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The Competitive Process in the Age of the Internet

PETER E. EARL & TOM MANDEVILLE

Abstract *This paper examines some of the impacts of the widespread adoption and use of the Internet in advanced countries on business, consumers and the media. It is argued that while capital costs of entry into Internet-based businesses may be very low, this does not guarantee that markets in which such firms operate will necessarily be hotly contested, for success may require substantial sunk costs to be incurred in development. It explores the changing nature of market institutions associated with the rise of e-commerce (including the advent of what are labelled 'portal' firms) and associated changes in the division of labour between buyers, sellers and intermediaries. The authors provide behavioural, evolutionary, and information theoretic perspectives on these dynamic issues.*

Keywords: innovation; Internet-based businesses; disintermediation; ICT; self-services; media

Introduction

If one has been brought up with the mainstream view of economics that focuses on the ideal of perfect competition, it is tempting to see the rise of the Internet as helping to make perfect competition—or, at least, perfect contestability—a better approximation than it used to be for how business really works. The conjunction of Internet-based communication and search engines, electronic means of payment and the WTO-promoted freeing up of trade barriers enables consumers to choose from a far bigger variety of suppliers and to work out more readily which ones are offering the best deals. Thomas Friedman[1] argues that this coming together of forces greatly increases the strength of competition: a start-up firm anywhere on the planet can potentially compete for business on a global scale so long as its product is downloadable or easily transported (aided by falling transport costs associated with the advent of jumbo jets and the application of information technology to courier logistics by firms such as FedEx and DHL).

While it is difficult to challenge Friedman's claims about the existence of these converging forces, he can be criticized for failing to examine some of the unusual

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characteristics of Internet-based businesses that may have major implications for what is actually happening to the way that competition works. This paper seeks to fill that gap by contrasting the economics of e-commerce businesses with those of their traditional counterparts. To do this necessarily involves a consideration of how market institutions are changing as e-commerce becomes more widespread.

The paper is structured as follows. The next section contrasts the cost structures of Internet-based businesses and their traditional counterparts and examines the effects this has on the long-run contestability of markets. Then we explore the significance of the rise of what we call 'portal firms' (such as Amazon.com) and other third-party websites that serve as market institutions. The next two sections consider, respectively, changes in the division of labour that are arising due to consumers using the Internet, and tendencies towards various forms of disintermediation. Following that, we focus on the economic forces that are changing how competition works in the markets for consumer magazines and for news services. Challenges for media companies are explored, and some likely implications are suggested. Finally, we sum up in a concluding discussion.

The Implications of the Distinctive Cost Structures of Internet Businesses

The impact of Internet-based businesses on the competitive process and consumer welfare is fundamentally affected by how their cost structures differ from those of the traditional businesses against which they compete. Internet-based businesses in their purest form are unusual in that they involve upfront sunk costs in programming and promotion, followed by variable costs that are to all intents and purposes zero.

A business based around an Internet dating service epitomizes this extreme case. There will need to be substantial investments in designing the website's search engine and programming systems that play Cupid by generating automatic suggestions of potential matches and that enable would-be daters to create their profiles, load pictures and video clips, and to pay for and exercise rights to communicate (initially anonymously) with other members. These investments may be considerable, requiring an appreciation of the implications of search engines needing to be designed to suit customers who in some cases may have intolerant, checklist-based search criteria but who in other cases are prepared to make tradeoffs as in traditional economic models of choice in characteristics space, or whose choice of decision rule may vary depending on how many search results are displayed at a time.[2] There will also be costs of integrating all this with geographical information systems if clients are to be allowed to search for potential dates within particular distances of where they live. But once all this has been done, the service can run entirely automatically with each additional member making the site more attractive via the network externalities of a larger search pool and yet only imposing additional costs insofar as there are charges for Internet traffic and server space.

The economics here are, of course, redolent of Microsoft's Windows: the marginal cost of putting Windows on to a DVD is trivial, but many hours of programming work underpin each iteration of Windows. As with Windows, Internet businesses have obvious potential to be natural monopolies due to an ever-falling average total cost curve. This is worth reflecting on from the standpoint of Downie's[3] pioneering contribution to evolutionary competitive analysis. Unlike mainstream monopoly theory, Downie focuses upon the interplay between what he calls the 'transfer process' (whereby firms with bigger market share and lower costs

progressively wipe out smaller players and get even bigger market shares and even lower average costs, until only one supplier remains) and the 'innovation process' (whereby, under threat of being knocked out of the market, firms develop cost-saving technologies or better products). In the context of Internet businesses, the power of the transfer process seems likely to be particularly great: not only is it impossible to reduce zero marginal costs via production innovations, but network externalities will make big players cumulatively attractive to customers. For Internet businesses with smaller market shares, the only hope of survival is via product innovation and differentiation. This involves sinking yet more resources into fixed costs and although the result cannot reduce their own marginal costs if these are already zero, they may be able to reduce the transactions costs that their customers incur compared with those that would be experienced if shopping at rivals' sites.

