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# Ubiquitous organization: organizational design for e-CRM

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Radoslav P. Kotorov

*M.F. Smith & Associates, Inc., Morristown, New Jersey, USA*

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**Abstract** *In 1998 J.P. Morgan's analysts forecast that the market for e-CRM (customer relationship management) solutions would grow rapidly. Since then more than 700 e-CRM firms have emerged. The convergence of information technologies caused enterprise information systems providers to add e-CRM functionality to their systems, thus further increasing the number of e-CRM suppliers. The proliferation of e-CRM concepts, models and technologies causes significant confusion and uncertainty. Corporate executives question the economic benefits of investing in multimillion dollar e-CRM projects, ponder about the right business and organizational models for e-CRM, and are uncertain which e-CRM models and technologies will prove both profitable and sustainable over time. With so many failed e-CRM initiatives some executives wonder whether e-CRM is not simply a hype. In the present paper what e-CRM is, from where the economic benefits from investing in e-CRM derive, and the evolution of alternative e-CRM models are elaborated. It is also argued that successful e-CRM projects are not narrowly departmental, but instead organization-wide initiatives. The paper presents a conceptual framework for e-CRM organizational architecture. The findings in the paper are based on e-CRM industry analysis, evaluation and work experience with over 50 e-CRM vendors, and on consulting experience with numerous corporations.*

## Introduction

What is the best business organization from a customer point of view? This is the question that executives should ask themselves when embarking on customer relationship management (CRM) projects. Yet, it is rarely asked, because CRM is considered a matter of service rather than of organizational design. The managerial conception of business organization derives from the dichotomy between centralized and decentralized organizations (Coase, 1988; Chandler and Daems, 1980). It reflects the degree to which decision making is distributed among the members or employees of an organization. The distribution of decision making implies the existence of organizational layers in hierarchical organizations and of independent functional units in decentralized organizations. From an economic perspective, this segmentation of the firm facilitates specialization in function, known also as division of labor (Smith, 1963), which increases productivity. From a management point of view, it facilitates coordination (Casson, 1987) and delineates employees' responsibilities and contributions in the production process (Alchian and Demsetz, 1972).

However, the economic and management perspectives do not consider the involvement of the customer, who through customer service enters into direct interaction with the business organization. As the interaction moves beyond the traditional physical points of contact and into the virtual space, the internal



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segmentation, which can also create bureaucracies and organizational silos, only frustrate the customers' efforts to obtain service. A simple but unusual inquiry, for example, whether it is cheaper to transfer foreign funds electronically or to deposit a foreign check, is sufficient to initiate a journey through the organizational silos. An automated call center is unlikely to provide an answer. A customer service specialist will re-query the call center's database and then will transfer the call to the electronic fund transfers department, which will answer half of the question and then will transfer the customer back to the call center for an answer to the other half. As the customer cycles through organizational silos and looping touch-tone telephone menus, he or she becomes increasingly and needlessly aware of the internal structure and functioning of the firm, but also feels disoriented in the technologically architected organization, similarly to Kafka's (1956) main character in the novel *The Trial*, for whom the search for justice is a matter of endless opening of one door after another. Naturally, a confused and frustrated customer is more likely to seek a solution from a competitor or even abandon using the service altogether. Given that organizational segmentation increases customers' difficulties in obtaining service, one may ask what is the ideal organizational structure from the perspective of the customer? Paradoxically, the answer is none. On the one hand, customers are not interested in knowing how firms operate internally; they only want their problems solved quickly either through an efficient self-service process or by individuals who have both the expertise and the decision power. On the other hand, customer needs are becoming quite complex and can be satisfied efficiently only by equally complex divisionalized organizations that mobilize experts with complementary skills. The solution of this apparent dilemma requires redesigning the corporation for e-CRM and making the demand chain ubiquitous to the customer.

Since the emergence of IT technologies corporations have been continuously reengineered to make the supply chain transparent to management. Transparency provides immediate access to information regarding each node in the supply chain, but it also requires knowledge of the organizational blueprint, which managers possess by virtue of their positions. By contrast ubiquity provides access to services instantaneously, but does not require knowledge of the organizational blueprint. The emerging ubiquitous organization has two properties: location and time independence; and immediacy. First, location- and time-independent access to services is offered through multiple channels and devices and, second, immediacy is ensured through the design of self-service processes and real-time exceptional request brokerage. The former obscures the organizational physical infrastructure, for a corporation may be reached regardless of its physical location, while the latter masks the operational structure, providing immediate access to its services and specialists.

