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EXPLORING e-SERVICES IN THE CONTEXT OF RELATIONSHIP MANAGEMENT: A FUNDAMENTAL LOOK AT TECHNOLOGICAL COMPONENTS

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1 Introduction

The last few years have seen major breakthroughs and changes in the field of e-services. We have gone from call centers to contact centers and from CRM (customer relationship management) to eCRM. The e-service landscape is inundated with people and prose seeking to define just what "e-service" is (e.g., Zemke and Connellan, 2001; Rust and Kannan, 2002; Stafford, 2003). We now have PRM (partner relationship management) and eRM (employee relationship management) to add to existing terms such as SCM (supply chain management). According to Piccinelli and Stammers (2001: 1), an e-service is "any asset that is made available via the Internet to drive new revenue streams or create new efficiencies" (Figure 1).

Figure 1 e-service model

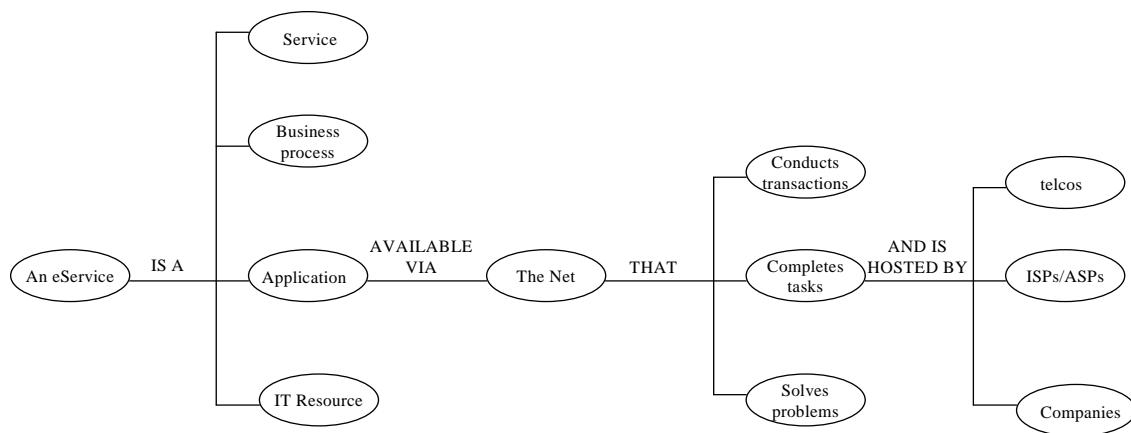But what are e-services really about?

Simply stated, a business is nothing more than an ecosystem of internal and external relationships (Galbreath, 2002a, b). Businesses must deal with a variety of constituents—employees, suppliers, partners, middlemen, auditors and customers. It goes without saying that to succeed and survive in any business, managing relationships is essential. Businesses that

are receptive to e-services that assist in the coordination and management of these relationships can help position themselves to develop a sustainable competitive advantage in the marketplace. However, the speed of adoption of e-services is often hindered by a lack of understanding of how the various technologies available support one another, and by the plethora of new terminology that is used to describe them. Hence, the purpose of this paper is to assist in developing an understanding of the technologically-based components of an e-service system. More specifically, given the multitude of e-service products available, this paper focuses on explaining the basic components of a relationship management (RM) system that is supported by e-services technology.

2 The typical problem

In the case study titled *Rude Awakening* (Hoffman, 1996)*,* the father figure speaks of the frustration associated with the number of duplicate hospital forms requested from the "expecting" parents: insurance and other personal information were to be provided to the Obgyn's office, the hospital (pre-admission), the Emergency Department (when babies [twins] arrived prematurely), the Maternity Ward and Outpatient Services (where one of the babies returned to the hospital for additional testing after a 63 day stay in the same hospital). For both the father and the observer, the basic question is: why weren't all of these parties, who performed services under the same roof, sharing information with one another? Furthermore, and perhaps more importantly, why should the customer bare the burden of the enterprise's lack of organization?

