

# Markets and Marketing in the Information Age

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Many forces are propelling the advanced and emerging economies across the globe into the Information Age. Sharp boundaries between information functions and types that existed up to the Industrial Age are getting erased. A vast information space is opening up that is reshaping and will continue to influence the nature of economies and societies for decades to come.

What forces are driving all these changes? Among the primary drivers are:

- *Digitization*: The conversion of all forms of information into a digital form makes it easy to store, transfer, process, and mix information that used to reside in separate compartments and domains.
- *Deregulation*: Realizing that technology is making it possible to move information in easier ways and across multiple paths, most governments are dismantling the controls on the movement of information and on the media that had existed during much of the industrial era.
- *Decreasing costs*: Because of rapid technological advances in fields such as semiconductors and fiber optics, unit costs to process, store, and move information are dropping, thereby pushing price-to-performance ratios ever lower.
- *De-tethering*: To keep up with fast and global lifestyles and work styles, information technology devices are abandoning the “tether” – the wire that keeps them tied to one location.
- *De-centering*: With the growth of the Internet, various types of information and communication networks across the world are getting interconnected: there is no center any more in many aspects of life.

At a fundamental level, these five forces are technological, political, economic, social, and cultural in character, respectively. The specific labels and content of these forces will change with time, but for the foreseeable future, the fundamental shifts at these five levels will continue to occur as the Information Age unfolds (see Figure 1).

Figure 1 About Here

At the present juncture, the five forces outlined above are proceeding at differential rates. Furthermore, there are differences in the strength and impact of these forces across the nations of the world, a point we will revisit in the discussion of the global aspects of the Information Age.

Let us do a quick reprise of the five forces. After the invention of the World Wide Web format of the Internet, people started realizing that there is merit in digitizing the content they own or create. Therefore, digitization is proceeding at a rapid clip. Not only current content, but historical and archival content is getting digitized. This has obvious implications for data storage, which is expected to grow at a high rate for years to come.

Deregulation is happening worldwide but its progress is uneven, slowed by political pressure from companies and employees who feel that unchecked, competitive markets threaten their interests. Among the major countries, the United States leads in deregulation. There are, however, smaller countries such as New Zealand and Chile that have deregulated faster and farther than the United States. After some years of foot dragging, the European Union is moving towards deregulation at a very rapid clip.

Costs are declining very fast for information processing and storage activities, and have also begun to decline for the movement of information. Just as cheap computing and storage transformed the world of business, abundant and cheap bandwidth will bring in a second wave of information revolution.

De-tethering, or “going mobile”, has become a major force in some of the advanced economies of Northern and Southern Europe, as well as affluent parts of Asia. The United States, which (along with Scandinavia) led the world in mobile telephony is in fact slipping in a relative sense. Over the last few years, mobile communication devices have changed their meaning from an attractive lifestyle symbol for the elite to an essential everyday companion for the masses all over the world. In Japan, it is the mobile access to data that propelled the nation to embrace an Internet-oriented lifestyle.

De-centering induced by the Internet, and virtual ways of working and living, are happening at the leading edges of the information economy. The impact of de-centering will become pervasive with time. Cable, phone, and power networks are getting intertwined creating a whole new order of connectivity and information flow in which everything is potentially connected and communication with everything. Also consider the tentative agreement between AOL, Microsoft MSN, and Yahoo to allow open instant messaging systems to replace the proprietary AOL standard. Similar to email, which operates under a common published standard that allows any service to send an e-mail message to any user, instant messaging will then be possible across networks.

In terms of mobile and wired Internet readiness, some countries such as United States, Canada, Finland, and Australia are leading the rest of the world. Because of its sheer economic weight, however, it is the United States that is developing the world’s first Internet-based economy. Let us turn our attention to the nature of the information economy that is emerging as a result of the combined impact of these forces.

