

Designing Servicescapes for Electronic Commerce: an Evolutionary Approach

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Abstract

This paper presents a cross-disciplinary framework for understanding and designing electronic commerce systems. The basic assumption underlying the framework is that rapid changes in computing and communications technology, particularly the Internet and World Wide Web, enable the compression of time and space. Formerly distinct functions of commerce such as marketing communications, sales, transactions and fulfillment can literally occur simultaneously and in real-time. Cross-disciplinary principles from advertising communications, interpersonal relationships, sales, customer service, and fulfillment are applied to designing an electronic servicescape. It is within the servicescape that direct buyer-seller contact occurs. The Call Center from the catalog industry and a metaphor of a service encounter provide a customer-oriented perspective on electronic commerce.

Introduction

The 1996 University of Minnesota Conference on Electronic Commerce [35] included numerous presentations and case examples of organizations that are successfully approaching electronic commerce by creatively applying emerging computer & communications technologies to the primary business principles of those organizations. The “evolutionary approach” described by these organizations is in contrast to much of the hype surrounding the Internet and World Wide Web which suggests some kind of revolution in the making through radical new approaches to commerce.

Clearly, the dramatic changes in telecommunications and computing technology as evidenced in the World Wide Web are leading to a whole new domain of applications. Organizations that have previously been conservative in their use of computers are rushing to “have an Internet presence” - whatever that means! Whenever such a dramatic new technology becomes available, it is helpful to develop a framework as a starting point for how to apply and manage the technology and its applications. The recent electronic commerce conference, the underlying research project, and an associated seminar series are part of our effort to develop and communicate such a framework.

The theme of this paper is that electronic commerce can be approached as an evolutionary process of applying new information technologies to existing business principles, particularly in the key functions of advertising, relationship marketing, and fulfillment. The principles aren’t changing, but their application and the resulting practices will be different and possibly revolutionary as new technology capabilities are applied creatively to those functions.

This paper presents the authors’ current research which is based on a metaphor of a service encounter and the underlying literature and concepts in the key business functions of advertising, sales, relationship marketing, and fulfillment. The catalog industry is examined as a starting point model for a specific category of electronic commerce. The cross-disciplinary framework of the service encounter becomes the basis for designing an electronic commerce servicescape.

There are a variety of definitions of "Electronic Commerce." It has been defined as a combination of technologies at the 1996 Electronic Commerce World Institute [13], as a business methodology by Kalakota and Whinston [18], and as business over networks and computers by Haynes [15]. We will not attempt to settle the debate regarding the specification of the definitive definition of Electronic Commerce. Suffice it to say that the catalog-based business-to-customer example used in this paper satisfies the requirements of all three definitions noted above. This paper builds on the efforts of Bloch, et. al. [9] by demonstrating examples of creating business value in each of their value creation strategies: improving, transforming and redefining.

Service Encounter Metaphor

We define a service encounter as the service that is implicit in any transaction between buyer and seller. The servicescape is the physical environment in which the service encounter takes place. A service encounter can be viewed from three perspectives: what the encounter is to accomplish, the expectations of all parties about the encounter, and the underlying concepts involved in accomplishing those objectives and meeting expectations. The purpose of suggesting a service encounter as a metaphor for electronic commerce is to provide a conceptual basis for designing the primary components of an electronic commerce application: the “servicescape”, the supporting

infrastructure, and the database and analytical tools necessary for the relationship marketing function.

A service encounter typically occurs for one or more customer purposes: gathering information in preparation for a potential purchase, making a purchase, getting information after a purchase, or obtaining customer service to resolve some problem following a purchase. From the business perspective, an encounter is for the immediate purpose of satisfying the customer and for the longer term perspective of building and maintaining a relationship with that customer. Of course, the desire for such a relationship must also be part of the customer's expectations of the encounter if a relationship is to result from the encounter.

The "product" involved in a service encounter might be a physical product, a service, or information. The service encounter metaphor is intended to relate to the entire transaction surrounding that product, service, or information.

Customers have high expectations of a service encounter. They want an encounter with the service provider to be friendly, helpful, courteous, respectful, timely, include interactive discourse, remember previous encounters, and to be goal oriented, among other situation-based expectations. Another way to think of customer expectations is to consider the "Four Way Test" that Rotary International, the worldwide community service organization, has for its members to apply in their personal and professional lives: 1. Is it the truth?, 2. Is it fair to all concerned?, 3. Will it build goodwill and better friendships?, 4. Will it be beneficial to all concerned? If one considers a service encounter from Rotary's perspective, answering the Four Way Test in the affirmative would indicate a positive service encounter, and one which builds and maintains a relationship.

In addition to their expectations about a service encounter, customers also bring high expectations of computers and the Internet, specifically: computer capabilities of storage and retrieval, any-to-any connection, ubiquitous access and use, fast interaction, and tailored to the individual. Because customers have high expectations of both a service encounter and computers and the Internet, it is likely that consumers will have very high expectations of an electronic service encounter. The electronic servicescape and the supporting infrastructure must therefore be designed to meet possibly very high expectations.

Bitner [8] describes a service encounter and the associated relationship-building around the concept of "promises". Bitner poses three components of promises: making promises; enabling promises; and keeping promises, indicating that these are three separate but partially intersecting domains. One contribution of this paper is to relate the concept of promises to business functions and principles, and then to extend that to the design of the electronic commerce servicescape and supporting infrastructure. Berry [4] is the first person to use the term relationship marketing in the services literature. Bitner indicates the heart of Berry's contribution is "his identification of emerging perspectives and trends in the fields of service relationship marketing: targeting profitable customers, multiple levels of relationship marketing, marketing to employees and other stakeholders, and trust as a marketing tool."

