

MARKETING AND THE INTERNET: A RESEARCH REVIEW¹

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1. Introduction: The Promise Of Digital Marketing

In the early 21st century, the Internet has become the most discussed topic in business and in the media more generally. The speed of development of electronic marketing has been extremely fast by any standards, and especially compared with the slow process of academic research and publication in marketing and other social sciences. Even more than for the other chapters in this book, we are here trying to describe a moving target.

The speed of development and the shortage of established theory to support hypothesis testing mean that we focus more on applied research and less on theory than in other chapters. There has been, however, a growing stream of theoretical research and discussion from early essays on the nature of interactivity in both marketing (Blattberg & Deighton, 1991; Rust & Oliver, 1994) and communication (Dutton, 1996; Morris & Ogan, 1996; Neuman, 1991; Pavlik, 1996), through ethnographic work which explores household-technology interactions (Venkatesh, Dholakia, & Dholakia, 1996) to the work of Hoffman and Novak (1996) – the main pioneers of Internet research in marketing - who proposed one of the first models of consumer behavior in computer mediated environments.

Hoffman (2000) described the Internet as “*the most important innovation since the development of the printing press*”, with the potential to “*radically transform not just the way individuals go about conducting their business with each other, but also the very essence of what it means to be a human being in society*”. Peppers and Rogers (1993; 1997) argued that digital marketing represents a complete transformation of the marketing paradigm from a predominantly one-way broadcast model to a model of totally interactive, totally personalized one-to-one relationships.

However, the extent to which digital media such as the Internet will revolutionize business, home life, and the relationship between marketer and consumer is still controversial. Earlier innovations such as the electric telegraph, the railroad, electricity, the telephone, the automobile, the airplane, radio, and television have all had widespread impact on both business and everyday life, although perhaps none of them (with the possible exception of

electricity) quite matches the combined speed and scale of the Internet's impact (Barwise & Hammond, 1998). Many of the features associated with the Internet have appeared before in the context of technologies such as the electric telegraph (Standage, 1998) and radio (Hanson, 1998; Hanson, 2000). Ethnographers such as Venkatesh (1985) have long studied household-technology interactions while more recently Fournier, Dobscha and Mick (1998) found that much so-called technophobia among consumers is entirely rational and based on their previous experience of technology making life more complicated – not simpler, as claimed. Certainly many of the claims about the speed of the Internet's expected impact, for example on the use of other media (Gilder, 1994; Negroponte, 1995) have turned out to be wide of the mark. Exaggerated visions of a wired society go back at least to EM Forster writing in 1909 (Baer, 1998).

What is clear is that the Internet combines many of the features of existing media with new capabilities of interactivity and addressability, as well as making it much easier for both companies and individuals to achieve a global reach with their ideas and products. It has been adopted on a massive scale, especially in North America, Australia and the Nordic countries, and its effects will be felt in almost every market and on almost every aspect of marketing. These impacts range from the most micro (such as the layout of Web pages and banner advertisements) through to the most macro (such as whether corporate profitability will be lower in frictionless markets or whether large numbers of service jobs will be exported to low-wage economies or even replaced by technology).

The Internet impacts the topic of every other chapter in this book, especially marketing strategy, channel management, pricing, marketing communications, customer service, decisions for support systems, database marketing, global marketing and business-to-business marketing. In this chapter we focus on the main ways in which the Internet is impacting marketing as discussed in the main marketing textbooks and journals. We therefore define marketing as the process of exchange and concentrate on published research which looks at how the Internet is being used as a channel by firms and consumers to support the exchange process. We focus mainly on managerial issues, rather than on theory, methodology, technology, or broader societal issues. We briefly address business-to-business e-commerce and organizing to compete online, but do not cover the extensive literature on supply chain management, information management, organizational behavior, or the broader impact of the Internet on productivity, profitability, employment, and international trade.

The chapter is organized as follows. The rest of Section 1 briefly reviews some early thinking on how the Internet may affect industry structure and business models, and some of the

frameworks that have been proposed for researching digital markets. Sections 2 and 3 then discuss online customer acquisition and retention, respectively. In Section 4, we turn to e-commerce and electronic markets. Section 5 then explores the wider issues of information economics, pricing and industry structure, including the evidence to-date on whether the Internet is, as is often claimed, leading to 'frictionless' markets characterized by fierce price competition. Section 6 reviews the business models and strategies firms are developing in response to the new threats and opportunities created by the Web. Finally, Section 7 briefly discusses future prospects and research directions.

1.1 Industry Structure and New Business Models

A few researchers were quick to recognize the potential of new interactive media to affect all aspects of marketing. Blattberg and Deighton (1991) noted that by the early 1990s technology was already allowing interactive marketing to take place to individually identifiable consumers: *"When a firm can go back to a customer to respond to what the customer has just said, it is holding a dialogue, not delivering a monologue"*. The authors noted that good database design was key, that profiles of customer histories should be collected, and that privacy concerns would grow. Deighton built on this work by gathering together a collection of thoughts from leading marketing academics and industry thinkers on how interactivity might reshape the marketing paradigm (Deighton, 1996). He also (Deighton, 1997) foresaw the emergence of a new marketing paradigm which would bring about a convergence between consumer marketing and business-to-business marketing. He suggested that, *"the discipline of marketing, whose stock of knowledge amounts to a fund of insights on how to compensate for the imperfections of two kinds of tools – broadcast tools and sales agent tools – now has a new tool without some of those imperfections but with a whole new set of imperfections yet to be discovered"*.

The ability of easily accessible electronic information to increase the efficiency of markets was another early topic addressed by marketing academics. Bakos (1991) used economic theory to develop models which showed that, where product quality and price information are easily available (as in electronic markets), search costs are reduced and benefits for buyers increased which, in turn, can reduce sellers' profits. Following on from Bakos's work, Benjamin and Wigand (1995) suggested that the so-called national information infrastructure (or NII, of which they believed the Internet was only a part) would cause a restructuring and redistribution of profits among stakeholders along the value chain, threatening all intermediaries between the manufacturer and consumer. Meanwhile, Nouwens and Bouwman

(1995) predicted the rise of "network organizations", which would be neither markets nor hierarchies.

This issue of the role of intermediaries has been a recurring theme, with most earlier work suggesting 'disintermediation' and later papers arguing for re- or cyber-intermediation. Sarkar et al (1998) argued against the idea that intermediaries are likely to disappear: drawing on channel evolution literature and transaction cost economics they proposed instead that virtual channel systems and new cybermediaries would emerge.

Related to this issue, Shaffer and Zettelmeyer (1999) argued that manufacturers gain and retailers lose if manufacturers use the Internet to provide product and category information direct to the consumer. Their reasoning is that such information was previously controlled and communicated by retailers, but that the increase in available information directed at the consumer makes the retailers' product offerings less substitutable. They concluded that the Internet can potentially harm retailers even if it is not used as a direct sales channel.

In a short Harvard Business Review perspectives article, Carr (2000) took the argument a step further arguing that, far from the widely predicted disintermediation, the Internet is in fact leading to 'hypermediation' in which transactions over the Web, even very small ones, routinely involve large number of intermediaries – not only wholesalers and retailers, but also content providers, affiliate sites, search engines, portals, Internet service providers, software makers and many others. He suggested that it is these largely unnoticed intermediaries who stand to gain most of the profits from electronic commerce. Traditional broadcast media have also been seen as threatened: Rust and Oliver (1994) predicted that the Internet heralded the death of traditional broadcast advertising, with future consumers uniting with producers directly and actively seeking out advertisements of relevance to them. Although this has not happened so far, a different digital technology - the personal video recorder - is now starting to raise some of the same issues.

Turning to buyer-seller relationships, Rayport and Sviokla (1994) proposed that the information revolution has changed the nature of such relationships, with physical interactions in the marketplace being replaced by virtual '*marketspace*' transactions. They argued that the conventional value proposition has been disaggregated and that its three basic elements – content (the firm's offering), context (how the content is offered), and infrastructure – can now be managed in new and different ways. Building on these ideas, Rayport and Sviokla (1995) suggested ways of managing and exploiting this new virtual value chain. Weiber and Kollman (1998) also evaluated the significance of virtual value

chains and concluded that information, in its own right, will become a factor of competition in future markets. The related question of how the Internet might revolutionize global marketing was addressed by Quelch and Klein (1996). The authors discussed the different opportunities and challenges that the Internet offers to large and small companies worldwide, the impact on global markets and new product development, and the resulting organizational challenges.