Differentiation of websites to achieve such a result can involve offering:

- a website that is easier to navigate, offering a search engine whose mode of operation more closely mirrors the search rules its customers would like to use (for example, by how it is set up as a checklist);
- a wider range of products to permit one-stop shopping (as Amazon.com has done); and
- an image that positions the website to appeal to a particular niche of clients.

The final point can easily be appreciated in the case of online dating services. Because of the limitations of search engines and what members can put in a profile (partly due to tacit knowledge problems—cf. Polanyi),[4] along with difficulties in ensuring the accuracy of what is actually codified in a profile, a dating site with more members may lead to more time being wasted by members on making/dealing with ultimately fruitless expressions of interest than would be the case with a smaller but more focused membership. Some sites opt to try to survive by trying to be classy and aimed at professionals seeking long-term relationships, others do it in a more sleazy manner for those interested in temporary or dangerous liaisons, and some are much better than others at ensuring their customers are not besieged with unwanted international expressions of interest from would-be 'mail-order brides'. Such attempts at positioning would be unnecessary if search and filtering systems could be more tightly specified and more client characteristics could be codified in a credible manner.

The outlook for customers is problematic if the innovation process fails to halt the monopolization of a market by an Internet business. This is not a situation in which 'potential competition' can be assumed to be strong enough to protect their interests in the manner suggested in Baumol *et al.*'s[5] theory of contestable markets. If the victorious firm starts trying to exploit its monopoly position, the profits that it makes will be unlikely to attract entry from a new operator since all the costs are sunk and the new venture could be bankrupted if the established dominant firm engages in predatory pricing (in the limit, by temporarily giving free access to its services). With no global competition regulation agency, traditional means of punishing firms for predatory pricing could be difficult to use unless the predator and the victim are being hosted from the same country. Some might want to argue that this difficulty is not as great as it appears at first sight, for so long as a subsidiary business could be set up based in the predator's home territory using the existing website and with negligible further sunk costs, then it might be possible to get the relevant authorities to punish the predator. Clearly, though, the arm's length

nature of such a ruse could make it problematic, particularly for a small operator with limited experience in litigation and limited familiarity with laws and processes in the overseas domain.

Once an Internet business has failed, its receivers/administrators can of course attempt to sell the website for whatever it will fetch from someone else who hopes to take on the dominant firm. The value of a website for what we might call a 'phoenix firm' will depend upon what prospective founders of such a firm conjecture to be the likelihood of the dominant firm trying to teach them a painful lesson. Whoever buys the website will invariably need to incur some new sunk costs for marketing and hence will still be vulnerable to predatory pricing from the dominant firm even if they have purchased the website for far less than its development costs. If the new owner is not a substantial business with 'deep pockets' into which it is prepared to dig to win a price war, the crucial thing will be the extent to which the new owner can lock in customers with enough bulk purchase offers or subscriptions to service any set-up debts for the duration of a zero-price war, before the dominant firm starts its war with them.

If the set-up costs of the Internet businesses in question are substantial, it is possible that the currently dominant firm would actually have greater debts to service than its phoenix-like rivals. In such a case, the dominant firm would be unwise to start a predatory pricing battle unless it had locked in enough customers to provide the cash flow to satisfy its creditors for the duration of the war. This kind of thinking points to the dominant firm possibly having an interest in allowing its smaller rivals to stay in business until it has amortized its fixed costs, in order to avoid having to contend with a phoenix firm after the initial rival's shareholders had lost their money. (There are some similarities here with John Kay's[6] analysis of why the English Channel ferry operators should have been hoping that the Eurotunnel company did not go bankrupt.) There is, in short, a complicated game to be thought out here involving conjectures about the rate of lock-in of subscription customers prior to any price war, which will depend on pricing and advertising strategies and possibly also on network effects as the customer base grows. The more customers that could be signed up before a price war, the more it would be worth paying for the website, but the more that is paid for it, the more attractive it may be for the dominant firm to start a price war to stop the drain of its customers to the phoenix firm. (Note however that if the market as a whole is growing, the dominant firm could be losing share without losing absolute numbers of customers to the rival.)

