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Electronic Markets has Weakened the "Trade-off between Reach and Richness" in the Internet

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Abstract**—**This paper has two main ideas. Firstly, it describes Evans and Wurster's concepts "the trade-off between reach and richness", and relates them to the impact of technology on the virtual markets.

Authors Evans and Wurster see the transfer of information as a 'trade-off between richness and reach'. Reach refers to the number of people who share particular information, with Richness ['Rich'] being a more complex concept combining: bandwidth, customization, interactivity, reliability, security and currency.

Traditional shopping limits the number of shops the shopper is able to visit due to time and other cost constraints; the time spent traveling consequently leaves the shopper with less time to evaluate the product.

The paper concludes that although the Web provides Reach, offering Richness and the sense of community required for creating and sustaining relationships with potential clients could be difficult.

Keywords**—**Internet, Web sites, Richness and Reach, E-commerce, virtual markets.

I. Introduction

SHOPPERS traditionally and mainly go to retail stores to do their shopping. This requires the spending of time for travel and time in a store. The value of such travel and time costs varies by the opportunity cost of time for the individual [1].

Going to the shop involves the concept of 'reach'. Because there are practical limits to the number of shops that a consumer could visit in order to look at the alternative products available for selection, there are limitations to 'reach' and 'Richness'.

Reach is easy to understand. It simply means the number of people [at home or at work] exchanging information. The definition of richness of information is a bit more complex. It concerns six aspects of information:

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- Bandwidth or the amount of information that can be moved from sender to receiver in a given time: stock quotes are narrowband; a feature film is broadband.
- The degree to which the information can be customized: an advertisement on television is far less customized than a personal sales pitch but reaches many more people.
- Interactivity: dialogue is possible for a small group, but to reach millions the message must be a monologue.
- Reliability: information is reliable when exchanged among a small group of trusted individuals but is not when it is circulating among a large group of strangers.
- Security: managers share highly sensitive business information only in closed-door meetings, but they will disseminate less sensitive information to a wider audience.
- Currency: on Wall Street, where seconds count, a few market makers have instantaneous quotes, a larger group of financial institutions receives quotes with a three- to fifteen-minute delay, and most retail investors receive quotes with at least a 15-minute delay[2] .

E-commerce fundamentally affects the way business is conducted across many industries [3], to support this insight, we discuss the unique characteristics of 'virtual' markets brought on by the Internet, observing that they differ from those of 'traditional' markets.

II. The Limitations of Traditional Shopping

Buyers engage in external search for problem solving purposes. External search can maximize satisfaction to consumers by providing the benefits of lower prices, preferred styles, higher quality, reduced risk and greater confidence [4]. However, this external search is limited by the trade-off between 'richness' and 'reach' present in traditional shopping. The trade-off between information richness and reach of alternative shops forces shoppers to search in a hierarchical manner, which limits their search capabilities.

In terms of theoretical expectations, shoppers would begin their search by looking at high reach sources such as the Yellow Pages or Classified Ads, which offer contacts to many shops but little or no information about its products. The shopper then selects a few shops to visit to gain detailed information about the product before making the purchase.

[2] state that shoppers have to navigate their way from high reach/low richness information sources [such as a phone book] to high richness/low reach sources [such as the sales assistant; a sales assistant would offer a single customer richly detailed, interactive, and personalized information about his own limited range of wares].

The compromise between the "economics of information" and the "economics of things" described by [2] makes it difficult for stores to display a large variety of products while giving customers the information they want to know about them. For instance, a bookstore may be unable to carry extremely large volumes of books due to the cost of inventory [economics of things]. However, a smaller inventory would mean that shoppers have a lesser variety of books to choose from; the number of books in the store also serves as a list for informing customers about the number of books the store carries [economics of information].

As shown in Fig. 1, searching in a hierarchical manner involves crawling along the richness/reach trade-off [2]. As shoppers obtain higher informational richness, they lower their reach of alternative shops. This trade-off prevents shoppers from obtaining a high reach of alternative sources and rich product information, hence limiting their search capabilities.

Searching in a hierarchical manner takes time and effort, and risks a sub-optimal purchase.

