gauge the effectiveness of customer relationship management systems and can also be used for alerts or for control.

The paper is organized as follows. In section 2, we present the e-Business stakeholder model and discuss the major enablers and metrics for CRM. Section 3 details the key e-CRM components. The scales used in assessing CRM readiness are outlined in section 4. Section 5 illustrates the assessment method with application examples. Section 6 gives a synopsis of

related work. Finally a summary and conclusions are provided in Section 7.

## 2. The Customer-Focused Approach

The external stakeholders of any e-Business are community, governance, customer, and partners [6]; see Table 2.1. The customer will pull maximum value from summing the value created from each external stakeholder and the business itself. The previous section motivates the customer demand-pull of value from the business and its partners. The value propositions we present next for the community and governance stakeholders motivate their presence in our e-Business stakeholder model. Full details on the model can be found in [7].

- Governance has a crucial role to play in developing opportunities, rules, trust, and legality for the e-Business applications. It is required to manage workforce, localization, clusters, access, e-business education, jurisdiction, liability, intellectual property, dispute settlement, taxation, privacy, trust, and e-business architecture issues.
- The online community value propositions to the customer are fast knowledge access, leveling the field for making new contacts, aggregation of content, access to useful, often free services, and ability to compare a business' services and products with competitors. The community stakeholder adds team spirit, enhances customer service through extended product and service support knowledge base, enhances trust and perception, and increases the number of preferred customer profiles.

The e-CRM framework we propose to support the e-Business stakeholder model has two main aspects:

- identification of *components* and their associated *enablers* to support e-CRM and
- measures or *metrics* to assess the performance of the stakeholder interaction.

The components may be whole processes, or at a finer grain such as subtasks contained in a business process. Components can also be infrastructure or technology components, or cultural organizational components, or people components. The enablers are the technology, trust, management, or other supports required for a component to execute correctly and effectively.

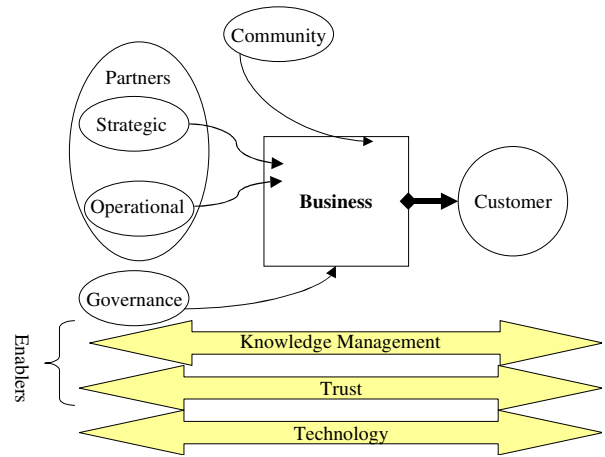


Figure 2-1 e-Business Stakeholder Model

### 2.1. Enablers

Three primary enablers are present for e-Business [7] and hence e-CRM. These are knowledge management, trust, and technology. Each is discussed next.

**2.1.1 Knowledge management.** We define knowledge management (KM) as encompassing all forms of business relationship management, intellectual assets management, and content management. Business relationship management includes relationships with customers, partners, and regulatory bodies. Content management covers document management, web content management, media asset management and syndication of content. Management of intellectual assets umbrellas employee knowledge and expertise. A key trend in knowledge management is the move to real time availability and analysis of data, allowing for immediate customer response and more informed and faster decision making.

**2.1.2 Trust.** Trust in all its many definitions [2], [13], [23], [27] is a necessary enabler to e-CRM and indeed e-Business. Lewicki and Bunker [20, 21] discusses three different forms of trust: (1) personality's theorists view of trust as an individual difference, (2) economists' and sociologists' view of trust as an institutional notion, and (3) psychologists' view of trust as an expected behavior and outcomes of another party in a transaction. All these definitions apply to e-CRM. Many studies have shown that trust is an integral part of the selling equation to customers [12, 10]. Customers need to trust the business before they will open-up their purse. Furthermore, the more trust they put in the business, the easier it is for the business to retain them as customers.