Portal Firms and Other Third-Party Institutions

The 'zero marginal cost' kinds of Internet businesses are essentially firms that serve an intermediary role, such as dating sites, or advertising sites such as carguide.com.au, with the website being the means by which customers and suppliers find each other and get together. A firm such as Amazon.com has a rather different role in its current form. It is not a zero marginal cost business to the extent that it buys in stock from other firms on a speculative basis in order to win customers by rapid delivery, rather than merely buying stock to expedite a specific order from a customer or forwarding the order to the manufacturer after taking commission. If its smaller rivals obtain supplies on similar terms or, because of inferior buying power, on more costly terms, Amazon.com is potentially in a position to operate much like a natural monopoly, zero marginal cost business. But

Amazon.com has adopted a rather different strategy, introducing its 'marketplace' system and opting to earn fees from other intermediaries by becoming a portal through which customers can find and compare rival suppliers of products that Amazon.com also stocks or is prepared to obtain for those who can see no advantage in buying from a third party firm that advertises on its marketplace. What Amazon.com has in effect done is to create virtual 'Marshallian business districts' for the ever-increasing number of products in which it deals.

The marketplace strategy enables Amazon.com to make the most of its website's sunk costs without using a price war to do so. A marketplace member can list the products it has in stock without having to key in all the details such as web-links, reviews and contents. All it needs to do is state its location, price and, if the product is second-hand, the product's condition. The situation here is rather similar to that where used-car dealers have their web activities hosted by specialist used-car websites. The latter key in or download details of vehicle specifications from databases of firms such as Redbook or Glass's Guide and hence the dealers merely have to specify model, year, colour and price and all the features show up automatically. This enables them to stock a wider range of vehicles with smaller marketing costs. Furthermore, just as Australian used-car dealers can, say, use carsales.com.au to host their website for direct access by those who are familiar with their businesses and simultaneously display their products on the carsales.com.au website to be found by those who are unfamiliar with them or are searching more widely, so marketplace members also benefit from Amazon.com's first-mover advantages in brand recognition or from it being bookmarked on web browsers: a bookseller can be completely unknown to customers and yet be visible to them so long as they are prepared to go one click further to compare rival offers by marketplace members rather than simply buying directly from Amazon.com. Amazon.com displaces search engines such as Google or auction sites such as eBay as venues for finding unknown suppliers by making instant comparisons possible with a clear focus on value for money.

Amazon.com is moving from being merely a retailing intermediary in the markets in which it operates to becoming a market coordinating *institution* in the sense in which the term figures in Hodgson's[7] analysis of the nature and role of a market. With its marketplace also displaying satisfaction ratings for member firms it is serving as a quality-signalling market institution as well as bringing buyers and sellers together. Ultimately, there may be more money for Amazon.com to make by concentrating on being a portal than from having its staff obtain, pack and despatch the products that it lists. Except for logistical reasons involving inventory economies with strong selling products and freight hubs in the shipping process, there is little reason for the firm to get involved in the physical side of distribution at all, for products can be shipped direct from source to customer even though the information flows and payments run via Amazon.com.

It should be stressed that portal sites are by no means the only kind of website through which profit-seeking entrepreneurs may assist customers in finding the cheapest deals. Where transactions are not actually handled over the Internet we may nonetheless expect to see third-party websites exploiting economies of scale in gathering information and then reporting where is currently the best place to buy a particular product or basket of goods. These sites do not need to be funded by third-party advertising. For example, a car dealership might advertise that it offers on its website reports on where the cheapest petrol in town can be found. In becoming a place that those in the know visit regularly, it becomes a market

institution for the petrol market as well as increasing its own probability of winning customers for what it actually sells.

