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Video Dial Tone

The New World of Services Marketing

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What Is Video Dial Tone?

Video dial tone is a term which has recently come into use to describe a newly emerging set of services offered over a public electronic network that includes video, image, text and voice communications for home and office. In its most expansive manifestation, video dial tone (VDT) is meant to include full motion video on a switched basis and ubiquitously deployed. Several tests of the viability of this service are currently being conducted by telecommunications, cable and entertainment companies in the USA and abroad (Holliday and Junkmann, 1993; Karpinski, 1993; Mason, 1993; *New York Times*, 1993; Roberts and Carnevale, 1993, Roberts *et al.*, 1992). Consumer and business services anticipated for this new service include movies on demand, interactive news and music, interactive network-based games, multimedia libraries and databases, distance learning, home shopping and banking, desktop videoconferencing, remote health services, past TV and many more.

VDT is the name most often used by telecommunications companies to describe this service, while entertainment and cable companies have frequently used the term video-on-demand (VOD) to describe essentially the same service available primarily on a home television (supported by some type of electronic device) (*AdWeek's Marketing Week*, 1991; *AV Video*, 1991; Levin, 1992; Ramirez, 1992; *US News & World Report*, 1992; *USA Today*, 1992). We prefer the term VDT because it implies the addition of video capability on recently announced video telephones, as well as newly announced desktop videoconferencing (Brandt and Gross, 1993; *Communications Week*, 1993; Halhed, 1992; Kupfer, 1993; Personal Technology Research, 1992; Sprout, 1993; *Teleconnect*, 1992, 1993; *USA Today*, 1993). Such applications suggest, as in the case of voice dial tone, that the video capability is both interactive and available to the user at all times. We believe, therefore, that VDT is a broader term which has important implications for marketing and, for that reason, we will use the term VDT in this article.

Video dial tone is not yet widely implemented. But, because various technological advances now make VDT economically feasible, and the most important legislative and judicial road-blocks have now been eliminated, we think that its widespread availability is inevitable. While the telecommunications, cable and entertainment trade press have been exploring the implications of VDT for some considerable time, it has recently been chronicled widely in the popular business press with major stories in such publications as *Forbes, Fortune, Business Week* and *Newsweek*.

This media interest is a result of the increasing number of announcements by

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major US and foreign companies of their intention to invest in this market (Landler and Grover, 1993; *New York Times Magazine*, 1993; Sherman, 1993). While the total potential market for VDT products and services is at present difficult to estimate, some have put the figure at some $30 billion annually (*Multichannel News*, 1992). The scope of VDT, however, is now perceived to be so great that even the largest companies in the US market do not believe that they can address this market alone. Consequently, major potential players such as AT&T, Time Warner, IBM, Sony, Apple, Microsoft, Sega (number two in computer games), Telecommunications Inc. (or TCI, the country's largest cable operator) and Times Mirror (newspapers) are forming alliances and joint ventures to produce network and consumer hardware, software and service products.

In the remainder of the article we construct our projection of what the marketing world, in particular services marketing, will be like after VDT is in place. To communicate most directly and clearly, we generally avoid using the subjunctive case, even though some of the situations we describe are not certain.

Video Dial Tone – The Residential Consumer's View

To take advantage of this new service, the home television, telephone, and personal computer will eventually be combined, and by using a mouse pointer (or a joy-stick or some other equally "user-friendly" device) a consumer can select options from a menu on a video display (see photo). The selections are then transmitted across a public network, and the desired services are delivered to the consumer. For example, one such service might be "movies on demand". The consumer first chooses the "movies" icon, and then selects the movie desired. Payment from the consumer's account is then arranged electronically. The movie is sent electronically and virtually instantaneously to the consumer's video display (a computer-enhanced TV) for viewing immediately or, if desired, stored for later viewing. Other services will include financial, health care, legal, real estate and home shopping and other such services (see Figure 1).

The VDT menu system is similar to that employed by existing computer networks, such as Prodigy. But there are several new technologies integrated in the home viewing unit and in the network infrastructure supporting it. From the consumer's point of view, however, the underlying technologies are not the issue. The critical consumer difference is the *instantaneous transmission of a full range of interactive voice, data and full-motion video services*.