**2.1.3 Technology.** The “low cost” Internet communication platform delivers functionality that makes it the most strategic killer application of technology for business in the 20th century. The low costs of transactions, the global reach to multiple markets, the ability to deliver data anywhere, and scalability of the platform in terms of the numbers of participants it can intimately handle makes it extremely useful to the entire human race. Sharply decreasing computer and network hardware prices, increasing power of hardware servers, and increasing network bandwidth have made business and consumer connectivity to the Internet possible.

Accompanying Internet-enabled software applications such as enterprise resource planning packages, eCommerce applications, relationship management packages, and enterprise portal applications have caused business to change processes, adopt best of breed practices, slash costs and introduce efficiencies into supply chain, customer relationship management and internal operations.

**2.2 Metrics**

In 1999, the European market for IT measurement and benchmarking was valued at 1.5 billion dollars accounting for approximately 2% of total IT expenditure. Performance measurement and benchmarking are recognized as important mechanisms for communicating whether tactical execution is aligned with corporate strategic goals and vision. Metrics can be used to gauge changes in performance, costs and effectiveness of e-CRM business processes.

Instrumenting your e-CRM initiatives to measure performance allows understanding of strengths and weaknesses and detection of emerging trends that contribute to effective management.

From Table 3-1, it is apparent that explanation for metrics, such as customer satisfaction change, relies on interrelated measures for various business components. That is, some metrics are functions of other metrics. For example, the change in the customer retention rate depends on change in the ratio of actioned feedback, ratio of missed deliveries to on-time, rate of new product/service introductions, and/or degree of price innovation. We refer to retention rate as a higher-level aggregate metric that depends on other, lower-level metrics. The customer satisfaction metric depends on research and development processes, since one of the factors that contribute to customer satisfaction is the rate of introduction of innovative products and services. Value, such as reduced costs to customers, may depend on changes to procurement processes due to introduction of price innovation based business models at the supplier

end, and innovations to supply chain and/or manufacturing processes.

Table 3-1 Customer Metrics

- *Customer retention*
  - existing customer loss rate (just for repeat customers), customer retention rate (includes old and new customers), degree of customer satisfaction
- *Customer satisfaction*
  - lead times, on time delivery, continuous stream of innovative products and services, anticipation of emerging needs, product customization, personalization, convenience, team spirit (community), reduced costs to customers as compared to competitors, product/service availability
- *Customer acquisition*
  - change in look-to-buy ratio, eyeballs increase
- *Customer profitability*
  - ratio of customer costs per market segment, percentage of preferred customer profiles, market and wallet share in targeted segments

**3. e-CRM Components**

e-CRM processes are comprised of four main components: engage, purchase, fulfill and support, as illustrated in Figure 3.1.

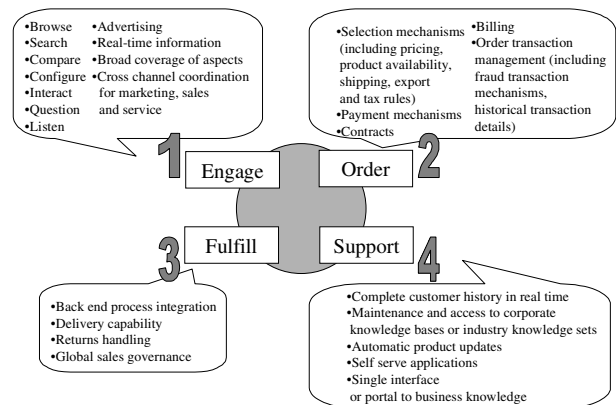


Figure 3.1 Customer Components

The call-outs detail specific ancillary enablers for each component. They are specific forms of the technology, KM, and/or trust enablers. Information required for customer care is derived primarily from

customer data warehouse for linking to multiple touch points and marketing knowledge bases.

Furthermore, these must be integrated with (1) enterprise resource planning (ERP) systems, (2) partner relationship management systems, and (3) supply chain systems.

### 3.1 Engage Component

e-Business-izing the engage component means network enabling the process of enticing the right customers to buy a product or service. Some forms of proactive engagement are having your product or service appear prominently in the results of a popular search engine, or via advertising banners pushed to an idle cell phone display. The e-CRM aspect is not only doing online marketing, sales and service but also supporting these functions in traditional channels (e.g. storefront, reseller) through use of Internet and/or wireless technology. Here we focus on Internet supported enablers for engagement. The discussion applies for businesses from pure dot coms, to physical companies with a web channel (clicks and mortar), to net market makers and breakers.