It is possible that such third-party price comparison websites may emerge as a means by which consumers can shop more efficiently for weekly groceries. Prior to the Internet, this task inherently presented a major problem: it was difficult to judge which supermarket offered the best value for a one-stop shop, or which items to buy in which supermarkets if one were prepared to trade the financial savings from this against higher transaction costs. The problem was essentially caused by a conjunction of bounded rationality (limited memory capacity confronting upwards of 10,000 different product lines in a typical large supermarket), aggravated by continually shifting relative prices due to seasonal fluctuations and supermarkets' changing strategies over which items they would put 'on special' each week. Things would be very different if supermarkets started posting all of their prices (for online customers) on their websites and enabled shoppers to bookmark their favourite products separately from the thousands of lines stocked and thereby to read off the total cost of the week's trolley load from each store. One would imagine that these websites could be readily integrated with the stores' scanner information systems to reduce their costs of updating price information. Once sites like this existed, a third-party site could be set up to mine their information and then provide instant guidance on how to get the cheapest bundle of products for shoppers who were prepared to shop at several stores and were prepared to incur the set-up costs of bookmarking their typical shopping requirements at the third-party site. Supermarket owners would not relish such a development and would probably try to prevent it by making their information impossible to mine electronically (much as Redbook does by requiring users to recognize and enter an on-screen code every few searches), but if they failed to provide website listings of all their prices to enable consumers to bookmark and check the cost of their favourite items easily, then policymakers might require that they do so. This might be a far cheaper means of helping consumers than having a State-sponsored 'price watch' website that listed prices that had actually been observed in supermarkets by enumerators and which were inherently less likely to be up to date.

Changes in the Division of Labour between Firms and Customers

Internet businesses often involve a different division of labour between firms and customers compared with that of their traditional counterparts. This is very much bound up with differences in cost structures of Internet-based and traditional businesses. The highly programmed nature of an Internet-based business is what pushes its costs into sunk, fixed costs whereas its traditional counterpart's costs will be skewed relatively more towards variable costs. Because the traditional business form is not highly programmed it can also shoulder some of the work that customers may have to do for themselves if doing similar deals via the Internet. The designers of a business website have to anticipate what customers need to know and in order to make the website easy to navigate they must set their site out in a hierarchical manner based upon their conjectures about what will be the frequently asked questions. If the website does not include answers to what one wants to know, either at all or in a manner that can easily be found, then the customer will need to obtain answers by other means. With a traditional business, an experienced sales person may be able to answer on the spot the *rarely asked questions* that it would be too complicated to try to programme with appropriate answers into a website.

In the case of complex consumer durables for which intending buyers may try to do a lot of research via the Internet, it may not be necessary to programme the rarely asked questions and answers so long as two conditions apply. One is that the answers are embedded in the specification listings for the products; the other is that customers can be presumed to take the time to uncover the embedded answers rather than risk spending even more time on a fruitless visit to a physical sales site or waiting for a sales person to call back (and one might prefer to avoid dealing with sales people initially anyway, to avoid high-pressure selling). For example, if an Australian used-car buyer wishes to find the answer to the following rarely asked question, 'Is it possible to buy a four-cylinder Toyota Camry in the 2002–6 shape that has side airbags as standard?', a few minutes on www.redbook.com.au is all that is required at most to discover that the only model to have them was the 2004–6 up-date Ateva variant. By such means the consumer can go on to do a more finely focused online search for the vehicle that suits their requirements rather than doing much of it face-to-face with pushy car dealers. In effect, much more of the transaction becomes self-service.

For consumers who do not have a clear idea of what they want, websites can be a source of potential preferences and options insofar as they generate suggestions and reasons for selecting them.[8] Amazon.com, for example, offers suggestions based on what others have bought, if they have a buying history that to some degree intersects with one's own or have purchased what one is currently examining as a possible purchase at the Amazon.com website. Online dating sites likewise make automated suggestions. However, they largely emphasize scope for members to search for themselves and make their own choices about whom to approach. This makes the process of finding a date work much more like the traditional non-intermediated experience and may in part account for the rising social acceptability of these sites as a means of meeting people and starting relationships: unlike old-fashioned introduction agencies, there is no 'nanny' aspect in which another person makes a recommendation and hence no connotation of not being up to the task oneself.

A general argument about the rise of information and communications technology leading to more self-service seems warranted in the Internet age. It is linked to the growing human capital that consumers need for using the Internet, as it is the ability to search and navigate websites efficiently that is crucial to it being worth trying to find information oneself rather than by phoning or physically visiting someone who might have the answers to our questions. The set-up costs of learning how to navigate to a particular web-page need not be repeated when the page needs to be revisited by boundedly rational consumers if they outsource their memories by investing a few moments in bookmarking the site. This is a consumer-level instance of the shift towards higher sunk costs with spectacular reductions in variable costs explored in earlier sections of the paper. This point builds on a pre-online knowledge-based economy (KBE) era observation by Mandeville[9] that the onset of the information society and concomitant developments in IT, since the 1950s, were leading to more self-service. Rationales relevant then—the changing relative costs between goods and services, declining costs of information, rising levels of human capital, and lower transaction costs—seem to be even more relevant in today's Internet era.