2.1 The service experience

The e-services side of relationship management spans the customer's entire experience within the enterprise's service delivery system. A useful framework (see Figure 2) that has captured

the fundamental elements of the service experience is the Servuction Model (Langeard et al., 1981).
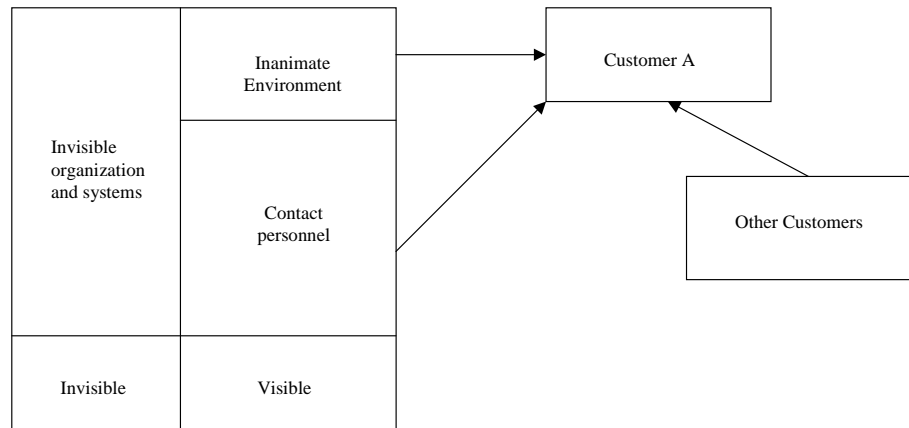

Invisible organization and systems	Inanimate Environment	Customer A
	Contact personnel	Other Customers
Invisible	Visible	

Figure 2 The Servcution model ere

The Servuction Model proposes that the benefits customers receive from service products are obtained via the experience that is created for them. The model proposes that the customer's experience is primarily influenced by four factors: *inanimate environment, contact personnel, other customers and invisible organization and systems*. The "back" office components of relationship management systems provide the infrastructure that is traditionally located within the *invisible organization and systems*. "Front" office access and relationship management applications infiltrate the remainder of the system: equipment such as desktop PCs and ATMs; *inanimate environment* provides customer access; *contact personnel* access applications to address customer requests, thereby increasing their own efficiency and effectiveness; and the user-friendliness of systems help reduce the waits of *other customers* wishing to share the same consumption experience.

E-services can have profound implications for each of these relationships. The development of an enterprise's systems should flow logically from the overall service strategy.

Systems should facilitate employee actions and not be a hindrance. Moreover, customer interactions with the firm's systems should reinforce the firm's commitment to superior customer service. It is this "experience" that is created for the customer that ultimately determines customer satisfaction, referrals and repeat business (Heskett et al., 1994).

Understanding the fundamental importance of creating "experiences" is becoming increasingly critical as it can be used as a competitive weapon in the war against service commoditization (Pine and Gilmore, 1999). In the hey day of the dot coms, many of these Internet-only companies tried to convince customers that customer service was passé while price was the only factor that really mattered. However, according to Pine and Gilmore (1999), the value of creating experiences is undeniable.

When priced as a raw *commodity*, coffee is worth little more than US$1 per pound. When processed, packaged and sold in the grocery store as a *good*, the price of coffee jumps to between 5 and 25 cents a cup. When that same cup is sold in a local restaurant, the coffee takes on more *service* aspects and sells for 50 cents to US$1 per cup. However, in the ultimate act of added value, when that same cup of coffee is sold within the compelling *experience* of a 5 star restaurant or within the unique environment of a Starbucks, the customer gladly pays US$2 to US$5 per cup. In this instance, the whole process of ordering, creation and consumption becomes a pleasurable, even theatrical experience. Economic value, like the coffee bean, progresses from *commodities* to *goods* to *services* to *experiences*. In the above example, coffee was transformed from a raw commodity valued at approximately US$1 per pound to US$2-US$5 per cup—a markup as much as 5,000 percent (Pine and Gilmore, 1999).