The evolution of business organization towards ubiquity is a logical process. Technologies, such as the electric motor and the chip, have evolved to become ubiquitous. Their development was driven by the desire to make their services

as unobtrusive as possible, which, in turn, led to continuous miniaturization. As a result, the motor and the chip spread everywhere, from aircraft and cars to kitchen and personal appliances and, very importantly, in medical implants. Similarly, the development of Internet protocol (IP) created a ubiquitous communications transport mechanism, for it enabled the encapsulation of voice into data packets that can be transmitted anywhere over different types of networks simultaneously with other types of data (Kelly, 2000). Parallel with the evolution of the IP-based transport mechanism there emerged many ubiquitous access devices, such as PDA, mobile phones, e-mail pagers, etc. Given the existing ubiquitous technologies, there is little doubt that time/location independence and immediacy can be provided. The challenge is to overcome the old organizational design paradigm and to redesign the corporation to serve more efficiently the mobile customer.

### What is e-CRM?

Like all emerging technologies, CRM-related technologies, such as customer relationship portals, data-mining, intelligent call centers, etc., promise profound changes. Profound changes occur when there is a change in the paradigm, i.e. in the way we do things. There are many definitions of CRM that add to the confusion about how exactly CRM will change what we do (Ernst & Young 1999). But the change is not conceptual (Peppard, 2000). The concept of customer service and relationship management is as old as the concept of the market. Customers have been the patrons of the producers and merchants ever since the emergence of competitive markets, and their goodwill rests on the quality, timeliness and convenience of the service that they receive. Even the first book on double entry accounting – Pacioli's (1963) treatise written in the thirteenth century, which may be considered the foundation of modern enterprise management, for it establishes rigorous standards of accountability, emphasizes the importance of keeping accurate individual customer accounts for maintaining long-lasting relationships with customers (Geijsbeek, 1974). Customer retention is cheaper and more profitable than customer attraction. As *Inc.* magazine reports, the customer acquisition cost per single transaction for online retailers ranges from \$100 for Amazon.com, to \$245 for fashion retailers such as Bluefly.com, to \$500 for Furniture.com (*Inc.Tech 2001*, 2001). Furthermore, retention contributes to the creation of reputation, which also lowers customer acquisition costs. Reputation is an intangible asset, which modern corporations explicitly manifest in the form of brand advertising.

While the objectives of CRM remain the same, the development of information and communication technology allows for a significant increase in the scale and scope of customer service. Thus, e-CRM is defined as the application of information and communication technology to increase the scale and scope of customer service.

Managers are very well aware of the benefits from the scale and scope increase of industrial operations (Chandler, 1990). Small increases improve profit margins, but large increases can revolutionize both the industry and

consumer behavior. Ford did not invent the assembly line. He only applied this method to the production of cars, which allowed him to increase dramatically the scale of operations. The reduction in costs boosted the demand for cars but, no less importantly, the centralized manufacturing method changed the car industry. Unlike Ford, GM had a decentralized manufacturing that involved many independent suppliers. Yet, to increase the scale to match the production of Ford required significant investment in the operations of the independent suppliers (Stinchcombe, 1990). However, the investment bankers saw such an investment as too risky and too difficult to manage compared with the investment in a single centralized enterprise, which left GM management no other option but to integrate vertically its suppliers.

Prior to the emergence of information and communication technologies scale and scope economies were realized by optimizing the production process, which involved both development of production technologies and aligning them with adequate organizational structure. With the advent of information and communication technologies scale and scope economies can be realized in the relationship with customers, due to reduction in transaction costs, i.e. the costs to reach, communicate, negotiate and enforce the contract, and provide a post-acquisition service for a particular product or service (Williamson, 1985). The impact of information and communication technology on the transaction costs in the banking industry is shown in Table I.

The savings in transaction costs translate directly either in customer savings or in increased transaction capabilities. Of the two, the latter is the more important factor in explaining the impact of CRM. The reduction in cost from using a bank teller at \$1.80 per transaction to using Internet banking at \$0.015 per transaction means that the bank fees for the customer will be reduced by 120 percent, if he/she decides to use Internet banking solely. Conversely, if the customer does not collect the savings, his or her transaction capabilities have increased 120 percent, which implies the existence of new business opportunities.