Do-it-yourself via the Internet is, of course, not confined to gathering information for the purpose of shopping. Hugely popular, network-based, user-generated websites such as MySpace, YouTube and Wikipedia rely on the self-service based

'prosumer' principle—the producers of information also being the users. YouTube's user community are called 'produsers' working in a collaborative participatory mode.[10] This consumer-oriented phenomenon reflects the reality that a key feature of the online KBE is the rise of organizational networks and collaboration in business, as well.

Disintermediation

Many cases of Internet-mediated transactions involve some form of *dis*intermediation as part of this change in the division of labour. Consider what happens when a consumer opts to buy recorded music directly from a performer's website rather than by going to a record store and, if it is not in stock, ordering it through the store and waiting for it to come. Here, the search engines overcome what used to be major sales barriers if the consumer did not make use of a record store, namely, finding what a performer of interest has recorded and making contact to purchase it. Where once the intermediary offered smaller transaction costs than would be incurred via direct dealing, now the Internet enables direct dealing in some cases to economize on transaction costs that would be incurred by dealing via an intermediary, with the customer often benefiting via a lower price that nonetheless allows the supplier to receive higher net proceeds than they would have enjoyed if the transaction had been done via an intermediary. It may also be noted that the democratization of information technology is also enabling the musicians in question to do their recordings without having to hire the services of a recording studio, for digital multi-track recording can now be done at home to professional standards using the same personal computers that take the orders, even using freely downloaded recording software such as Audacity.

The benefits that disintermediation brings to buyers do not normally come without buyers incurring costs that they previously would have avoided. Though their final expenditures may be less in monetary terms, they may instead be spending what formerly would have been leisure time searching on the Internet.

Traditional intermediaries such as travel agents and car brokers use their knowledge of the markets in which they operate as a means of shortcutting search processes. To a degree, search engines such as Google are substitutes for a lack of this knowledge: they can enable consumers to find websites on which more specialized searches can be performed. These sites are often virtual intermediaries, providing listing and transacting services for suppliers but without necessarily providing much information to help consumers to decode the information about potential choices. For example, if one is searching for hotel accommodation in an unfamiliar city it may be necessary not only to spend time at the websites of rival hotels but also in figuring out issues about location via a map site and assessing likely quality via a site that enables past consumers to post their impressions of the standard of service that is available. Not surprisingly, then, consumers will be drawn, in their bids to contain transactions costs, to all-in-one portals that permit them both to find and appraise potential suppliers.

These kinds of sites are becoming common in the travel sector, where sites such as www.tripadvisor.com and www.wotif.com have emulated much of what Amazon.com has done, but those searching for used cars presently have no such site: there are dominant sites for finding out the specifications of vehicles when new and locating used examples (e.g. www.carsales.com.au), but not also for appraising the reliability of the dealers in the manner of, say, participants on eBay.

The car buyer may thus be faced with difficulty in whittling down the set of vehicles to inspect 'in the metal'. Matters might change here if would-be vehicle sellers (whether private individuals or dealers) could display ratings and summary status reports from vehicle evaluation service providers and offer potential buyers the chance to download detailed inspection reports (via links to the evaluating organizations' records). A further complication, however, is the question of trade-in values, as the do-it-yourself searcher wants to know which sites are prone to give an impression of cheap prices but then turn out in practice to offer miserly trade-in deals that make a mockery of what might be gleaned from www.redbook.com.au—so there may yet be a role for the expertise of a car broker for those who find the do-it-yourself approach of the Internet too time-consuming, even if it does enable potentially suitable vehicles to be located more readily than in the past.

In the case of hotel accommodation, consumers may spend time themselves searching on the Internet rather than using physical intermediaries but the logic of e-commerce rapidly pushes them back towards booking via intermediaries—via virtual intermediaries rather than via travel agents and rather than by booking directly over the Internet with hotels that they have discovered, or by booking directly with the hotel via a telephone call. Compared with a phone booking, an automated Internet booking is cheaper in staff time for the hotel once the set-up costs of the website have been incurred. However, hotels can avoid the set-up costs of having booking facilities developed for their individual websites if they join a website that has a standardized interface to hook up with it. A hotel needs to be listed on such websites to have a good chance of being found and judged favourably, but once it has been listed the marginal cost to the website of handling transactions in an automated manner is likely to be close to zero.