The lesson to be learned is that as customers interact with service firms, their primary concern is the quality of their experience. In the course of this experience, they see only one enterprise—they do not recognize departmental boundaries, nor do they care much about internal organizational structures. Furthermore, all of the customers' interactions with the enterprise, considered in light of their experience, are formed into one assessment of service

quality (Parasuraman et al., 1985). Consequently, the customer should be treated as a single entity, regardless of whom they are interacting with inside the business. However, the problem for most companies in treating the customer as a single entity is one of information disparity (Galbreath and Rogers, 1999). In many cases, the problem is not access to information about a customer, but using those data across the enterprise to effectively manage customer interactions and relationships regardless of what functional department is dealing with the customer.

3 Relationship management

Relationship management (RM) attempts to provide a unified and integrated approach to customer interactions. RM generally combines various elements of technology, people, information resources and processes in order to create a business that takes a holistic view of its customers (Galbreath and Rogers, 1999). More formally, RM can be defined as:

> Activities a business performs to identify, qualify, acquire, develop and retain increasingly loyal and profitable customers by delivering the right product or service, to the right customer, through the right channel, at the right time and the right cost. [RM] integrates sales, marketing, service, enterprise resource planning and supply chain functions through business process automation, technology solutions, and information resources to maximize each customer contact. [RM] facilitates relationships among enterprises, their customers, business partners, suppliers and employees. (Galbreath and Rogers, 1999: 162)

Although Galbreath and Rogers (1999) offer a robust definition of RM, we specifically turn our attention to its technological components.

3.1 Relationship management—A functional view

Relationship management is a broad concept and encompasses many dimensions. However, technology is a critical component of RM and one that is often seen as vast and confusing. To circumvent the confusion, we suggest considering two simple questions with respect to RM: "What are the business's needs?" and "What results are desired from the use of technology?" When these two questions can be answered, defining and understanding the e-service landscape of relationship management becomes easier. Figure three, while not claiming to be all-inclusive, provides a solid foundation for a functional view of the e-service [technological] components of relationship management.
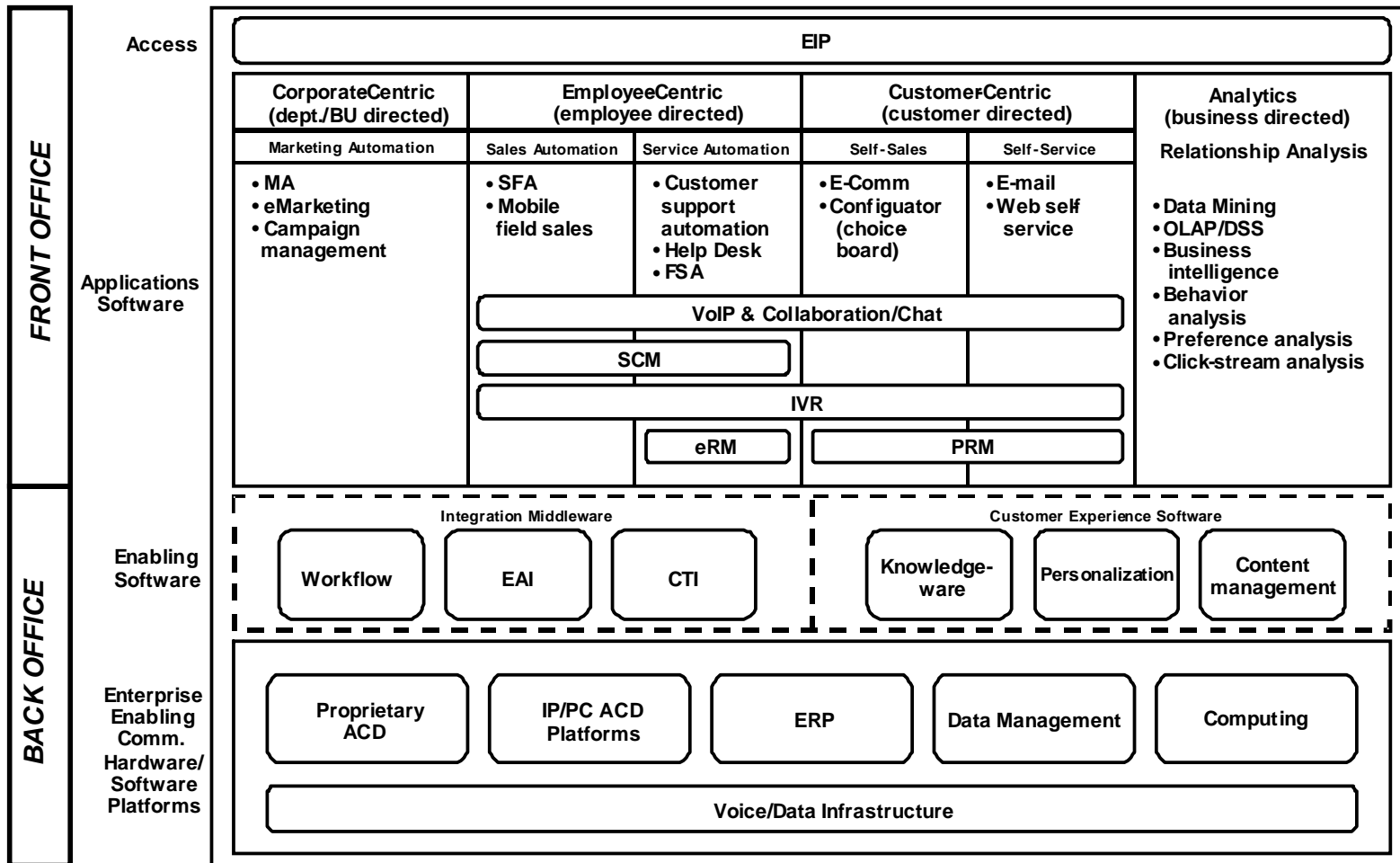
Figure 3 The e-service technological components of relationship management