Broadening the discussion of the effects that interactivity might have on business, Haeckel (1998) suggested that the collaborative potential of information technology and the Internet might transform 'business-as-games-against-the-competition' into 'business-as-games-with-customers'. Taking a similar view, Achrol and Kotler (1999) proposed that, as the hierarchical organizations of the twentieth century disaggregate into a variety of network forms, customers will enjoy an increasing capacity to become organized, with marketing becoming more of a customer consulting function than a marketer of goods and services.

In exploring the research agenda for marketers, Winer et al (1997) examined the potential for marketing research associated with computer-mediated environments (CMEs). They suggested that the CME provides a new context in which to study existing theories as well as being an entirely new phenomenon meriting research in its own right. They identified five key areas of choice research likely to be impacted by the development of CME technology: decision processes, advertising and communication, brand choice, brand communities, and pricing. (All of these are covered in this chapter).

Summing up many of the preceding themes in a retailing context, Christensen & Tedlow (2000) argued that the Internet is a 'disruptive' technology which enables innovative retailers to create new business models that significantly change the economics of the industry. They put this in an historical context by relating the Internet to three previous disrupting technologies in retailing: the department store, the mail order catalog, and the discount department store. They proposed that "*...the essential mission of retailing has always had four elements: getting the right product in the right place at the right price at the right time and the Internet has great potential for improving performance on various combinations of the first three of these. For information products and services, the Internet can also perform outstandingly on the fourth, time, dimension, but for physical products it does not. When shoppers need products immediately, they will head for their cars, not their computers*". The authors further argued that the Internet is unsuited for products which require 'touch and feel', not to mention 'taste and smell'. Based on their analysis of the three earlier disruptive technologies, they noted that one pattern has been that generalist stores and catalogs dominate at the outset of the disruption but are then supplanted by specialists. A second pattern has

been that the disruptive retailers initially sold easy-to-sell branded mass-market products and then moved up-scale with higher-margin, more complex products. They suggested that it is too soon to say whether the first of these two patterns will recur on the Internet – more likely, the pattern will vary between categories – but that there was some evidence that the second pattern is recurring - and probably much faster than with the previous disruptions, since, as Evans and Wurster (1999) argued, the Internet enables firms to achieve high market reach combined with high richness of content and range.

1.2 Frameworks for Researching Digital Markets

Hoffman et al (1995) were the first researchers to propose a structural framework for examining the development of commercial activity on the Web. They explored the Web's role both as a distribution channel and as a medium for marketing communication, evaluated the resulting benefits to consumers and firms, and discussed the barriers to its commercial growth from both supply and demand side perspectives. They proposed that the interactive nature of the Web freed customers from their traditional passive role as receivers of marketing communications, giving them access to greater amounts of dynamic information to support decision making. Hoffman et al also identified benefits for firms, not only in the delivery of information but also in the development of customer relationships.

The impact that interactive shopping might have on consumer behavior, and on retailer and manufacturer revenue generation, was addressed by Alba et al (1997). They considered the relative attractiveness to consumers of alternative retail formats. They noted that technological advances offered consumers unmatched opportunities to locate and compare product offerings, but that price competition may be mitigated by the ability of consumers to search for more differentiated products better fitted to their needs. The authors examined the impact of the Internet as a function of both consumer goals and product/service categories and explored consumer incentives and disincentives to purchase online versus offline. The paper also discussed implications for industry structure in terms of competition between retailers, competition between manufacturers, and retailer-manufacturer relationships. It concluded with a list of research questions raised by the advent of interactive home shopping.

Continuing the theme of interactive shopping, Peterson et al (1997) analyzed channel intermediary functions that could be performed on the Internet, classified its potential impact by category type, discussed how price competition might evolve, and suggested a framework for understanding its possible impacts on marketing to consumers.

Building on the framework for classifying Internet commerce sites suggested by Hoffman et al (1995), Spiller and Lohse (1998) surveyed 44 website features across a convenience sample of 137 women's apparel retail sites. Using cluster and factor analysis they identified five distinct web catalog interface types: superstores, promotional stores, plain sales stores, one-page stores, and product listings. Differences between online stores centered on size, service offerings, and interface quality.

Turning to more narrowly focused research, Berthon et al (1998) developed a conceptual framework for evaluating a business-to-business (B2B) website as a marketing communication channel.

Network methods and analysis tools have been proposed by Iacobucci (1998) as useful for examining interactive marketing systems. She describes the content properties of interactive marketing: technology, intrinsic motivation, use of interactive marketing information, and the real-time aspect of interaction, together with the structural properties of interactive marketing: customization, responsiveness, interactions amongst relevant groups, and a structure of networked networks. She suggests that interactive marketing is networklike, and can therefore be analyzed using the tools developed to help understand the meaning of intricate network structures.

Increasingly from the late 1990s new and existing theories have been tested empirically using experimentation, consumer surveys, or actual browsing/purchasing behavior. The rest of this chapter reviews the empirical evidence to-date.

2. Online Customer Acquisition

In this section we start by reporting research on the factors which influence customers' adoption and usage of the Internet. We then discuss online advertising for customer acquisition, and customer channel choice.

2.1 Predictors of Adoption and Usage of Online Media

In the context of the Internet, customer acquisition depends both on the growth in Internet penetration and usage (Emmanouilides & Hammond, 2000) and on how the Internet then influences the adoption and diffusion of other products and services (Rangaswamy & Gupta, 1999). Emmanouilides and Hammond (2000) used logistic regression to explore four successive waves of survey data on Internet users. They found that the main predictors of active or continued use of the Internet were: time since first use (very early adopters were the most likely to be active users, but this relationship was curvilinear, with middle adopters more likely than other groups not to have used the Internet in the previous month); location of use, particularly at home; and the use of specific services, such as information services. The main predictors of frequent or heavy Internet use were: use of email for business purposes; time since first use of the Internet; and location of use (either use at work or use at home with two or more other people).

Li et al (1999) found that education, convenience orientation, experience orientation, channel knowledge, perceived distribution utility, and perceived accessibility were robust predictors of the extent to which an Internet user was a frequent online buyer.

2.2 Online Advertising for Customer Acquisition

For most established businesses, the Web's main role is either to reduce costs or to add value for existing customers, but it also has a potential role in customer acquisition, and in the case of a Web start-up, this role is crucial. Both large corporate companies and Web start-ups see driving traffic to the site as one of the most important as well as the most difficult determinants of the site's success (Future Media Research Programme, ; Rosen & Barwise, 2000). A few Web start-ups, such as Amazon and, in Britain, Lastminute.com, have been extremely successful at generating free publicity. Others have been adept at so-called viral marketing (i.e. electronic word-of-mouth), the classic case being Hotmail: anyone with a free e-mail account has a motive to encourage their friends to set one up too. More generally, however, Langford (2000) found that, although Free Traffic Builders (FTBs: search engines,

directories, news groups, listservs, bulletin boards, and chat rooms) offer free online promotion, none of these had much impact in generating traffic.

Web start-ups have therefore had to spend heavily on traditional media. The scale of their marketing expenditure relative to their revenue is one of the main causes of failure among start-ups, especially business-to-consumer (B2C) dotcoms (Higson & Briginshaw, 2000). In a business-to-business (B2B) context, Bellizzi (2000) found that mentioning or simulating the website in print ads significantly increased site traffic. The ability of popular search engines to locate specific marketing/management phrases was modeled by Bradlow and Schmittlein (2000). They concluded that, in addition to the size of the search engine (i.e. total number of pages indexed), the sophistication of the manner in which the engine searched (depth of search, ability to follow frame links and image maps, and ability to monitor the frequency with which a page's content changes) also affected the probability that a given engine could locate a given URL (web page).

Early researchers (Hoffman et al., 1995; Rust & Oliver, 1994) predicted that consumers might abandon their traditionally passive role and actively seek out advertisements of relevance to them. It has also been suggested that a decrease in consumers' search costs, coupled with technology to enable consumers to filter and block unwanted advertisements, plus the ability of advertisers to offer targeted rewards for viewing ads, may lead to an 'unbundling' of advertising and content (Yuan et al., 1998).

Several studies have looked at managers' perceptions of the Internet as an advertising medium (Bush et al., 1999; Ducoffe, 1996; Leong et al., 1998; Schlosser et al., 1999). Bush et al (1999) found that, while advertisers were generally keen to use the Web to communicate product information, they were concerned about security/privacy, and uncertain how to measure the effectiveness of online advertising. Leong et al (1998) reported that website managers perceived the Web to be a cost effective means of advertising, well-suited for conveying information, precipitating action, and creating brand/product image, awareness and objectives. However, it was seen as ineffective for stimulating emotions or getting attention.