### Scale and scope effects of e-CRM

Things that cannot be measured cannot be managed. However, what can be measured is not always what should be managed. Following the old paradigm of organizational design, transaction costs savings were first realized in the

Delivery channel	Transaction costs (\$)
In-branch teller	1.80
ATM	0.60
Telephone	0.45
PC banking	0.30
Internet banking	0.015

Source: Datamonitor (1999)

**Table I.**  
Transaction cost per  
delivery channel

supply chain, for they could be easily measured and managed. The issue was important, yet the expectations were false. The transaction costs savings in the supply chain are modest; as we now know, they amount to 7-10 per cent of cost (Mandel and Hof, 2001). Even though the cost of an e-mail invoice is one-third of the cost of a mailed invoice (deJong, 2001), the cost of invoicing is only a small fraction of the total costs. Thus, while there are certainly cost savings and efficiency gains, revolutionary scale and scope effects cannot be realized in the supply chain, but in the demand chain.

Prior to the emergence of Web banking, a bank customer could transact with his or her bank only during working hours, i.e. between 9 a.m. and 5 p.m. With the advent of Web banking technologies, the service hours extended from eight hours to 24 hours a day, which, in fact, represents a threefold increase in scale. If this change were to be realized in the physical world rather than on the Web, it would have required the opening of three additional shifts and a threefold increase in the number of employees. The cost of such service would have been prohibitive, which is why customers traditionally have been willing to accept a trade-off between convenience and cost, which is not needed any more. Even though the scale effect is sufficient, it does not necessarily lead to increased revenues or increased number of transactions, as shown in Figure 1. The scale effect on the demand side is merely increased transaction flexibility, analogous to the convenience of having multiple retail locations in a given geographic region. A customer may schedule a transaction at his or her convenience and the marginal cost of this convenience is decreasing in the virtual space, as opposed to the physical space, where it would have increased. Thus, many Web banking customers may simply take advantage only of the extended transaction flexibility.

The increase in scale, however, opens new transaction space for firms, similar to the addition of new shelf space, presenting new display opportunities to the retailer. Thus, firms may broaden the scope of their services, as shown in

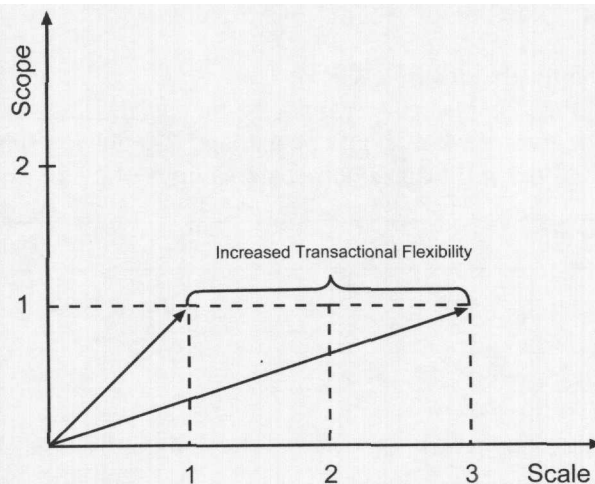
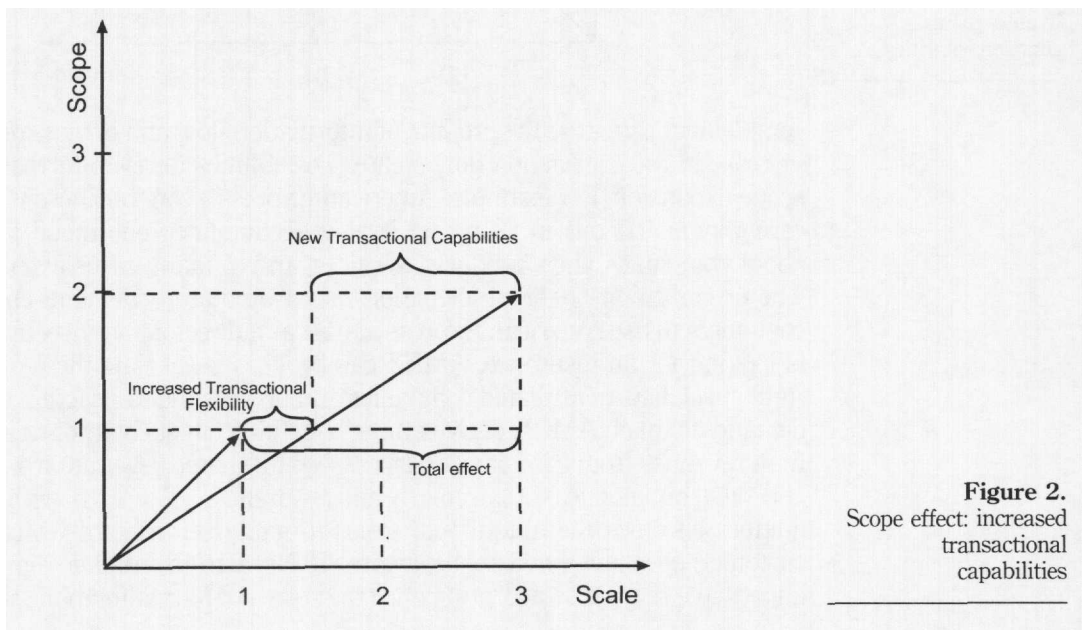