The framework for understanding relationship management (Figure 3) is divided into four categories:

1. Access
2. Applications software
3. Enabling software
4. Enterprise enabling communications hardware and software platforms

One way to better understand the graphic (Figure 3) and to put the categories in context is to think of the technologies and applications of RM in terms of "front" office versus "back" office. RM access and RM applications software are considered front-office; they are the applications or technologies that in one way or another "touch" customers, partners, suppliers and employees. Front-office technology can be viewed as the front-line of defense to fulfill RM interaction, communication and analysis needs. Back-office technologies, including RM-enabling software and enterprise-enabling communications hardware and software, serve as tools and technology to enable front-office systems to perform more effectively and efficiently. In the past, back-office systems worked in the background, out of sight and out of mind of the "customer-facing" front-office systems. Today, these barriers are rapidly breaking down as businesses are allowing customers, suppliers and partners to access back-office systems and data and RM-enabling tools and software. That being said, the first area of examination will be the category of RM access.

3.2 RM access ("front" office)

Business needs: innovative means of providing access to RM tools and applications.

Result: more effective and efficient means of communications and management of business relationships in the form of enterprise information portals.

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Accessing, managing and leveraging information is vital to relationship management. This information can come in many forms: knowledge bases, databases, email messages, word processing documents, web site transaction histories, spreadsheets and voice and video messages—and even the tacit knowledge of individuals. Given the multiple RM applications and tools being used in operational environments today, many businesses are seeking a means of providing browser-based, unified access to these applications and tools. This is the primary function of an enterprise information portal (EIP).

In essence, an EIP is best thought of as a universal access portal to a business (e.g., PCs, PDAs) via the Internet, intranet or extranet, which can be customized based on who the user is (e.g., employee, customer, partner, supplier). Examples of customization include EIPs for trading networks, business intelligence, sales resources, procurement and business supplies. EIPs of the future will not require users to access a website for e-services. Some are already in use today. For example, Cadillac owners push a button located on the dashboard of their car, and an e-service locates the information the driver is requesting.