Software companies like Netscape used giving a product away “for free” as an effective engage instrument. Revenues could be obtained later through another product. In Netscape’s case, it is the quarter million dollars plus suite of XPerT e-Commerce tools. In RedHat’s case, millions were made in escalating share price. Some companies give away “teasers”, or stripped down products or services. After the customer is engaged, revenue may be obtained from the company offering billable add-on features. These strategies complement other marketing campaign strategies such as spreads of limited time price reductions, sales, or clearances.

Interactive marketing effectively “tracks” customer movements and pushes suggestions or advertisements out to that customer. Online interactive marketing uses customer profiling, personalization and contextual advertising extensively. When a customer starts looking for product or service information, online or offline, he or she engages in browsing content, searching, comparing, configuring, interacting, questioning, and listening. e-CRM must support these activities as well as identify needs and solve customers’ problems. Throughout these stages, advertising is effective to get the customers to look at product.

Interacting, configuring, listening and questioning are the ways that a merchant presents personalized views to the customer. This comprises the themes for personalization/trust, marketing and content for points of contact. The themes range from picking and choosing

products to pushing specific information to the customer. Personalization in the search context is the process of tailoring information to the specific user. This includes localization of content, contextual presentation of data and iterative learning based on user inputs. Localization of content is the ability to understand the customer requirements at each location and the tailoring of content to suit them. This is made more difficult by the nature of globalization of business. A good example is presentation of prices to a customer. Localized content would be required to present to the customer a true price to them, reflective of all of the pertinent costs, rules and regulations. Locality also dictates how a customer interacts with the presence. The customer may speak another language or be visually impaired to name two very large localization issues. Providing hooks such as voice buttons on web pages for escalation to human contact is another engage enabler.

Identifying needs and solving customer problems in the context of engage enablers means explaining the product or service to fit the customer needs. Marketing at the engage stage can act as a conduit for new product or service development.

Access to a common customer database allows businesses to more effectively cross-sell and up-sell. The access to complete customer information can facilitate business to create a richer customer experience. Another aspect of engaging a customer is the coordination of effort with channel partners. Most customers do not want to have to say no to the same product or service to multiple companies in a short time period. To avoid potential customer annoyance, channel partners need to share and manage lead information on prospects or potential customers. Another point is that online prospects are directed to the channel partner that can offer the best service to the customer. All online prospects are automatically recorded in a database. The leads are then available for follow-up by sales personnel.

Dot com companies also use traditional media such as newspapers, radio and television to engage new customers. In fact, it is well known that dot com companies reinvest from 50 to 85% of their revenues in marketing to build brand. Clicks and mortar companies use the web channel to complement traditional engagement methods. Both types of companies advertise web sites through regular media such as brochures.

All types of business use profitability and competitor analyses to target the right prospects, customers, and partners in the first place. Data mining of the customer data warehouse supports these types of analyses and allows the business to effectively create marketing campaigns. Full knowledge management allows personalization and one-to-one marketing. Sales order history can be used to personalize and create a customer service offering by allowing customers to view their past

transactions. Best of breed examples include full customer care suites that have integrated sales order history with the marketing systems.

### 3.2 Order Component

Ordering is the process where a customer selects and makes a commitment to purchase a product. This includes a variety of selection, payment mechanisms, and order management mechanisms. Ordering has traditionally been a sales process. However interactive marketing threads through this process and there is opportunity for service also. The customer does not distinguish between dealing with the marketing, sales, or support areas – he/she is dealing with the business. The web channel particularly blurs these functionalities as customers expect view the business all at once.

Product or service selection is facilitated by real-time shopping environments created to give consolidated views of price, availability, shipping and tax rules, and any other pertinent information that would alleviate the ordering process. Customer ordering ties to the enterprise resource planning (ERP) or back office system for dynamic pricing, just-in-time (JIT) inventory control and other logistical and customer-centric mechanisms. This is why supply chain visibility is important to CRM. It generates customer expectations that are more accurate because the customer is presented with accurate delivery date and order status information. Customers want to make incremental changes to orders until the time of shipment; they want to see past order history.