Figure 1.  
Scale effect: increased  
transactional flexibility

Figure 2. Banks may offer brokerage accounts in addition to the regular account and payment services. Kinko's offers not only the printing of business materials, but also their delivery to any place in the USA. Once the business materials are uploaded on Kinko's servers, the customer can request that they be printed and delivered to any location. The increase in scope was made possible by Kinko's technological capability of fulfilling locally remote customer requests.

Scope can further be increased through the realization of transactional complementarities. Transactional complementarities occur when different services, previously offered by different companies, are arranged in a logical chain. For example, British Airways offers loans to help its customers finance their vacations, even though financing is not a core activity for the airline. Non-core services are often only processed by companies for the convenience of the customer, but are actually fulfilled by other companies, whose processes are integrated in the ubiquitous demand chain. An alternative to the logical chain of services is theme marketing. In this case the set of services offered to the customer is grouped by their relevance to a particular type of preferences, such as outdoor activities, for instance. Woolrich (UK) and Capital Bank offer cars for sale that meet the lifestyle preferences of their customers (Ernst & Young 1999).

As Figure 3 shows, when the scope increases faster than the scale, the relevance of transactional flexibility decreases compared with the willingness of the consumer to redirect his/her business transactions through this channel or firm's demand chain. From a customer perspective the longer and the more ubiquitous the demand chain, the better it is. Since transactional



**Figure 2.**  
Scope effect: increased transactional capabilities

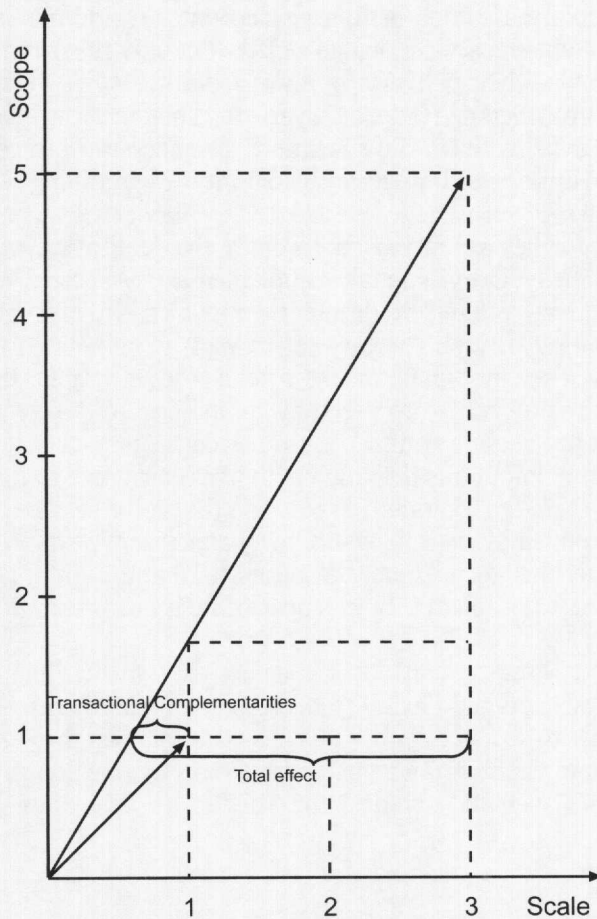


Figure 3.  
Transactional complementarities

complementarities are the product of information flow and process design, each increase in the transaction flow creates possibilities for even further scale and scope expansion. For example, American Express's core business is to process card payments, but in doing so it also accumulates enormous information about companies, their products, services, and in many cases even processes. The organization of this information into a ubiquitous demand chain allows customers to use American Express almost as a directory service. If a customer is looking for an insurance, AMEX can broker in real time the request to the right specialists in affiliated companies and process the transaction through its demand channel. AMEX derives three benefits from such an optimized chain: first, revenues from card payment fees, second, shared revenues from referrals, and, last but not least, extreme brand awareness. The card with the 1-800 number becomes the ubiquitous access to many services, of which even the customer does not have to be aware. If Nordstrom build a reputation for impeccable service by accepting once the return of four automobile tires, which

it never even sold, AMEX is building a sustainable competitive advantage from handling all contingencies.