If we turn to users' perceptions, Ducoffe (1996) studied the attitudes of 318 business users to Web advertising and reported that it was perceived as more informative than valuable or entertaining. Respondents were asked to rank seven media in terms of their value as a source of advertising. The Web was placed near the bottom overall. However, Schlosser et al (1999) found wide variation among Internet users' attitudes towards Internet advertising – equal numbers of respondents liked, disliked, and felt neutral towards it. Enjoyment of looking at

web adverts contributed more than the informativeness or utility of the ad towards consumer attitudes towards web advertising. This finding was mirrored by the responses of a demographically weighted-to-match sample who answered questions on advertising in general, showing that the reported perceptions of Internet advertising were not just a reflection of the demographics of Internet users.

It has been found that the greater the degree of interactivity the more popular the website (Ghose & Dou, 1998). However, interactivity does not always enhance advertising effectiveness as it can interrupt the process of persuasion, especially when ads are targeted (Bezjian-Avery et al., 1998).

Hoffman and Novak (2000) discussed a range of issue customer acquisition methods in the context of CDNOW's integrated strategy for attracting new customers. This strategy involved a combination of traditional media (radio, television, and print) some online advertising (e.g. banner ads), a sophisticated revenue-sharing affiliate program, strategic partnerships with traffic generators such as AOL, plus PR, freelinks, and word-of-mouth. Some of these marketing strategies, particularly revenue-sharing, are based on the many-to-many communication model that underlies the Web. Hoffman and Novak concluded that revenue-sharing, a very different model from the impression-based advertising which still dominates broadcast media, was the most cost-effective means of acquiring customers.

In one of the first empirical studies of Internet users, Mehta and Sivadas (1995) found that, while Internet users were fairly negative in their attitude toward online advertising, they were more likely to respond to targeted than to non-targeted ads. It has been found that, unsurprisingly, the nature of the ad copy also affects the clickthrough rate (Hofacker & Murphy, 1998). Building on this research the same authors modeled clickthrough probabilities (basing their approach on Luce's (1959) choice-axiom) and more surprisingly found that the addition of an extra banner ad on a page did not reduce the clickthrough rate of the first banner ad (Hofacker & Murphy, 2000). However, Griffith & Cramth (2000) found that consumers viewing a retailer's product offering through a print ad were more involved with the offering, and recalled more about the product and the brand, than did consumers viewing the same offering online.

Drèze & Zufryden (1988) explored the measurement of Internet advertising GRPs, reach and frequency, concluding that the two main problems to be addressed concerned identification of an individual and counting revisits of cached (i.e. stored) content. Leckenby and Hong (1998) continued the search for appropriate web audience measures by developing and testing six

models of reach and frequency estimation. They found that models developed for magazine or television data generally performed equally well with Internet data, with the simplest model, the Beta Binomial, providing the greatest accuracy.

2.3 Customer Channel Choice

Several authors have explored channel choice, highlighting the differences in potential consumer benefits across channels, and, in some cases, gathering evidence on consumer preferences. Becker-Olsen (2000) reported a survey which suggested that the most important factors determining whether consumers buy online are whether this fits into their lifestyle, and the extent to which they perceive it as easy and convenient. Even those who did buy online did not perceive it as quicker or less expensive, nor did they feel that they received better service. Those not buying online felt that traditional shopping was easier, quicker, cheaper and more convenient for their particular lifestyle. Other important factors were the need to see/touch the product (in some categories) and consumers' need to have the product immediately. Neither group (online buyers and non-buyers) seemed strongly concerned with security risks, although the overall credibility of the company/site was seen as important, especially by those who had not purchased online. Finally, among those who had bought online, the most important factors determining their purchase behavior were the ability of the site to load quickly, availability of familiar brand names, and a clear return policy. These findings throw some doubt on the claims of Hagel (1999), who suggested that online brand communities can play a major role in creating loyal customers (discussed more fully in Section 3.3). Becker-Olsen's results imply that consumers are more interested in getting on and off the site quickly than in browsing and developing a relationship. This supports Peterson's (1997) view that marketing relationships are by nature exchange-oriented rather than relational.

Palmer (1997) tested the buying of 120 different products across four retail formats: in store, catalog, cable television, and the Web. The findings showed a significant difference in product description, availability, delivery, and time taken to shop between the four formats. Total product cost was not significantly different across the formats. Ward (1999) explored consumer substitution between online, traditional retail, and direct mail, using a transaction cost approach. He developed a model of consumer transaction costs to investigate distribution channel choice and tested this using GVV data, finding that consumers considered online shopping and direct marketing to be closer substitutes than any other pair of channels.

Degeratu et al (1999) hypothesized how online and traditional grocery stores differ in their influence on consumer choice. They found that brand names were more valuable for categories where fewer attributes were communicable online; that "non-sensory" attributes (e.g. the fat content of margarine) had more impact on online choice than "sensory" ones (e.g. visual cues such as paper towel design); and that price sensitivity was higher online because online promotions were stronger signals of price discounts. The combined effect of price and promotion on choice was weaker online than offline.

3. Customer Retention

Managers wish to maximize the breadth (time spent on a site) and depth (number of pages viewed) of visits to their website, plus the repeat-visit rate and of course (where appropriate) the amount of money spent per customer. Chang (2000) proposed that there were three major components to a consumer's online shopping experience: interface quality, encounter quality, and fulfillment quality. To build trust and brand equity, firms need to ensure excellence in all three of these dimensions. Drèze and Zufryden (1997) developed and evaluated a web-based methodology for evaluating the effectiveness of websites. Using a conjoint-based method and efficient frontier analysis, the four site attributes tested were background, image size, sound file display and celebrity endorsement. The model provides a means of evaluating different trade-offs to achieve website configurations that result in the greatest time spent at the site plus the highest number of pages viewed.

We now consider empirical research findings in this area.

3.1 Site Design, Service Quality and Fulfillment

Novak et al (2000) built on Hoffman and Novak's previous (1996) discussion of 'flow' to develop a structural model of the components of a compelling online experience. The model was validated using a web-based consumer survey. A compelling experience was found to be positively correlated with fun, recreational and experiential uses of the Web, with expected use in the future and the amount of time consumers spend online, but negatively associated with using the Web for work-related activities. Faster download and interaction were not, per se, associated with a compelling experience.

Related to this, several other authors have investigated the impact of download times. Dellaert and Khan (1999) found that the potential negative effects of waiting can be neutralized by improving the waiting experience. This research finding is echoed by Weinberg (2000) who showed not only the importance of avoiding delay, but also that the perceived waiting time can be significantly influenced by manipulating the time given in the waiting time 'anchor' (i.e. suggesting that the time for a given page to load is less than it will be).

Montoya-Weiss et al (2000) explored consumers' assessments of a Fortune 500 financial institution's website before and after a major interface design change, finding significant benefits from the change. Research by Mandel and Johnson (1999) showed that even minor

peripheral cues such as background color and pictures can influence consumers' response to a site. The user interface has been found to be key in generating online sales. The main finding from Lohse and Spiller (1998) was that, in a study of the features of interface design that affect store traffic and amount spent, product list navigation features that save consumers time online (i.e. reduce the time to purchase) accounted for 61% of the variance in monthly sales. Ghose and Dou (1998) found that the more interactive the website, the more likely it is to be rated a 'top site'. Against this finding, however, are the crucial issues of simplicity, navigability, and especially the download and response times, as seen above.

Building on the extensive earlier research on consumer information processing and consideration sets, Häubl and Trifts (2000) explored the impact of two interactive decision aids on consumers' decision-making in a controlled experiment. The first was a recommendation agent to allow consumers to screen a large set of alternatives and reduce them to a short list or consideration set. The second, a comparison matrix, helped users make in-depth comparisons among the selected alternatives. The study found that both these interactive decision aids had a substantial impact on consumer decision-making, enabling the consumers to make better decisions with less effort.

Voss (2000) reported a survey of different sites' responsiveness to e-mail enquiries. It was found that, in both the US and Britain, websites' service quality tended to be poor for web start-ups and even worse for established businesses. There was, however, wide variation, with some sites never responding and others having an excellent auto-acknowledge function followed by relatively fast full response. This paper proposed a set of key metrics in areas such as trust, response time, response quality, and navigability.

As many web start-ups have discovered, service quality also includes fulfilment, which, for physical products, requires expensive bricks-and-mortar logistics. In many markets this can be subcontracted at fairly low cost, but in some, notably groceries, home delivery is likely to be the limiting factor for the whole online market. Two recent articles in McKinsey Quarterly (Barsh et al., 2000; Bhise et al., 2000) and another in the Booz Allen journal (Laseter et al., 2000) explored the issue of fulfilment. These articles concluded that successful online retailing revolves around building a national and scalable sales and distribution channel, and the main discriminator between those companies that succeed and those that fail will be large order volumes and deep reserves of capital.