3.3 RM applications software ("front" office)

Business needs: increased operational efficiency, revenue growth, improved relationship satisfaction.

Results: automation of business processes that improve relationship satisfaction and loyalty, expanded revenue and growth opportunities and profits.

RM applications software is most typically associated with, and defined by, the front-office software in the areas of *marketing, sales* and *service/support*. The amount of RM applications

software has grown significantly, with a most recent interest and focus on Internet-based (or e-service) applications. From a technology perspective, this type of software can be defined as operationally and analytically focused, designed to help businesses improve their operational efficiency and effectiveness, thereby ultimately strengthening business relationships and market success. RM application software can be broken down by how it is used and/or by who is using it:

Corporate-centric:

- software which is typically used by business unit or department-level personnel for the purpose of creating, deploying and managing corporate-level initiatives, such as marketing campaigns using traditional media and one-to-one personalized campaigns via the Internet. Examples of this type of software include *marketing automation*, which analyses the purchasing behavior of the enterprise's database of customers while assessing the value of specific marketing campaigns more quickly and effectively, *eMarketing* (marketing via the Internet) and *campaign management*, which may target specific customers for specific promotional events.

Employee-centric:

- software that is typically used by sales employees to improve sales efficiency (*sales force automation, mobile field sales automation*). This type of software can perform tasks such as the generation of customer profiles in a selected area that can be automatically transmitted to boundary spanning personnel.
- software that is typically used by customer support representatives or other employees to improve service/support efficiency (*customer service/support automation, help desk, field service automation*). In addition, software that is typically used by employees, via an intranet, for a variety of human resource applications (employee relationship management

[eRM]) is included in this category. An example of eRM is software that enables employees to check on accumulations of their personal 401(k) account.

Customer-centric:

- software that is typically used by customers to purchase goods and services, unassisted, over the web (*e-commerce, configurators/choiceboards*).   This category of software establishes sales sites and may offer customers the opportunity to configure their own purchases. Dell Computers, which allows customers to configure their own computers on its website, is a prime example.

- software that is typically used by customers as a means of self-service (*e-mail response and routing, web self-service*). In contrast to the e-commerce software noted above, this software takes the form of informational sites (as opposed to sales sites) where customers can access information to suit their own needs. Cisco is one highly noted example of the use of web-based customer self-service technology, where implementation of such technology has helped the networking giant save hundreds of millions of dollars.

Analytics:

- software, such as SPSS and SAS statistical packages, which is typically used by business analysts to explore data for improved decision making pertaining to a variety of marketing activities: customer segmentation, marketing campaign results, sales by territory or zip code and the like. Typical analyses include *data mining, OLAP/DSS, business intelligence, behavior analysis, preference analysis and click-stream analysis.*

Additionally, there are applications that span the above four categories:

Sales *and* service (employee-centric):

- *Supply chain management (SCM)* software that facilitates service requests with suppliers electronically; provides plant production planning and scheduling; warehouse and distribution center management; and the end-to-end tracking and transportation of materials from suppliers to customers. Historically, SCM software was customized and used over expensive private networks. SCM is now available as a "packaged" application and used via a browser-based user interface over the Internet—a much easier and less expensive process.

Sales *and* service (employee- *and* customer-centric):

- *Interactive voice response (IVR)*: software which is typically used by employees, customers, partners or suppliers for self-sales and service (e.g., automated phone systems).

- *Voice over Internet Protocol (VoIP) and Web collaboration/chat*: software which is typically used by employees, customers, partners or suppliers in sales and/or service requests via the Internet, intranets or extranets, to collaborate with a customer service representative. An example of VoIP is Lands' End *Live* hot link, through which customers can speak to customer representatives over the web instead of using a traditional phone service. An example of web collaboration/chat is simply a chat room where participants correspond via text.

