

# **Transforming media, markets, products, and values: Implications of the digital/telecommunications revolution**

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## **Abstract:**

The continuing development of digital technology and interconnected digital and global networking are radically transforming media and information markets, cost and value structures, and audience/consumer attitudes and expectations. This is contributing to a shift from a perception of traditional media as the focus of consumer interest, to an interest in content, with the media form of interest only to the degree to which it adds value to media consumption. This suggests a need for media to shift from thinking of themselves as "media" (newspaper, radio, TV, books, etc.) to a content and service provider. For traditional media as well as emerging cross-media platforms (Internet TV, Mobile TV, Cell TV, etc.) and digital media products, emphasis needs to be placed not merely on providing valued content, but on identifying and taking advantage of the appropriate content added-value that new products and services bring.

## **Transforming media, markets, products, and value: Implications of the digital/telecommunications revolution**

Historically, there has been a tendency to conflate content with medium. We tend to think, and speak, of books, newspapers, radio, records, and movies as the sources of value, of the separate and distinctive media industries. Talk to a station owner, and he will tell you that he's a broadcaster. An old print reporter is a newspaperman. Talk to a media consumer, and they would tell you that they enjoyed watching TV, or reading a book. Because content tended to be distributed in distinctive forms and media, and firms did not tend to compete across the old industrial boundaries, people tended to equate the content with the media form.

That's beginning to change, however. Talk to a student today about their media consumption and they'll be more likely to talk about content -- listening to music, watching basketball or an old movie, reading a story. Ask them whether the basketball game they're watching comes from an over-the-air broadcaster, cable, satellite programmer, or even the internet, and they're likely to have to think about it. Ask them about how they get the music they listen to, or the latest news, and they'll name a range of sources across a variety of media.

This is one of the more consequential impacts of what has been called the Information, or Digital, Age. The rise of digital technology and the growth of telecommunications networks are radically and permanently transforming media markets (Anderson, 2006; Benkler, 2006). From our perspective, the most important transformation is the change in the media marketplace; the shifting cost structures that have led to an increase in media capacity while reducing or removing many of the old media barriers (DeLong & Fromkin, 2000; McKnight & Bailey, 1997). Content is no longer restricted to a single medium of distribution, but is often

available through multiple media channels and forms. And people are remembering that it is the content that is the primary source of value in the media product (Bates, 1988, 1990).

Neither the old nor the new media can afford to proceed as if they had a monopoly on some content form or media product and an eager but passive audience; that they have a market all to themselves. They have to recognize the impact of the digital revolution on media markets, including the recognition that consumers increasingly place little value on the medium per se, rather the source of value is the content of the media product and their ability to access and utilize it. Of course, there are still aspects of the product that are media-dependent, and can serve as the focal points for competitive marketing. That's where the new competitive focus lies.

This paper will begin by discussing the economic and structural factors that contributed to the initial identification of content with medium, and which formed the basis of the old media market model. I will consider how the perception of media products as a single good influenced consumer behavior and thus demand characteristics. I will then discuss how the digital revolution changed that market model, and contributed to the de-linking of the media "dual good" of content and distribution form. I will look at the changes in the media marketplace and in supply and demand attributes that emerge when the focus of value shifts from the physical joint good that is costly to reproduce to the non-physical content that is inexpensive to reproduce and distribute along digital networks. I will then talk about the implications of these shifts for media and media management strategies.

### *The Old Media Environment*

From the beginning, there was communication, the transmission of meaning between individuals; and communication made socialization and society possible. Even at the most basic stage, communication combined message (content) with transmission (medium). As the need for communication and information increased over the ages, people found ways to facilitate

its distribution through the application of technology. In other words, the medium improved. The first great transition was the development of the word, that is, symbolism and language (Fidler, 1997), which enabled the standardization of meaning and provided for efficiency in communication (Hauser, 1996). However, with speech and language, communication was still in the moment, contemporaneous, and clearly among individuals. The message, in other words, was linked to the creator, who was also the disseminator. Thus, to a great extent, the content was linked in perceptions to the speaker.