### The evolution of e-CRM

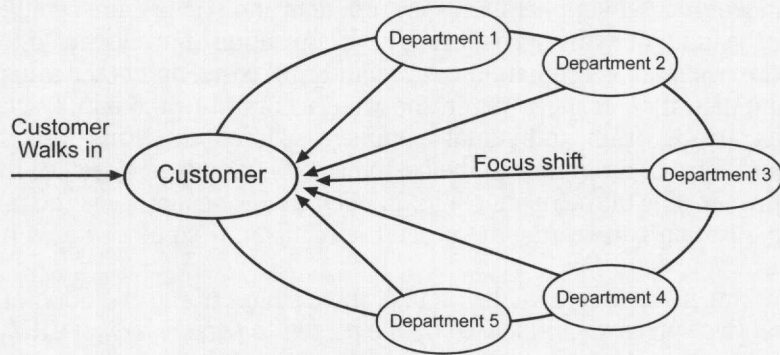
So far CRM has evolved around the idea of service design, rather than around the idea of organizational redesign. The reason for this evolutionary path is the common belief that CRM is about a person-to-person relationship between the customer and the customer-service employee. In reality, however, it is just the contrary – CRM is about a person-to-organization relationship. The customer prefers to use collective agents, i.e. firms, as opposed to individual agents, i.e. independent market suppliers, because products and services are complex and require the input of many specialists. The organization of production into firms saves the customer coordination cost, monitoring costs, and other transaction and administrative costs, if he or she were to organize the supply chain of complex goods from individual suppliers. Moreover, firms provide an important form of assurance to the customer by guaranteeing service through the entire timeline of the relationship. Implicit in this assurance is the fact that the organization can recruit the needed specialists, if some of its employees leave it.

From this perspective, we distinguish three stages in the evolution of CRM. The first two stages are influenced by the person-to-person view of CRM, while the third stage, which we call the ubiquitous organization, is based on the notion of a person-to-organization relationship. While the emphasis in the first two stages is primarily on service design and, more specifically, on service personalization and differential pricing, in the third stage it is on organizational and process design to offer the customer ubiquitous access and immediacy.

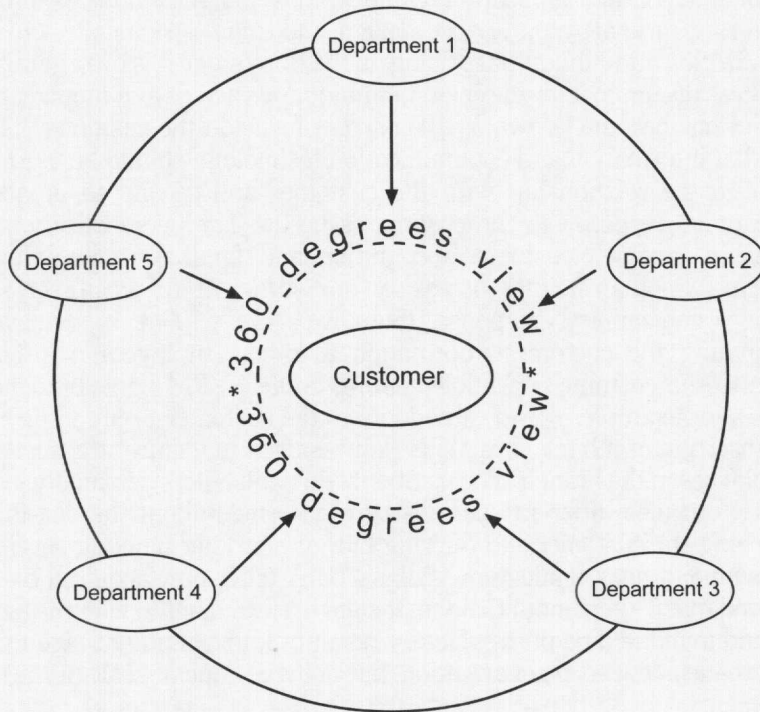
Stage I has become known as 100-percent focus on the customer. The core idea is that information and communication technology should be used first to personalize the relationship with the customer and second to broaden the organizational response to the customer's needs. The personalization of the relationship involved customer recognition and familiarity, implying even friendship, which is neither necessary nor sufficient for customer service. Broader organizational response (Siguaw *et al.*, 1994) is achieved by disseminating the customer information to other employees to offer their services to the customer. In implementing Stage I CRM bank branches (see Figure 4), for example, closed their doors to the customers, only to open them on the insertion of a bank card. This "key" is used to identify the customer to the employees in the branch. Thus, not only do bank tellers personally greet the customer, but also different specialists are informed about the possibility of approaching the customer and offering him or her other banking services. To their disappointment, banks like Midland Bank (UK), now acquired by HSBC, discovered that 51 percent of their customers preferred not to visit the branch if they could avoid it. The unsatisfactory result of implementing Stage I CRM is that it broadens the scope of attention, but not the scope or scale of the service offered.