## **INFORMATION ECONOMY**

An information economy is emerging, gradually eclipsing the industrial economy. This has already been evident in the United States since the mid-1990s, and is likely to be

the case in many other regions of the world in the first decade of the twenty-first century. There are three main parts of the information economy:

- *Information firms*: At the core are the companies that represent the technological essence of the information business. These companies span industries such as computers, telecommunications, software, automation, electronics, and media (including the Internet).
- *Information-intensive firms*: These are companies and industries that have information at the center of their business operations. The vast and global financial services industry fits into this category, as also do industries related to education and research.
- *Information-aggressive firms*: In most industries, there are some firms that take aggressive leadership in transforming their business operations using information technology (IT). Even though they may be in businesses as diverse as bookselling or aircraft manufacturing, such firms are best characterized as Information Age firms. Such firms, if successful with their IT-driven strategies, gain market share and thereby challenge others in their industries to follow suit.

As the Information Age deepens, we will see growth in all three parts of the information economy but most dramatic changes will occur in the third category. There are still relatively few firms (and industries) where fundamental redefinition of business using IT has taken root. In fact, we can say that when the major firms in an industry completely redefine their business using IT, that industry moves into the second (information-intensive) category. The three parts of the information economy are highly symbiotic, and the 1990s witnessed the tremendous and favorable economic impact of these symbiotic relations on the U.S. economy, even in a global setting that was sometimes characterized by crises.

In fact, since the beginning of the stock market's downturn in spring of 2000, particularly due to a stern correction in the technology sector, the global information economy has been struggling. Funding for many up-starting information or information-intensive firms has been hard to come by during dwindling investor confidence in the economy in general and the long-term viability of the information economy in particular. However, it is evident that the information economy is here to stay and will spread globally, albeit probably at a slower rate than it has done over the past few years. Individual firms that have tried to build a business around information may fold but as a whole, there is no alternative to the efficiencies and opportunities of IT-enabled markets.

Taken together the three parts of the information economy already account for nearly 50% of the employment and GDP of the advanced economies of the world. These percentages will continue to grow well into the twenty-first century. As the Information Age unfolds, activities from other "ages" will diminish, but they will not disappear. We will continue to have residual activities from the Stone Age (hunting and gathering), Agrarian Age (agriculture), and Industrial Age (manufacturing). The surviving parts of the earlier ages will be considerably more informationalized than they are today. Fishing

boats and trucks these days are already endowed with high-technology equipment such as global positioning systems and digital sonar. The percentage contributions of the ages that are more distant in origin, however, will shrink drastically, as is evidenced by the already small role of agriculture and even smaller role of hunting (e.g., fishing) in the advanced economies of today.

These residual activities of earlier ages together constitute a limit on the information economy. The information economy will expand until the activities of the earlier ages can be compressed no further. Of course, in due course, the information economy itself will be compressed by the rise of a new type of economy whose outlines we can only barely imagine at this stage. If Kurzweil's (1999) popular science polemic, projecting that computing machines will increasingly acquire biological capabilities, surpassing human intelligence, is correct, a case can be made that rapid advances in biology and biotechnology will underlie and shape the economy that will succeed the information economy (Tapscott, 1995).

To understand the changes occurring in the markets and marketing activities in the Information Age, we have to pay close attention to all three elements of the information economy. Despite the recent downturn in stock valuation, lay-offs, and faltering enterprises, the information firms are, and will be continue to be, in the driver's seat for a couple of decades. These firms are developing and applying the basic information technology tools and are investing in the core infrastructures of the Information Age. Some of these firms are also models of information-aggressive firms. For example, Dell Computers is not only a leading computer maker but also one of the best exemplars of applying information technology for the purposes of customized marketing and agile manufacturing. Similarly, Cisco not only makes the core infrastructure of the Internet but also conducts most of its own business using the Internet.

Over time, it is the information-intensive and the information-aggressive firms that will come to play the defining role in shaping the Information Age. This is similar to the situation in the Industrial Age when steam engine makers provided the initial core technology and defined the early character of industrialization but eventually the Industrial Age was profiled by industries such as textiles, railways, automobiles, steel, machine tools, shipbuilding, and electrical machinery. In the Information Age, the financial services sector has taken an early lead in applying the newly emerging technologies, akin to the textile sector in the Industrial Age, but it remains to be seen which other sectors will also emerge as key economic sectors of the Information Age. Even though we are at an early stage of the Information Age in this sense, some information-aggressive firms have already started to change the character of markets and marketing. Examples of Amazon.com in electronic retailing and eBay in auctioning and trading are well known in this regard. More radical innovations such as the Napster peer-to-peer exchange system are being developed and pose entirely new challenges to the existing market structure, even those governed by information firms. As the tools for increasing the information intensity of a business become cheaper and widely available, the opportunities to be "information aggressive" proliferate.