The next stage was the development of writing, which enabled communication to transcend the immediacy of the moment (Fidler, 1997). Writing also brought forth an awareness of, and focus on, the medium, as it required some physical manifestation of content. Writing, in other words, had to be done on something. From markings on cave walls to writing and printing, a link was established between the informational content and the physical medium used to facilitate distribution of that content (Innis, 1972, 1991). Once again, the message was physically linked to the medium, and people extended this linking to their perceptions. While to most, information goods and products were in common with the medium, economists began to recognize that there was a problem with this perception, as the value of the information goods was not the same as the value of the physical medium. This fostered the concept of information products as dual goods: the combination of the informational content and the physical media distribution form (Albarran, 2002; Bates, 1987). As people increasingly identified the content with the media form, they started to lose sight of the dual goods nature, and began treating the product as a physical good, forming the foundation for some of the problematic aspects of basic media economics (Bates, 1988, 1990).

The identification of content with medium in most people's perceptions was supported by the increasing differentiation of media and its products over time, as continuing technological development introduced new media. New media enabled the distribution of new types of

information goods and products. Movies brought motion, radio brought sound. Technology also brought changes to market structures that tended to accentuate media distinctions. Aspects of the technology and its economics created biases that influenced the nature of the content and its use (Innis, 1972, 1991; McLuhan, 1994), further linking content and medium. These biases can also be thought of as the distinctive characteristics of media, markets, and products.

Economic efficiency in distribution networks also required that media and content forms be tailored to one another (Bates and Albright, 2006; Shy, 2001), in order to take advantage of particular characteristics of the information product and market. The rise of mass production systems exacerbated this trend, placing greater emphasis on controlling and limiting costs in order to maximize distribution. Thus, media differentiated, and in analog and physical forms that were relatively expensive and/or difficult to convert from one form to another, in most cases.

The differentiation of media markets tended to reinforce the conceptual linking of content with the particular medium. Even where the content was similar (say movies and television), the distribution systems and consumption experiences tended to be distinctive enough that they remained identified as distinctive products in the minds of both consumers and producers. This was reflected in the distinctiveness of media markets. The limits of “analog” technologies and market structures created economic barriers that placed strong limits on the ability to move into new markets.

### *The Roots of Change*

The roots of the next major change can be found in the development of electronic media. Electronic media took the analog message, and transformed it into an electric, non-physical signal. This demonstrated the ability to separate communication from a physical form, while enhancing the ability to distribute to large audiences. As technology developed, a variety of forms for distributing (wired networks, broadcasting) and storing (records, tapes) signals arose.

This began the ability to separation of message from content. Still, most analog electronic media were distinctive enough to be perceived, and treated, as distinctive, single, information goods. The relative economic advantages of particular media provided competitive advantages for certain uses, and media became niche products (Dimmick, 2003). This tended to accentuate the differences, and the identity of medium with content/use.

Two analog technologies of the last half-century, though, started to decouple the identification of a particular information good with a particular medium. They did this by providing an economically viable new distribution system for content that also provided a source of added value to consumers. The two technologies are taping and cable television.

Taping began with audio formats, and as technology improved, embraced the ability to handle video as well. As a major consumer product, taping really began with the rise of cassette taping in the 1960s. Tapes offered a lower quality alternative to records, but with the advantage of portability. They also offered a crucial second advantage – a low cost means for consumer recording. The ability of consumers to record their own tapes gave them a degree of control over their use of audio information goods that they had previously not enjoyed. They could make their own mix tapes of favorite songs, they could record broadcasts or live events, and they could share content with friends. No longer was the music tied to either the radio or the record, but could be shifted to other formats and manipulated. In analog taping, though, this ability to shift came at a cost, as tape quality was generally lower than the source material, and each transfer degraded the original analog signal even further.