Stage II CRM, known also as 360-degrees view of the customer (see Figure 5), was first implemented by Lucent Technologies (Galbreath and Rogers, 1999), and can be characterized as a sophisticated variant of its predecessor. The person-to-person model was further enhanced by adding technologies supporting: prediction of customer buying patterns; and price differentiation. The core idea behind the new model is that superior market performance is the result of superior skills in understanding the customer (Narver and Slater, 1990). New CRM technologies, such as CRM portals, data warehouses, predictive and analytical engines, etc., facilitate the collection, analysis and



**Figure 4.**  
Core CRM concept:  
100 per cent focus on the customer



**Figure 5.**  
Core CRM concept:  
360-degrees view of the customer

distribution of customer data internally (Eckerson and Watson, 2001). As a result of the analysis, customers are segmented and offered products and services that better fit their buying profiles. The differentiation in service allows for differentiation in prices, which increases profit margins. Smart cash registers that offer price discounts to grocery shoppers have contributed to increase gross margins from 0.49 to 1.2 percent (Shapiro and Varian, 1999). Many CRM projects are currently at Stage II, and many of them fail to replicate the effect in the grocery industry. Why?

The combination of personalized offerings and differentiated prices more often than not tends to decrease the scope of customer service. Better profiling allows products and services to be pushed to customers, but it also allows for pushing only the high margin products and services. Furthermore, high predictability of customer needs and wants allows one to increase the differentiated price. A coupon aims to induce a leaving customer to come back to the store, and thus has to offer the customer considerable savings. On the other hand, an intelligent vending machine that recognizes both temperature and demand changes can self-adjust the prices of the cold drinks, leaving the customers with the bitter feeling of being used. Many customers stopped using online ticketing after discovering that comparing prices led to increase in the prices and, the closer the flying date, the higher the price given on subsequent price inquiries. The disadvantageous differential pricing is the result of the fact that the transaction costs have not decreased proportionately for customers and corporations. The cheaper it becomes for corporations to tailor customer-specific services, the more costly it becomes for the customer to do product and price comparisons, which in fact narrows the customer's choices. As a result, the customer feels as if he or she has lost some of the equality and bargaining power in the relationship, and returns to use more traditional distribution channels. The limitations of Stage II CRM arise from the fact that it treats the customer as the end node in the supply chain, and thus relies on push technologies that limit the scale and scope of service to prevent information overload.

Despite their limitations Stages I and II CRM emphasize three important areas:

- (1) relevance of the service to the customer;
- (2) responsiveness to needs; and
- (3) sensitivity to demand.

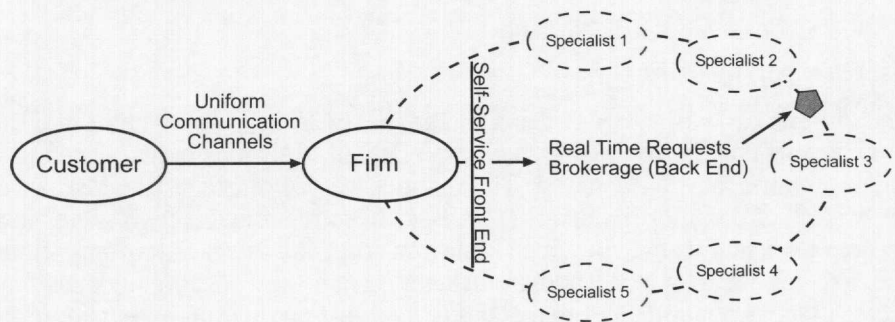
The difference with the emerging Stage III e-CRM is not what but how corporations ensure that the services are relevant to the customer, solved in a timely manner, and on demand. The distinct feature of Stage III CRM is the integration of the information and processes from the previous two stages in a ubiquitous demand chain in which scale and scope are increased through time- and location-independence and immediacy. Time- and location-independent access alone is not sufficient to make the organization ubiquitous, e.g. multiple