3.2 Brands, Trust and Customer Relationships

In the context of the Internet, “*the brand is the experience and the experience is the brand*” (Dayal et al., 2000). Both for a web start-up, once it has successfully acquired some customers, and even more for a major established brand, the key goal of online marketing is to use the Web (usually in combination with a wide range of other channels and activities) to build a positive long-term relationship with the customer.

Steinfeld et al (1995) argued that electronic networks can be used either to support transactional marketplaces or to strengthen commercial relationships (Steinfeld et al., 1995). Their review of the literature suggests that the latter relational (‘electronic hierarchies’) approach is more prevalent. Their research examines the theoretical rationales behind these competing approaches and presents some evidence to show the conditions under which electronic marketplaces or electronic hierarchies are likely to prevail. Their conclusions are supported by Bauer et al (1999) who focused on the contribution the Internet can make to relationship marketing, and especially to commitment, satisfaction and trust. This paper provided empirical evidence that consumers’ trust is reduced if their expectations are not met.

Hoffman et al (1999) argued that part of consumers’ lack of trust arises from their perceived lack of control over web businesses’ access to their personal information during the online navigation process. The dimensions of this concern include both environment control and control over the secondary use of information. The proposed solution is to allow a radical shift in the balance of power towards more cooperative interaction between a business and its customers.

Similarly, Reichheld and Scheffer (2000) argued that the outlays to acquire a customer are often considerably higher for e-tailers than for traditional channels, but that repeat customers are more loyal, increasing their spend over time and contributing to further customer acquisition through positive recommendation (via email, etc). In Reichheld and Scheffer's words, “*loyalty is not won with technology. It is won through the delivery of a consistently superior customer experience*”. Part of their argument is that the Internet, like all database relationship marketing channels, enables marketers to target resources on their most profitable customers and prospects. This argument is similar to that of Peppers and Rogers (1993) who proposed the ultimate segmentation approach; reducing the market to what is sometimes called ‘segments of one’. (Peppers and Rogers themselves dislike this term, however, since they see one-to-one marketing as fundamentally different from even the most targeted ‘push’ marketing, being based on an ongoing dialogue between the supplier and customer).

A reasonable hypothesis is that consumers are willing to disclose personal information and to have that information subsequently used to create customer profiles for business use, if they also perceive there to be fair procedures in place to protect individual privacy. Support for this hypothesis was found by Culnan and Armstrong (1999). They concluded that privacy concerns need not hold back the development of consumer e-commerce, provided that firms observe procedural fairness.

Milne and Boza (1999), however, presented evidence that improving trust and reducing concerns are two distinct approaches to managing consumer information. Further, contrary to existing self-regulation efforts, they argued that, when managing consumer information, improving trust is more effective than efforts to reduce concern. Sheehan (1999) found that women are generally more concerned about online privacy but that those men who are concerned are more likely to adopt behaviors to protect their privacy.

The issue of when and how consumers use brands as a source of information when shopping on the Internet was addressed by Ward and Lee (1999). Applying theory from information economics, they hypothesized that recent adopters of the Internet would be less proficient at searching for product information and would rely more on brands; as users gained experience with the Internet they would become more proficient searchers, more likely to search for alternative sources of information, and so less reliant on brands. These hypotheses were tested and supported using claimed usage and opinion data collected in one of the GVVU Center's regular surveys of Internet users. Ward and Lee suggest that these findings are consistent with the substitutability of brand advertising for search, especially for consumers with high search costs. Their results support the view that branding does not merely reinforce loyalty, but conveys useful product information that tends to make markets more efficient.

Dellaert (1999) explored how the Internet can facilitate increased consumer contributions to product/service design processes, to branding (for example, by discussing consumption experiences in online groups), service (helping other consumers in product searches and product usage) and the production process (by ordering electronically). He studied the potential for exchanges of household production time between consumers and for both exchanges of household production time and product improvements between consumers and producers. In particular he examined the difference between the drivers of consumer contributions and the drivers of online ordering. For instance, he found that consumer experience of the Web was a driver of consumer contributions but not of online ordering.

Similarly, online ordering increased linearly with consumer income whereas consumer contributions had an inverted u-shaped relationship with income.

In support of the relationship approach, and in contrast to Becker-Olsen (2000) (see Section 2.3 above), Mathwick (2000) reported a survey of online purchasers (from the 10th GVU user survey) which found that not all respondents were 'exchange' orientated. For some users, a 'communal' orientation towards other users was claimed to be a defining characteristic of the online experience. Responses were categorized on a two-by-two matrix based on exchange orientation and communal orientation. Although a particular characteristic of the Internet is the ability to target consumers using behavioral data, Peltier et al (1998) explored the use of relationship-oriented attitudinal data (trust, commitment and relationship benefits) as the basis of market segmentation.

3.3 Online Brand Communities

Ever since the publication of Howard Rheingold's book 'The Virtual Community: Homesteading on the Electronic Frontier' (1993) commentators have been struck by the Internet's unprecedented capacity to support global communities of interest, primarily using e-mail. In a business context, ecommerce models such as Hotmail's free e-mail service and (to some extent) eBay's online auction system are centered on the firm's ability to use the Web to facilitate consumer-to-consumer (C2C) communication. More controversial is the scope for building an online brand community based on a major established brand. The most prominent advocate of this strategy is John Hagel of McKinsey who has argued that a virtual community can expand the market, increase the brand's visibility, and improve profitability (Hagel, 1999; Hagel & Armstrong, 1997; Hagel & Singer, 1999).

Research on online brand communities, like much Internet-related research, is still somewhat atheoretical. However, Wilde and Swatman (1999) explored a number of theories to support the concept of a telecommunications-enhanced community and attempted to develop an integrative model. McWilliam (2000) discussed the advantages, disadvantages and limitations of online brand communities, and the new and unfamiliar skills brand managers will need if they are to succeed in managing such communities. The problems identified include issues of scale (the number of active participants in discussion groups etc is tiny) and especially control. She concluded that it is extremely hard for the firm, accustomed to controlling communications about its brand, to strike the right balance here.

Building on his previous research on consumers' contributions to product websites (see Section 2.3), Dellaert (2000) explored how such contributions can be modeled and measured, and tested a model in the context of Dutch tourists' preferences for Internet travel websites with and without other tourists' contributions. The main finding was that consumers' evaluation of other consumers' contributions to the site was high relative to other website characteristics.

4. Ecommerce and Electronic Markets

4.1 Consumer Purchase Behavior

Turning to purchasing behavior, Bellman et al (1999) surveyed over 9,000 online users and, using logit and regression analysis, identified factors that predicted whether an online user bought products online, and if so, how much they spent. The most useful predictors were 'time starvation' (how many hours a week the user worked) and the extent of their 'wired' lifestyle. Lohse et al (2000) re-surveyed the same respondents to test whether and how their attitudes and behavior had changed over time. They found that the average annual spend per purchaser had increased from \$213 in 1997 to \$639 in 1998. Time starvation and a wired lifestyle were still major determinants of the amount of online spending, but time starvation did not appear to influence whether a person buys at all from an online store. A further finding was that 31% of respondents who did not make a purchase online in 1997 did make one in 1998, while 14% of respondents purchased in 1997 but did not purchase again in 1998. Some of these respondents had had bad experiences with online retailers.

Wu and Rangaswamy (1999) developed a novel model of consumer choice behavior which is a generalization of previous two-stage models using consideration sets. They demonstrated empirically that previous models failed to capture the richness of the choice processes that are increasingly feasible for consumers in online markets.

Swaminathan et al (1999) explored factors influencing online purchasing behavior such as privacy and security concerns and vendor and customer characteristics. Using GVU data, Bain (1999) empirically examined factors related to the adoption of the Internet as a purchase medium. A strong (negative) relationship was found between consumer perceptions of the risk of web-shopping and purchase behavior, but not between perceptions concerning information privacy and purchase behavior.

Several researchers have applied traditional repeat-buying models to the investigation of online brand loyalty in order to test whether consumer loyalty operates in a similar manner online compared with offline. Fader and Hardie (2000a; 2000b) presented a non-stationary experiential gamma (NSEG) model, a development of the long-established negative binomial distribution (NBD) model which incorporates dynamic individual-level buying rates. The NSEG model is found to outperform the NBD in the context of repeat buying on the Internet, in terms of both forecast accuracy and parameter stability across calibration periods of

different lengths. Fader and Hardie describe a modeling exercise applied to repeat sales at a major online music retailer (CDNOW). Their main finding is that most of CDNOW's sales growth was due to new customers rather than from earlier trialists increasing their loyalty to this channel (in terms of share of category requirements). The implication is that it will be hard for online stores to sustain their earlier rapid sales growth since most consumers who use them will continue to do so in combination with established channels, rather than gradually switching over to purchasing exclusively online.