## INFORMATION AGE MARKETS

Markets are systems of transactions, governed by distinct rules that have existed since ancient times but were refined greatly by the rise of capitalism (Pandya and Dholakia, 1992; Polanyi, 1944; Sahlins, 1972). In hyperindustrial economies, market transactions occur across fairly elaborate value chains or, more appropriately, value networks (Wickström, 1998). In the pre-Internet stage, information technology often helped major firms to strengthen the transactional links across value chains by proprietary approaches such as the use of Electronic Data Interchange (EDI). With the growth of Internet, information links opened up. Proprietary architectures, while not gone, became less appealing. In coming years, we will see a movement towards solutions that maintain the advantages available from the openness and ubiquity of the Internet (and its successors) as well as offer some proprietary advantages in terms of Intranets and Extranets. In 2001, the B2B market is expected to grow to a total of \$919 billion, increasing to \$1.9 trillion in 2002. The total for 2003 is projected to reach \$3.6 trillion, followed by further growth to \$6 trillion in 2004. These projections include purchases made by Internet, EDI, e-marketplaces, extranets, and other sell-side initiatives in its B2B projections, but not revenue from proprietary networks (Nua Ltd., 2001).

Transactions that occur in private spaces such as offices are less visible than transactions that occur in public spaces such as retail stores. In the Information Age, market transactions are occurring increasingly in electronic or virtual spaces (Rayport and Sviokla, 1994). As transactions shift to electronic and virtual spaces, they become less public and less visible. Often, only transacting computers are aware of what is occurring and human agents have to ask for special reports to find out about such transactions. For those willing to probe deeply, however, electronic transactions offer a gold mine of consumer information. This has given rise to a booming datamining industry as well as raised many concerns about the privacy and sharing of consumer data.

The most visible market transactions in a value chain are those occurring at the level of the end user or the consumer. The majority of such transactions occur in public and physical retail environments. Although things such as credit and debit cards and cash registers with scanners have introduced a lot of information technology into the consumer-stage transactions, compared to other stages of the value chain, the consumer stage is relatively less “informationalized (Davis and Davidson, 1991).

This will change in the next phase of the Information Age. The last link in the value chain, the one leading to the consumer, is moving into the virtual cyberspace. As this transition accelerates, vast changes will occur in the information economy. It is as if there was a free-flowing pipe but a clog constricted one part of it; and that clog (at the consumer level) is being dissolved by information technology. There will be a step increase in circulation and flow of goods and services. Markets will be energized by the removal of bottlenecks. This can be observed most clearly in stock and commodity

markets where informationalization, now even reaching the consumer level, has dramatically pushed up the volume and variety of transactions in stock exchanges.

Since we cannot expect people to buy and consume beyond certain physical limits, most of the changes that we can expect will be qualitative rather than quantitative. New forms of competition will arise and a new economy, already emerging, will begin to rival the “old economy” (created in the industrial era) in terms of size and power.

## **MARKETING, VALUE CHAIN AND INFORMATIONALIZATION**

Let us consider a simple representation of the value chain by which goods and services are created and delivered to end consumers (see Figure 2). The activities that are conventionally subsumed under the heading of “marketing” were confined to the last link of this chain for many decades. With competition and increasing market orientation in most industries, marketing activities began to stretch deeper and higher into the value chain – toward production, configuration, and innovation. Influence of marketing concepts began to be felt in the research labs, engineering and design units, and production facilities of many firms. Even in the most market oriented firms, however, there were limits on how loud, how deep, and how decisively the “voice of the consumer” was heard (Barabba and Zaltman, 1991). And at the leading edge of the information economy – in what we have labeled “information firms” – there was often no time to wait to hear the voice of a naïve, uninformed consumer. Technology moved too fast for the conventional marketing process to work in a full-blown manner.