The development of videotape further contributed to the de-linking process in two ways. First, it enabled content to transcend the limits of existing media, creating new markets and new ways to consume the content. While music had been available in commercial formats as records, movies and television content had not, for the most part. They had only been available to consumers through specific media (although movies were also seen on television, although

often in altered forms). Thus, content was separated from at least the initial medium format, placing the emphasis once more on the content rather than the distribution/consumption experience. Videotape thus not only opened a new market for those information goods, but also contributed to the rise of choice and control for the consumer; this further contributed to a shift in emphasis from medium to the content. It created new uses and values (Rubin & Bantz, 1989), and brought out the fact that consumers were willing to pay for certain value-added aspects linked to the information good (in this case, the ability to control the time of viewing).

Cable television emerged in the years after World War II, initially as a local solution to technological and regulatory limits on the availability of broadcast television in the U. S. In those early days, cable offered, for a fee, a product that could be obtained freely from over-the-air broadcasters. How did they succeed? At that point, cable was viable only in fringe areas, where it could offer signals that were not available locally, or could at least offer a better quality signal than was available off air with normal antennas. They did not, by and large, offer any new content, but rather expanded the coverage area of existing stations.

As the US television industry matured and expanded, cable faced a limited future as “free” broadcast markets and outlets expanded (Bates, 1985; Parsons & Frieden, 1998). Then cable came up with the idea that it could offer more television by importing distant signals, or providing its own programming. System operators found that the highest demand was for content that was not available locally. When satellite television signal distribution became economically viable, cable could suddenly differentiate itself not only by offering a clearer signal, but significantly greater choice (Bates & Chambers, 2004; Parsons & Frieden, 1998).

By engaging in retransmission of a range of local and imported channels, not only was cable competing with broadcast television, it was changing consumer perceptions. Cable marketed content and greater choice, rather than a medium. Consumers responded by shifting their linking of content from stations to the programming services providing the content (Bates

& Chambers, 2004). The later development of satellite distribution only increased the competition and consequent shift in attitudes. Increasingly, it did not matter to viewers how the content got to their TV set, it was the programming that mattered (Parsons & Frieden, 1989; Webster, 1986).

Consumer attitudes towards the consumption of some media products began to change with the diffusion of these technologies. As content became available in more than one medium or form, it began to be more widely considered as being distinct from the channel. The economist's notions of separating the value of the content from the value of the distribution medium started taking hold. In fact, this increasing recognition of separate sources of value allowed consumers to realize that there could be differential values associated with different media. In other words, that media could compete in terms of the added value a particular form could provide in conjunction with a particular content. This added awareness on the part of both media providers and consumers, contributed to an increasing recognition not only of the value of media existing in the content, but an awareness that aspects of consumption could also contribute to value.

### *The Digital Revolution*

The digital revolution only enhanced this transition. In talking about the digital revolution, I refer not only to the development of digital computing and the development of new digital media forms, but also to the development of telecommunication networks that can be used to distribute digital signals.

The basic impact of the rise of digital computing is its ability to process signals – to convert virtually any form of signal into digital information, and to manipulate (including copying) that information without degradation. In theory, any manifestation of information can be converted to a digital file, transmitted, saved, copied, manipulated and converted into any other format. As processing power increases, and costs decrease, this theoretical ability

becomes more and more practicable (Covell, 2000). As such, digital technology is transformative, as it opens new markets while significantly reducing production and duplication costs (Anderson, 2006; Brynjolfsson & Kahin, 2000; DeLong & Froomkin, 2000; Negroponte, 1995; Shapiro & Varian, 1999).

The rise of telecommunications networks is also transformative. Telecommunication networks impose radically different operating cost structures than physical transportation networks (Bates & Albright, 2006; Benkler, 2006; Egan, 1991; Shy, 2001), as telecommunication networks largely remove distance as a cost factor. Duplication and distribution of digital information products over digital networks occur at extremely low marginal costs, a marked contrast to physical networks. The new cost structures raise questions about the continued validity of old approaches and strategies (Anderson, 2006; DeLong & Froomkin, 2000; Shapiro & Varian, 1999).