For these reasons, an order system must go beyond order capture to create real value to the customer. It must access real time supply chain management data - demand planning and forecasting, manufacturing planning and scheduling, distribution and deployment planning, and transportation planning and scheduling data. Supply chain management *optimizes* the delivery of goods, services and information from supplier to customer. Based on this real time supply and demand data, a business can differentiate itself by creating dynamic pricing, nimble product or service configurations, promotion and product mix optimizations. Global sales drive the integration of other information such as custom and excise duties, and governance rules for export to a country in the order management systems for e-Business.

The payment mechanisms for B2C e-Commerce include credit cards, micropayments, and electronic funds transfer and other types of non-cash settlements such as contracts and invoices. These mechanisms must allow for non-repudiation of the transaction.

Order management refers to the management of the order details. This varies from single consumer views to corporate views where the details are for a single individual versus a corporate purchasing process. Order entry system must address service orders, not just product orders, justifying the need for warranty management integration within the order management system. Warranty information is the types of warranty that is available to the customer. This is very critical with non-digital goods where the warranty reflects the actions taken for defects and returns. Ensuring the capture of customer information at the point of purchase can be difficult and challenges the online world. Yet, it is important as proof of purchase for returns and service. Retention of sales receipts is bothersome for most customers – the capture of customer information at the point of sales takes the onus off the customer to retain their sales receipt.

### 3.3 Fulfillment Component

Fulfillment is about managing information on product or service movement. It is a subset of knowledge management since it requires knowledge of product movement or supply chain information. Many businesses track orders to the point of shipment not to the point of delivery to the customer. The fulfillment role is sending a product, delivering a service or any situation where the terms of agreement are completed with the customer. Your customer cares that you get the right product to the right place at the right time. You want to do all that at the lowest delivered cost. A fulfillment strategy may mean a relationship with your supplier to deliver direct to your customer instead of to your business.

Returns are an iterative loop between fulfillment and support planned for when the customer has a problem, needs to send products back and potentially get replacements. This is often an overlooked area for many on-line businesses.

The critical enablers in fulfillment are back end process integration, delivery capability and global sales governance. Back-end process integration is how integrated into the company's internal systems are the e-CRM processes that facilitates access to product availability and information about lead times. All the systems interact with common database(s) in order to gain access to the required data.

Many enterprises fail to capture the true cost of fulfillment since the backend fulfillment process is not integrated, so many think their web-commerce transactions are profitable. Enterprises must plan a strategy to sell products over the multiple mediums and develop a strategy for back-end fulfillment.

Delivery capability is *how* the products or services are fulfilled. This can range from having a server deliver electronic goods to fulfillment of tangible goods. The digital goods are the easiest to fulfill but might also be tied to an ecommerce transaction engine. The entire procedure for digital goods delivery capability should be totally automated. When goods are non-digital in nature, the equation becomes more complex. Enterprises in a B-to-C model may employ a “pick and pack” strategy for their fulfillment. Other businesses may require partial pallets versus full loads. These needs have given rise to container aggregation shipping models and e-Businesses such as iShip.com. Many companies are employing the services of outsource fulfillment agencies such as UPS and Fedex who will deliver the capabilities the firm does not have.

Integrated resourcing (IR) encompasses fulfillment and communications with the customer around flexible manufacturing and distribution of products. Key to the success of IR is having multi-modal transportation systems, integrated communications networks and enterprise knowledge about the product [16].

Multi-modal transportation systems include the ability for the organization to interface with many types of transportation components including container, truck, rail, air, and others. Materials handling systems will serve as inter-modal integrators, providing seamless connections among different transport modes and to manufacturing and distribution facilities. Integrated communications networks are the backbone allowing for all components of the virtual integration team to communicate with each other. The openness of the network will allow for interoperability by all versus having a proprietary network. Enterprise knowledge about the product is focused on having a knowledge management system that allows the entire enterprise to tap into the knowledge about the product including design, support, and upgrades. This is important to the integrated resourcing function because it helps dictate what types of fulfillment options are available for delivery and returns.

One area of major concern for fulfillment is global sales. Many enterprises get very excited about potentially selling products and services to customers over the globe. The difficulty is that the enterprise may not have all the policies and procedures in place to do global export. They can often expose themselves to too much risk of violating customs or trade compliance laws, which can lead to fines and negative publicity. This is an integration of the governance stakeholder functions. If the back-end integration, delivery and governance factors are not considered, the operation could incur lower profitability and could permanently damage customer relationships.