In the marketing literature, Solomon et al. [32] and Surprenant and Solomon [31] conceptualize service encounters as "role performances" defined as "the dyadic interaction between a customer and service provider". These definitions focus on the interpersonal connection between the customer and service provider. Shostack [30] has a broader definition, "a period of time during which a consumer directly interacts with a service". Bitner, Broome and Tetreault [7] indicate that

Shostack's definition “does not limit the encounter to the interpersonal interactions between the customer and the firm, and suggests that service encounters can occur without any human interaction.”

Building on Shostack's and Solomon's definitions we propose characterizing interaction between buyers and sellers as service encounters. Electronic commerce, like a service encounter, presents a servicescape described by Bitner [6] as an environment in which interaction occurs. Retail service encounters, for example, occur in real-life physical space with face-to-face communication. Electronic commerce encounters occur through constructed interfaces with computer-mediated communication. More specifically, electronic commerce servicescapes are characterized by variations on the six interactivity dimensions as described by Heeter [16] and Anderson [2] and computer intelligence to provide levels of personalization.

While the actual execution of the buyer-seller encounter differs, the core objectives and expectations do not. For example, in both electronic commerce and more traditional service encounters, customers need to be greeted, listened to and engaged. More specifically, customers need to be able to express their needs and when necessary receive help translating a general expression of need into a particular product or service. In this sense, customers are looking for effective buyer-helpers (Anderson & Wanninger [3]).

We can also examine the classic role of a sales person with insights and observations that could be applied to a service encounter/servicescape environment. While authors may use a different number of stages and call the stages by different names, there is universal agreement that selling is a process. Churchill, et. al. [10] presents a classic six stage selling process: prospecting for customers, opening the relationship, qualifying the prospect, presenting the sales message, closing the sale, and servicing the account.

The important point to note is that the actual sale is only one part of the process. There are numerous steps that precede the sale and the sale itself does not end the process, but simply changes the emphasis of the repeated contact or interaction with the customer. The change in emphasis could involve providing post-sale service (step 6) or it could involve recycling through the process by repeating the sales process all over again with the goal of proposing a repeat purchase of the same product, selling different products or services to the existing customer, or getting referrals for new customers.

For our purposes, we can break the process into three phases, pre-selling activity, the sale or transaction, and post-sale activities. In many instances, post-sale service activity will lead to future sales. In other words, the salesperson's job is to identify potential customers, close sales, and provide follow-up service that can lead to identification of additional selling opportunities. A good salesperson can be described as having the ability to correctly classify any person into the correct stage of the selling process. Having done that, the best sales people have the ability to deliver specific activities and actions that are tailored to fit that particular person's needs.

Good sales managers (the individuals responsible for the overall performance of the sales force) are able to determine whether one type of salesperson can provide the needed response to people at any stage of the selling process, hence the term, general salesperson. In those instances when a general purpose salesperson will not suffice, separate individuals are retained to do pre-selling activities and fulfill after the service sales requirements. Churchill refers to these individuals as merchandisers, detailers and missionary salespeople.

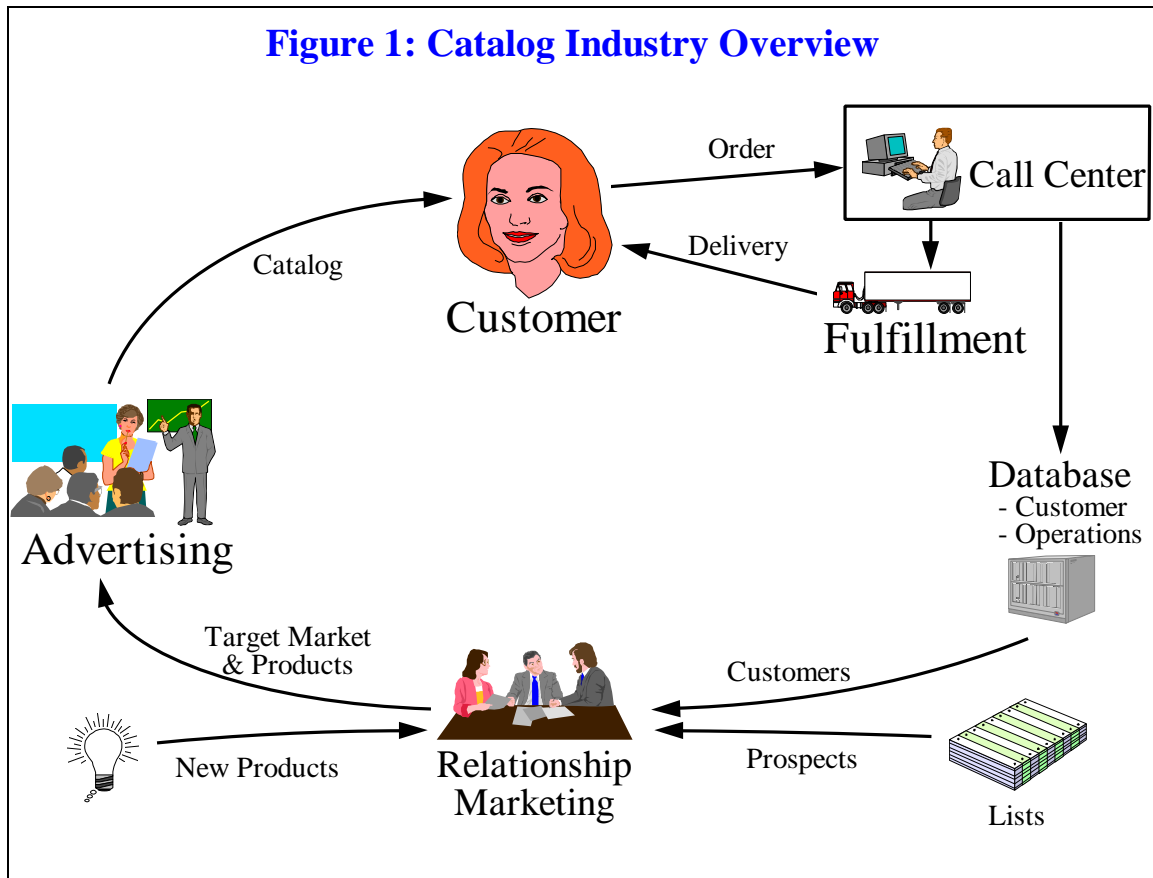
Catalog Industry as a Model for Electronic Commerce

