

Organizing Artificial Sellers: exploring the automation of e-commerce

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Abstract

E-commerce (electronic commerce) has become an important reality for most businesses. A common strategy of firms engaged in E-commerce is business automation, which is understood in this paper as decision-making and marketing interactions executed by digital machines. The aim of this chapter is to explore the usefulness of insights concerning personal selling when theories that embrace automated marketing interactions are developed. The chapter contributes with a description of how business automation has been organized on the Web, a brief review of the literature on personal selling, and a discussion of implications when firms develop and manage highly automated interactions, which are conceptualized here as *artificial selling*.

Three Web-based E-commerce cases (Resfeber.se, Egghead.com, and AA.com) are described as imaginary systems that organize automated marketing functions. A model that outlines how humans and digital machines act as customer interfaces and sales supporters facilitates an analysis of the possibilities for, and requirements of, artificial sellers. Two emerging research areas conceptualized as *intelligent agents* and *social computing* are used to support the contention that future digital machines will offer more of the capabilities required by artificial sellers.

The chapter concludes with a discussion of how different artificial sellers could be designed and organized. Important conclusions are that companies must combine human and artificial sellers, that artificial sellers interact with both humans and machines, and that the human workforce will again need new skills.

Introduction

Electronic commerce (E-commerce), that is, business activities involving digital machines connected into networks, has emerged as one of the most important concepts in contemporary marketing practice. In this chapter digital machines are understood in a broad sense, including hardware (e.g., PCs) and software applications (e.g., word processors).

One such network, the Internet, was used in the mid 1990s to build an electronic system called the World Wide Web (Web). Although the Web originated as a channel for the exchange of non-commercial information, today firms ask how can we utilize and best implement the system to our advantage?

Marketing scholars have raised similar questions. Barwise, Elberse, and Hammond (2000) reviewed academic research about marketing on the Internet. Among the many issues covered in their review, two are specifically addressed in this chapter. The first issue concerns research about how the Web might influence the structure of industries (Barwise et al., 2000, section 1.1) and markets (section 4.3) as related to intermediation. The second issue concerns the emergence of decision-making aids (section 3.1), particularly the more advanced forms, often referred to as *intelligent agents* (section 4.2).

Barwise et al. (2000) noted that marketing scholars attempted to describe a moving target. The development of current E-commerce is accomplished with great rapidity, especially when compared with the academic process that reflects the former. Consequently, Barwise et al. focused primarily on applied research rather than theory. The authors also suggested that marketing needs new theories that include agents or machines in the market interactions (section 7.2).

E-commerce is not a new phenomenon. Already in the 1940s, the American Airlines group began to improve their business processes with the help of digital machines (McKenney, 1995). In 1964, this development gave birth to SABRE, the world's first computerized airline reservations system. In 1986, SABRE had become a separate subsidiary, offering its services to any airline company (Hopper, 1990). Digital machines changed how

American Airlines organized their internal production and their cooperation with retailers. Furthermore, digital machines changed the group's cost structure as well as its product portfolio.

In a general sense the marketing literature has recognized digital machines as effective tools that automate such business activities as information management, decision-making, communications, selling, relationship management, and consumption (Blattberg & Deighton, 1991; Henderson & Venkatraman, 1994; Li, Kinman, Duan, & Edwards, 1998; Little, 1994; McKenney, 1995; Peppers & Rogers, 1999; Sheth & Sisodia, 2000).

The Internet, including the Web, is frequently described as a new and interactive medium through which market interactions are channeled. Such a depiction, however, may overlook the automation underlying those interactions. People that have purchased something on well-known sites (e.g., Amazon.com, Dell.com, Autobyte.com, and Expedia.com), have clicked on personalized advertising banners, or have received mechanized e-mails were in fact interacting with digital machines-- not humans. Thus, on the Web decisions and actions related to selling, buying, and intermediation are frequently automated.

Problem, aim, and the structure of the chapter

The primary problem addressed in this chapter is that established theories about organizing (e.g., Barnard, 1968; Simon, 1997) and marketing (e.g., Gummesson, 1999; Kotler, 1991) are grounded in an environment in which humans were the only decision-makers and market interactors. Deighton (1997) submitted that the stock of marketing intellectual capital is depreciating as the features of the Internet forces marketing into a new paradigm. He continued by noting that a likely effect is a convergence between consumer marketing (shaped by broadcasting, i.e., print, radio, and television) and business-to-business marketing (shaped by face-to-face interaction). With these notions in mind, how can we use established knowledge to develop knowledge that is useful for the new environment? Thus, the purpose of this chapter is to explore the usefulness of insights

concerning personal selling when new theories are built that encompass automated marketing interactions.

People are market actors that firms have used since the beginning of commerce. This chapter is based on knowledge about *people in selling functions*, rather than knowledge about mass communication devices such as advertisements, catalogues, and retailing outlets. Throughout my fieldwork, I have found that practitioners frequently use terminology from human activities to describe computerized applications. Therefore, I propose that personal selling is a viable source of inspiration for the analysis and development of E-commerce automation. This proposition raises three questions that guide this chapter.

1. How is personal selling described in the marketing literature?
2. How can that knowledge be used in E-commerce?
3. What are the implications for future theory and practice?

It is not within the scope of this paper to provide ultimate answers to such wide-ranging questions. Rather, an earnest attempt is made to identify some insights useful for the current purpose. By drawing on published research supplemented by new findings, this chapter contributes with a theoretical discussion. In particular, implications concerning the automation of marketing are raised; automation of marketing is an issue that has received too little attention in the past.

This introduction ends with a description of the method used in the current research. The remaining part of the chapter is organized into the following sections. First, three Web-based retailing cases are described, with an emphasis on how digital machines are used for selling functions. Second, a notion of why and how personal selling emerged as a discipline is briefly sketched. Third, data from the cases are used to build the Customer Interface and Sales Support (CISS) model that describes how selling can be strategically organized and executed. Fourth, a brief description of the insights from research concerning personal selling is delineated and the approaches in the CISS model are discussed. Fifth, a discussion is offered about the need for research that aims at creating digital machines that think and feel. Finally, conclusions and limitations of the study are presented.

Methodology

Given the lack of empirical research that describes digital machines and how they have been organized in a marketing context, an exploratory investigation using a qualitative method was judged justifiable (Patton 1990). When qualitative methods are used, it is important to consider the researchers pre-understanding in that it influences the selection of data sources, the analysis, and concept generation (Patton, 1990; Gummesson, 1991; Yin, 1994). In this case, my pre-understanding is based on over 20 years of experience with computer technology, where I worked as a programmer, electronics and communications expert, and E-commerce consultant.