One of the key attributes of both digital technology and telecommunication networking is that costs decline over time, even as capabilities and capacities increase. Thus, it was inevitable that technology would develop to the point where media cost structures shifted to the degree that old economic and structural barriers were lowered to the point where market boundaries could be crossed (Bates & Chambers, 2004; Brynjolfsson and Kahin, 2000).

As processing power increased it became not only feasible, but economical, to convert analog information goods and services into digital forms. First was text, then still pictures, sound, and video. And what could be converted from analog to digital could also be converted back into analog forms. As digital processing power continues to increase, the ability to convert materials becomes increasingly simple and inexpensive. The one handicap of digital media was the fact that raw digital files tended to be larger than the raw analog files, thus taking more space to store, and more bandwidth to transmit. However, advancements in file compression techniques and improvements in digital storage technologies have combined with the expansion

in telecommunications bandwidth to increasingly ensure that more and more digital media forms have the ability to efficiently handle a variety of information goods and services.

This ability is often referred to in terms of the buzzword “convergence.” Increasing, content can be shifted from one form to another, and distributed over multiple media (Covell, 2000). This opens up new markets for content, and new sources for content and services for media. New opportunities are arising for producers, distributors, and consumers of intellectual property (Covell, 2004). It also starts to shift the ability to control content and distribution through technological means (Mulgan, 1990). Some of this occurs through a transfer of control and choice to the consumer through the new media channels. Some of this occurs because the technology also reduces the costs of making and distributing unlicensed copies of content; encouraging piracy.<sup>1</sup>

#### *From Monopoly to Competition*

Another way of looking at this phenomenon is to argue that perhaps the biggest impact of the digital revolution is that it is changing what had been largely monopolistic markets for media products into highly competitive markets. Monopoly market structures, linked with the monopoly rights provided for content under copyright, reinforced the linking of product with medium, as they were largely based on the distinctive economic costs and efficiencies associated with a particular medium. They also allowed producers to charge a premium for their products.

The digital revolution is drastically changing those cost structures and efficiencies. Perhaps the most significant aspect is the continuing reduction in variable costs in duplicating and distributing content in digital form. But of equal importance to the rise of competition is the clear economic advantages of digital networks over analog distribution forms and media (Bates and Albright, 2006; Egan, 1991; Shy, 2001). By transcending the old media market boundaries, the digital revolution is limiting the ability to maintain monopolistic market structures. Even if

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<sup>1</sup> Evidence for this shift can be found in the various efforts to enhance copyright and the monopoly rights it enforces, as well as efforts to combat piracy of intellectual property.

one can, through governmental regulation, limit competition within a particular media system, the basic content can increasingly be delivered through alternative mediums. Thus, content markets are becoming increasingly competitive, and are likely to remain so in the absence of strict governmental controls.

The rise in competition is not quite as simple as adding a new firm producing the product. The breaking down of the old media market barriers and the rise of new digital media forms is, rather, creating what Lacey (2004) termed ‘fuzzy’ markets. Product differentiation, rapidly shifting (or evolving) market structures, greater diversity within consumers, and uncertainty about the value of media products can all make details of market structure difficult to define and measure (Sampller, 1998, Varian, 2000a). The ‘fuzzy’ nature of evolving media markets makes it difficult to predict impacts in any precise way, in part because there may be fundamental changes in structural aspects at work (Lacey, 2004).

One implication of increasingly competitive markets is that producers are likely to lose their ability to extract monopoly prices and profits. In fact, there are aspects of the distinctive economics of information that suggests that under competition, the price that can be obtained for basic content will tend towards zero. Marginal costs for producing information goods and services approach zero, and marginal costs of distribution are also decreasing, to the point where they near zero marginal costs for digital distribution (Anderson, 2006; DeLong & Froomkin, 2000; Shapiro & Varian, 1999). With the willingness of many media to subsidize content costs as a means of attracting audience, you can see that the prices that media are able to charge for many kinds of content are decreasing. We are already seeing this with regard to basic news.