We now move to examine the catalog industry as a specific example of commerce which has many of the characteristics of electronic commerce. The catalog industry has demonstrated that many specific products and services traditionally sold at retail can also be sold, profitably, without direct physical contact between the customer and the product or service. As such, an understanding of how electronic commerce can be applied within the catalog industry can serve as a starting point for the examination of electronic commerce in other industries. The catalog industry is clearly very different from retail in the service encounter and fulfillment operation, and is different from other industries and situations that fit our broader definition of electronic commerce. However, we believe many of the principles involved in transactions and interactions between customers and businesses apply across industries and situations.

The catalog industry is a major segment of the \$300 billion plus direct marketing industry. The direct marketing industry has a rich history of leading edge use of technology and lists of customers. The industry began in the 1880s with John Patterson of NCR developing leads for his sales force. Richard Sears mailed an offer of gold watches to railroad agents in the early 1900s. Sears and Arron Montgomery Ward developed a mail order catalog and then extended credit cards to farmers by 1910. Post World War II saw the introduction of Book-of-the-Month Club, Diners Club and American Express Cards, and Fingerhut's use of a computer letter to sell auto seat covers. The introduction of postal ZIP codes and 1-800# phone numbers in the 1960s were used by the industry for computer segmentation of customers, telemarketing, the introduction of a wide range of catalogs, and the rebirth of the catalog industry to its current form of relationship marketing. The 1980s saw the industry adopt VCRs, Cable TV, Fax, Home Shopping TV, PCs, and on-line information services.

Stone [33] defines direct marketing as "an interactive system of marketing, which uses one or more advertising media to effect a measurable response and/or transaction at any location". At the heart of the catalog industry are the concepts of relationship selling and the use of prospect lists, use of a catalog as a media of presenting "offers" to specific segments of customers and prospects, and a complex and expensive fulfillment operation. The customer receives a targeted catalog by mail, places orders to a 1-800# Call Center, and receives the merchandise and invoice from the fulfillment center. The customer service person in the Call Center is supported by extensive computer databases on products, customers, and "scripts" to aid in selling and service. We view the definition of electronic commerce as close to Stone's definition of direct marketing, because we see much of the potential of electronic commerce in the ability to build one-on-one relationships with customers, to offer specific products or services or information to them, and to execute and/or support transactions at least in part electronically in real time.

Figure 1 is a model of the catalog industry, depicting the major functions and data involved in commerce between the business and the customer. The model in Figure 1 includes three primary functions: relationship marketing, advertising, and fulfillment. The model also includes three databases: customer, operations and external lists of prospects.



Relationship Marketing

In the catalog industry, both the customer and the business are interested in a relationship. The process of a purchase transaction, although part of a continuous cycle, can be thought to begin with the marketing function, called here relationship marketing. Relationship marketing is concerned with developing offers in the form of catalogs for specific sets of customer segments. The customer segments are determined by matching a proposed offer with characteristics of existing customers who have purchased similar products in the past and characteristics of prospects on external “lists” that are thought to be similar to the existing customers of the business.

Relationship marketing has two primary components that must work closely together: a massive database, and a variety of analytical tools for use with the database. Databases in significant relationship marketing businesses often include 5,000 fields per customer, resulting in terabytes of data. The specific data items included in the database are determined from the underlying principles of building relationships and sales, which require the business to have the same kind of information about each customer as does an expert sales person. “Lists” of customer prospects have only general information about a customer, much of which is inferences based on such information as census tract data. The use of such lists requires particular expertise and software that the direct marketing industry refers to as “merge/purge.

Analytical tools are used by marketing to analyze the customer databases and “product trials” as an integral part of developing the “offers” that result in successful customer relationships. Use of

statistical based techniques such as multiple regression, factor analysis, conjoint analysis, and analysis of variance are common within the relationship marketing function.

The process of identifying new customers begins when external lists are purchased from list owners and brokers, after which they are merge/purged with the existing customer database and then analyzed to match prospects from the list with existing customers with similar characteristics. A trial offer is then sent to a sample of the matched list. Results of the trial are measured and analyzed to determine if the combination of offer and customer segment are likely to result in a profit. The trial-measure-analysis process is repeated until a likely profitable combination is found, at which point a large rollout of the offer is conducted.

The process of building relationships with existing customers is similar to that of finding new customers, with the difference being the business has much more specific and appropriate information about each existing customer - much as does an expert sales person. Thus the offers to various categories of existing customers are designed both to induce sales and also to build the relationship with each customer.