In this study it was determined that three cases would be analyzed. With a few cases, there would be enough space within this chapter to sufficiently describe and compare the cases. To facilitate comparison, the cases were taken from the same industry (the travel business). This industry is relatively well acquainted with the use of digital machines. Data access relative to personal relations and publicly available information were also factors contributing to the selection of these three cases.

To assure the quality of the data, several empirical sources have been used (Patton, 1990; Yin 1994). Data for the Resfeber.com case were primarily generated from personal observations and frequent site visits during 1998-1999. Concerning personal observations, focused interviews with managers at the described companies were also conducted. The Egghead.com case is based on secondary sources (Business Wire, 1999, March 19; June 30; July 27; SPA, 1997; Ditlea, 1998; Galante, 1998) and personal observations when using the site during 1998-1999. The AA.com case is based on secondary sources (Aa.com corporate information, 1999; Peppers & Rogers, 1999; Seybold, 1998) and personal observations. More specifically, American Airline's different online services were used during 1992-1999 and the 1999 NCR European CRM conference was attended.

Analyzing how e-commerce is organized

Hopper (1990) stressed that computer-related projects must be managed just as much as an organizational initiative as a technological initiative. Later, Schrage (1997) reflected that an understanding of the organization is necessary for the profitable use of new technology, including that which is based on digital computers. Logically, the same should apply to Web-based E-commerce.

Evans and King (1999) offered an excellent overview of opportunities and obstacles inherent with the planning management and assessment of business-to-business Web sites. Unfortunately, the authors did not discuss the (re)organization of required skills. Therefore, the current study not only explores how selling is executed on the Web, but also how it has been organized.

More specifically, the current chapter describes three cases in the retail business. During the analysis of data for each case, it became evident that although the cases focused on single firms with different problems, the E-commerce activities were executed with the help of other entities. Sometimes these entities were daughter companies, sometimes they were partner firms, and often they were a piece of packaged technology, such as a software application. Consequently, the case descriptions include both these firms and some of the digital machines they used.

The perspective of *imaginary organizations* offers a good set of analytical concepts for cases similar to those studied here. Hedberg, Dahlgren, Hansson, and Olve (2000) have defined an imaginary organization as “a system in which assets, processes and actors crucial to the ‘focal’ enterprise exists and function both inside and outside the limits of the enterprise’s conventional ‘landscape’ formed by its legal structure, its accounting, its organigrams, and the language otherwise used to describe the enterprise” (p. 13). In this chapter the cases are described as imaginary organizations with their *focal enterprise*, *partners*, *delivery systems*, and *customer base*.

Empirical findings from three cases

The first case is Resfeber.se. This case illustrates a pattern of creation (i.e., the business was started from scratch) (Hedberg et al., 2000, p. 53). Resfeber illustrates how a small organization (less than 5 people), could quickly establish an E-commerce presence. The second case, Egghead.com, represents a pattern of renovation (i.e., the business had to solve major problems) (p. 67). Egghead.com provides an extreme case of how automation replaced an entire sales force. Finally, the third case, AA.com, exemplifies a pattern of extension (i.e., the business gained strength in the market) (p. 79). This case arouses particular interest because American Airlines, Inc., the proprietor of the site, was among the first to profit from E-commerce. Each case account ends with a description of a digital machine that exemplifies a high level of automation in the selling function.

A pattern of creation: Resfeber.se

Resfeber.se, originally launched in 1998 by Scandinavia Online AB (SOL), was a complete Scandinavian travel service on the Web with 24-hour access. At the time the present study terminated, the site had attracted 30,000 members. Because of the 120,000 unique visitors per month, the site was placed among the most visited Swedish travel-related sites (Sifointeractive, 1999).

It started in March 1997 when SOL's management initiated a project with the intention to create a travel-related site. After extensive learning, market research, and benchmarking against such services as Expedia (from Microsoft) and Travelocity (from SABRE), the Web site resfeber.se was officially launched on February 1998. Sister sites were subsequently launched in Denmark (June 1998) and Norway (July 1998). Resfeber was incorporated in February 1999 and was later wholly owned by SOL and Venture Partners Multimedia ASA, a Norwegian investment firm.

Five persons staffed the focal enterprise Resfeber Sweden AB. The staff included one country manager, one infomaster, one Webmaster, one technical manager, and one sales manager. Resfeber's business model

was based on revenues from Web advertising banners, commissions from transactions, and partner service fees.

Because of the help of 13 partners and the extensive use of interconnected digital computers, Resfeber was able to open the site in a very short time. Two of the original partners had left the system and two others had entered when the present study was conducted. In Figure 1, the imaginary organization is illustrated as of September 1999. As the focal enterprise, Resfeber managed all brand and market communications. It was up to the partners to supply and maintain their respective delivery and payment systems. All participating partners brought their own customers to the system, including the sharing of some customer information with Resfeber. In late 1998, the Swedish portal Passagen (www.passagen.se) was included in the SOL group. This gave Resfeber an established Web-based distribution channel, a conduit that increased visitor traffic and membership enrollment considerably.

The core competence of many of the partners (e.g., Easy T, Mapquest, Holiday Autos, and X-Change) included a skill to deliver the majority of their products through Web-based automation. Whereas SOL's core competence was Internet-based E-commerce, Resfeber extended that form of competency with travel-related skill.

An important partner was Easy T AB. The company's chief product was Easy T Internet Sales System (ETISS), a bargain flight ticket finder. When the founders of Easy T AB defined their mission in 1997, they knew that they could not finance the technology development alone. Accordingly, the company conducted an extensive search for partners, which resulted in a deal with SOL. SOL provided an outlet for the services managed by ETISS and, in return, Easy T received cash that paid the expenses for development.

Easy T AB employed four people when they began to offer ETISS-based services at Resfeber.se. The president and co-founder worked with business development. One person worked as a programmer and the other two worked with customer service, service that comprised handling a considerable amount of e-mail and telephone calls. The company core competence was based on deep knowledge about the market for flight tickets, marketing implementation, and computer technology.