Sales *and* service (customer-centric):

- *Partner relationship management (PRM)*: software that is typically used by partners for self-sales and service/support via extranets. In contrast to SCM, which is more procurement-based, PRM is more information-based. Examples of partners include subcontracting arrangements such as Intel purchasing chips from Lucent. Partners tend to be more niched and specialized compared to suppliers.

3.4 RM enabling software ("back" office)

Business needs: tie disparate RM applications and infrastructure together; personalize on-line customer experiences and interactions.

Results: holistic view and management of all relationships; improved process and operational efficiency; and increased relationship loyalty.

Software in this category can be broken into two components: *integration middleware* and *customer experience*. *Integration middleware* software ties disparate applications and databases together—typically front-office (employee- or customer-facing) applications with back-end systems. *Customer experience* software provides for personalized interactions and experiences via the Web.

Integration Middleware:

- *Workflow* software tools: provide for the systematic routing and tracking of work items of any type through a structured or unstructured business process. Examples could include tracking an enterprise's new product development process, production schedules, or shipping schedules (e.g., FedEx package tracking service).

- *Enterprise application integration (EAI)* software tools: provide the ability to integrate disparate applications and application logic across an entire enterprise. In other words, EAI software has the ability to bring the whole group together to be able to work and communicate under one system. An example would include the integration of a web site with a call center to track and analyze customer data, activity and transactions across two channels.

- *Computer Telephony Integration (CTI)* software tools: integrate back-end customer databases with local area networks and the telephony components of the private branch exchange (PBX) and auto call distribution (ACD) to provide call routing and screen pops at

the customer service representative desktop. In other words, if Domino's Pizza had one main phone number, the PBX could route each call to the location closest to the customer. The ACD could then route each call to a Domino's representative (who had dealt with the customer in the past) and provide them with the customer's address and information pertaining to past orders.

Customer Experience Software:

- *Knowledgeware* tools: automate FAQs and provides automated problem solving and resolution capabilities for web self-service software. For example, participants can access tiaa-cref.org (Teachers Insurance and Annuity Association College Retirement Equities Fund) to read about frequently asked questions.

- *Personalization* software tools: provide automation to individually create customized on-line experiences and content. An example includes Amazon.com's ability to personalize web pages for its customers' including the capability to make book recommendations based on user preferences and past purchases.

- *Content management* software tools: assemble, aggregate and normalize product information from databases and deliver it to front-end users. An example would be a travel agent's access to changing airline schedules and fares. Content management software also provides templates and formats so that users can create web sites from scratch (e.g., templates provided by Microsoft's Front Page).

In the relationship-enabling software category, workflow and enterprise application integration software are becoming a necessary mechanism for creating holistic views of relationships. The reality is that in order to maximize relationship application software, particularly across departments and enterprises, workflow automation and applications integration is a requirement. *Integration middleware* provides this functionality. On the other hand, the Internet,

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perhaps more than any medium before it, demands the customization and personalization of the end-user experiences in order to drive loyalty. *Experience software* and tools are proving vital to achieve that goal.

3.5 Enterprise-enabling communications hardware and software platforms ("back" office)

Business needs: 100 percent communications availability and uptime; back-end systems process efficiency; relationship data structuring; large-scale transaction processing; reliable, dependable voice and data infrastructures.

Results: increased uptime and quality of sales and service delivery; 24 hours per day, 365 days per year relationship interaction capability; effective data storage, management and use; increased process efficiencies.

Technology in this category can be broken into six basic components: *Proprietary Auto Call Distribution (ACD), IP/PC ACD platforms, ERP, data management, computing and voice/data infrastructure.* *Proprietary* and *IP/PC PBXs/ACD*s make up the call center infrastructure necessary for agent-based relationship interaction. *Enterprise resource planning* provides for the automation of the back-end processes of finance, product planning and inventory management. *Data management* technology provides the infrastructure for data storage and management. *Computing* technology provides the infrastructure for desktop use, application development and distribution and transaction processing. *Voice/data infrastructure* makes up the myriad devices necessary for efficient and effective voice and data transmission.