Using similar techniques, Moe and Fader (2000) developed an individual-level model for online store visits based on Internet clickstream data. The model captured cross-sectional variation in store-visit behavior as well as changes over time as consumers gained experience with the store. The results confirmed that people who visit a store more frequently are, as is widely assumed, more likely to buy. However they also showed that changes in an individual's visit frequency over time can provide marketers with additional information about which consumer segments are more likely to buy. The implication is that marketers should use a sophisticated segmentation approach which incorporates how much an individual's behavior is changing over time, rather than simply targeting all frequent shoppers.

Danaher et al (2000) compared consumer brand loyalty (share of category requirements and average purchase frequency) for packaged goods purchased online versus at traditional grocery stores. They found that brand loyalty for high market share brands was significantly greater in the virtual environment (a 'winner take all' effect), with the reverse being the case for low-share brands. The study also found that 'niche' brands do better than expected while 'change-of-pace' brands do worse than expected in an online purchase setting. The model used by Danaher et al is a segmented-Dirichlet model with latent classes for brand choice to compensate for systematic deviations in the offline retail setting. This provides the benchmark against which loyalty is tested in the online setting.

4.2 Agent - Mediated E-Commerce

In Section 3.1, we reported research on website design including recommendation agents and other software devices to simplify consumer search and decision-making. These focus on improving the navigability and convenience of choosing a product or service supplied by the owner of the site. We now turn to the more advanced intelligent agents which act on behalf of individual consumers, knowing their preferences and searching the Web for products/services which best meet their needs. Such an agent could significantly influence brand choice and/or which distribution channel is chosen to supply a particular brand. If requested, it can negotiate

price and/or delivery, possibly by inviting suppliers to bid ('reverse action') and/or forming a cartel with other consumers (or their agents) in order to negotiate the best price (Dolan & Moon, 2000). Finally, the agent may be empowered in some contexts to make the actual purchase on behalf of the consumer. Initially, agents (or bots, e.g. 'shopbots' in the case of those aimed at shopping applications) were controlled through the consumer's PC. Increasingly, they will also be controlled through mobile phones and/or interactive digital TVs and eventually by voice rather than a keyboard or keypad (Barwise & Hammond, 1998).

The best known center for research on agent technology is the Media Lab at MIT. Patti Maes, who heads the Media Lab's software agent group, expects agent technology to have dramatic effects on the US economy (Maes, 1999). She predicts the disappearance of existing intermediaries and the emergence of some new types of intermediary, a reduction in the capital required to set up a business (and therefore more scope for small niche businesses), and efficiency gains for both buyers and sellers in dramatically reducing marketing and selling costs, but with a clear overall shift in the balance of power from sellers to buyers. Moukas et al (1999) provided an overview of the research at the Media Lab on different types of agent for e-commerce. These range from consumer-to-consumer 'smart' classified ads to merchant agents that provide interrogative negotiation; from agents that facilitate expertise brokering to 'distributive reputation' facilities. Some of the work at the Media Lab also focuses on agents for point-of-sale comparative shopping and/or using mobile devices (Zacharia et al., 1998).

The Media Lab research focuses on the development, prototyping and evaluation of the agent technology itself, including the launch of an agent-based business, Firefly.com, which was bought by Microsoft in 1998 but shut down in 1999 in preparation for Microsoft's Passport service. Other scholars within marketing academia have sought to explore the potential and likely impact of this technology from a marketing perspective (discussed below). Some of this research overlaps with work on buyer search costs, new intermediaries, and information economics, discussed in Sections 4.3 and 5.1.

Researchers at the Sloan School at MIT have also investigated agents ('trust based advisor') in both a B2B and a B2C context. Urban et al (1999) described a prototype system and reported initial results finding that consumers who are not very knowledgeable about the product, who visited more retailers, and who were younger and more frequent Internet users had the highest preference for a virtual personal advisor. Also at the Sloan School, Ariely (2000) has explored a range of issues associated with the characteristics and likely impact of electronic smart agents. Gershoff and West (1998) and West et al (1999) presented a

framework for thinking about the design of electronic agents and suggested a set of goals that include both outcome-based measures (e.g. improving decision quality) and process measures (e.g. increasing consumer satisfaction and trust). Kephart et al (2000) at IBM have also published a description of a research program which aims to provide new insights into the impact of agents on the economy.

Iacobucci et al (2000) focused on intelligent agents that compare a user's profile to data on other users to determine which users in the database are similar in order to develop relevant recommendations of value to the focal user. Iacobucci and her colleagues characterize this as 'rediscovering the wheel' of cluster analysis and therefore draw from the cluster analysis literature to begin to address the questions being posed in this new application area.

4.3 New Intermediaries and E-Hubs

An intelligent agent can belong to the consumer herself or be provided as part of a service by a portal, search engine, or infrastructure provider to add value and increase usage. Some commentators originally believed that the use of intelligent software by both sellers and buyers would lead to 'disintermediation', the elimination of intermediaries, especially agents, brokers, and others who deal purely in information (e.g. travel agents, realtors, etc) (Benjamin & Wigand, 1995). As we have seen, the Web is in fact creating some opportunities for 'reintermediation', that is, the setting up of entirely new types of intermediary such as Yahoo! and eBay, and in the B2B arena, companies such as Ariba, CommerceOne and Freemarkets.

Several academics have explored the role of intermediation in online markets. As we saw in Section 4.2 above, Maes (1999) predicted that, while new types of intermediary would emerge, existing intermediaries would disappear. Sarkar et al (1995) argued that not only was it likely that traditional intermediaries will be reinforced but also that networks will promote the growth of web-based intermediaries ('cybermediaries'). They questioned whether transaction cost theory implies, as is often claimed, that intermediaries will be bypassed in electronic markets. By examining the various functions of intermediaries that are not easily absorbed by producers, they argued that "it is equally plausible to conclude that more, rather than fewer, intermediaries will be involved in electronic markets". In addition, they highlighted social and institutional factors that might further mitigate against the elimination of intermediaries.

Jin and Robey (1999) focused on B2C cybermediaries such as Amazon, Virtual Vineyards, and 1-800-FLOWERS. Their paper aimed to explain the phenomenon of cybermediation,

again without dependence on transaction cost theory. It gave six theoretical perspectives: transaction cost economics, consumer-choice theory, retailing as an institution, retailing as social exchange, retailers as bridges in social networks, and retailers as creators of knowledge.

The propositions set out by Jin and Robey were consistent with early empirical findings from Bailey and Bakos (1997). These suggested that markets do not necessarily become disintermediated as they become facilitated by information technology. Bailey and Bakos explored thirteen case studies of firms participating in electronic commerce and found evidence of new emerging roles for online intermediaries, including aggregating, matching sellers and buyers, providing trust, and supplying interorganizational market information. They discussed two specific examples to illustrate an unsuccessful strategy for electronic intermediation (BargainFinder) as well as a more successful one (Firefly).

Bhargava et al (2000) explored the aggregation benefits that consumers derive from having access to multiple providers through an intermediary. Their analysis is theoretical and economics-based. They concluded that when consumers are heterogeneous and differentiated in their willingness to pay for intermediation, the intermediary can offer two or more service levels at different price levels.

Much of this research focuses on B2C , which has attracted much media coverage. Probably more important in business terms is the setting up of new B2B markets and exchanges or 'e-hubs'. Chircu and Kauffman (2000) described a framework whereby a traditional intermediary is able to continue to compete by combining web technology with its existing specialist assets. The framework is based on literature from several disciplines and evidence from a study in the corporate travel industry. This showed that traditional travel firms have been able to avoid disintermediation and retain a highly profitable central role in the market.

More dramatic is the scope for entirely new B2B e-hubs, defined as website where industrial products and services can be bought from a wide range of suppliers. The development of such markets has recently been reviewed by Ramsdell (2000), who categorized potential B2B online markets into three kinds: 'vertical' marketplaces such as for auto manufacturing or petroleum products; 'horizontal' marketplaces typically focusing on the supply of materials or on repair and operations products, such as safety supplies and hand tools; and finally marketplaces focusing on specific functions such as human resources.

Kaplan and Sawhney (2000) used a two-by-two classification based on *what* businesses buy (operating inputs versus manufacturing inputs) and *how* they buy (systematic sourcing versus spot sourcing). They give examples of each of the four types and also describe both forward and reverse aggregation models.