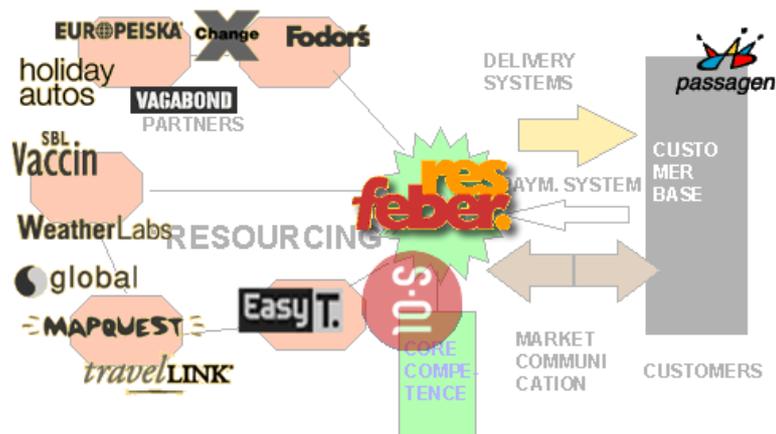


Figure 1 – Resfeber.se as an imaginary organization (as of September 1999). Not all partners are represented here in the diagram.

One of the benefits ETISS offered was its potential to cut labor costs dramatically. According to estimates from Easy T AB, their system managed a workload at Resfeber.se that would have required 70 persons in a traditional travel agency.

ETISS was based on a database that stored price and other information about flight tickets. The database was fed from three major wholesalers and a few individual airlines. ETISS was programmed to manage about 40 restrictions and could easily be programmed to behave in accordance with new ones. Within seconds after filling in a Web-form, the customer was offered up to five ticket alternatives. If the customer chose one of them, the system immediately checked availability and made a reservation through the flight reservation system Amadeus. A few more transactions and ETISS had actually sold the ticket. ETISS was also licensed to other travel sites (e.g., mrjet.com and easyt.se).

A pattern of renovation: Egghead.com

In July 1999, Egghead.com, an online superstore with more than 40,000 PC-related products, had 1.1 million customer accounts. The system

included an e-mail database counting almost 3 million addresses and 470,000 registered auction bidders. The site was a result of a complete transformation from physical retailing to E-commerce, which included mergers with surplusdirect.com and surplusaction.com.

The original retailer, Egghead, Inc., was founded in 1984. Over the years it built a nationwide network of 250 PC software stores. For a number of reasons, the firm ran into serious problems. Two important developments led to a dramatic drop of Egghead's revenue, profit, and stock price. First, marketplace competitors with a superstore strategy, such as Computer City and CompUSA, ate into Egghead's share of the market. Second, E-commerce and online shopping were in the early stages of development, but growing rapidly. Because of these two factors, renovation became necessary.

In September 1996, Egghead opened an online store on the Internet; at the same time, the company began a campaign of closing stores and terminating employees. The shift to Internet was completed in February 1999 when Egghead closed the remaining 83 stores and their distribution center. This also implied that, of the 1,000 remaining employees, 800 (mostly clerks and sales staff) were laid off.

The imaginary organization of Egghead is depicted in Figure 2 (based on the structure in February 1999). At that time, the focal enterprise Egghead Inc., including subsidiaries, employed 1,300 persons. Partners such as UPS, FedEx, Airborne Express and USPS shipped the physical goods to the customers. Customers paid with domestic American Express, VISA, Master Card or Discovery card. Oracle developed and delivered the Internet computing platform for the sites.

When a firm moves their business from the physical marketplace to the Web's electronic marketplace, there is no guarantee that its customers will follow. Therefore, Egghead initially focused its selling efforts on attracting customers who were already actively using the Internet. To reach and attract potential customers they partnered with a list of portals, virtual communities, content sites, and other companies with a strong Web presence. This included such major sites as aol.com, netscape.com, yahoo.com, @home network, cnet.com, ebay.com, geocities.com, theglobe.com, infobeat.com, zdnet.com, and sites operated by Microsoft.

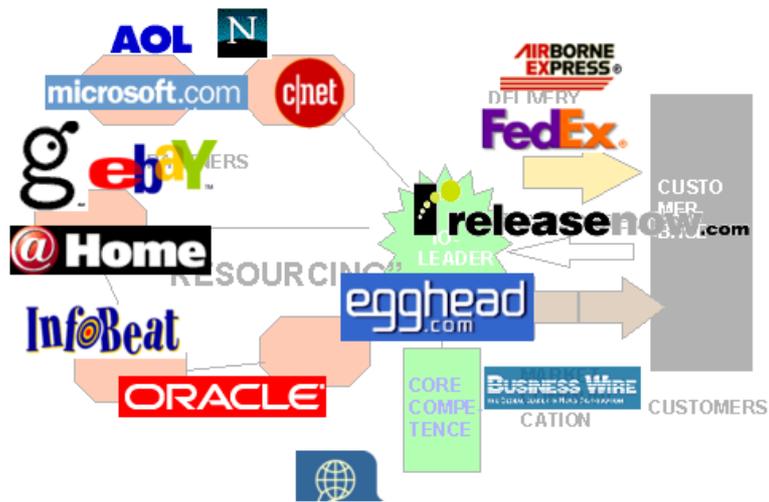


Figure 2 – Egghead.com as an imaginary organization (as of February 1999). Not all partners are represented in the diagram.

Thus, Egghead did not initially engage in traditional mass advertising of their services. Instead, they enlisted a number of established and automated lead generators. Public and investor relations were managed by automated services from businesswire.com.

One possibility with software distribution in E-commerce is Electronic Software Delivery (ESD). Instead of ordering shrink-wrapped boxes, ESD allows customers to download software packages (SPA, 1997). In the case of Egghead this option was provided by one of its partners, ReleaseNow.com, Inc., whose alliance with @Home Network also offered high-bandwidth access. In effect, that meant that customers could use, rent or buy big software packages.

ReleaseNow described its products as a technology that allows software to sell itself. The company, formerly established as Release Software, embarked on its business by developing AutoPay, a software application that aided the ESD try-and-buy process. In such a process the customers can download and then immediately use the software. The decision to actually buy or de-install the software could be determined at a later time.

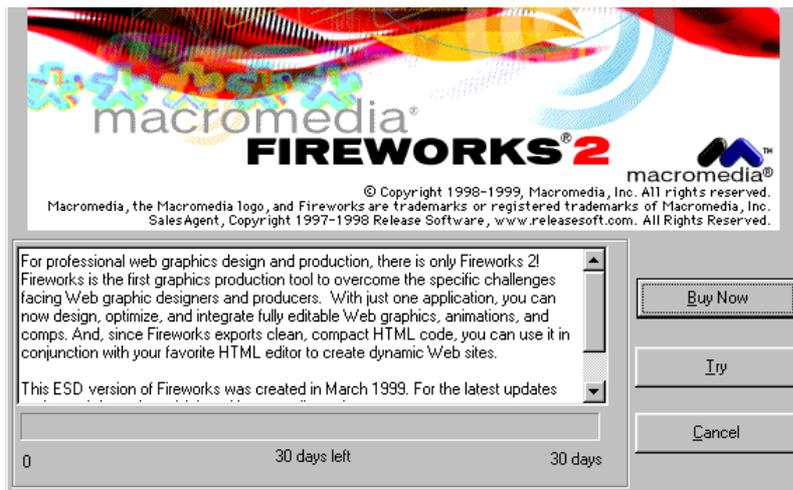


Figure 3 – Example of a reminder from a SalesAgent included in the ESD-wrapped application Fireworks 2.