This line of thinking initially appears to imply that the website would not charge a commission and would instead simply charge an annual fee (which would then become part of the hotel's fixed costs) based on what it judged its value to be to the hotel in terms of saving it from incurring other transaction costs. In practice, however, matters are not quite so simple, as it has to compete with rival websites providing similar services and each hotel may pay to be listed with a number of such websites. This would both limit scope for rent capture by any one website and make its value to the client dependent on its relative effectiveness as a website. In the face of such uncertainty, one can see a continuing case for these websites to require hotels to pay both a listing charge and per-transaction commission fees.

In other cases, however, people are starting to use intermediaries to arrange some of the transactions that previously they would have arranged directly. An example is the use of online dating services to meet people rather than relying upon chance encounters during everyday life or rather than using traditional market institutions for meeting people, such as singles bars and social clubs. In the past, introduction agencies could in principle have served such a role but for most people they would have been a higher-cost solution to the dating problem compared with the cost of using traditional market institutions. Such agencies tended to appeal only to those without the skills to make dates themselves or those whose tastes or personal characteristics gave them a very low probability of achieving a mutual coincidence of wants. Online dating is potentially able to displace the traditional market institutions not just for those in a 'thin market' situation but for the general mass of would-be daters: at minimal cost, it provides access to a greatly increased pool of potential matches with scope for much clearer signalling about who is really in the market and whether or not they are potentially interested in

getting together with someone interested in them. Those who are good with words but initially nervous in a face-to-face situation and who prefer to do their searching at any hour of the day in the privacy of their own home have a better chance of success without incurring the cost of having to hang out in noisy, smoky bars and nightclubs and the anxieties of being out on the streets late at night.

Consumer Magazines in the Age of the Internet

The information revolution is also changing the role that consumer magazines can play as transaction cost-reducing market institutions. Consumer magazines emerged in previous decades as ways of making money for their proprietors whilst helping consumers to solve the problem of choice amongst a greatly widened range of options. Their viability depends on the willingness of a big enough body of customers to pay for the information they offer, and on their ability to attract advertising revenue. The balance of their two sources of income depends on their willingness to be brutally frank rather than running 'advertorials', and on whether their proprietors judge that they can command higher advertising fees that more than offset sacrifices of marginal revenue incurred by lowering the cover price to increase the number of people exposed to the advertisements. But they now have to compete with websites whose economics are very different from their own.

In the past, one of the problems with the provision of such information and knowledge via the market was that of matching the sale of it to the time when the consumer was actually 'in the market'. If a consumer was thinking of buying a product that had been around for a while, there would be problems in tracking down which consumer magazines had assessed it and then obtaining a back-number or a public library copy. This problem is probably falling in significance for consumers due to the archiving of reports on magazines' websites. However, the archiving of test reports opens up potential for potential market failure for the consumer magazines or newspapers in question: if consumers come to expect to be able to find information archived for free on the Internet when they want it, there is far less of an incentive for them to be regular purchasers of the original source of the information. This 'free browsing' problem is the Internet equivalent of reading magazines in a newsagents' store without buying them. It is a manifestation of the 'Arrow Paradox'[11] of information economics: if people are not charged for information before they are shown what they are getting, they will have no need to pay for it after they have been shown it.

The 'free browsing' problem could also afflict websites that integrate information about product characteristics and product availability (such as those that enable would-be used-car buyers to find past road tests and the location of prospective vehicles). Revenue from advertisements of availability can be used to fund product testing or the purchase test reports to republish on these websites. However, these websites will incur higher fixed costs than rivals who merely advertise products for their customers. Unless the former websites can find a method of charging consumers for browsing their test archives, they run the risk that people will research at the websites' archives and then place their advertisements at other websites where cheaper advertising results in a bigger search pool and thereby attracts more potential customers to view their advertisements. On the other hand, a website that is prepared to incur the costs of providing a full service at an early stage without fully covering its costs may stand a chance of getting the biggest market share and hence to win in the long run due to network

externalities—though its higher fixed costs would make it more vulnerable in the event of a price war over advertising rates.

These strategic puzzles are the modern-day equivalent of those faced three or four decades ago by full-service retailers who demonstrated products such as component-based hi-fi systems to consumers only to find the latter buying them more cheaply at discount warehouses.[12] However, free browsing is not intrinsically problematic for consumers who are trying to make rational choices of search goods but whose opportunism drives full-service retailers out of business. In fact, some of the consumer magazines that now face competition from their Internet equivalents are actually products of structural change in retailing associated with the impact of free browsing on full-service retailers: the demise of many such retailers did not result in consumers having no basis for making choices when shopping at discount stores; rather, it provided opportunities for other entrepreneurs to earn profits by running consumer magazines.