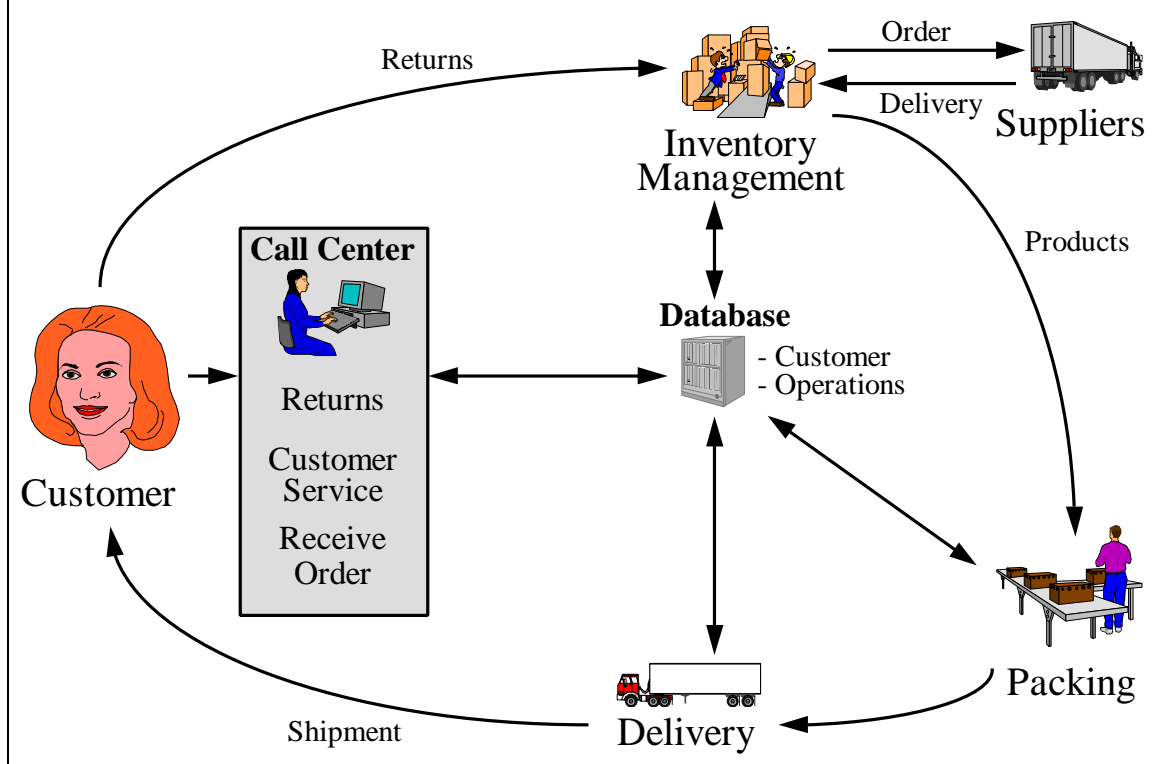
Advertising & Communication

Advertising then develops a catalog and other print media to present the offer and associated benefits to the customer segment. The customer, upon deciding to make a purchase, calls the 1-800# Call Center and conducts the transaction with the operator. The Call Center operator has real time on-line access to the customer and operations databases during that phone call, and so is able to verify product availability, cross-sell, promise delivery date and mode, verify account information and credit, handle return merchandise, and provide service information. Scripts are provided for the Call Center operators to use in interacting with the customer to enhance their ability to sell, advertise, and build a relationship.

Fulfillment

Figure 2 is a model of the fulfillment function of the catalog industry. Fulfillment as depicted in the model includes the Call Center, the supporting physical and information technology infrastructure, and the customer and operations databases. Fulfillment receives the order via the operations database, assembles and packs the order, ships the order, and invoices the customer. Fulfillment also conducts the other activities necessary to support the sale of goods to and meet the expectations of customers such as purchasing, inventory management, credit, accounting, and information systems. Fulfillment maintains the customer database as well as the operations database. Fulfillment is a very complex, capital and labor intensive, and demanding business function tied to warehouses, sophisticated computer systems, and assembly operation. The requirements of the supporting information infrastructure for fulfillment are equally complex, expensive, and demanding.

Figure 2: Fulfillment Process & Information Flow



The catalog industry has developed expertise in all of the critical aspects of “fulfilling an order”, and very importantly in understanding the costs and margins by product. Some of the basics of fulfillment are captured in the following “formula” of activities, costs, and margins as presented by Moran [24].

- Capturing the order - who, how, what information, when, sequence, complete, correct
- Getting the order information from the Call Center to the fulfillment people
- Communication of order status - customer, sales, service
- Picking, assembly, packing, and delivery of the order - complete, on time, as expected
- Invoicing, and accounts receivable
- Customer history - capture and build the database
- Developing Call Center scripts
- Controlling the customer/Call Center interface
- Handling returns
- Providing customer service and information
- Keeping all of this current (at least daily) - who, process
- Supporting infrastructure - fixed, variable by unit

Application of the fulfillment formula involves determining all activities for each specific service or product, determining costs by activity per unit (SKU). It is essential that the supporting infrastructure is in place before taking orders, both to meet customer expectations and for a profitable operation.

Success Factors

Success in the catalog industry depends on properly identifying potential long term customers and treating them differently to build and maintain a mutually satisfactory relationship. We propose that the principles of relationship marketing, advertising, and fulfillment as practiced in the catalog industry are an excellent starting point to understand the requirements of a service encounter and the design of a servicescape. Stone indicates the following keys to maximize success in direct marketing.