Intellectual property rights can still provide a mechanism for exerting monopoly power, at least in a legal sense. Despite rather concerted efforts to expand and enforce these rights, the ability to extract monopoly profits based solely on the information content is hampered by several factors. First, the general uncertainty about value in information goods tends to make

high-price goods seem to be risky, thus reducing general levels of demand. Add to that the fact that there are normally a wide range of available substitutes for most media products, which tends to severely reduce the ability to extract a premium. Finally, there is the impact of digital's cheap and easy duplication and distribution. The ability to "pirate" should also exert a downward pressure on prices, as the greater the gap between the price of the product and the perceived cost of "piracy", the more likely piracy will occur. With the rise of digital media, and the lowered cost of duplication and distribution, that gap tends to increase. And taking steps to combat piracy, either through tougher legal enforcement or technological copy-protection schemes, will only increase the enforcement costs to producers, shrinking their monopoly profit margins. Thus, in the long term, enforcing intellectual property rights through restricting access has limited viability in a digital, networked, world (but that's another paper (Bates, 2004)).

Thus, the ability of media to extract a premium above the fundamental value of content is starting to disappear. What people are increasingly willing to pay a premium for, in competitive media markets, is access, choice, and control. In other words, the associated valued-added aspects that a particular medium or format can bring to the consumption of content.

First with cable and DBS, and now with satellite radio, people are showing an increasing willingness to pay for access to additional content, for increased choice beyond the "free" broadcast offerings. The success of VCRs, DVDs, and digital video recorders (like Tivo) demonstrates a willingness to pay extra for greater control over the access and use of television programming, movies, and other audio-visual content. Systems like Tivo and recommendation systems such as used by Amazon.com and iTunes marketplace demonstrate the value of systems to help find valued content; that is, the added value of intelligence in the network. The success of cellular and wireless networks, and MP3 players, is demonstrating the value to consumers of

portability, flexibility and convenience, of giving the consumer greater control over where and when information goods and services are used.

### *Emerging Structure of the Digital Media Marketplace*

Thus, there is a new digital media market emerging. Instead of separate markets for each media product, content will increasingly be able to be delivered through multiple platforms and networks. Instead of being limited to local, regional, and/or national markets, content is increasingly available globally. Market boundaries are fading, bringing to old media markets both new competition and new audiences. And while existing media will likely struggle and attempt to make use of regulatory and state mechanisms to try to maintain the status quo, the “new economics” of digital networks will make it increasingly difficult to do so. The digital revolution *will* occur and *will* transform media markets and behaviors.

The “new economics” of digital networks is not entirely new, nor does it imply that traditional economics does not work. As DeLong & Froomkin (2000) noted, the advent of the digital network marketplace does create problems for older media market models. But the problem is not that the old models were necessarily wrong, but that the rise of digital networks has changed cost and value relationships. The older economic models were problematic, but the problem arose from the fact that they tended to ignore certain costs and values (Bates, 1988, 1990; Benkler, 2006). In many of the older media markets, those nonmarket aspects were not significant, or could be partially included through the ideas of dual products and/or of media as public goods, or addressed through public policy.

However, the relative importance of these aspects shifts with the digital revolution. As production and distribution costs decline, the relative proportion of these other aspects of cost and value increases. In addition, it seems clear that the Information Revolution is creating greater awareness of, and valuation, of the non-physical aspects of information goods and services (Benkler, 2006). Consumers, as they are experience greater choice, accessibility, and

control, are clearly coming to value those aspects of digital media. Still, much of the growth in added-value attributes discussed above lies in these non-traditional aspects that are difficult to measure. We know that we value choice and control, but can we place a pecuniary value on it directly? Thus, media markets seem more problematic because proportionally larger aspects of cost and value lie outside what has traditionally been considered as part of the marketplace. Thus, not only are the monetary values shifting, we are recognizing the existence and growing contribution of other sources of costs and values (Benkler, 2006). For example, Pekka Himanen, in *The Hacker Ethic* (2001), notes the value placed on recognition and contributions to reputation by open source software programmers. Similar arguments can be made for academics and creative artists (Bates, 1988).