5. Pricing and Information Economics

One of the slogans of the Internet is that ‘information wants to be free’. Here, ‘free’ can mean both liberated and priced at zero. On the Internet, the marginal cost of providing information to a customer is usually zero, so any pricing model based on equating marginal costs to marginal revenue would eventually lead to information being given away. This therefore raises the question of how a firm can make money from content creation or packaging. This is not a new issue – it is one which has always been faced by the broadcasting, publishing, and to a lesser extent music and other media industries – but the power and ubiquity of digital technology are increasing the scale of the problem.

More generally, the Internet is expected by some commentators to lead to ‘frictionless markets’ in which empowered customers, increasingly supported by intelligent agents and trusted intermediaries and third parties, are able to shop around with minimal effort, playing one supplier off against another and relentlessly driving down prices. One predicted result is the disintermediation (with some reintermediation) of markets discussed in the previous section, where the initial evidence is that the scale of restructuring of the value chain has been exaggerated for most markets. Here we explore the research to-date on the theoretical and initial empirical impacts of the Internet on market prices and price dispersion. We also consider the specific area of online auctions, and the overall impact on industry structure. We start with research on information economics.

5.1 Information Economics

An early analysis of web-related information economics was given by Wigand and Benjamin (1995), who argued that the Internet holds great potential for efficiency gains along the whole industry value chain, primarily because of transaction cost savings (see also Rayport & Sviokla, 1995). The potential effects Wigand and Benjamin discussed include disintermediation, reduced profit margins, consumer access to a broad selection of lower-priced goods, but also various opportunities to restrict consumers’ access to the vast amount of available information and potential commerce opportunities. They develop an integrated model of electronic commerce and discuss implications for public policy ‘to mitigate risks associated with market access and value chain reconfiguration’.

Arthur (1996) argued that the new knowledge-based industries are characterized by increasing returns to scale, i.e. that if a product gains a dominant market share its advantage is magnified

by increasing returns. In contrast, traditional resource processing industries are characterized by diminishing returns. Arthur compared and contrasted these two interrelated worlds of business and offered advice to managers in knowledge-based markets.

One important source of increasing returns in communications industries is network externalities (i.e. that the value of the product or service increases with the number of other people who have it). This applies both with C2C (i.e. any-to-any) networks such as the telephone and e-mail but also B2C broadcast-type (one-to-many) networks such as computer software and VCR hardware, dominated by technical standards. Gallaugh and Wang (1999) developed propositions related to network effects and to the provision of free goods and tested these in the context of the market for web servers. They found that the market for Windows web servers exhibited network externalities even after the entry of a viable free-market alternative, while the Unix market (dominated by open-source and other free software at the time of the study) did not.

Turning to the issue of buyer search costs in markets with differentiated product offerings. Bakos (1997) analyzed the impact and implications of reducing such search costs in an electronic market. Shapiro and Varian (1998a; 1998b) argued that “the so-called new economy is still subject to the old laws of economics”. As they noted, the fixed costs of information products tend to be dominated by sunk costs – costs that are not recoverable if production is halted. They suggested that information providers therefore need strategies both to differentiate their products and to try and price them in such a way that the price varies between buyers reflecting the sometimes markedly different value that the different buyers place on the same – or almost the same – information product. The solution they proposed is ‘versioning’, i.e. offering the information in different versions targeted at different types of customer. This is similar to the series of release windows for movies and the way publishers often release a book first in a high-priced hardback form and later in paperback. They described a wide range of dimensions of versioning: convenience, comprehensiveness, manipulation, community, annoyance, speed, and support. These ideas were developed more fully in their book ‘Information Rules: A Strategic Guide to the Network Economy’ (Shapiro & Varian, 1998a). The same issues were explored in a working paper by Adar and Huberman (1999), who focused on the possibility of exploiting the different and regular patterns of surfing demonstrated by different Internet users, by implementing ‘temporal discrimination’ through dynamically configuring sites and versioning information services.

One example of an industry struggling to respond to the Internet revolution is newspaper publishing. According to Baer (Baer, 1998), when the Internet was first invented, newspapers

such as the LA Times saw it as simply a new publishing medium. They were reluctant to accept that the 'content' of most interest to consumers on the Internet was for many years other consumers (colleagues, friends, family), i.e. e-mail. The popularity of e-mail had already surprised those who first set up the Internet, which was originally designed to enable research scientists to access each others' data and computers, with e-mail only added as an afterthought (Hafner & Lyon, 1996). Today, all newspaper groups are experimenting - or more than experimenting - with online versions. This is partly to protect their classified advertising revenue but also to protect subscription/cover price revenue and potentially open up new revenue sources, although these have been hard to find. Dans (2000) explored the patterns of consumption of 15 Spanish newspapers and their online versions. He found that the reading patterns differed strongly especially for weekday versus weekend readers. Generally, the reading of Internet newspapers was more functional, as reflected in the small number of pages read per visit.

We now turn to the empirical evidence of the impact of the Internet on prices.

5.2 Price Dispersion

Simha (2000) discussed the issue of price dispersion and the possibility of frictionless online markets. He argued that the information to be found on the Web regarding prices, features, and quality, together with the ease of collecting and comparing information, mean that costs are becoming increasingly transparent. This, according to Simha, will severely impair sellers' ability to obtain high margins, turning most products and services into commodities, weakening customer loyalty to brands, and potentially damaging suppliers' reputations by creating perceptions of price unfairness. Simha suggests that the Internet 'encourages highly rational shopping' eroding the 'risk premium' that sellers have been able to extract from wary buyers. It also demands that companies with varying prices in different countries reexamine their price structure. One response for firms is 'smart' pricing through versioning (discussed above) and other mechanisms such as auctions (discussed in Section 5.3). Simha argues that such 'smart' pricing may be extremely risky in the long term as it may create perceptions of unfairness among consumers, now able easily to share price information. The solutions he recommends are a combination of product quality, innovation, and bundling.

The empirical evidence on the Internet's impact on prices is reviewed by Smith et al (1999), who found that Internet markets are more efficient than conventional markets with respect to price levels, menu costs, and price elasticity. They also reported that several studies have reported substantial and persistent dispersion in prices on the Internet. They suggested that

this may be partly explained by heterogeneity in retailer-specific factors such as trust and awareness (i.e. brand equity). In addition, Internet markets are still at an early stage and may change dramatically in the coming years with the development of cross-channel sales strategies, intermediaries and shopbots, improved supply chain management, and new information markets.

One of the studies reviewed by Smith et al (1999) is by Brynjolfsson and Smith (1999) who analyzed the prices of books and CDs on 41 Internet and conventional retail outlets. They found that prices on the Internet were 9% to 16% lower than in conventional outlets (depending on whether taxes, shipping and shopping costs are included in the price). They also found substantial price dispersion among Internet retailers although this dispersion was reduced when they weighted the prices by a proxy for market share. They concluded that *“while there is lower friction in many dimensions of Internet competition, branding, awareness and trust remain important sources of heterogeneity among Internet retailers”*.

Clay et al (1999) also studied price and non-price competition in the online book industry. They collected prices of 107 titles sold by 13 online and 2 physical bookstores. Controlling for book characteristics, prices in online and physical bookstores were the same. Although their analysis of product differentiation yielded no clear results, *“the substantial premium Amazon charges for its books, even relative to barnesandnoble.com and Borders.com, provides indirect evidence of product differentiation”*.

Price competition is addressed by several authors. Lal and Sarvary (1999) developed a theoretical model which distinguishes between digital product attributes (which can be communicated on the Web at low cost) and non-digital attributes (for which physical inspection of the product is necessary). Their model assumes that consumers are faced with a choice of two brands but are familiar with the non-digital attributes of only the brand purchased on the last purchase occasion. Based on this assumption, Lal and Sarvary showed that when (1) the proportion of Internet users is high enough, (2) non-digital attributes are relevant but not overwhelming, (3) consumers have a more favorable prior about the brand they currently own, and (4) the purchase situation can be characterized by ‘destination shopping’ (i.e. when the fixed cost of undertaking a shopping trip is higher than the cost of visiting an additional store), the use of the Internet can not only lead to higher prices but also discourage consumers from engaging in search. Their explanation is that, under these conditions, an online consumer who wishes to do so can avoid visiting any stores at all and therefore also avoids comparing the non-digital attributes of competing brands. A further insight is that stores may increasingly have a role for product demonstration and customer

acquisition in an online world. The underlying theory is based on Nelson's (1970; 1974) distinction between search and experience goods.