Figure 2 About Here

As the last link of this chain gets informationalized, it not only steps up the flow of goods and services to the consumer, it also opens up the possibility for the consumer to reach deep into the value chain and begin to shape production, configuration, and innovation activities inside firms or networks of firms (see Figure 3). Interactive networks permit easy communication among firms and customers. Furthermore, information technology speeds up cycle times throughout the value chain, including now the final consumer stage of the chain (Dholakia, 2001). Competition shifts from cost cutting and product differentiation strategies to opening up clear and interactive channels linking the consumer and the corporation. Marketing changes from a monologue (by the corporation) with a weak feedback (from the consumer side) to an active conversation, even a multilogue involving communities of corporations and consumers (Firat and Dholakia, 1998; Levine, 2000).

Figure 3 About Here

## **IMPACTS OF INFORMATION TECHNOLOGY**

The impacts of information technology on markets and marketing will unfold over many decades. Some of the contours of things to come, however, are already

becoming visible. Let us examine some of the main dimensions of markets and marketing that will change.

### **Consumer-level Impacts**

*Learning, Knowledge, and Skills.* Marketing interactions in the Information Age trigger interesting changes in the knowledge and skills of consumers as well as providers. In general, cyber transactions require fairly knowledgeable consumers and service providers. Buying a book or conducting a stock trade on an Internet website is a relatively complex operation, at least for first-time users. Once the learning has taken place, however, cyber transactions can lead to significant reductions in transactions costs, in economic as well as psychic terms. In addition to the learning of the medium, consumers are challenged to acquire knowledge about markets that they hitherto did not need to know very much about because brokers of some sort (the local book store, the financial advisor, etc.) mediated these markets. For consumers to reap the full benefits of electronic markets may mean to acquire detailed and continuous market knowledge.

Consider the case of stock brokerage services. By providing a full range of high quality services, Merrill Lynch emerged as the biggest brokerage service firm in the United States. In terms of supporting its financial consultants and traders, Merrill Lynch became a world leader in terms of IT support to its employees, delivered right to their desktops. In addition to current market information and databases, Merrill Lynch account service executives even had dedicated radio and video broadcasts beamed to their desktops. As electronic trading gained momentum, and telecommunications improved, Charles Schwab, a discount broker, adopted an aggressive marketing strategy to win accounts. Schwab promised lower commissions and offered 24-hour telephone access to brokers and account executives. In effect, using technologies such as interactive voice response, Schwab extended the informationalization stage to the end user. With the growth of the Internet, E-Trade entered the field by offering Web-based trading services directly on the end customer's desktop. E-Trade customers had 80-90% of the key support information on their desktops, the type of information that in the early 1990s was available only on the desktops of account executives in major brokerage houses such as Merrill Lynch. By foregoing some of the nice but non-essential customer services (such as fancy printed statements, gold visa cards, and plush offices), E-Trade offered commission rates that were only about 20% of those charged by Merrill Lynch and were also about one third of those charged by the discount broker Schwab. As competition heated up in electronic brokerage, Schwab responded by aggressively shifting a lot of its customers to web trading and Merrill Lynch started offering a variety of web-based trading and information services. At the low end, competitors such as Quick & Reilly (former Suretrade) and Ameritrade emerged that undercut even E-Trade by 50%.

The informationalization of the consumer stage is predicated on learning and skill improvement by the end customer – there must be a willingness on the part of the end customer to invest some money and effort in learning and skill enhancement in return for discount prices and greater control over services. In some cases, employee skills also have to be upgraded. In the case of Peapod, a company that offered online grocery

shopping services to busy households, the employees who pick and pack the electronically received orders had to be well trained. For example, when picking and packing fresh fruits and vegetables, they had to ensure that the freshest and best produce was packed. In some instances, investments in such employee skill development may begin to reverse to long-term trend of de-skilling of retail employees in the United States.

With the Information Age unfolding, technology skills and knowledge of vast segments of population are improving, through schooling as well as on-the-job training. This would continue to open up new opportunities for existing firms willing to take on the creative challenges of Information Age marketing as well as new entrants who will keep inventing novel methods of electronic marketing.