AutoPay was later developed into SalesAgent, a software application that, among other things, ensured that (1) customers were charged if they continued to use the installed software, (2) the developer received payment in a secure way, and (3) unauthorized copying was prevented. The SalesAgent application was embedded in the ESD package and ran in the customer's PC. Figure 3 illustrates how the SalesAgent reminded the user about how many days of trial were remaining.

A pattern of extension: AA.com

In 1998, American Airlines, Inc. managed one of the most popular airline sites on the Web. The site, AA.com, was also one of the Internet's largest E-commerce sites, though travel-related sites (e.g., Travelocity and Expedia) had more visitors. On this personalized and self-serviced site, customers could make travel reservations, find news and other information, as well as manage their personal profiles. In Figure 4, the imaginary organization is depicted (as of February 1999).

The development of the site began in 1994 when American Airlines decided to restructure their corporate web site (www.amr.com). In 1995, a

small team of about six persons began to work with a new site. Their initial purpose was to offload the customer service department, which had to manually answer a growing volume of customer questions. Later, that goal was extended to include the possibility to make online reservations. A redesigned www.amr.com site opened for business in May 1995. Towards the end of that year, visitors could get almost the same service through the site as they could over the telephone. Put differently, the human call center was supplemented by an automated customer center.

It was possible to keep the development team small for a number of reasons. One reason was that the management of the site content and services were outsourced to corresponding departments within American Airlines. These departments handled numerous services, including airport information, ticket reservations, movie distribution, meal management, and baggage handling. In this fashion, more than 40 persons throughout the company shared the management of the site by the end of 1997.

Furthermore, during the first two years, SABRE, Inc. developed the infrastructure for American Airlines' new site. Part of this effort was leveraged by the improvement of solutions originally made for SABRE's own site (www.travelocity.com). From the beginning of the project, all developments had focused on American Airlines' most profitable customers (i.e., their 35 million AAdvantage members). By participating in numerous surveys, these customers contributed significantly to the development of the site

A need to integrate different information sources forced American Airlines to create an Oracle database in 1997. In effect, this allowed the site to work as a front-end operation to the market; at the same time, it used existing systems as back-office services. To offer customers personalized services the focal enterprise resolved to use BroadVision's One-To-One software platform. Here Quantum Leap Communications and Sight&Sound Software participated as integrators and system designers. In particular, BookSmart (TM) from Sight&Sound Software was used as the electronic booking tool, which in turn used SABRE's reservation system. Personalization was also enhanced by customer information from partners such as Citibank, Hertz, and Hilton. Although American Airlines was a part of the marketing alliance *oneworld*, that alliance was not fully integrated

when the redesigned site was unveiled as aa.com in June 1998. By the end of that year, the site had registered more than 650,000 customers.



Figure 4 - AA.com as an imaginary organization (as of July 1999). Not all partners are represented in the diagram.

As of August 1999, the site received more than 300,000 visits on peak days and exposed about 25 million pages each month. More than 2 million of the AAdvantage members had visited the site since its inception in June 1998. The site has been an economic success for American Airlines. Already from the beginning, the revenues far exceeded the company's expectations. Although Web bookings only accounted for roughly 1% of total revenues, those tickets were the least expensive to sell as well as the most profitable ones. Contributing to this success was Net SAAver.

Net SAAver began as an idea that interested customers could be informed about "weekend specials" via e-mail. The idea was quickly developed into an application that automatically sold unsold inventory for the upcoming weekend. Originally based on a freeware list server, Net SAAver was introduced in March 1996. Within 30 days, it had 20,000 subscribers; within a couple of months it had 100,000, and within a year there were over 775,000 subscribers. By August 1999, the list had grown to 2.1 million subscribers.

Från: Net SAAvers
Datum: den 6 september 1999 21:52
Till: Net SAAvers Subscribers
Ämne: American Airlines Net SAAver Fares International

All,
Here is the International Net SAAver Fares e-mail file for Monday,
September 6, 1999. Please let me know if you have any questions.

Bill

AMERICAN AIRLINES
INTERNATIONAL NET SAAVER FARES
For Departure on September 16 - September 17, 1999
Tickets must be purchased by Thursday, September 9, 1999

Figure 5 – Example of header from Net SAAver mail. Following the header were travel news, a number of travel suggestions, and several links to booking modules.

The rapid growth demanded two redesigns of the list server: in addition, it motivated the development of a special Net SAAver booking module at AA.com. Figure 5 illustrates the header of mail from Net SAAver.

Actors and tools in selling functions

Before describing the analysis of how selling has been organized in a business environment that includes E-commerce, it is useful to consider why selling emerged as a discipline and how it has been depicted in the marketing literature. In the early history of mercantilism all commercial activities were organized and executed by human beings. The market, in its original form, was a place where human market actors met to sell and buy, that is, to communicate, make decisions, and exchange products for money.

At least 3,000 years ago, communication became mediated through written documents and brand inscriptions on the goods (Dunn & Barban, 1990). About 150 years ago, the business environment began to change: first, as a result of printing technology and later because of the development of broadcast media. These developments had a profound impact on the

evolution of marketing practice and theory (Deighton, 1997). Here we can highlight one of the outcomes, namely, that personal marketing (human interaction) became clearly separated from impersonal marketing (mediation through tools).

When marketing management emerged as a discipline in the mid 1900s, firms focused on the production process, the product quality, or the selling efforts (Kotler, 1991). Because focus on selling efforts was typical, mass advertising became a popular substitute for expensive sales forces. Kotler described how the marketing mix theory evolved as marketers learned to manage the *product*, the *price*, the *place*, and the *promotion*. Ideally, the mixture should be balanced so that customer value was maximized.

In the marketing mix theory, the concept of Promotion encompasses traditional (noncomputer-based) market communications. Alternatives to the marketing mix theory, including service marketing (Grönroos, 1990), industrial marketing (Webster, 1991), and relationship marketing (Cova, 1997; Gummesson, 1999) have retained the marketing mix dichotomy between personal and impersonal market communication. Consequently, it is typically understood that market communication could be realized through human actors (e.g., sales force, part-time marketers, word of mouth, or through tools, including advertising, sales promotion devices, packaging, point of purchase, catalogues, and direct mail) (Gummesson, 1999; Rothschild, 1987; Webster, 1991). It has also been recognized that firms should build their strategies on an integrated combination of the available modes of communication (Webster, 1991; Schultz, Tannenbaum, & Lauterborn, 1994).