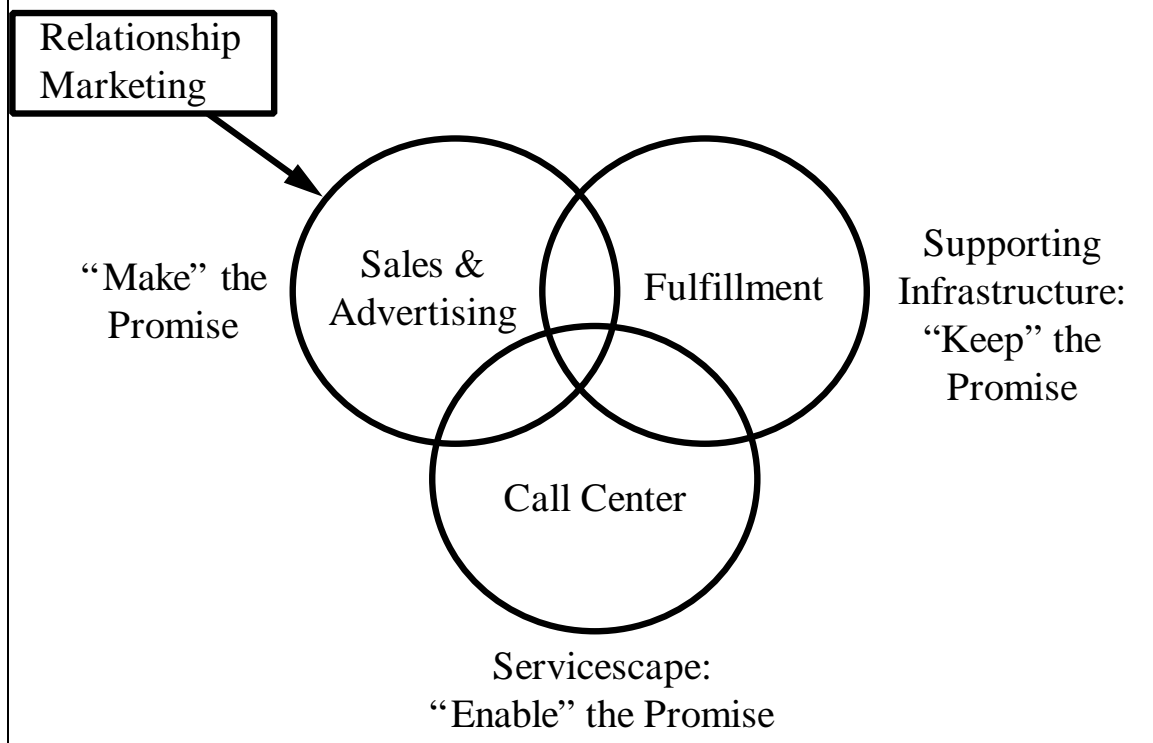
1. The “Lists” you use to target prospective customers. Significant expertise and analytical software are required to acquire, manage, analyze, and merge/purge external lists and to combine those lists with internal customer lists.
2. The offers you make, or proposing the right product for each specific customer segment. This involves significant analysis and testing in the relationship marketing function.
3. The copy and graphics used to present and communicate the offer. Advertising must communicate the offer well. The use of multiple media usually is more effective than any single media.
4. Profits increase with the customer life cycle, and it is recognized that the second purchase by a customer is the most important because it indicates a willingness to establish a relationship, and the acquisition cost of a customer is often higher than the margin from the first sale. It follows that repeat business is far more important for the business than trial, which thus necessitates building long term, win-win relationships with customers.
5. Measure results. The ability to measure specific results from each offer separates direct marketing from broadcast means of advertising.
6. Analyze correctly. It is critical to carefully analyze customer and operational data to get as close to each specific product and specific customer as possible rather than analyze via averages as is necessary with broadcast advertising.

Call Center - The Service Encounter in the Catalog Industry

The cycle of a sale in the catalog industry begins with marketing defining and developing a product offer - making a customer promise in Bitner’s terminology. The advertising function communicates those promises to customers initially via a catalog and again communicates that promise through the “Call Center”. The Call Center is the catalog industry business function that is primarily associated with enabling promises to customers via taking orders. The fulfillment function then keeps the promise to the customer.

Figure 3 extends Bitner’s model of “promises” to the service encounter as experienced in the catalog industry Call Center. The model in Figure 3 shows the functions of Advertising and Sales, Call Center, and Fulfillment as mostly separated but partially overlapping, which clearly implies integration between functions. Recall, technology enables the compression of time and space, thus the tighter integration of functions. As indicated earlier, relationship marketing develops a specific offer for a specific customer segment. That offer becomes the “promise” to the customer, which is communicated in the form of a catalog and other print media by advertising.

Figure 3: Catalog Industry Service Encounter



Customer direct contact is with the Call Center, which is thus the primary “enabler” of the promise. The Call Center operator performs the direct functions of order taking, provision of information and service, handling returns, and interactive selling and advertising. The indirect functions of the Call Center are to meet the customer expectations of the service encounter and build a relationship with that customer. The direct and indirect functions of the Call Center become the basis for designing the servicescape of electronic commerce.

Call Center operators leverage the ability to customize messages and the delivery of messages. When a customer calls the Center, operators use their tools - databases and scripts - to tailor queries toward the consumer and enhance sales. The knowledge that the database can provide to the Call Center operator during an interaction is provided by scripts that are pre-defined by marketing. The scripts can not be modified in real-time, for instance, by whether the customer is goal-oriented or experiential.