The indeterminant nature of many of these additional aspects of nature makes it difficult to include them explicitly in market models (and is the primary reason they have not traditionally been explicitly considered). However, one can still be aware that these aspects exist, and their impacts on value and costs can be roughly estimated through their impacts on markets and behaviors. It just requires a new way of thinking about media products and markets.

Thus, it is vital, in the digital age to approach market economic analysis in a new way, perhaps in two stages. The first stage considers the older traditional model of explicit costs and values. It is vital to note the impacts of the digital revolution here: the declining costs of replication and distribution, the disintegration of market boundaries between media and over distance, the increasing ease of market entry and exit, the declining costs of production technology, and the ready availability of substitutes (both in terms of competing goods and competing delivery systems). These contribute to a significant shift in market structures and its implications for media producers and consumers. Particularly hard hit by these changes will be the middlemen, the distributors. With content widely available, and a decreasing ability to

control supply and extract monopoly profit for content, these firms will need to find other sources of value to justify prices.

However, remember that I mentioned that this is only the first stage of market analysis. Recall that there is at least a second stage, where the various alternative sources of value come into play. It is in this aspect of the market where various media can seek competitive advantage, by product differentiation and emphasizing potential sources of added value – by exploiting whatever competitive advantage their particular medium and technology offers, or whatever added value services they can link to the content and services. Product differentiation allows for a transition to what economists call monopolistic competition, and retention of a degree of monopoly power and price discrimination in markets. That can be critical for media as competition will drive down basic prices for content.

There is another important aspect to this second stage of market analysis. It is here where demand structures fragment and differentiate. That is, while indeterminacy and variation in valuation exist in basic markets, they tend to become exaggerated when one starts to consider the kinds of ancillary value evidenced by information goods and services (Bates, 1990). This suggests that when considering this second phase of the market analysis, one should take into consideration even greater variability in demand, and the opportunities for demand fragmentation and price discrimination for different demand segments. This reinforces the idea of product differentiation and the versioning of products by offering different levels of added-value (Bates, 2004; Shapiro & Varian, 1999; Varian, 2000b). Offering content at different quality levels, or with different sets of usage rights can permit firms to expand market opportunities while taking advantage of price discrimination.

These factors become more important as digital markets begin to take advantage of the “long tail” phenomenon (Anderson, 2006). The long tail refers to the lower ranges of the demand curves for information goods and services. There are two ways of looking at the long

tail. First, that there is some level of demand for virtually every information good or service. With the shifting economics and expanding reach of digital markets, it becomes more and more possible to profitably serve low levels of demand.<sup>2</sup> Since, increasingly, the largest proportion of the cost of information goods and services is in their production, any level of sales that covers production and distribution costs is beneficial. The second way of looking at the long tail is that information firms often have the alternative of marketing their product at a high price to a fairly small audience, or at a low price to a much larger audience. Broadcasting took advantage of this by offering “free” access as they competed for audience to sell to advertisers. But it also means that a record company may be able to make as much selling individual songs at 99 cents apiece as it would selling CDs at 15.99 (Anderson, 2004). In fact, the shifting market is making it more and more difficult for firms to extract the monopoly prices at the high end. Both aspects of the long tail suggest the value of shifting the marketing approach from marketing relatively few units at relatively high prices and profit margins, to one that focuses on extracting whatever value is available throughout all levels of demand.

Thus, what the new digital networks market structures suggests is that new approaches to media market analysis and behaviors are needed. On the producer side, it means thinking about the impact of non-financial costs and values upon production decisions, and being aware that multiple media exist for the distribution of almost all content. For distributors, it means thinking about how to differentiate your media or service from competitors such as by greater emphasis on branding (Todreas, 1999), and how to take advantage of those non-financial aspects of value to add value to your service. For consumers, it means being aware of what contributes value, and the variety of offerings.