### 3.4 Support Component

The historic term of customer service was to support the customers after a sale. Merchants are now realizing that well executed, proactive customer service can also convert shoppers into buyers, turn buyers into repeat purchasers and even increase the incremental purchase value of each customer [26]. Self-service is an application of personalization and trust that encompasses the ability of the system to handle customers’ desires. Best of breed examples include having all of the information available to the customer placed in a net-centric environment with allowances for modifications and updates of customer information to occur at the customer level. Order tracking is one of the best known self serve applications.

A critical enabler of good customer support is knowledge management in the form of the integration of customer contact points because it is recognizing that customers can speak to an organization in many ways.

Product updates and upgrades notification presents another means for support and engagement. From a customer-focused perspective, the customer should be notified when updates and upgrades are available. This is based on the customer contact information that resides in the system.

Current contact management software features include collaborative white-boarding, real-time application demonstrations and sharing, text chat, voice chat, form sharing, and website co-navigation. Web site co-navigation or “follow me” browsing is where each web page viewed by a customer or agent is visible to the other party. Collaborative white-boarding allows customers or business partners and agents to draw diagrams or circle and highlight points in real-time over the network. Form sharing enables agents to help customers fill out fields. Some assessment features of contact management software include presentation tools and performance, integration of multiple media, security, ease of use, management, online help, archiving and reporting.

Users can schedule and conduct live (audio and voice integrated) Web based meetings or sales presentations with customers or other business partners. Software demonstrations, document sharing, document annotation, and website co-navigation are supported. Other features include contact routing ability that matches agent profiles to customer profiles. That is, an agent with the appropriate skill level handles the customer calls.

The ways in which knowledge management enables support is in the provision of complete customer history in real time, maintenance and access to corporate knowledge bases or industry knowledge sets such as IndustrySupport.com that contain problem resolution

descriptions and suggested email responses. The low end of the KM enabler would have contact points with disparate systems and inconsistent interfaces and the high end would have total integration across all customer contact points with one consistent interface to the information.

#### 4. Scales for the e-CRM framework

The method we use to measure e-CRM readiness consists of determining whether each of the four customer components (engage, order, fulfill, support) are fully enabled. The enablers for each of the components were summarized in Figure 3-1. A rating is assigned to each of the four components using the rating scale shown in Table 4-1.

**Table 4-1.** Rating scale for component

Rating	Description
0	This is not a part of this system.
1	This has rudimentary features of the component available but does not have the 'common' features.
2	All available enablers are present but are separate in how they are administered.
3	All enablers are present and interoperate with each other. This is the benchmark to aim for when evaluating systems.
4	Flexibility for additional enablers and interoperability are available (future growth). This is the target for companies that are pushing the envelope!

**Table 4-2.** Weighting scale for component

Weighting	Description
0	Not required.
1	Could be in the system.
2	Should be in the system
3	Necessary
4	Necessary and Essential

The assigned value is based on completeness and interoperability of enablers for the component. Each component has a weighting factor that is based on the level of need for the component in the system. The weighting scale is motivated by the fact that some components are more important to one company than to others. For example a 2-3% savings in a procurement process costs may be worth millions to a big company, but only hundreds to a small company. The small company may weigh another process or component much more heavily.

Ratings and weightings are multiplied to produce the overall score for each component. The components are plotted on a polar plot diagram to pictorially show the strengths and weaknesses of the associated e-CRM areas. The next section illustrates application of the readiness assessment proposed in this paper and usage of the scales.

#### 5. Example Application

We consider an example case for customer care components. This gives a macro view of e-CRM.

##### 5.1 Customer Readiness Assessment

This case is about a SME distributor of business machines – fax machines, photocopiers, computers, and typewriters - currently selling to the Latin American and Caribbean markets. The company’s motto is People, Solutions and Commitment to Service. SMEDistributor also sells software packages and provides software training packages for customers. The company is small size; it has revenue of 10 million annually. Its financial systems are computerized. Present points of contact are through fax, telephone, marketing representative visit, and web. The distributor has a mobile sales force and two reselling channel partners. Together, they sell mainly to seven industry verticals – manufacturing, oil and gas, retail, insurance, education, media, and government.

The service department has a history of good and bad customer press. Customers are often not happy if it takes multiple service calls to fix the problems. They are also unhappy when the time between the breakdown rate of the equipment is high, resulting in more frequent than anticipated service calls. Some customer differentiation and prioritization exists in that the managing director ensures that the service reps are aware of who the big customers are. Missed service appointments are also a problem. Sometimes rescheduling occurs because parts have not arrived on time, leaving customers with inoperable equipment for longer periods of time than first estimated.