Voice/data call routing:

- *Proprietary ACD* hardware and software: manages and routes in-coming voice and/or data calls for call center use at the desktop or telephone; includes software for call detail monitoring and reporting; and also includes predictive dialers for outbound telemarketing.

-

Voice/data call routing:

- *IP/PC-based ACD* hardware and software: manages and routes in-coming voice and/or data calls over local area (data) networks for call center use at the desktop or telephone; includes software for call detail monitoring and reporting; and also includes predictive dialers for outbound telemarketing.

Back-office process automation:

- *Enterprise resource planning (ERP)* software: automates the back-office processes of finance including general ledger, accounts payable, accounts receivable, fixed assets, treasury holdings and cost control. ERP software can also include human resource and manufacturing (e.g., product planning, inventory management) functions.

Data management:

- *Data management* hardware and software: stores, parses and manages megabytes to terabytes of enterprise data (e.g., data base, data warehouse, data mart).

Application deployment and use:

- *Computing*: mainframe, server, desktop and mobile devices which provide scaleable and fault-tolerant reliability and access to software applications, execute transactions and serve as platforms for applications development.

'24x7' communications:

- Voice/data infrastructure represents a myriad of technologies, including PBXs (proprietary and IP/PC-based), LANs, WANs, routers, hubs, and bridges that provide stable, reliable two-way communications with customers, suppliers, partners and employees.

Key areas within the *enterprise enabling* category include IP/PC-based ACDs and PBXs, data management and computing. Although a relatively small market today, the movement towards

voice IP traffic is rising rapidly. And as businesses look for more cost efficient means of communications, they are looking to IP-based solutions based on open, standard platforms. This is already leading to the increased use of IP/PC-based ACDs and PBXs.

With the explosion of the Internet as a channel for sales and service, the amount of data created has increased exponentially. Data warehouses and data marts are rapidly on the rise to accommodate the ever-increasing needs of data storage.

Finally, we are a society that is transforming from tethered to untethered (e.g., wireless) communications. When operations are scattered around the globe and customers, partners, suppliers and employees are also highly dispersed, communications mobility is critical. PDAs, wireless devices and hand-held computers, for example, are becoming extremely popular technology to communicate via voice, data and/or video, as well as to access and use RM-related applications software.

4 Conclusion

In this article, we have covered many of the e-service components that make up the relationship management field. Of course, only the *technologies* have been discussed. For effective execution of relationship management, strategy development, leadership issues, process integration, new accounting practices, new compensation methods and training, are also vital. In fact, depending on the size of the firm, it has been estimated that tens of millions of dollars may need to be spent to launch a successful, truly enterprise-wide relationship management program. In the end, relationship ecosystems are the core of any business. Effective management of those relationships is an essential leadership as well as technological issue for today's business firm.

Clearly, e-services are an exciting new growth industry. In fact, e-services are currently being described as "Chapter 2 of the Internet" (Piccinelli et al., 2001). Chapter one was about the creation of e-business and e-commerce systems that form a critical foundation. Now the net is primed for the next evolution (Piccinelli et al., 2001). E-service firms such as Hewlett Packard communicate the core benefits of its e-services to employees and customers alike via it value proposition:

For CEOs and Internet Strategists, e-services offer:

A means to achieve top line growth.

A way to advance your business models and profit from the Net.

A way to change the way the game is played in your industry.

For CIOs, e-services offer:

A way to bring operating efficiency and reduce costs.

A way to enable the IT function to deliver more quickly on the company's business strategy.

A way to manage IT: Build strategic systems, outsource others.

For Line-of-Business Managers, e-services offer:

A way to:

- create new revenue streams;

- engender customer loyalty;

- capture market share.

In conclusion, if relationships are the core of any business, then effective management of these relationships is essential to a business's success. This paper has described the main e-service tools available to the managers of these relationships. It has described what these tools are, how they address specific business needs and where they fit within business enterprises. However, the value of e-services will ultimately be determined by the basics—the benefits provided through the enhanced experience that is created for its users.

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