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<sup>2</sup> This occurs for two reasons. First, the declining costs of reproduction and distribution make it easier to extract profit from even lower levels of pricing. Second, as markets expand, the absolute numbers of purchasers increase, to the point where even small proportions of the market can provide sufficient sales to recoup costs.

### *Strategies for Media in the Emerging Digital Marketplace*

What this suggests for media managers is that they can no longer rely on being monopoly providers of desired goods and services – they are losing the ability to control their markets. In the short term, media may try to retain control through regulation and/or policy and greater enforcement. But this is unlikely to be successful in the long term, as the emerging digital network market is too flexible and offers too many alternatives. Insisting on tough and costly legal enforcement of monopolies will also reduce demand and alienate consumers. Firms and industries that pursue that path are likely to lose market to legal and extra-legal alternatives, as well as find their monopoly profits eaten up by increased enforcement costs and reduced demand and sales.

A better strategy for the long term is to embrace these changes and look for the new opportunities they offer. Media managers and firms will increasingly need to compete in new markets; with new competitors and substitute goods; in areas other than basic content. They will need to expand their awareness of the sources of value associated with their products. They will need to recognize the shifts in costs and values brought about by technological advances in their markets, as well as in the emerging digital network marketplace. They will need to place more emphasis on the specific advantages and disadvantages offered by their medium and technology, and identify where they may have a competitive advantage, or can add value to their versions. They will need to recognize that old media barriers are eroding, and they face growing competition, not only from new media, but from older industries and related markets. They need to consider new marketing, pricing, and sales strategies. And in doing so, they may well find themselves also expanding into new markets, new services, as well.

Successful firms and managers will be those flexible enough to shift their strategies to meet a continually changing market environment. In particular, firms who embrace the idea

that it is the content that has value, and look for ways to enhance the value of their service to consumers, will be successful in the long term.

How can they enhance value is likely to be one of the driving questions of this transitional period. We already have some indicators of added value – offering consumers greater choice and control over media consumption, for example. Still, there are likely to be other aspects, such as help in lowering the uncertainty of new products through branding (Todreas, 1999), recommendation systems such as those offered by Amazon.com and others (Anderson, 2004), although there are always unexpected sources of value arising with new products and services that can arise if priced low enough to encourage the experimentation that demonstrates value.

### *Concluding Thoughts*

The transition to the Digital/Network/Information Age is likely to be revolutionary, at least for what could be termed the legacy media. They will need to wean themselves off of their local monopoly mindset, as media markets are increasingly neither local nor monopolistic. In the long run, success will come with identifying and adopting a new approach to marketing information goods and services that will emerge from the digital network revolution's impacts on costs and values. The old way of doing business will grow increasingly impractical, and unprofitable, as markets continue to evolve. To a large degree, this means shifting from the old metaphors and creating new ways of thinking about media products, industries, and marketing. It means that producers, distributors, and consumers will need to be flexible, develop, and embrace new metaphors. As will policymakers and regulators.

What should that new metaphor be? What ideas and strategies should be embraced? I'll end by offering my own suggestion. I believe that the old metaphor is one based on the notion of scarcity: physical products consume scarce physical resources. The new digital networks though, remove most, if not all, of the sources of scarcity for information goods and services.

After all, information is itself non-physical. Further, the value of information comes primarily from its use (Bates, 1998, 2000). Thus, the metaphor of the future should not be one based on scarcity, but on encouraging the use of information goods and services, on providing consumers with greater flexibility, options, and control. This is one of the things I find valuable about the notion of the long tail (Anderson, 2004, 2006) – that it's based on the idea that value comes from fully exploiting demand, rather than from restricting supply. The provision of added value features is also likely to increase the demand for, and utilization of information goods and services. The future of media thus lies in its ability to promote and enhance the use of information more than its ability to impose scarcity and control.

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