The company receives sales leads from a variety of sources. Sometimes it is an inquiry that a secretary receiving the incoming call writes down on a scrap of paper and puts on a sales rep desk. Whether this lead falls into a black hole or is followed up depends on the sales rep. SMEDistributor would like to have more management control over leads. Lead accountability and management is a requirement of any CRM package in which SMEDistributor invests. Sales personnel often complain about erroneously using old price lists and the amount of time it takes to create quotes for customers. A

sore point for SMEDistributor's mobile sales force is the lack of real time access to up-to-date price lists and new marketing information.

When a salesperson follows up a lead or receives a call from a customer, she should be able to quickly pull up all pertinent customer information on screen. A scan of a customer's buying history can quickly identify cross sell or upsell opportunities. If the customer were online, the opportunity to obtain and record more knowledge on this customer would have presented itself.

The distributor routinely sends new price lists and marketing literature to its resellers. Most times the marketing literature sent is a subset of what exists. The sales personnel doing the selection of material to pass on to the resellers make subjective judgements as to what is important enough or whether it is cost effective to distribute the whole marketing literature. The indirect channel partners complain then that they do not have as many marketing resources to work with as compared to the distributor. SMEDistributor recognizes that it needs to address this concern because knowledge or content needs to be present at every customer contact point. Another area that needs redressing is that sometimes distributor and reseller would target the same customer, and sales people from the different companies compete against each other to sell the same product.

Orders from other countries are faxed to SMEDistributor. There is double entry in entering the information on the fax to the order system. SMEDistributor has its own "customs" department that deals with the rules and regulations of import and export to the countries that are part of the business' market. Delivery capabilities are well developed. Delivery lead times are rarely a problem. Although, the stores and delivery process systems are computerized, they are standalone. Items can be tracked via phone using confirmation numbers. Customers often tie up accounting personnel (there are no dedicated customer service agents at SMEDistributor) time in calls to verify bills and terms of agreements.

SMEDistributor wants to improve overall customer satisfaction, customer retention and customer profitability ratios. The company aims to:

- reduce the number of service calls for resolution to one;
- integrate supply chain management into service so that replacement parts will arrive on time;
- identify those customers whose service costs are very high as compared to the revenue derived from them;
- identify those customers who would buy service packages;
- increase revenue through higher sales
- improve the ratio of accurate quotes
- improve the ratio of accurate orders

Another business goal is to turn the computer software support calls into selling opportunities for training on software packages.

## 5.2 Framework analysis of the case

The engage, order, fulfill and service components are all equally weighted at 4 – very important. Browsing through product catalogs and price lists are available. Sales agents are available to help in comparing, configuring, interacting and listening. Up sell is relatively easy to do. Cross sell is more difficult without a common customer database. The missing sales' leads and use of outdated price lists begs for real time access to information and lacks the ability to reach each customer. Cross channel coordination has some of the requisite pieces but at the same time, others are missing such as full distribution of material and customer assignments. Collectively the engage component is assigned a rating of 1 (rudimentary features available, but not all common features).

The lack of integrity in pricing lists and non real-time information affect product or service selection. Otherwise, taxes and shipping procedures are well done as SMEDistributor has its own customs department. Payment and billing systems are working well. Transaction details are all logged.

Collectively, the order component is assigned a 2 (all criteria are present but are separate in how they are administered).

The fulfill capability is standalone. The stores and delivery processes are not integrated in the back-end financial systems. The fulfill governance is well done again because of the presence of a good "customs" department. Collectively, the fulfill component is assigned a 2 (all criteria are present but are separate in how they are administered).

Service is the worst done component at SMEDistributor. Customer information is maintained solely in the financial system. The data is not available to the marketing or service representatives. There is no common database to collect all customers' interactions with the business. Phone conversations about products and services and complaints are often unrecorded. No automated knowledge bases exist. Collectively, the support component is assigned a 1 (rudimentary features available, but not all common features). Since the components are all equally weighted, it is sufficient to plot the evaluated ratings versus the benchmark rating.