To Nelson's initial distinction between search goods (whose quality can be judged by inspection) and experience goods (whose quality can only be judged through usage), a third category was added by Darby and Karni (1973), namely 'credence' goods, whose quality cannot be determined reliably even after usage. The classic credence good is wine, and online wine sales have been researched by Lynch and Ariely (2000) who found that first, lowering the cost of search for quality information reduced price sensitivity, and second, price sensitivity for goods common to two electronic stores increased when cross-store comparison was made easy. However easy cross-store comparison had no effect on price sensitivity for unique goods. Third, making information environments more transparent by lowering all three search costs (for price information, for quality information within a given store, and for comparisons across the two stores) produced welfare gains for consumers. The implications are that retailers should aim to make information environments maximally transparent but try to avoid price competition by carrying more unique/differentiated merchandise.

Shankar et al (1999), basing their research on data from the hospitality industry, also found that the Internet could dampen price sensitivity in some contexts, as hypothesized by Lal and Sarvary (1999). Specifically, the Internet increased consumers' price search but it had no main effect on the importance they attached to price, and additionally reduced price sensitivity by providing in-depth information (both price and non-price). The Internet also increased the range of products and prices offered and product/price bundling by an intermediary, thereby reducing price importance, and reduced the amount of price searching, thereby increasing the effects of brand loyalty very much as Lal and Sarvary hypothesized.

The optimal bundling strategies for a multi-product monopolist information supplier (i.e. with zero marginal cost), were modeled by Bakos and Brynjolfsson (1999). They suggested that bundling large numbers of unrelated information goods might be surprisingly profitable because the law of large numbers makes it easier to predict consumers' valuations for a bundle of goods than for the individual goods sold separately. They modeled the bundling of complements and substitutes, bundling in the presence of budget constraints, and the scope for offering a menu of different bundles if the market is highly segmented. They state that the predictions from their analysis appear to be consistent with empirical observations of the markets for online content, cable TV programming, and music.

In Bakos and Brynjolfsson (2000a; 2000b) the authors extended the bundling model in their 1999 paper to a range of different settings. They argued that bundling can create ‘economies of aggregation’ for information goods, even in the absence of network externalities or economies of scale or scope. They drew four implications: (1) when competing for upstream content, larger bundlers are able to outbid smaller ones, (2) when competing for downstream consumers, bundling can discourage entry even when the prospective entrant has a superior cost structure or quality, (3) conversely, bundling by the new entrant can allow profitable entry, (4) because a bundler can potentially capture a large share of profits in a new market, bundlers may have higher incentives to innovate than single-product firms.

Smith et al (1999) reviewed the evidence that Internet markets are more efficient in terms of price levels, menu costs, and price elasticity. They found that, despite the presence of conditions to foster efficiency, substantial and persistent dispersion in prices on the Internet existed, perhaps explained by heterogeneity in retailer-specific factors such as trust and awareness.

5.3 Dynamic Pricing and Online Auctions

Online auctions, particularly in the C2C arena, were one of the novel marketing phenomena of the late 1990s. Lucking-Reiley (1999) presented a ‘An Economist’s Guide’ to online auctions based on a survey of 142 auction sites in Autumn 1998. This paper addressed the various business models used, what goods they offered for sale, and what kinds of auction mechanism they employed. Lucking-Reiley argued that established auction theory from economics could be used to improve Internet auctions. He also presented detailed data on the 1999 competition between the incumbent eBay and the two well-funded entrants into the online auction arena – Yahoo! and Amazon.

A preliminary literature review and frameworks for analyzing auctions are also given by Klein and O’Keefe (1999) and Chui and Zwick (1999). Klein and O’Keefe described an example (Teletrade.com) of a telephone-based auction which now also uses the Web; explored possible theoretical implications; and developed seven hypotheses for future empirical research. Chiu and Zwick explored the scope and scale of online auctions and the range of business models including B2C, B2B, and C2C auctions. DeKoning et al (1999) explored consumer motivations in using C2C online auctions, focusing especially on the behavioral differences between global and local/regional online auctions.

6. Online Marketing Strategy

6.1 Business Models

How have firms used the Web to achieve strategic and marketing benefits? This is clearly one of the key questions to be explored by marketing researchers. However, to-date, research on online business models is limited. Perhaps this is because a proper examination of this question touches upon both consumer behavior and marketing strategy – separate areas where the first findings of academic research focusing on the Internet are just starting to emerge.

Nevertheless, some researchers have started their explorations. Ward Hanson's 'Principles of Internet Marketing' (2000) is the first advanced textbook on this topic. Hanson introduced a useful distinction between business models based on improvements in the product or service and those based directly on revenues. The first includes models focused on enhancement (e.g. brand building), efficiency (e.g. cost reduction), and/or effectiveness (e.g. information collection). The second can be divided into models in which the provider pays (e.g. sponsorship or alliances) and those in which the user pays (e.g. product sales or subscriptions).

The concept of a 'business model' is not free of ambiguity. Building on the entrepreneurship and strategic management literatures, Amit and Zott (2000) examined the value creation potential of a sample of American and European e-commerce companies. On the basis of their findings, Amit and Zott developed a value driver model that enables an evaluation of the value-creation potential of e-commerce business models along four dimensions: novelty, lock-in, complementarities, and efficiency.

Picard (2000) focused on business models for online content services. He explored how such business models emerged, how new developments are affecting those models, and the implications of the changes for producers of multimedia and other content producers. Picard divides the history of online content service providers into periods coinciding with four 'abandoned' business models (videotext, paid Internet, free Web, and advertising push), one model in current use (portals and personal portals), and an emerging model evolving from the existing model (digital portals). The latter allow the combination of aspects of current content portals plus digitization of video and audio. In Picard's view, a business model involves the conception of how the business operates, its underlying foundations, and the exchange activities and financial flows upon which its success hinges. A key concept is that of the value

chain – the value that is added to a product or service by each step of acquisition, transformation, management, marketing and sales, and distribution.

Ethiraj et al (2000) also focused on firms' value chains. They examined the changes in entrepreneurial opportunity space arising from the Internet and other electronic technologies, and their implications for competitive advantage. They identified four key components of the business model – scalability, complementary resources and capabilities, relation-specific assets, and knowledge sharing routines – and explicated how and why these may be important drivers of competitive advantage in Internet-based business models. Dayal et al (2000) argued that there are six basic business models: retail, media, advisory, made-to-order manufacturing, do-it-yourself, and information services. They posited that the success of an Internet brand rests on the skill with which its business model combines two or more of these.

Two other studies of business models are Kotha (1998) and Dutta et al (1998). By conducting a case study on Amazon.com, Kotha (1998) highlighted how this often cited firm is exploiting the Internet to compete in the book retailing industry using a revolutionary business model. Dutta et al (1998) investigated how strategic marketing, defined by the four Ps, and customer relationships are being transformed in the world of electronic commerce across different sectors and geographic regions.

Finally, revenue models are generally regarded as an integral part of business models. Much of the research in this area has focused on one specific revenue model for Internet firms – advertising. As discussed in Section 2.2, Hofacker and Murphy (2000) empirically investigated the dilemma as to how many clickable banner ads to have. Werbach (2000) investigated a potential source of revenue for Internet firms that has received little attention: syndication. Syndication involves the sale of the same information good to many customers, who then integrate it with other offerings and redistribute it. It has its origins in the news and entertainment worlds but, Werbach argues, syndication is expanding to define the structure of e-business. As companies enter syndication networks, they will need to rethink their products, relationships, and core capabilities.

6.2 Strategy: Firms in a rapidly changing world

Many studies have investigated the growth potential of the Internet, analyzed the challenges faced by businesses, consumers, and regulators, and assessed implications for marketing strategies. Baer (1998), one of the few studies to provide a long-term perspective on the Internet, is a noteworthy example. In an article entitled 'Will the Internet Bring Electronic

Services to the Home?' Baer described a century of failed visions and applications, drew some general lessons from past experience, documented why interactive services may now at last take off, and indicated the next likely areas for growth. Also in 1998, the *Journal of Business Research* devoted a special issue to business in the new electronic environment (see Dholakia (1998) for the introduction to this issue).

Devinney et al. (2000) focused on the forces that determine the appropriateness of e-business to a firm. They sketched out the characteristics of organizations likely to survive in the new network economy. Three related questions guided their analysis: (1) where is the revolution (or evolution) concentrated? (2) why is the revolution (or evolution) occurring as it is? (3) is it a revolution or natural evolution? Anderson (2000) considered the possibilities offered by the Web and web-based tools. According to Anderson, e-business enables companies to transform not only their marketing operation, but also the entire way they do business, from procurement to communications to supply chain, massively improving their speed, global reach, efficiency, and cost structure. Cross (2000) also takes into account the downside of these developments, which are forcing managers to rethink and reshape their business strategies, their use of technology, and their relations with suppliers and customers. In Cross's view, the convergence of new technologies, hypercompetitive markets, and 'heat-seeking' financial and human capital that quickly flow to new and untested business models now threatens a number of traditional business models and processes.