Fulfillment is responsible to “keep” the promise, by delivering the order to the customer, complete, on time, and as expected. A complete understanding of the activities of the catalog fulfillment function provides the basis for designing the supporting infrastructure of electronic commerce. Fulfillment involves all of the operations and “back room infrastructure” and is critical in conducting profitable commerce.

Designing the Servicescape and Supporting Infrastructure

The business functions of relationship marketing, advertising, and fulfillment are critical to the catalog industry. Following the metaphor of electronic commerce as a service encounter, these same functions are critical to making, enabling, and keeping the promises to result in satisfying each customer and building a relationship. The problem of designing an electronic commerce system breaks down into three primary components: 1) the servicescape, 2) the supporting infrastructure, and 3) the customer database and analytical tools to support the relationship marketing.

The three business functions mentioned above have traditionally been relatively discrete in the conduct of most business (although not in the catalog industry) because time and geography have typically separated the advertising from the marketing and from the fulfillment. Electronic commerce changes that separation of both time and geography, which makes it essential that the three functions are integrated at least to the extent of the catalog industry. Consider that a customer may, in one Internet session, conduct curiosity shopping, purchase a product or service, and obtain customer service relative to a previous purchase. The model in Figure 1 illustrates the interrelationships of the customer and the business functions, and also the continuous nature of the customer and product life cycles. Similarly, the three components of the electronic commerce system (servicescape, supporting infrastructure, and relationship marketing) must be closely integrated.

The MIS function faces three very different and challenging tasks in designing and developing an electronic commerce system. We will consider each design challenge in order, relating the principles and concepts of the underlying business function. (Recall evolutionary approach). As we do so, we will recall two basic principles of determining information requirements as explained so well by Wetherbe [37]. The first principle is that individuals require “hands-on” experience with new information and new technology before they can completely and accurately determine specifically what information they need, and how they want it collected and presented. The second principle relates to the fact that much of the information one either needs or generates comes from another area or is heavily used by another area. Given that, it is essential that a cross-functional team be involved in determining information requirements. Translating those principles to electronic commerce systems, the design teams must include practitioners from each of the three key business functions and sub-functions, and experts from each of the underlying conceptual fields. Further, the teams will find it necessary to use some kind of evolutionary design and development methodology.

Servicescape - Enabling The Promise

The servicescape involves almost all of the direct interactions between the customer and the business. While MIS practitioners have experience and a history of developing systems to facilitate fulfillment and relationship marketing (database/analytics), they have less experience and a very short history of building systems that interact directly with customers. Effective servicescapes need to integrate principles from interactive advertising, selling, and relationship building. Another complicating factor is that the format of information used in a servicescape will be heavily “multimedia” in addition to the text and numbers that are in the majority of MIS experience. Wanninger [34] relates the functional capabilities of multimedia information to applications and the required supporting technologies involved in both the presentation and

effective use of multimedia. In considering the challenge of designing the servicescape, the reader is urged to recall their own experience, the interaction, the environment, and the dialog involved in placing a catalog order to a Call Center via a 1-800#.

Some of the critical functional capabilities required for an electronic commerce servicescape include:

- Compression of time and geography into a computer screen (the “servicescape”) via telecommunications with sufficient bandwidth to support multimedia
- Digitization of multiple forms of information and presentation on a computer screen
- Storage and retrieval of extremely large databases
- Very “intelligent” and “appropriately interactive” software
- Flexibility to support frequent and rapid changes in servicescape design and content

Advertising & Sales - Communicating The Promise

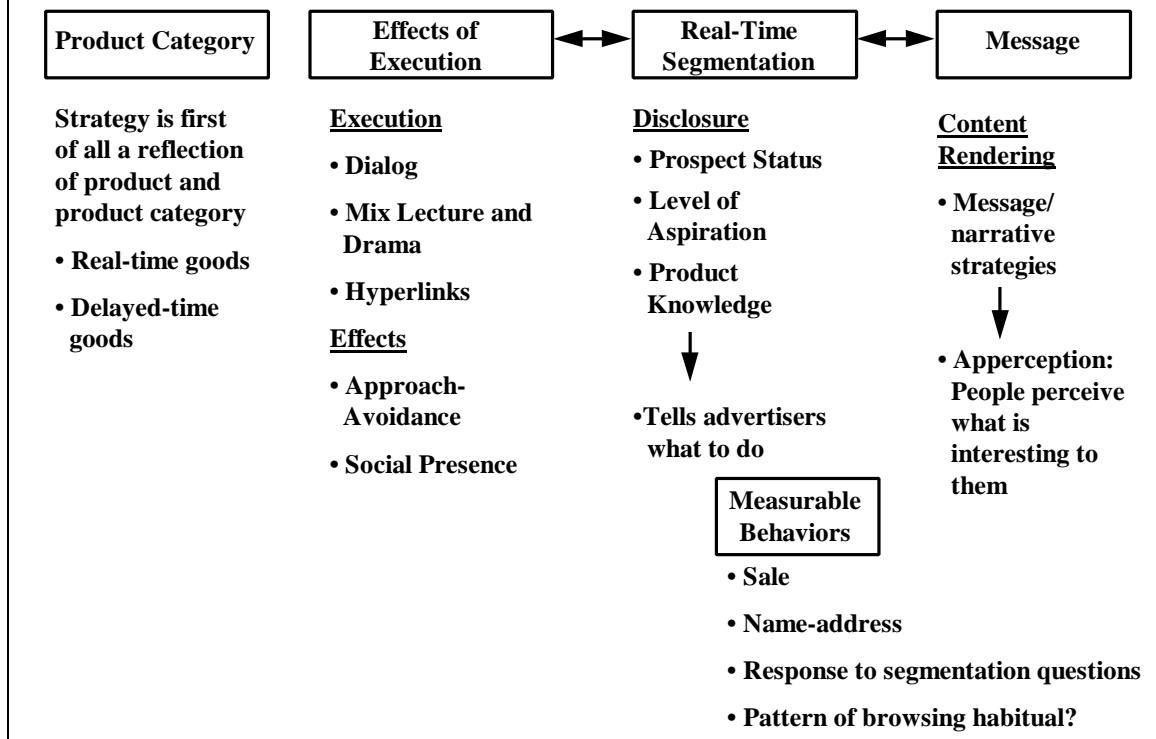
In broadcast and print media, the role of advertising is to communicate a product’s competitive advantage, be it an intrinsic attribute or an image, to a pre-defined target audience. Advertising strategy is based on the idea that exposure to a message is separated in time and place from the opportunity to respond. Advertisers work hard to increase “reach”, the percentage of unduplicated audience members who are exposed to a message. Messages are intended to influence future purchase decisions and to build overall brand awareness and image. However, often these messages literally ‘wash over’ consumers as they are not current prospects for the product [36].