The awarding-winning UK motoring monthly *Car Magazine*'s strategy provides some clues about how some magazines can create appealing websites without wiping out their print market. The *Car Magazine* website is set up as a portal that provides not merely magazine content and archived articles but also access to new- and used-car deals from third-party websites. It even seeks to compete with, say, the popular BBC programme *Top Gear* by offering videos of road tests, presented in a professional style to counter the irreverence of the *Top Gear* presenters. The clue to its strategy for survival in printed form came when it removed all of its non-glossy printed content to its website, in particular its 'Good, Bad and Ugly' (GBU) summary reviews and guide to new car specifications, which its website provides in conjunction with the established UK motor-trade institution's Parker's Guide. This left the magazine in print form as something that has no rivals in this sector: it is a glossy, coffee-table product that makes the most of its capabilities in providing the highest standard of motoring writing, photography and presentation in the field, precisely the basis of its awards. It is thus attempting to focus on the aspects of what it does that work best in hard-copy form and can be used by customers when they are not online and not trying to engage in search for motoring deals. In the process of putting so much into its website, particularly its GBU section and third-party links, it has meanwhile posed a serious challenge to its less erudite, less glossy rivals, such as *What Car?*, that also now offer online services but do not have its strong subscription list of long-term enthusiasts and continue to try to sell hard copy magazines mainly to would-be new car buyers who are engaging in a search.

Media in the Future

The previous section raises broader questions relating to the future of forms of media. Does print media have a viable future in the Internet era? Indeed, does quality journalism have a future?

When a new communications medium emerges, impacts on traditional media are always uncertain, reflecting complex interactions between media. Outcomes will depend on the functionalities of the new technology, diffusion rates, and how users utilize/learn to utilize the new media. For example, when business first started adopting e-mail in the 1990s, intensive users reported relatively less use of the traditional phone and fax media, suggesting that substitution effects between new and traditional media were occurring.[13] A decade or so earlier, as a result of

the influx of the fax, the traditional telex medium soon disappeared from offices. Does the same fate await the hard copy newspaper?

This question is also part of the broader issue of public goods in the context of the digital distribution of information goods—music, film and video, and newspapers. It is likely that each industry will evolve its own solutions for obtaining a return from the digital distribution of information goods that easily can be pirated or obtained for free via the Internet. For example, Apple's iTunes seems to be providing one way forward for the music industry.

News, like other forms of information, is in essence a public good. While public goods are difficult for markets to provide, newspaper publishing has generally been profitable over the past two centuries.[14] The bulk of revenue has come from advertisers, but the ability of Internet users to elude advertising embedded in the content, potentially undermines advertising-sponsored mass media.[15] In any case, advertising rates, as well as the revenue each ad generates, are lower on websites than in print newspapers.[16] Furthermore, paid print circulation is declining. Concurrently, consumers, particularly those in younger age groups, are migrating to free, online versions of newspapers. Consumers, generally, are also spending relatively less time with traditional media such as newspapers, free-to-air TV, radio and books, and more time with the Internet, and other new media, such as MP3, mobile phones and DVDs.[17] Thus it is not clear what form a profitable newspaper industry will take in the future, and whether that form will include print, or even impartial, quality journalism.

Of course, it may be that quality journalism has only ever existed by the grace of media owners and/or the insistence of journalists. Its future may come down to the issues of both whether or not there is sufficient effective demand for this kind of news service, and whether entrepreneurs can devise a profitable means of delivering it in the context of the new media environment. Journalists who are committed to their craft do not even need the Internet versions of newspapers for their stories to reach an audience: they can readily post their reports in blog form and be found by readers who are searching for information on particular topics or who follow their work and have bookmarked their web addresses. The big issue for them is not delivery but how to find a way of doing this that will give them enough income and cover their expenses, whether via subscription access to their websites (or possibly to a collective of such sites with members' proceeds being divided up on the basis of the number of 'hits' they record) or via advertising. Internet newspapers only provide attractive alternatives to the blog-based approach to journalism insofar as they achieve information economies by serving as portals that will bring in more readers or are better placed to attract advertising revenue. 'Name' journalists may have no need for them in these ways if their reputations as individuals enable them to garner a regular following of readers who are interested to see what they uncover (for example, fans of veteran journalist John Pilger can find all his work at www.johnpilger.com and buy copies of his books and DVDs there, too).