***Loyalty, Identity and Mobility.*** Established brands with strong consumer loyalties will face the challenge of extending the brand equity into the virtual cyberspace. In the making of a brand identity and building up of brand equity, physical factors – shapes, sizes, packages, designs, logos, retail displays – play a significant role. While it is possible to have cyberspace analogs for most of these, the impact of these elements in cyberspace is usually not as intense as it is in the physical world. Furthermore, in cyberspace, switching costs (in money as well as effort terms) are extremely low – a message or an image can be made to vanish with just one click, and a competing brand can be examined and purchased with just a few more clicks. In effect, information technologies lower the mobility barriers for consumers. They can move with ease from image to image, and from brand to brand. Coupled with the fact that entry barriers for new competitive entrants are lower, this means that it becomes relatively difficult to hold attention and loyalty of consumers in cyberspace. Some brands, such as Coca Cola or Nike, are likely to be creative and strategic enough to take on this challenge, but other brands may not be able to hold on to their loyalties and equities in cyberspace.

Brands that are created entirely in the virtual cyberspace, such as Amazon.com (an Internet bookseller) and E-Trade (an Internet stock brokerage service), have the opposite problem: they lack the physical cues that can help shape and sustain their brand identities. Such brands often have to make great efforts to translate their electronic successes into the physical world. Take the case of Gateway 2000, a direct seller of computers that uses the telephone and the Internet as the sales channels. To overcome the disadvantage of being a virtual organization, the company used physical cues and humorous imagery to distinguish itself from both direct and reseller-dependent competitors. Using its remote South Dakota location to advantage, Gateway created an association with rural settings: pastures, barns, and cows. The company shipped its computers in great big boxes painted like the side of a cow, and cow images were used in its print and television advertisements as well as on the website. Finally, the company opened Gateway stores in key markets, complete with the cow motifs, and began to advertise that customers could “call, click, or come in.” Similarly, Amazon.com started having relationships with established brick-and-mortar stores such as Toys R Us to have some physical presence.



In the years to come, we are likely to see refinements in the conceptualization as well as nurturing of cyber identities and cyber loyalties. Studies of how identities are formed, sustained, and transformed in cyberspace are already under way and will influence marketing efforts of firms (Turkle, 1995). As pure-play Internet companies struggle and flounder their click-and-brick counterparts (firms with a presence in both the physical and electronic market) will gain strength and power in the marketplace (Chen and Leteney 2000; Enders and Jelassi 2000). Consumers new to shopping online will feel most comfortable going to the companies they know from the real world--Macy's, Borders, and Wal-Mart.

***Experience Frames.*** By experience frames we mean frames of space and time in which buying, selling, and consuming experiences occur. Shopping is not merely an instrumental act but also an experiential process. Today's retail environments provide some of the most fantastic settings for direct experiences in a safe, community-like milieu. Even the most richly designed cyber browsing and shopping environments do not even come close to a great retail setting. It is true that virtual reality technologies will gradually shrink this gap, but physical retail settings will retain their superiority as an experience frame for decades to come. In fact, by using information technology in physical settings, retail environments can become even more fantastic than before, as evidenced in the theme parks and the high-tech concept stores and malls.

One of the biggest challenge facing firms operating in cyberspace in the coming years will be to create electronic experience frames that can compete effectively with physical experience frames. Ways have to be found to make the electronic marketplace experience comparable to the physical marketplace experience. This is not easy, especially since physical spaces in major retail centers and theme parks are being updated and rendered fantastic and spectacular in a variety of ways (Dholakia, Firat, Venkatesh, 1997). Moreover, such physical spaces have the advantage of offering a safe, community-like experience because of masses of people visiting them. While some forms of virtual communities are emerging, the experience in such virtual communities – in terms of shopping experience – is likely to be limiting.

In the next several years, in terms of experiential aspects of the marketplace, advantages will lie with firms that can create or influence attractive and alluring physical as well as virtual spaces for consumers and also provide effortless ways of moving from one to the other. Firms such as Disney, Coca-Cola, Lego, Nike, Hilton, and MGM Grand are well positioned for this. With the emergence and refinement of virtual reality (VR) technologies, however, things are likely to change at some point. Just as firms like Amazon.com and E-Trade emerged to take advantage of the Internet as a transactional tool, we will surely witness the rise of a new breed of firms that are able to use VR advantageously to create alluring and captivating virtual marketplaces, virtual settings that equal or surpass their physical counterparts, or at least offer an experience-per-dollar ratio that is unbeatable.