By contrast, advertising in a digital and interactive medium involves a different set of assumptions and strategies. One primary difference is that consumers can interact with a message and respond in one time and place. Closing the gap between exposure and response fundamentally changes advertising’s role in the sales process.

In the servicescape, the principles of advertising are integrated with customer service, relationship marketing and sales. It is not effective to think about advertising as removed from immediate interaction with the product or company (see Figure 3). We propose that advertising is a process of bringing consumers as close to a real-time purchase as possible. That is, advertising is about facilitating quality interaction.

How does interactive advertising within the servicescape work? Figure 4 summarizes a perspective based on concepts of interpersonal communication. Keith Reinhard, CEO of DDB Needham, describes interactive advertising as being similar to door-to-door personal selling [27]. Both involve two-way communication. Both are intended to persuade and complete a sale. Both need to focus on the immediate individual consumer and not on winning creative awards. The analogy of interpersonal communication directs advertisers’ attention to particular types of variables. Like broadcast and print advertising, the product category variable directs strategy planning. In the servicescape, an important product categorization is whether the product can be sold in real or delayed time. Advertising for real-time products has the objective of completing a sale and a measurable return on investment. Advertising for delayed-time products has the objective of qualifying leads and measurement of return on investment is more indirect.

Figure 4: Interactive Advertising Strategy Within the ServiceScape



In interpersonal communication, there is an explanatory concept known as the immediacy principle [23]. Here we apply the immediacy principle to explain consumer behavior (whether they engage in an interactive dialog) within the servicescape. That is, consumers will approach and avoid servicescapes based on their unique evaluations. Advertisers should ask themselves, what types of consumers will approach and what types will avoid our efforts at interaction? Some possible factors that influence consumers' perceptions of whether servicescape are more approach- versus avoidance-oriented include ease of access, complexity of choice, responsiveness and social presence.

Of course, consumers' perceptions of whether the servicescape facilitates approach or avoidance depends upon the individual. Goal-oriented consumers, for instance, may initially evaluate the servicescape positively. However, experiential consumers who are more intrinsically motivated may evaluate the same servicescape negatively. For this reason, the communication principle "know your audience" needs to evolve in practice to "know the individual consumer" [26]. This leads to the next step in the advertising process - leveraging interactivity to execute real-time segmentation.

The idea behind real-time segmentation is to match the rendering of content (what to say in a dialog) with the unique characteristics of a consumer. It also makes sense to adjust how you say it. The message strategy should vary by the type of consumer. This is a radical notion insofar as in more traditional media the target audience, what to say, and how to say it is fixed before the message is presented to consumers.

The ability to ask customers questions within the servicescape sparks such questions as: What information is relevant in terms of deciding what to say? Will customers disclose this information? In the interpersonal literature there are theories of reciprocity. However, the basic idea is that disclosure begets disclosure. This is a die-hard reminder that the dialog needs to be customer-centered. There needs to be motivation for the customer to participate and disclose.

The advertising research literature provides some clues for segmentation variables that can help direct content rendering and predict response. Two are suggested here - prospect status and product knowledge. Advertisers can ask customers to self-identify themselves on these dimensions or they can infer their status from activity within the servicescape. Knowing to what degree a customer is a prospect tells the advertiser what communication step to take next in facilitating a sale. Similarly, knowing how much knowledge a customer has about a product directs how and what to say in the dialog. As an example, suppose customer X has little knowledge on laptop computers. The advertiser can capitalize on this information by temporarily limiting the degree of interactivity in the servicescape so the advertiser can tell the story of laptops in a coherent, linear fashion. However, if customer X has much more product knowledge, then the provision of flexibility such as hyperlinks to seek more advanced diagnostic information would be appropriate. That is, the servicescape should maximize interactivity and open communication.

A last issue to consider here is measurement. Practitioners of broadcast and print advertising spend significant time testing the effectiveness of advertisements before they go public. Often times, advertisements are tested as an isolated unit from the overall sales process. That is, the copy and visuals within the advertisement are tested for such dependent variables as attitude toward the product, attitude toward the ad, recall and sometimes physiological response. The weakness inherent in these surrogate measures of effectiveness is the inability to accurately gauge the actual behavioral response. Advertisers and their clients can be left wondering - What did customers do (behavior) as a result of being exposed to the advertisement? By contrast, the effectiveness of advertising within the servicescape can be measured using the actual behavioral response resulting from interaction. For example, advertisers can record whether customers made a purchase, disclosed personal information (qualifying a lead), or perhaps their browsing habits. Furthermore, advertisers can correlate three variables: responses to the segmentation questions, the content and execution of the interaction, and customers' behavioral responses to identify patterns. If advertisers discover that a particular segmentation question is not useful in predicting customer response, they can edit the servicescape. That is, advertisers can think about the servicescape as a research site, where they can continually collect and analyze data to refine 'what to say' and 'how to say it'. Technology has made possible the intelligibility and manageability to handle this process.