access channels are available in Stage II with little effectiveness. Access is only good if it leads to the solution of a problem. Without immediacy, the value of universal, multi-channel, time- and location-independent access is limited by the familiarity of the customer with the organization's products, services and processes. In the two-tiered ubiquitous CRM architecture these services are organized in the self-service layer accessible through multiple channels, as shown in Figure 6. However, global enterprise offers hundreds of thousands of services and products, of which the customer is unaware, and the number grows in proportion to the number of alliances and partnerships. The real-time exception-handling layer (Figure 6) ensures that the customer can efficiently be introduced to these unknown to him or her services. Brokerage firms were the first to become ubiquitous by giving their customers the ability to schedule transactions from anywhere, at any time, and regardless of their complexity.

**Redesigning the corporation for e-CRM**

Figure 6 presents a simple view of the information and transaction flow in an organization providing time and location independence and immediacy. Yet, operationalizing the concept in a large enterprise is not as simple as it looks. The pyramidal structure, characterized by horizontal and vertical segmentation, increases productivity and lowers prices but it also creates information and transaction flow barriers. Under the pyramidal organizational design paradigm it takes less time to produce than to service a product, which is why many mass manufacturers replace rather than repair products. Service is more difficult to provide, because segmentation obstructs the backward flow of information from the customer to the right specialist in the production and delivery chain. Consequently, the model is inadequate for information-rich services, which raise many questions and require a deeper reach of specialists compared with off the shelf products. Furthermore, corporations are dynamic entities, and continuous reorganizations and employee internal mobility complicate the information and process integration necessary to make the demand chain ubiquitous.

Yet, the pyramidal structure is not coincidental (Jaques, 1990). It allows the CEO to monitor the efficiency of the organization, by providing the CEO with a full view of the entire organization, its divisions and operating units.



**Figure 6.**  
Core CRM concept:  
ubiquitous organization

Furthermore, the organization and its information system are designed to provide such a view from anywhere and at any time, because executives today are highly mobile and demand information in real time in order to make quick decisions. In fact, CEOs have ubiquitous access to the corporate supply chain. But an efficient organization may be ineffective, if its customers fail to reach it, even if it can reach them. To prevent such a problem, the customer-end architecture should be redesigned as a mirror image of the CEO's architecture (see Figure 7). The CEO's organizational view is realized by the addition of a cross-functional layer underneath the CEO, which aggregates information from the different silos. The accounting department, for example, aggregates information from the divisions based on common standards, such as profit, loss, and various margins. To make the demand chain ubiquitous requires the addition of resources analogous to the CEO's cross-functional layer at the bottom of the pyramid to:

- design self-service processes;
- handle exceptional requests;
- redesign exceptional requests into self-service processes;
- ensure continuity during organizational restructuring; and
- ensure process consistency across business units and multiple channels.

A self-service process is analogous to the process of buying goods off the shelf in a supermarket. The service process has to be intuitive and it requires some familiarity of the customer with it. Even though many services fall within this category, not all are as easy to design as the tracking of a shipment with FedEx. Situations with which the customer is unfamiliar require exception handling,