### **Supply-side Impacts**

***Market Structure.*** In many industries, when the last steps of the value chain leading up to the consumer get informationalized, there is a lowering of competitive entry barriers. Relatively small-scale firms as well as savvy start-up enterprises are able to tap into markets that were hitherto accessible only to firms with large and established distribution networks. Examples of this are found in a variety of industries: Gateway 2000 in computers, Amazon.com in bookselling, and Virtual Vineyards in wine distribution. As and when these new entrants succeed, they begin to alter the market structure. Industries that were characterized by relatively stable, oligopoly-style patterns of competition suddenly become arenas of high and dynamic competition or hypercompetition (D'Aveni, 1994). So far, this process is visible in relatively few cases and mostly in the North American market. In the next few years, we can expect the market structure changes to occur more rapidly, pervasively, and globally.

***Institutional Arrangements.*** In some cases, Information Age marketing methods give rise to institutional arrangements that are reminiscent of the pre-industrial era. In pre-industrial settings, a customer could send a list to the local grocer and the grocer would deliver all the listed items. Peapod's shopping service does exactly this, except now the shopping list is sent electronically, the delivery time is scheduled online, and a physical process is visible to the consumer only in the last step: the actual delivery of the ordered groceries.

The Information Age thus creates not only new institutional arrangements – cyber shops and electronic retailers – but it also often harkens back to a pre-industrial era of customized products and services. A firm like eBay, for example, recreates the electronic version of old time trading methods such as swap meets and flea markets.

### **Global Impacts and Implications**

***Access Inequities.*** The discussion so far has assumed the conditions prevailing in advanced economies with fairly well developed information infrastructures. Reality is different at the global level. Half the world's population is yet to make its first telephone call. Of the six billion people in the world, only about one billion have access to a good, universal information infrastructure.

Even in the advanced countries with well-developed telecommunications systems, there are substantial differences in terms of digitization, bandwidth availability, and computing power (Dholakia, 1997). The all-fiber “intelligent island” of Singapore is quite different from remote rural areas of the United States where even digital telephone exchanges may not have made an appearance yet. Furthermore, with computerization and the Internet, another distinction is surfacing, between the United States and the rest of the advanced world. In terms of computing power, measured in terms of available “Millions of Instructions per Second” (MIPS) per capita, the U.S. has rapidly climbed to a level that is more than twice that found in most advanced economies of Europe and Asia (Roche and Blaine, 1997). Roche and Blaine's UN sponsored study estimated the average MIPS

per capita level in the advanced countries at 2,500 MIPS per capita, and in the developing countries at 200 MIPS per capita. The US, however, was over 5,250 MIPS per capita. In terms of Internet connectivity, USA and Canada also exhibit profiles that are dramatically more advanced than other major developed countries. In November 2000, the ratio of Internet users to total population in USA and Canada was estimated to be 1:2, in Western Europe 1:4 (on average), in Japan 1:3.5, in Australia 1:2.5, and in China 1:80 (Nua Ltd., 2000; Kalin, 1999). While the advanced nations of Europe and Asia have the means to catch up and even overtake the leaders, the vast majority of the world cannot bridge the growing “digital divide.”

***Global Opportunities in the New Economy.*** There is no doubt that the early opportunities for the firms constituting the information economy – the information firms, the information-intensive firms, and the information aggressive firms – lie in the United States, Western Europe, and a handful of Asian countries that have advanced information infrastructures and a substantial installed base of computing power. It is these markets that will continue to define the products and services of the Information Age for years to come. For the visionary firms of the information economy, however, it would be a mistake to focus attention solely on these leading markets. Although highly promising, these markets account for only 0.5 to 1 billion of the world’s 6 billion consumers.

In the coming decades, another 3 to 4 billion consumers would aspire to be a part of the information economy and to taste at least some of the fruits of the Information Age. Because of sheer demographics, the majority of these aspiring consumers will be in Asia. Richmond Lo, manager in IBM’s Greater China Group, is quoted as saying: “People in the cities [in China] have a TV, stereo, fridge and washing machine... Now they want a PC. It’s a symbol of modernity” (in Tanzer, 1997, p. 45). Lo estimates that by the year 2000, China could be the number three market in the world for new PC sales, after the United States and Japan. Latin America, Eastern Europe, and Africa will also offer substantial opportunities. Mobile telecommunications are likely to offer the low-cost means of Internet access in these regions.