Personal selling has largely been defined by alternative modes of market interactions. Rothschild (1987) noted that in 1904 the definition of mass advertising changed to “salesmanship in print” (p. 8). Fundamentally, this meant that advertisements imitated personal selling, but lacked human interaction. Dunn and Barban (1990) contrasted advertising with personal selling and stated that the latter is “a direct promotion that can be tailored to fit the demands of the selling situation. Customer reactions can be judged immediately, customers can be led to take action, and sales personnel can provide immediate feedback on customers.” Dalrymple and Cron (1995) defined personal selling as “direct communications between paid

representatives and prospects that lead to purchase orders, customer satisfaction, and postsale service.”

Four Approaches in Sales Management

As noted in the introduction, the marketing literature views digital machines as a new kind of marketing tool. Consequently, many scholars, consultants, and computer developers have come to use the expression *interactive media*. This could be dangerous in the sense that it leads us to focus on media-related issues, a line of reasoning that ignores all the useful things a seller or a sales force is capable of doing. Furthermore, the above definitions of personal selling fit in nicely with many commercial sites on the Web.

In the above cases selling was mainly executed through a Web-based interface. As a result, the customers were serviced throughout the whole buying process, including the purchase, without directly interacting with another human being. In fact, a common denominator in these cases is the attempt of the focal enterprises to reduce or eliminate the need for a human sales force. Consequently, we must acknowledge that firms have supplemented what used to be the only option, to execute their market interactions with a human sales force, with a new option, which is to execute their market interactions with an automated sales function.

Although human sellers make decisions while they interact with customers, the sellers' decisions are controlled and informed by the firm's sales support function. This support encompasses business rules and the provision of information. Such information includes product characteristics, pricing, and customer profiles. Judging from the above cases, the same seems to apply for the automated sales functions. More important here, however, is that we have to consider how the sales support is organized and executed. As noted earlier, digital machines are increasingly employed for such purposes. Therefore, we must also acknowledge that firms have a choice to supplement, maybe even replace, their human-based sales support with support based on digital machines.

With the above findings in mind, I will now introduce the Customer Interface and Sales Support (CISS) model. The model functions to facilitate

our analysis of how interactive selling efforts can be strategically organized and executed. The model, which is depicted as a two-by-two matrix in Figure 6, consists of four broad approaches. Before we perform the analysis, it is useful to give a brief description of these approaches.

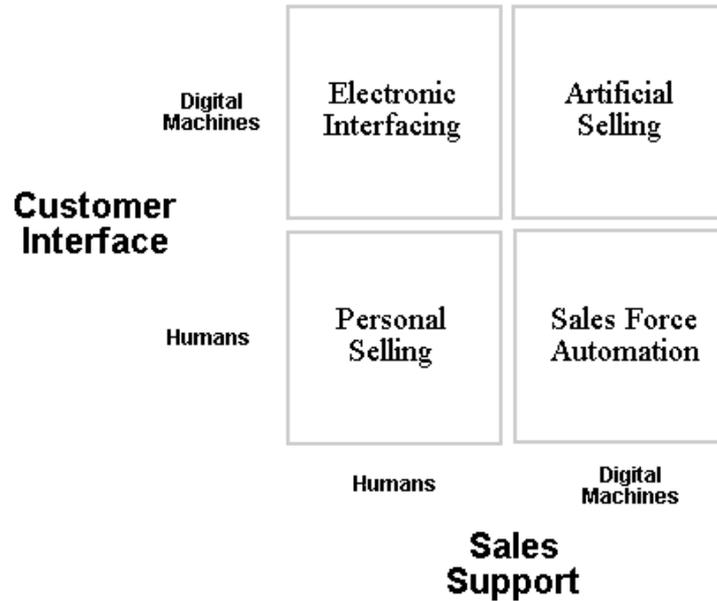


Figure 6 – The Customer Interface and Sales Support (CISS) model.

In the first (traditional) approach, *personal selling* (i.e., the human sales force), which is supported by other humans in the organization, interacts with the customers. These interactions include both face-to-face and telephone encounters. A universal problem is the fact that “people employees” are expensive. Thus, many companies have supplemented, sometimes totally replaced, approaches using people with approaches that limit the use of people at the market interface.

In the second approach, *electronic interfacing*, the actual market interactions are executed by electronic interfaces based on digital machines (e.g., a Web site). Although transactions may take place at such interfaces, the selling process is still dependent on direct human intervention. This approach is typically regarded as more cost-efficient than having people

interacting with the customers; however, such an approach fails to take real advantage of the possibilities offered by recent computer technology developments.

In the third approach, *sales force automation*, state-of-the-art computer technology is used to support a human sales force that interacts with the market. In a sense this allows a firm to strategically combine the best from two types of actor: humans and digital machines. Thus, human sellers can take full advantage of their creative intelligence and social skills when digital machines back them up as productivity enhancing tools.

Finally, if digital machines were intelligent and exhibited a social skill, they could, in theory, completely replace the human sales force. Therefore, we need to include a fourth approach in the model, an approach that I call *artificial selling*. Here, digital machines autonomously interact with the market, supported by other networked digital machines. In other words, we may think of Resfeber.se, Egghead.com, and AA.com as artificial sellers--not a kind of media. Still, there is a huge difference between what contemporary computer-based tools can do and what a human being is capable of accomplishing.

Of course, marketing practice never exhibits the clear-cut situations found in the model. Selling is generally not supported exclusively by humans *or* by digital machines; rather, both support selling. In a similar fashion firms supplement rather than replace their human sales force with digital machines. Even so, the model is useful for our analysis, which will continue in the lower left corner (personal selling) of Figure 6. The current section also discusses situations where humans support digital machines and vice-versa. The following section will discuss the artificial selling approach, where digital machines, or artificial sellers, act as both customer interfaces and sales supporters.

Personal selling

Personal selling is when humans within the organization support a human sales force, an approach that has been studied extensively in the past. In situations in which people interact with other people, psychological aspects of the interaction are crucial. Cialdini (1993) made this clear by describing

reciprocity, commitment and consistency, social proof, liking, authority, and scarcity as six “weapons of influence.” Personal sellers, for good or bad, routinely use all these weapons.