Evans and Wurster (1999) argue that electronic commerce is no longer about 'grabbing land'. Instead, the battle for competitive advantage in this arena will now be waged along three dimensions: reach, affiliation, and richness. Reach is about access and connection – how many customers a business can connect with and how many products it can offer to those customers. Richness is the depth and detail of information that the business can give the customer, as well as the depth and detail of information it collects about the customer. Affiliation reflects whose interests the business represents. This logic poses a serious dilemma for incumbent product suppliers and retailers – they have to recognize that their value chain is being deconstructed.

Zettelmeyer (2000) offered another perspective on the implications of the rise of the Internet for firms. He showed how firms' pricing and communication strategies may be affected by the size of the Internet. Firms have incentives to facilitate consumer search on the Internet, but only as long as the Internet's reach is limited. As the Internet is used by more consumers, firms' pricing and communications strategies on the Internet will mirror the strategies they pursue in a conventional channel. According to Zettelmeyer, firms can increase their market

power by strategically using information on multiple channels to achieve finer consumer segmentation.

6.3 How firms should prepare for the new economy

Not surprisingly, most of the work in the strategy area has centered on the question how firms should adapt to their rapidly changing environment and 'get in shape' for the new economy. As discussed in Sections 1.1 and 3.1, Voss (2000) described how firms can develop a systematic strategy for delivering service on the Web and Weiber and Kollmann (1998) evaluated the significance of virtual value chains in opening up possibilities in the so-called 'marketplace' and 'marketspace' (the virtual marketplace).

Most authors see becoming an e-business as an evolutionary journey for firms. For example, Earl (2000) identified six stages for this journey, each of them determining the course of the next: (1) external communications, (2) internal communications, (3) e-commerce, (4) e-business, (5) e-enterprise, and (6) transformation. These correspond to six lessons representing an agenda for evolving e-business: (1) perpetual content management, (2) architectural integrity, (3) electronic channel strategy, (4) similarly high-performance processes, (5) information literacy, and (6) continuous learning and change. Similarly, Albrinck et al (2000) argued that virtually all companies pursue e-business opportunities in a strikingly consistent way, passing through four consecutive stages of development: (1) grassroots, (2) focal point, (3) structure and deployment, and (4) endgame. Venkatraman (2000) described five steps to a 'dot-com strategy'. In his view, vision, governance, resources, infrastructure, and alignment are the stepping stones to a successful web strategy.

Dayal et al (2000) specifically considered how firms can build digital brands. In their view, the "3 Ps" of a brand in the physical world – the sum, in the consumer's mind, of the personality, presence, and performance of a given product or service – are also essential on the Web. In addition, digital brand builders must manage the consumer's online experience of the product, from first encounter through purchase to delivery and beyond. As discussed in Section 6.1, their paper also analyzes the range of business models underlying digital brands.

Should a company spin off its Internet business? Chavez et al (2000) addressed this question by setting out a multi-dimensional framework to help managers decide how to structure their Internet businesses: whether to keep them integrated into the parent company, establish them as wholly-owned subsidiaries, or to spin them off (wholly or partially). They argued that firms must weigh the trade-offs between what they called the "three Cs": control, currency

and culture. Above all, the decision must be made in the context of a company's total 'digital agenda': that is, as part of its overall strategy for creating and sustaining value in the new economy.

6.4 Implications for markets and industries – who wins and who loses?

What are the implications of these developments for markets and industries? Which players will win and lose? Four studies offer some preliminary insights into these questions. Adamic and Huberman (1999) studied the distribution of website visitors by examining usage logs covering 120,000 sites. They found that - both for all sites and for sites in specific categories - the distribution of visitors per site follows a universal power law – characteristic of winner-take-all markets.

Shaffer and Zettelmeyer (1999) and Wigand and Benjamin (1995) both sketched a pessimistic scenario for intermediaries. According to Shaffer and Zettelmeyer (1999), manufacturers traditionally have had to rely on retailers to provide product and category information that is either too technical or too idiosyncratic to be communicated effectively via mass communication channels. The emergence of the Internet as a medium for marketing communications now makes it possible for manufacturers (and third parties) also to provide such information. Shaffer & Zettelmeyer show that this may lead to channel conflict. Specifically, manufacturers gain and retailers lose from information that makes a retailer's product offerings less substitutable. In an earlier paper, Wigand and Benjamin (1995), who drew upon research rooted in transaction cost theory, suggested that intermediaries between the manufacturer and the consumer may be threatened as more and more electronic commerce manifests itself and as information infrastructures reach out to the consumer. Profit margins, they posit, may be substantially reduced. The consumer is likely to gain access to a broad selection of lower-priced goods, but there will be many opportunities to restrict consumers' access to the potentially vast amount of commerce. An essential component of the evolution of the future world of electronic commerce, the authors suggest, is the 'market choice box' – the consumer's interface between the many electronic devices in the home and the information superhighway.

Building on research on securities markets, Grover et al (1999) examined the effects of information transparency on electronic market structures. They concluded that suppliers, for strategic reasons, may impede or selectively channel the flow of information in 'free' market

space. Depending on the markets and consumers involved, this could lead either to fragmentation or to integration.

6.5 International Perspectives

A few studies have explored marketing and the Internet in an international context. Quelch and Klein (1996) discussed opportunities and challenges that the Internet offers to large and small companies worldwide. They examined the impact on global markets and new product development, the advantages of an intranet for large corporations, and the need for foreign government support and cooperation. More recently, Saeed (1998) studied two types of impediment to the Internet's adoption and growth in international marketing: structural (nations' differing information technology infrastructures, languages, cultures, and legal frameworks) and functional (marketing program and process issues, including data management and customer discontent). His analysis suggested that the Internet will play a much greater role in business-to-business marketing across national boundaries than in international consumer marketing.

Cornet et al (2000) focused on developments in Europe versus those in the US. They discussed how Europe is 'playing catch-up' with the US in electronic business. The European game, they argue, may well have a different outcome, as conditions specific to Europe give incumbents a better chance to win. Within Europe, Rosen and Barwise (2000) compared business use of the Web by corporates and Web start-ups in different countries. They confirmed the advanced development in the Nordic countries but also found that French companies were in many respects as advanced as those in the UK, Germany, and Holland, despite the relatively low penetration of the Web among consumers in France. Rosen and Barwise attribute this pattern to the earlier development of France Telecom's (non-standard) Minitel system, which retarded consumer adoption of the Web but accelerated French businesses' development of online systems and processes.

7. Future Prospects and Research Opportunities

The discussion in the previous sections has covered a wide range of topics, but several key areas have emerged where research on the Internet and other online media can add knowledge to the Marketing discipline. These can broadly be described under three headings: first, the application of existing approaches to measure the impact of online media on marketing strategy and consumer behavior; second, the development of new theory; third, the emergence of new (or the effects on existing) market research methodologies.

7.1 The impact of the Internet on marketing strategy and consumer behavior

Under this broad heading we may expect to see the following types of questions addressed:

- Does consumer behavior change when the Internet is used as a channel for commerce?
- Are consumers more or less brand loyal when they buy online? What factors determine customer loyalty in an online environment?
- How does the role of brands differ in online versus offline environments?
- What are the short- and long-term effects of promotions in an online shopping environment?
- Is online advertising more or less effective than offline advertising? In what respects?
- How should we measure marketing performance online?
- What CRM strategies are effective online?
- How should online and offline channels be combined? Do online channels 'cannibalize' offline channels?
- To what extent does the Internet affect international marketing and diffusion processes?
- How does the Internet fit into everyday life? How has it changed everyday life?
- How will Internet marketing evolve into marketing using a range of converging digital media (broadband, mobile, interactive television)?

We would expect to see explicit use of existing theory to address these questions – theory not only from marketing but also from economics, psychology and anthropology.

7.2 The development of new theory

In addition to the use of existing theory, the rise of the Internet stimulates the development of new theory in a number of areas, particularly:

- Consumer-to-consumer interaction
- Agent-consumer interaction
- Agent-to-agent (or machine-to-machine) interaction

7.3 Emerging marketing research methodologies

As Rangaswamy and Gupta (1999) indicate, the Internet will influence not only what research issues we pursue, but also how we will explore those issues, and even how we disseminate research results, insights, and techniques to a broad audience. As far as emerging market research methodologies are concerned, online real-time experiments promise to be an exciting area. The Internet generates huge quantities of unobtrusive data, which can be used to set up consumer behavior experiments that are more realistic than experiments in the offline world.

Possible applications include:

- Assessment of customer acquisition costs
- Measurement of responsiveness to advertising and promotions
- Investigation of price sensitivity
- Exploration of consumer-agent interaction

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