Concluding Discussion

We end up with a rather mixed message about the impact of the Internet on the competitive process. Consumers appear to be in a stronger position than in the past even though there is the potential to end up 'spoilt for choice' due to discovering a huge range of rival products and/or suppliers, and even though they are now doing things via the Internet that they used to find it worthwhile to let others, such

as sales staff or non-virtual intermediaries, do for them. On the one hand, then, more alert consumers with reduced transaction costs and shortened switching times should make it harder for businesses to enjoy above-normal profits unless they have superior products to offer. On the other hand, however, the picture on the supply side is not really as hotly contested as Thomas Friedman[18] argued. In emphasizing the democratization of technology and lowered start-up costs for businesses as forces driving the global economy to a heightened state of competitiveness, he appears to have neglected the significance of fixed costs relative to variable costs in businesses that are based around investments in programming websites. The Internet is producing business models in which the big rewards go to firms that achieve first-mover advantages or better differentiate their products so as to achieve superior market shares from which to cover their fixed costs, with marginal costs in many cases at or near zero.

What is implied is not that markets become increasingly like those in the theoretical world of perfect competition. There is no place for the perfectly competitive model in the economics of Internet-based markets even though the combination of the Internet and globalization has in many cases opened up access to a greater range of potential suppliers than previously existed. Rather, firms will either be fine tuning what they do with a view to satisfying particular market niches, in the manner of the theory of monopolistic competition or, where buyers face choices between firms that offer identical products and/or services at identical prices, market shares will depend upon goodwill established via initial encounters that were random or driven via social networks (including webs of e-mail connections and Internet links). The latter is the kind of situation envisaged for traditional modes of business by Andrews,[19] where the size of the firm's market share is not limited by an upward sloping cost curve but by the extent of the clientele it has managed to establish. We may also expect firms to be working on new ways to promote customer lock-in (loyalty programmes, e-mail newsletters with links to new product information, etc.) as well as making it very easy for customers to sign up.

Although it is possible that a world of non-rising average costs will be one of tendencies towards industrial concentration, these tendencies could be undermined by innovative business models. The changing division of labour associated with the e-commerce revolution will force many businesses to make bigger changes than merely acquiring an Internet presence if they are to survive. Firms that once survived by offering a bundle of services may find that most of their roles are no longer needed. If they are to survive without diversifying into new areas, they will have to concentrate on working out a way of competing successfully in the areas of their business that have not been rendered obsolete.

In some areas we can see firms making aggressive use of the Internet to extract bigger earnings from their traditional lines of business and yet also see scope for other ways of doing business via the Internet to pose serious threats to their longer-term prospects. As a case in point, consider academic publishing. At first sight, this seems to be an area in which the rise of the Internet favours firms such as Elsevier, Emerald and Taylor & Francis that have assembled long lists of journal titles and used information technology to make their journals more valuable by offering them in downloadable forms and cross-referencing citations between journals in their portfolios. In doing this, they have been exploiting economies of scope that come from sharing fixed costs while charging prices for individual article downloads by non-subscribers that reflect what the traffic will bear, for marginal costs are zero. However, they potentially face ruin if they do not take seriously the possibility

of academics embracing open-access publishing. Scholars no longer need publishers to typeset their work or get it printed and bound (word processing, on-screen reading and print-on-demand copy shops have seen to this). Nor, now we have Google Scholar, do they need publishers to promote their work and ensure that potential readers discover it. Even the quality signalling role of prestigious publishing houses and journals is called into question if it becomes possible for scholarly works to be rated publicly by readers uploading comments to access portals from which the works can be downloaded. If customers can rate suppliers of goods bought over eBay, there is no technical reason why readers of scholarly works cannot provide ratings of them in the manner of YouTube, but with serious scholarly intent. However, perhaps a role may yet remain in a world of open access publishing if academic publishers reinvent themselves as fee-for-service scholarly rating agencies for those who need formal ratings of their work.[20]

As well as finding it necessary to change what they specialize in providing, suppliers may also need to rethink the ways that they set about trying to earn revenues. The Internet revolution's zero marginal cost aspect has as its pricing counterpart the possibility of firms opting to generate revenue by giving away some versions of their products as means of promoting others. We can see this happening with software suppliers offering free downloads (for example, Smith Micro's Stuffit Expander) as a means of building up a database of addresses at which to aim e-mail promotions for related products that are not offered for free, or musicians who allow free downloads of their works (rather than trying to stop piracy) as a means of promoting their live performances (which cannot be fully pirated, despite the rise of 'cover bands'). If there are economies of scope between the products, the fixed costs may be fully covered by the charged-for versions in a more profitable manner than by charging for both, owing to the demand curves for the charged-for market segments being shifted rightwards by such strategies.

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