McMurry (1961) noted that selling had made little progress as an art or science since the early days of the Industrial Revolution. Because of this trend, he introduced the notion of salesman positions, which ranged from requiring few to many skills in order to develop a business. The positions McMurry identified were the deliveryman, the inside and outside order-taker, the missionary man, the customer’s client, and the creative seller of tangibles and intangibles. He also discussed the traits of sales people. These traits included the capacity to accept a certain degree of abuse from customers, wooing instinct, acting skills, and personal style.

Moncrief (1986) surveyed industrial sales people and divided their activities into 10 categories (selling function, order taking, servicing the product, information management, servicing the account, conferences and meetings, training and recruiting, entertaining, out of town traveling, and working with distributors.)

Drawing from the growing literature, Shapiro (1974) noted that selling was not always a one-to-one relationship. In multilevel selling the salespersons called different people at various levels in the customers’ organization. In team selling a team of sellers meet a team of buyers. Shapiro also re-focused on customer value and divided the sale into five sequential steps (opening, qualification, presentation, closing, and after sales service). Today, a vast number of textbooks on personal selling and sales force management make it evident that the domain has developed deep knowledge. Topics covered include how to motivate the sales force, closing the sale, and negotiation strategies (Dalrymple & Cron, 1995).

Electronic interfacing

Personal selling is regarded as effective but highly expensive. Therefore, firms have spent years exploring various ways to replace their human sales staff by other means of market communication. Such a movement towards impersonal marketing, when done through digital machines, goes along the y-axis in the CISS model. As demonstrated by Ligos (1998), this trend has

recently been enforced by the growth of E-commerce. Ligos found that firms need fewer personal sellers when they encourage customers to buy over the Web.

Electronic interfacing, which assumes manually directed Web sites, is entirely dependent on human support. At these Web fronts, nothing that goes on through the site will change, unless humans alter the rules or the information that control it. Alternatively, "millions of page combinations are possible at AA.com, but the entire site is managed through manipulating these business rules" (Peppers & Rogers, 1999, p. 54). Likewise, if visitors become open to dialogue, (e.g., by e-mail), nothing happens unless a human picks up the communication (i.e., answers the e-mail). This kind of customer interface was dominant in the first (1-2) years when the Web started to be used for E-commerce.

Today, the situation is very complex, where commercial use of the Web can be divided into five categories. First, the Web site provides information about the company (e.g., annual statements and brand messages). Second, it answers incoming questions (e.g., responding to e-mail or providing FAQ –lists). Third, it provides product information (e.g., specification sheets and inventory status). Fourth, it handles transactions (e.g., closing sales and accepting payment). Fifth, it manages customer service (e.g., post sale support and product development).

In all these categories the Web site functions as an interface to the market. Over time, this functionality has shifted from only outbound communication (e.g., advertising) to complete market exchange (the whole process from promotion, order taking, product delivery to payment, and after sale services). Whereas many firms, even industries, limit their use of the Web to the first category (Boyle & Alwitt, 1999), several firms (e.g., Dell, Amazon, and Cisco) have quickly expanded their use into all five categories.

Sales Force Automation

Digital machines have been utilized to improve personal sellers, or rather, to make the sellers more efficient. This strategy, frequently called *sales force automation*, implies a movement along the x-axis in the CISS model. The

successful use of sales force automation depends on both how it is *introduced* into the organization, that is, presented to the human staff, and how well the new tools match the organization's needs (Campbell, 1998; Rasmusson, 1999).

Sales force automation includes computerized tools that help management to hire, train, allocate, and monitor the sales force. Important is also sales force automation that aids the sellers in their tasks with such tools as word processors, cellular phones, order entry devices, shared customer databases, presentation tools, e-mail, and advanced analytical tools sometimes based on artificial intelligence technology (Dalrymple & Cron, 1995). Many firms have come to recognize that today an efficient sales force is dependent on sales force automation. Marshall, Moncrief, and Laskk (1999) found that all of the industrial sales person they interviewed used several of the computer-based tools.

Artificial Selling

Before we can analyze the artificial selling approach, it is important to consider two of the reasons why personal selling is used today, despite the many alternatives available on the market. Personal sellers are intelligent creative business-makers and they are social beings. Generally, these two traits are acknowledged in the marketing literature that deals with personal selling. Furthermore, attempts to imitate these traits are found in the literature about impersonal marketing. For instance, the importance of humans as social beings is demonstrated when *endorsements* are used in advertising (Rothschild, 1987) or when *brand personality* is advocated (Aaker, 1996).

Digital machines that think and feel

The absence of intelligence and social skill is evident in early implementations of machine-based interfaces (e.g., ATMs, miscellaneous vending machines, EDI-based systems, and many Web sites). These machines were designed primarily as clerks or order-takers; they were not

designed to take a creative and social role. Although we may find that machines can take heaps of abuse from customers, they are still lousy listeners. It is impossible to negotiate with a beverage vending machine. Perhaps worst of all, Web sites do not take us out for social treats.

Hence, to utilize the artificial selling approach (shown in the upper right corner of Figure 6) we need machines that possess intelligence and social skills. This section describes some emerging areas of research that have these traits in mind.

Intelligent agents

The idea of intelligent agents is not new, and the research concerning it is closely related to Artificial Intelligence (AI) technology (Hendler, 1996). AI is sometimes defined as “the art of making machines do things that would require intelligence if done by a human” (Franklin, 1995). In addition to the term intelligent, various researchers have used other words to describe their agents, including personal agents, software agents, network agents, and softbots (Riecken, 1994). It is thus useful to see how such machines could offer new possibilities in a selling perspective. Naturally, intelligence is a complex concept, one that is perhaps easier to approach when broken down into task-specific areas.

There is no clear definition of what intelligent agents really are or how they differ from other software applications. After surveying several definitions, Franklin and Graesser (1996) proposed the following: “An autonomous agent is a system situated within and a part of an environment that senses that environment and acts on it, over time, in pursuit of its own agenda and so as to effect what it senses in the future.” (The essence of agency section, para. 7).

Franklin and Graesser suggested nine properties for agent classification. These properties are briefly summarized in Figure 7. By definition, every agent must satisfy the first four properties (emphasized in Figure 7). *Reactive agents* respond in a timely fashion to changes in the environment. *Autonomous* means that they exercise control over their own actions. Instead of issuing simple responses to environmental changes, agents are *goal-oriented*. Agents that never stop their execution are *temporally*

continuous. They are *communicative* when they communicate with other agents, which could include people. *Learning* agents change their behavior based on their experience. Agents are *mobile* when they transport themselves from one host computer to another. *Flexible* agents exercise actions that are not scripted. Finally, agents have *character* when they show personality and emotional states.