The leading segments of these emerging markets will resemble the advanced countries in terms of the information infrastructure. These leading segments are likely to respond to Information Age products and services in much the same way as the consumers in advanced countries do. This was already evident in the late 1990s, for example, in the rapid adoption of Internet by the upper middle class segments in India, where the per capita annual income was not even \$400.

Substantial opportunities, however, will also lie in the emerging markets beyond these leading segments. These “secondary segments” in the emerging markets will not have access to or be able to afford a basic (wired or wireless) telecommunications service or a desktop or table top information appliance (the hybrid PC-TV combination, in whatever forms it evolves) in the foreseeable future. They would, however, have access to some form of television and public telecommunications terminals such as pay phones or kiosks. They may even have access to rudimentary pager-like wireless telecommunications devices driven by the creative efforts of social entrepreneurs and

their eagerness to overcome some of the barriers of education and income in regard to telecommunication access. In Bangladesh, Mohammed Yunus, a social entrepreneur known for extending banking services to the poorest villagers, undertook the challenge of introducing mobile telephony to this segment. In the late 1990s, he started a mobile phone service where established women leaders in villages, selected for their integrity, were provided mobile phones which they rented out to villagers to make calls. And they will have some disposable income available for consumption and investment purposes.

For Information Age firms aspiring to be global players, one of the biggest challenges will be how to reach out to these secondary but very substantial segments in the emerging markets. Firms such as Nokia, investing in the development of phone-based Internet delivery methods, are likely to be rewarded in such settings. Other information firms, such as Hewlett-Packard, have become aware of these prospects and have launched initiatives to bring Internet access to the world's poorest.

On a global scale, the foreseeable shape of the new information economy can be characterized as a three-legged stool. The first leg will be the advanced economies of the world. The second leg will be the advanced, relatively rich consumer segments in the emerging economies of the world. And the third leg will be the secondary segments in the emerging economies – people with some discretionary buying power who would like to participate in the information economy, but on cheaper and more economical terms than those applicable to the first two legs. In order to be stable, long-term global marketing strategies in the Information Age will have to pay attention to each of the three legs of the stool.

## **CONCLUSIONS**

The Information Age is being shaped by technological, cultural, and economic factors that have great momentum. Such forces are symbiotic and mutually reinforcing and this is accelerating the pace of change. A new information economy is emerging, led by the firms that create and deploy various information technologies. In the foreseeable future, the leadership of the information economy is likely to pass to information-intensive and information-aggressive firms. These are firms that use information as a raw material and use IT to transform and redefine their business. As a visionary and highly strategic information firm, Microsoft is well aware of this coming transformation. For this reason, Microsoft has made significant investments in industries such as financial services, information services, travel services, education, and entertainment.

The new information economy will reshape markets and transform the nature of marketing. Business processes, including transactions at the end customer level, are getting informationalized. Market transactions are moving into the virtual cyberspace. In informationalized value chains, end customers may have opportunities to reach deep into the organizations serving them and to influence the distribution, production, configuration, and even creation of products and services.

As these trends accelerate, they will create challenges for existing major brands. Such brands will have to come up with new ways of projecting brand equity and maintaining consumer loyalty in cyberspace. These new forms of marketing may open up many opportunities for new players who, unburdened by the legacies of the Industrial Age, can create innovative business models tailored specifically to the Information Age. However, as the demise of many pure play Internet retailers demonstrated, the challenge for information firms is great. Major technological progress in bandwidth and connection speed will be indispensable if the Internet is to capture the imagination of the masses.

Finally, on a global scale, the changes in markets and business models brought about by the Information Age will propagate rapidly from the advanced countries of the world to the leading segments of the emerging economies. There will, however, be substantial opportunities in the secondary segments of emerging markets. Such segments will not, or cannot, respond to the business models that work in affluent market settings endowed with strong information infrastructures. Substantial opportunities will be available to firms that figure out business models for extending the key benefits of the Information Age to these secondary segments.

**Figure 1: Forces Shaping the Information Age**

**Figure 2: A Simplified Representation of the Industrial-Age Value Chain for Delivering Goods and Services**

**Figure 3: The Emerging Information-Age Value Chain**



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