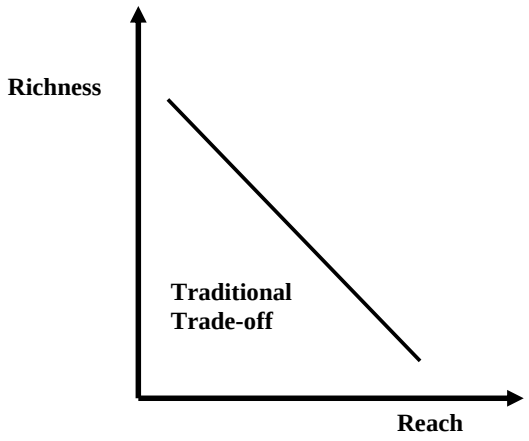

Fig. 1 The hierarchical search: crawling along the trade-off, adapted from [2]

III. Implications on the Benefits of Online Shopping

The benefits of online shopping stem from a weakening or elimination of the richness-reach trade-off. The Internet allows non-store shoppers to obtain both richness and reach without the tyranny of the trade-off. The weakening or elimination of the 'richness/reach' trade-off enables shoppers to browse through a large number of stores (a high level of 'reach') to gain a high level of product information (a high level of 'richness'). The hierarchical search process that is inherent in traditional shopping is no longer necessary with online shopping, saving the shopper time and effort, as shown in Fig. 2. The constraint of "bounded rationality" in shoppers is consequently relaxed, as shoppers acquire an increased capability of more optimal problem solving in regard to their purchases.

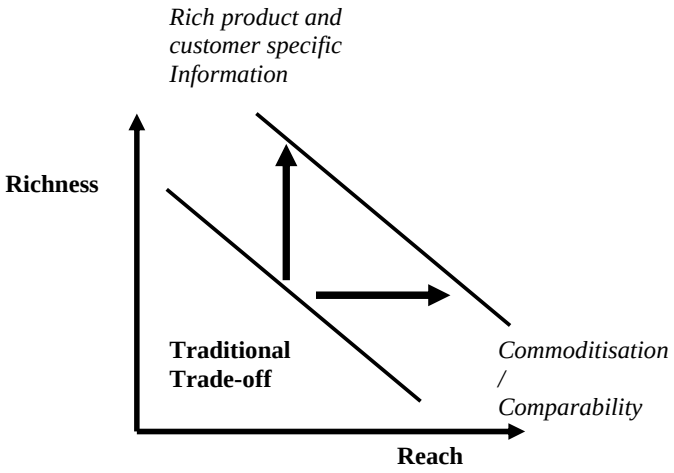

Fig. 2 Increasing both reach and richness for shoppers Adapted from [2]

IV. Internet-based Benefits

The wider the reach to customers that the corporation tries to obtain, the lower the information richness it is able to transmit, and vice-versa. As a result, according to Evans and Wurster's [2] formulation, the Internet permits a separation between the "economics of information" and the "economics of things". Amazon.com offers three million books 'located' on some 25 million computer screens ("economics of information") as compared to the average bookstore, which carries an average of 80,000 titles ("economics of things"). A similar separation is reported by [2] in relation to Dell Computers. Dell's Internet site offers over 10 million configurations of the PC by letting the consumer permute hardware configurations, as compared to 20 configurations offered in the average computer superstore.

With the aforementioned separation, online retailers are able to offer a greater selection of products online as compared to in physical stores, while allowing better product navigation for shoppers. According to [5], the Internet store can provide a larger inventory of products and sizes, and can virtually guarantee the availability of any type and size of merchandise. New advances in Internet technology such as electronic shopping navigators or 'shopping bots' assist shoppers in their product search by enabling the separation of the economics of information and the economics of things. These 'shopping bots' take a query, visit shops that may have the product sought, bring back the results and present them in a consolidated compact format that allows comparison shopping [6].

The weakening of the richness-reach trade-off also manifests itself in the ability of shoppers to browse and purchase goods on the Internet anytime, unlike traditional brick-and-mortar storefronts that have fixed opening hours. The Internet operates 24 hours a week, seven days a week, and can be accessed anywhere in the connected world.