- **Reactive**
- **Autonomous**
- **Goal Oriented**
- **Temporally continuous**
- Communicative
- Learning
- Mobile
- Flexible
- Character

Figure 7 - Agent properties according to Franklin and Graesser (1996). To be classified as an agent, the application must satisfy the first four properties (reactive, autonomous, goal-oriented, and temporally continuous).

Maes, Guttman, and Moukas (1999) identified how agents have been used in E-commerce from a consumer behavior perspective. While the authors appreciated what has been accomplished hitherto, they drew the conclusion that the technology still has a long ways to go before it truly transforms how firms conduct business. In a managerial perspective, Turban, Lee, King, and Chun (2000, 495-503) recently provided a description of why software agents are useful for E-commerce, the history of intelligent agents, essential characteristics of software agents, and what could be expected from such agents in the future. In particular, the authors argue that in a networked world agents may perform mundane personal activities, search and retrieve information, support decision-making, and act as domain experts.

A growing number of studies illustrate how properties such as reactivity and learning may be facilitated by this kind of technology. Ansari, Essegai, and Kohlie (2000) and Iacobucci, Arabia, and Bodapti (2000) described how agents, search engines, and collaborative filtering as automated recommendation systems could react to the consumer's behavior in a superior way. Lastly, Gatarski (2002) explored how Genetic

Algorithms could be used to automatically learn how to design commercial messages.

Social computing

Social computing is used here to denote those social aspects of human interactions that involve digital computers. Dryer, Eisbach, and Ark (1999) referred to social computing as the interplay between the social behavior of people and their interactions with computing technologies. At Microsoft, Inc., a research program is inspired by the fact that information seeking in everyday life is performed through watching, following, and talking to other people (Social Computing Program, 2001). At the Swedish Institute for Computer Science a research group is studying the social aspects of multi-user computer systems (Social Computing Theme, 2001). Social computing can also be conceptualized in a social context as community networks (Shuler, 1994) or in a commercial context as virtual communities (Hagel & Armstrong, 1997).

One way to approach the area is by studying human with human interaction that takes place *through* digital computers. Such research is useful as it helps us to identify problems when digital computers act as customer interfaces. The problems (e.g., that computers may interfere with the interaction) drive the need for functionality and metaphors that go way beyond the current desktops of the PCs (Ellis, 1991; Feinstein, 1995). However, for the purpose of this chapter, we are curious about digital machines not as a passive mediator but as an interactive customer interface.

Fortunately, other research areas are eager to investigate how humans socialize *with* computers. This research is useful in that it points not only to problems, but also to opportunities related to improvements in automated selling processes. Some research suggests that people actually treat computers and computer applications as social actors. By interviewing computer users, Turkle (1995) found that people frequently believed that virtual persons, controlled by computer programs, were real people. Nass and Moon (2000) reviewed several experiments that demonstrated that people apply social rules and expectations to computers. For example,

people exhibited politeness and followed reciprocity rules towards computers. In a similar fashion Moon (1999) studied how human consumers responded to computer personalities in selling situations. She found some evidence that consumers were influenced significantly more by computers that display "personality types" that were comparable to their own.

It is also useful with a brief presentation of research that explores the topics of influence and emotions. Captology, which was introduced as late as 1997, is the study of how computers function as persuasive technologies (Fogg, 1998). Research in this field focuses on behavior change, motivation, change in one's worldview, and attitude change. Affecting computing is computing that relates to, arises from, or deliberately influences emotions (Picard, 1997). Picard suggested that computers should not only be able to understand and interpret human emotions, but they should also express their own emotional states.

To summarize, it is evident that research efforts are directed towards creating what can be described as more intelligent (thinking, creative), social, and emotional digital machines. Therefore, we should discuss how insights from such research are useful when digital machines are managed, that is, designed and organized from a selling perspective.

Managing artificial sellers

The above review of selling literature can be summarized as follows. Traits, (e.g., interactivity and social skills) have in a commercial context evolved into different sale force management concepts. These concepts include (1) sales positions, ranging from order-taker to creative seller of intangibles, (2) various selling activities, such as product and account servicing, and (3) team selling, such as multi-level selling. A sale could be divided into different steps from opening the sales process to after sales service. Sellers are driven by different motivations and can be trained in negotiation tactics. Our next step is to examine how these concepts could be re-used for the development of future E-commerce applications, here conceptualized as "artificial sellers".

Dalrymple and Cron (1995) defined Sales Management as "The Planning, implementing, and control of personal contact programs designed

to achieve the sales and profit objectives of the firm" (p. 8). More specifically, sales management includes recruiting, training, and motivating sales persons, as well as developing strategies for accessing different markets and account relationships utilizing these sales persons.

We will reexamine our empirical cases, particularly some of the partners that were based on computer applications. At the same time, we will also replace the concept personal (in the sense of a human being) by the concept artificial (in the sense of a digital machine). As was previously noted, the two research areas -- intelligent agents and social computing -- are still in an early stage of development. We, therefore, have to assume that these areas will undergo further development to facilitate some of the subsequent suggestions. This assumption is probably reasonable when advances in the respective fields are taken into account.

Designing artificial sellers

ETISS (the bargain flight ticket seller) had some autonomous interaction capability. In addition to taking the order, it could ask for information and interactively suggest a number of flight options. This is selling by definition, albeit not in a creative form. What if ETISS showed some social skills (e.g., personality)? McMurry (1961) noted that the two most successful sales persons in a specific organization had very different personalities. They performed equally well, but with different types of buyer. ETISS could exist as two personas with different personalities. Perhaps even as an indefinite number of personas, each with a personality customized to different users. Furthermore, what if ETISS used a selling strategy that included reciprocity? In other words, what if ETISS gave something away in order to influence the customer's motivation to interact?

The SalesAgent inside the ESD packages that are downloaded from Egghead was a basic order-taker. The user had the product and the buying decision process did not include an interaction with the SalesAgent, except for repeated reminders to buy (see Figure 3). What if SalesAgent could learn how to increase the purchase rate? For instance, this could be accomplished by experimenting with different setups of questions and answers or by adopting its behavior to different users. As one execution, the

SalesAgent could say “normally users can test this package for 30 days. However, because you are trying so many of the features, I will give you 60 days. As an alternative, if you buy right now, you will get a 10% discount.”

The Net SAAver was described as a seller of unsold inventory, implemented as an e-mail notification service combined with a booking module in the AA.com site. As a marketing implementation, this procedure is back to square one – mass advertising to get rid of low profit products. Although the service has been an enormous success, it threatens to distract managerial attention from eliminating the existence of unsold inventory. A visionary approach would be to design an artificial seller with a true relationship in mind: an artificial seller with a customized personality that balances friendly order taking with cold canvassing, makes inquiries, woos the customer, and is highly motivated by company profits.