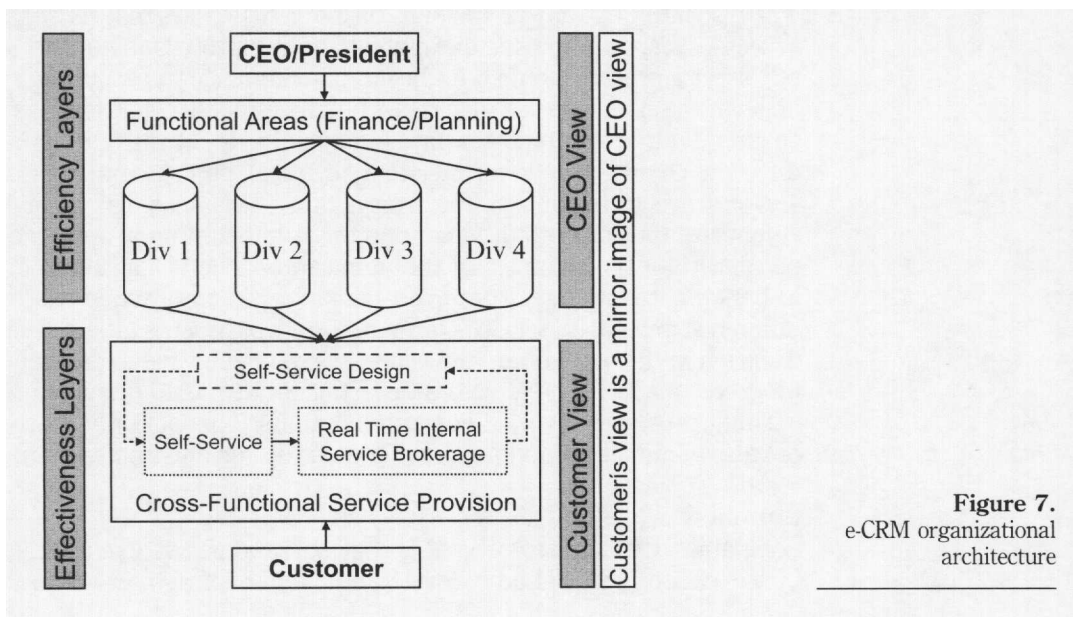


Figure 7. e-CRM organizational architecture

which necessitates both understanding and fulfilling the request. Contrary to all beliefs customers do not want their requests to be satisfied immediately. All they need is the assurance that the right specialist is looking into the problem. However, this is not equivalent to an automated response that the request is queued for processing. Exception handling requires a process of real-time brokering of the request. Customers can describe problems, but cannot define them, for they are not specialists. Therefore, the request needs to be forwarded to a wider range of specialists to determine the exact fit. Chubb, for instance, provides insurance for non-standard risks. Thus, it is very likely that it will not have a precedent or that the description of a previous case will not be specific enough to be able to filter the expert in a database. The only way to solve such a problem is to broker it in real time until an agent with the right expertise bids to solve it.

Once an exceptional request is handled, it can be converted into a self-service process, which may be placed in a customer folder or offered to all customers. Very customer-specific processes may be placed in individual customer folders in order not to overload other customers with the existing possibilities. Since processes are easily transferable, if the need arises they may be placed in other customers' service folders or made available to all customers. For instance, once a customer becomes familiar with uploading promotional materials on Kinko's servers, he or she can then use self-service processes to order them to be printed and delivered to any location. This is a process that started as an exception process for more sophisticated customers but is coming to be offered widely and used by all customers.

The cross-functional team needs to ensure the continuity of the processes during the phases of restructuring and re-engineering. Restructuring and re-engineering affect the efficiency layers. Any structural changes that are not reflected in the customer view will cause discontinuity in the demand chain. The discontinuity may create high risks for customers that rely on self-service processes, especially if the exception-handling process is not as timely as the self-service process would have been. Global finance transactions are one of the areas most susceptible to such risks. Finally, process consistency is required to ensure: first, that processes are functionally identical and familiar across different channels and, second, that identical processes are used when the services are different but the transaction flow is logically equivalent. We emphasize that process differentiation should be minimal and justified by the peculiarity of the channels of communication. The visualization of content in M-banking is different from Web banking, but transaction-wise there is no difference. Similarly, services differ across departments and divisions, but the transaction flow is often the same. Recognizing the equivalence of such processes made GE create cross-departmental teams to disseminate the use of existing processes across all operational units. This not only speeds adoption, but also eliminates redundancies in process design and implementation.

### Conclusion

Companies that strive to have global operations, for example, J.P. Morgan Chase & Co., are already developing global infrastructure for ubiquitous

access. Such infrastructure offers sustainable competitive advantage, not only because it is difficult to replicate and capital-intensive, but also because of its value to the customer. First, from a customer point of view the value of time- and location-independent access increases in proportion to the scale and scope of services that can be immediately processed. Second, the organization designed to handle customer requests anywhere, at any time and instantaneously will attract not only customers but also the business of other corporations, which will want to be integrated in its ubiquitous demand chain. Today many companies create *ad hoc* cross-functional teams during the implementation of various aspects of e-CRM. Bell Mobility sets-up a cross-functional team of 15 to 20 people to act as a support mechanism during the implementation of M-banking solutions for Canadian banks, because the initiative impacts the work of many different departments (Harter, 2000). While *ad hoc*, created temporary cross-functional teams speed up the implementation of e-CRM, once dissolved the company cannot ensure immediacy and continuity. Corporations that organize the customer end cross-functional team as a distinct organizational layer develop a specific capability with distinct competitive advantage, that is even more difficult to replicate, for customers become accustomed to convenience.

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