Shoppers can also purchase goods that are unavailable at their location, as the Internet allows shoppers to make purchases from vendors in other locations around the world.

V. Shopper-based Benefits

Shopping using the Internet by overcoming the trade-off between 'richness' and 'reach' saves shoppers time and pecuniary costs of traditional shopping; shoppers can shop from the comfort and convenience of home, and need not travel to physical storefronts.

As compared to traditional shopping, online shopping provides a greater reach of information that benefits shoppers in terms of reduced search costs. This could be a major saving for time-poor consumers, depending on their opportunity cost of time. Shoppers are able to locate many vendors online using search engines and websites designed to navigate shoppers, view detailed product information from a variety of vendor's websites, compare price and quality among different vendors, and make purchases online. Shoppers are able to find the lowest prices due to the wider reach of information facilitated by the Internet and by using navigator websites. With online shopping, shoppers no longer have to suffer the costs and incomplete information of traditional hierarchical search, making product searches easier and more effective.

Like shoppers, corporations are burdened with the trade-off between richness and reach in conventional channels and markets. The wider the reach to customers that the corporation corporations are forced to use intermediaries to enhance its customer reach and information richness.

VI. Business-based Benefits

According to [2], with the Internet, corporations are able to practice disintermediation by obtaining both richness and reach without the limitations of the trade-off. Opportunities are created to rationalize the logistical value chain. This means that corporations can save different types of costs. Such costs savings would be transmitted to shoppers depending on the competitive pressures in the marketing channel and the relative bargaining powers between buyers and sellers. Corporations can eliminate supply intermediaries as they use the Internet to transmit information to a wide reach of consumers using online stores. This way, corporations save on the costs of supporting intermediaries such as agency fees and commissions. This could lower prices for shoppers, implying that a win-win situation is created between the corporation and customer as the savings on intermediary costs are divided between them, with the division of the gain depending on the competitive.

VII. Characteristics of Virtual Markets

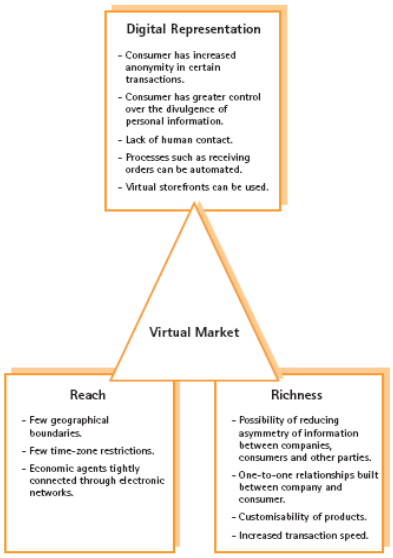

Fig. 3 Characteristics of virtual markets Adapted from [3]

Fig. 3 refers to two distinguishing characteristics advanced by [2]: Reach and Richness. [3] added Digital Representation, as they believed this aspect of a virtual market has not been properly addressed in the literature. Their definitions of these characteristics are as follows.

-Reach is defined as having the ability to connect with a large number of players or products; that is, to connect numerous suppliers, consumers, vendors, and indirectly, competitors and providers of complementary services.

The Internet goes beyond physical boundaries, and although it can be argued that geographic boundaries continue to have their importance because some transactions involve the physical delivery of goods (often across borders), boundaries are at least greatly reduced as are striking factor in a virtual market. Unlike in a traditional market where 'bricks and mortar' are usually required, any vendor that can connect to the network can sell a product to connected consumers anywhere in the world. This feature has resulted in the entry of a vast number of new players. Firms thus have a larger choice of suppliers, a larger base of potential buyers, and a larger pool of possible competitors. Consumers have fewer temporal and spatial restrictions and more choice, allowing them to conduct transactions at the time of their choosing. E-commerce has shifted the balance of power more in their favors relative to the power distribution in traditional markets.