Organizing artificial sellers

It is also useful to discuss how different applications, treated as artificial sellers, are organized. Through multilevel selling teams, companies organize their sales force to approach different positions in the buying organization (Shapiro, 1974). AA.com could use this approach and, for instance, supplement Net SAAver e-mails to end-users with e-mails to other persons that influence the purchase (e.g., travel managers and family members). We saw that the artificial sellers in the cases (ETISS, SalesAgent, and BookSmart) were designed and developed by partner organizations (Easy T AB, ReleaseNow, and Sight&Sound Software) to be used by other organizations (Resfeber, Egghead, and AA). This approach is challenging because the training of artificial sellers in such cases is divided between the developers and the users.

Hedberg et al. (2000, p. 150) discussed problems concerning how imaginary organizations could manage their structural capital, that is, successful ways of solving problems, ways that are not dependent on human individuals who may decide to leave the organization. As we have observed here, an entrepreneur might choose to partner with organizations, human individuals, and packaged technology. Packaged technology (i.e., software applications) offer scalability and easy reproduction. Resfeber

knew that they had to offer services that helped visitors to find bargain tickets. A traditional agency employs humans skilled in the complex world of low-priced tickets. These humans answer the many questions about availability and price. According to Easy T AB, its artificial agent performed the same tasks as 70 human sellers. Imagine training 70 persons on new rules, not to mention paying their salary. This selling skill (albeit not a highly creative or social skill) is created and developed in the ETISS product (artificial seller). With organizational terminology, this is structural capital owned by Easy T AB-- not by the end user Resfeber. Thus, that type of structural capital starts to resemble human capital in the sense that the knowledge and skill is bound to actors that may leave the organization.

Barwise et al. (2000) discussed the re-intermediation driven by E-commerce technology. From the buyers' point of view, I would like to describe the result of such new ways of organizing as *virtual* relations. *Virtually direct* relations are those relations that buyers believe are direct. People might believe that AA.com is there for them without any middlemen. Actually, American Airlines has outsourced the delivery, payment, and market communications systems to different partners (SABRE, VISA, BroadVision, and Quantum Leap). Likewise, it is possible to download the same software in an ESD package from Egghead.com as from www.macromedia.com (a software publisher's site). Nonetheless, it is ReleaseNow that actually distributes the packages and closes the deals. In this sense, relations are re-intermediated when new ones replace existing middlemen. Perhaps the relations actually develop between the buyer and the artificial seller, rather than the firm employing it? To some extents this can be discerned in the airline business when airlines shift their distribution from traditional retailers to E-commerce actors such as ETISS and BookSmart.

When digital machines are endowed with autonomy and require information from different sources, a new range of organizational challenges emerges. Whereas the cases described here helped us identify a few problems and opportunities, other cases provide data for additional insights. Such a case, although it did not specifically concern selling, is the agent-based Border Trade Facilitation System (BTFS). This system managed information about inter-firm logistics, including international shipping (Goldsmith, Phillips, & Spires, 1998).

BTFS was designed as an organization where human actors, agents (autonomous software objects), and agencies (organized agent populations) interacted. Thus, non-humans were organized. Two of Goldsmith et al.'s conclusions are of particular interest in the present context. First, the authors found that an agent-based system (distributed autonomy) was more efficient than a client-server system (centralized decision-making). This is in line with the modern view on human management. Consequently, by moving decisions from central management to artificial sellers, efficiency could be increased. Second, there were severe cultural problems. The humans in the organizations were uncomfortable with the new technology. In particular, they did not trust the software agents. This lack of trust was illustrated when one of the customs offices was unwilling to let the agents pass through their Internet firewall. It is, therefore, essential that firms, their human staff, and the artificial sellers trust one another.

Conclusions and limitations

We knew that E-commerce offers many new opportunities and problems. These have frequently been discussed in terms of interactive media. The present approach, to use concepts regarding personal selling, opens the door to new insights. As these were explored, one implication regarding the organization of E-commerce is that companies must manage an integration of human sellers and artificial sellers. In this chapter, the management of artificial sellers was discussed from the perspective of designing and organizing customer interfaces supported and executed by digital machines.

Concerning market communication, we now have sound evidence suggesting that the old separation of real actors (humans) from their tools (advertising/Web fronts) will be less useful for future theory development. This evidence supports Dighton's (1997) notion that a convergence of consumer marketing and business marketing is likely to occur.

Artificial actors (e.g., ETISS, SalesAgent, and Net SAAver) have demonstrated rudimentary forms of decision-making and social characteristics. Just as most humans need training to improve their skills, artificial sellers would benefit from similar treatment. Managers and marketing scholars have to take this information into account in their work.

If implemented, the managerial suggestions put forward here would reinforce the trend of automation (i.e., the substitution of machines for human workers). Even so, E-commerce would still depend on human action. Many scholars have pointed out that automation causes shifts in labor demand. Digital computers have already had a profound impact on how firms are organized, which have motivated the need for more cognitive and emotive skills in the white-collar workforce (Bresnahan, 1999). Thus, not only will the artificial sales force need new skills, but the human sales force will require new skills as well. This need implies that sales people, managers, and marketing scholars must improve their understanding of digital machines.

Before we can enter into further tours of exploration, experimentation, and reflection, careful thought needs to be directed on the limitations of the current study. I have described three E-commerce cases as Imaginary Systems. These cases cannot be generalized into norms for successful action. Resfeber.se and Egghead.com were young businesses and showed no profit. At least until April 2001, Resfeber.se has maintained their visitor count, but their economic status is unknown to us. Egghead, Inc. filed Chapter 11 August 15, 2001. Thus far, AA.com appears promising, but the future will show how their future business can tie in with E-commerce.

Furthermore, the current discussion has been based on data generated with a qualitative method. Only three empirical cases, all from the same industry, were described. Although generalizations from qualitative studies are not dependent on the number of cases or how much evidence has been obtained (Gummesson, 1991, p. 78 ff), the validity of the present data should nevertheless be viewed with caution. Future research could address this limitation by exploring other cases and by making comparisons with research based on other methods.

It took thousands of years to invent and develop ways to manage commercial organizations. In about a hundred years marketing went from product oriented firms that distributed through personal selling to market oriented organizations that channeled their offerings through mail order, superstores, theme parks, and more. In less than five years Web-based E-commerce exploded into a myriad of new principles for organizing, financing solutions, channel alternatives, product types, and beyond.

To research, describe, and validate norms for E-commerce will continue to be a challenging task for scholars. I hope that the approach taken and the concepts introduced in this chapter, particularly *artificial selling*, will be useful along the way.

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