The customer over-all assessment, displayed in Figure 5-1, shows that SMEDistributor is starting out. They have many gaps to fill as identified by the framework. The plot in Figure 5-1 shows the weakest areas are in Engage and Support. The standard CRM packages on the market substantially address both these



components. The spines of the polar plot, labeled with component names such as engage, order, fulfill and support are all axes. The score for each component is plotted on its corresponding axis.

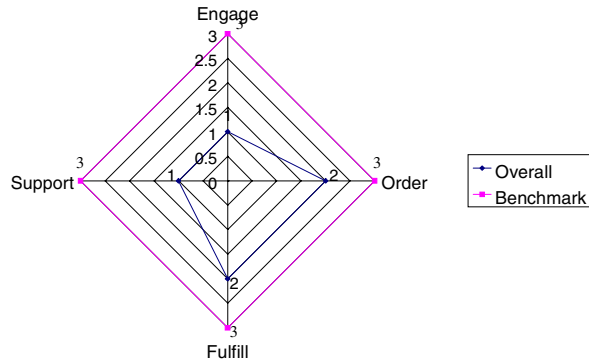


Figure 5-1 Customer Assessment Plot

To solve the time problem created by customer calls to verify bills and credit terms, SMEDistributor has decided to web enable the functionality. The company will allow customers to log in to a secure site to review the billing history and payment terms. SMEDistributor further proposes to automatically alert its customers by sending a reminder email a few days before the preferred terms expire. Customers are happy to be reminded so that they can save money by either paying no or lower interest amounts. SMEDistributor is satisfied because it may reduce its overall average cash-to-cash cycle time, that is, the time between which SMEDistributor paid for the item and the receipt of the customer payment for the same item. Another customer self-serve application is allowing the customer to view current lead times and tracking status for products on order.

## 6. Related Work

An increasing number of companies are studying the satisfaction of customer contacts with their organizations. A technique called “critical incident” [28; 30] has been used in many of these endeavors. The critical incident technique is a procedure for collecting descriptions of interactions between customers and the sales, marketing and service functions of companies. Descriptions are qualitatively arranged by category, and then quantified to determine a rating. Bittner [3] provides a technology infusion matrix that serves as a framework for how service encounters can be improved through technology. Jutla [14] provides a generic framework for e-Commerce encompassing functional, operational, and architectural components.

Shostack [29] provides a graphical method known as “service blueprinting” for identifying all of the operations involved in delivering a service. Blueprinting maps the processes involved in a service and clearly identifies where contact with the customer is made.

Christie [5] provides a list of success factors for virtual corporations: customer focus, alliances with partners with the necessary core competencies, trust, up-to-date information technology, adequate measures to protect corporate secrets and a new breed of computer literate managers and workers. Dunn [8] details only a subset of the information systems infrastructure required for linking online businesses. Both works ignore the community and government linkages.

Works on inter-business linkages include [4], [19] and [17] that specifies the nature of transnational firms' alliances and details their dependence on and the advantages gained from information systems infrastructure to support their online activities.

In the early 1990s, Kaplan and Norton [18] proposed the balanced scorecard approach for identifying key business performance measures from financial, customer, internal, and learning and growth perspectives. “Balancing” occurs because measures with an outward customer focus as well as internal employee and financial measures are used to assess the business. However, for e-CRM application, other stakeholder perspectives are needed. Jutla [15] details creation of e-Commerce benchmarks including customer order, fulfill, and support transactions.

In summary, many of these works provide various elements and narrow specific views of customer relationship management whereas the e-CRM framework presented in this paper is a strategic “big picture” approach and is focused in the context of e-Business.

## 7. Summary and Conclusions

The e-Business Stakeholder model intuitively shows how customer value is pulled from the partner, community, governance, and internal business stakeholders. It seems obvious that managing knowledge among all these entities should be a part of customer relationship management. Indeed knowledge management, trust, and technology are primary enablers of e-CRM.

The e-CRM framework presented in this paper was developed to address a current business need to become e-CRM ready and to lessen the slope of the learning curve required to get there. The framework first provides a macro or “big picture” view of e-CRM. Secondly the framework allows you to dig deeper and identify what components and enablers must be in place to support e-

CRM. Finally, the framework identifies metrics that can be used to monitor and infuse feedback to assess the e-CRM readiness of a business entity. The framework has been used successfully by a mid-size telecommunications company to create an e-CRM strategy and tactical plan.

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