It follows that advertisers and MIS practitioners need to converge their skills to leverage this capability in the design of an effective servicescape. Advertisers contribute principles of creativity and communication and MIS practitioners contribute principles of system development and an understanding of the potential functional capabilities of information technologies.

Each of the sales and relationship marketing concepts that was described above has an application in an electronically mediated environment. We will use a Web page as an example. If the role of the Web page is to be an electronic alternative to a contact with a person, then the Web page should be designed using the same basic rules that are used to design a sales force. For example, should the company use a separate Web page for prospecting, selling, and providing service or can all three functions be served by one general purpose Web page? Regardless of the type of Web

page used, i.e. general purpose or specific purpose, the page must be designed to provide the type of responses that a good salesperson would provide. It seems to us that this could best be done by having active input from veteran sales people in the Web page design process. A second issue that must be addressed involves the specification of an electronic substitute for the missionary salesperson. One possible alternative might include classic direct mail marketing activities where new product announcements and brochures would be mailed to existing customers. Another alternative would be to include specific links on the Web page to take the customer to view new product advertisements and sales presentations.

The key point to consider is that the electronic technology should not be thought of as the end, but rather a means to an end. The technology should be used then, to mirror the actions of a best salesperson.

Supporting Infrastructure - Keeping The Promise

The supporting infrastructure is primarily involved with the fulfillment function, but must also seamlessly support the servicescape and relationship marketing function. The challenge of designing very complex, expensive systems that require significant development time and have extremely high operational reliability is well within the experience of MIS. In designing the supporting infrastructure for electronic commerce, it is important the system be able to meet the two requirements: very fast response to the need for significant changes in the business design of the infrastructure, and frequent update in content. An additional current challenge is the need to seamlessly integrate the operational infrastructure with the servicescape, which is built on immature, rapidly changing technology without standards or the tools to easily build and change the applications. The supporting infrastructure will be directly involved with the design and operation of the "operations database", and will also be responsible to both access and maintain the "customer database" described below.

Relationship Marketing Capability - Making The Promise

The design of the relationship marketing component of electronic commerce has three sub-components: a massive database, a variety of analytical tools for use with the database, and integrated links to the supporting infrastructure and servicescape. Databases in significant relationship marketing businesses often include 5,000 fields per customer, resulting in terabytes of data. "Lists" of customer prospects are less large, but the use of such lists requires particular expertise and software that the direct marketing industry refers to as "merge/purge". Analytical tools are used by marketing to analyze the customer databases and "trials" as an integral part of developing the "offers" that result in successful customer relationships. An important aspect of the customer database design is the very different, simultaneous use requirements of the servicescape, fulfillment, and marketing.

Breaking The Promise

Given the metaphor of a service encounter as a basis for designing an electronic commerce system, designers must pay particular attention to the limitations of the rapidly changing supporting information technologies. It is very important to be careful not to permit existing limitations of technology to "break promises" which could then negatively impact the service encounter, the relationship, and brand image. Examples of such current limitations are bottlenecks within the Internet, a wide array of personal computer software and hardware which do not integrate

seamlessly, preponderance of 28.8 kbps modems, and lack of software tools to not only incorporate but also effectively use and present multimedia.

Summary

The theme of approaching electronic commerce in an evolutionary fashion is important not only because it calls us to go back to the basic principles of our business, but also because we have learned in 50 years of computing that we must “learn” the requirements of information technology applications via hands-on experience.

The metaphor of a service encounter is helpful because it focuses us on understanding customer expectations of an Internet or other electronic commerce experience. This gives us a perspective and conceptual basis to design the information systems: the servicescape, supporting infrastructure, and relationship marketing capability - to meet those expectations. The design, particularly of the servicescape, will be directly related to the business basics and underlying concepts of interpersonal relations and customer service.

The catalog industry is a significant instance of a set of companies that can clearly evolve their business into electronic commerce, and can do so by selectively utilizing the Internet and other emerging information technology for those situations where the functionality offers a clear benefit over the current, profitable way of doing business. The catalog industry model presents a basis for understanding the servicescape in the form of the Call Center and the supporting infrastructure in the form of the fulfillment function. The catalog industry also serves as a significant example of successful application of relationship marketing.

The design of an effective electronic commerce servicescape is postulated to model a catalog Call Center, and to rely on the underlying customer service and relationship-building concepts including “promises” as well as the principles of sales and interactive advertising. Servicescape design is suggested as the most challenging of the three components of electronic commerce for MIS.

Design of the supporting infrastructure and relationship marketing components are complex, expensive, and demand very high operational reliability. These are well within the experience of MIS, and can be accomplished by carefully applying new information technologies to the well-understood business principles of the catalog industry. Because customers view electronic commerce in the context of a service encounter, it is very important to be careful not to permit existing limitations of technology to “break promises”.

Finally, the catalog industry was used as a starting point for developing the framework. The rationale behind this is the analogy of conducting commerce electronically via a 1-800# with conducting the same commerce via the Internet. Examining the business functions within the catalog industry and hypothesizing how they will operate in the servicescape environment has been our approach to understanding electronic commerce.

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