-Richness occurs in a virtual market since information flows in both directions are greater, deeper, and faster than they are in a traditional market. In a virtual market, technology empowers all parties with knowledge, and there is high potential to reduce any asymmetry of information between buyers and sellers. Buyers have more product and service information available to them, giving them more choice and making them more informed about what and from whom they are buying. This is the source of the shift in power toward the

consumer. However, this increase in information flow is also advantageous to sellers. They have more information about consumers' buying behavior and characteristics. This offers sellers the opportunity to improve target marketing and to receive higher quality feedback about product offerings. Many companies have further enriched their product offerings and increased the revenues from transactions by identifying and offering complementary products, allowing buyers to save time that they would otherwise have spent looking elsewhere.
- Nonetheless, even with more information, agents must act through an impersonal, electronic Network, which has its drawbacks. Digital Representation denotes this absence of physical contact in a virtual market - the inability to touch and feel the product, to visit a physical storefront, and to have human interaction. This feature of virtual markets can be a barrier to purchasing, as consumers.

The economics of information and the economics of physical things differ fundamentally from each other. When a tangible good is sold, the seller does not own it anymore. When an idea, software or a research paper is sold, the seller still possesses it and could possibly sell it once more.

Information can be replicated without any noteworthy cost and can be distributed over the Internet at a very low cost. Other than information, tangible goods are location-based and many times wear out.

In the traditional economics of things products are subject to a universal law – the trade-off between richness and reach. Because information is imbedded in products in a physical mode of delivery, companies can choose to have a very "rich" product or to have a lot of "reach", i.e. have a wide audience either in terms of geographical reach or breadth of customer target groups. The meaning of "richness" can vary depending on the context; for example a scientific research publication or a highly sophisticated stereo are rich in information. The scientific research paper has a very small audience in a given location while the sophisticated stereo will be very specific and expensive. Hence their "reach" is low.

Along comes the Internet. The more the bundle of tangible product and information becomes dissolvable, the more obsolete becomes the trade-off between richness and reach. A good corporate Internet strategy will hence add both richness and reach to the existing business strategy at the same time.

For digital or fully digitizable products the trade-off between richness and reach does not exist. We can add as much richness as we want and still have global reach. A very "rich" business can be described as a very specific one. In fact, for new web site business on the Internet it is necessary to be very "rich", i.e. to be very "niche".

The more specific the theme or topic of a web site, the more targeted will be the visitors that come to the web site from the search engines. On the one hand it will be easier to be on top of the search engines with very "rich" niche content, on the other hand – whatever the revenue model of the web site may be – the conversion rate will be higher as traffic will be targeted. Because "reach" is given on the Internet and only subject to the limitation of language, we have to truly excel in "richness" in our online businesses.

VIII. The Case of Amazon.co.uk

It is hard to say whether this online site reaches audiences which could not have been reached before as it sells a broad range of products, from books, cds and DVDs, to electrical goods and kitchenware, all of which are readily available in high street stores. The audience which could not have been reached before might be the housebound pensioner looking to buy a gift to be sent via post to a relative, or the out-of-town customer wanting to buy a range of products in one go without traveling to the nearest town or city.

Amazon offers added richness to the service offered in traditional shops in several ways. As well as merely listing products the site also carries both professionally written and peer-written reviews, allowing the potential customer to make an informed decision about their purchase. The site also allows the customer to create an account and to express their likes and dislikes in order to receive a tailored list of recommendations and regular emails about their subjects of choice. Further richness could be added through allowing the customer to read snippets of the books which are for sale, although this method has already been adopted in the case of music CDs whereby short bursts of the songs can be listened to prior to adding the product to the virtual shopping basket.

IX. Conclusion

The Internet weakens or eliminates the trade-off between 'richness' and 'reach', creating benefits for both shoppers and corporations. With Internet shopping, shoppers are able to obtain a higher reach of alternative products and richer product information enabling an improved purchase decision. Shoppers no longer have to search in a hierarchical manner and be constrained by bounded rationality inherent in traditional shopping. Corporations are also able to reap similar benefits like the ability to obtain a wider reach of customers and provide greater information richness. This enables savings on intermediary costs and a reduced need for brick-and-mortar facilities, creating competitive pressures in the retail industry. This implies a competitive advantage for corporations that use the Internet as a medium to reach its customers (www.felinebird.co.uk/mod3x2.shtml)

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