An important attribute of this new service is the vast amount of information which can be transmitted quickly. High-resolution moving images with sound are feasible, which makes possible the accessing of interactive libraries which provide not only print and image, as in conventional books, but also sound and video, as in existing CD-ROM video encyclopedias (which, with VDT, will

Typical Menu Screen for a Video Dial Tone Service (Courtesy of Northern Telecom and BellSouth)

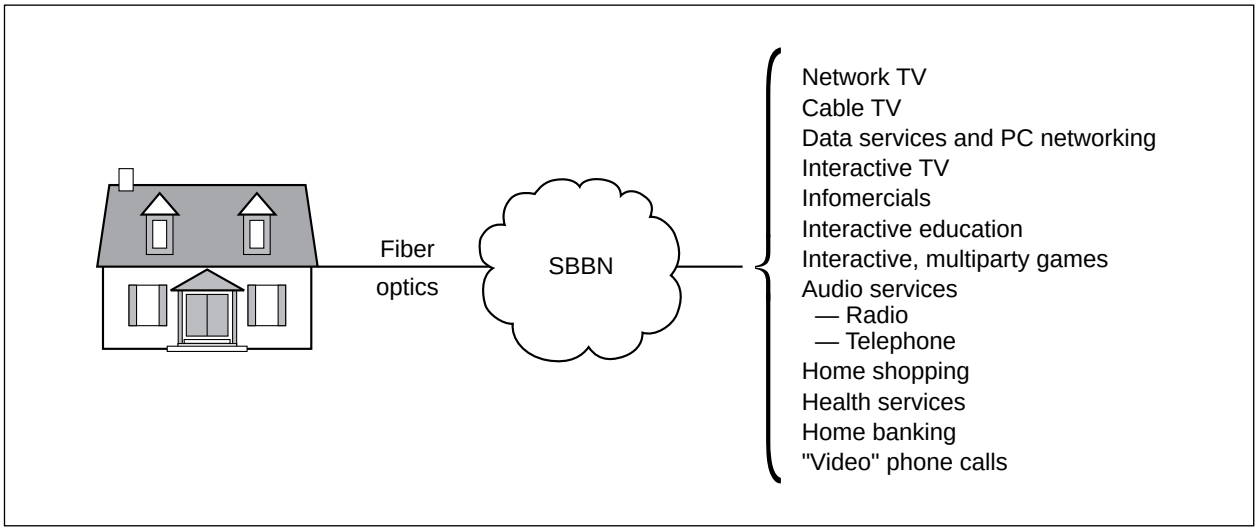

Figure 1.
Switched Broadband Network (SBBN)

also be available as an information service over the network). Service, product, and information offerings will first be local, then national, and ultimately global in nature, creating in effect, a global electronic shopping mall. Current estimates are that the capacity for some 500 or more channels will soon be available on cable TV networks (Burji, 1993). Obviously, from a marketer's point of view, this means not only tremendous audience fragmentation but also a vastly increased opportunity to segment efficiently and communicate to key audiences with little duplication or waste.

A further critical element is the amount of control the consumer has over the network. Because the offerings of VDT are controlled by conscious choices from menus, at whatever time the consumer chooses, the consumer is no longer constrained by such things as a broadcast time schedule. The consumer, ideally, can choose whatever program he/she wants, whenever he/she wants it. In addition, the consumer will often have the choice of paying directly for the video service or viewing commercials as part of an advertising-supported service.

Video Dial Tone – A Commercial View

Just as in the consumer areas mentioned above, VDT will dramatically alter the service environment in the business-to-business market. Suppose, for instance, that a supplier of software applications develops a new product/service for retail banking. The company salesman who specializes in this product makes a desktop-to-desktop video call to a potential customer (desktop-to-desktop with the two-way video signal displayed on their respective personal computers) at a bank in a distant location, downloads a sample program for a "test drive", successfully concludes the sale, downloads the full software program on to the bank's mainframe, and electronically invoices the bank; the bank in turn pays the invoice electronically. All this is done electronically "face-to-face" in a matter of hours, eliminating any travel, middlemen or delivery issues.

Video Dial Tone – The Technical Basis

This consumer and business vision will be made possible by the public "switched

broadband fiber optic network" (SBBN). The network, or series of networks, will be "public" and accessible to all in the general populace who wish to subscribe (just like today's telephone or cable networks), and not "private" such as the networks owned and operated by many large organizations for their exclusive use. In its simplest terms, "broadband" means that an incredible amount of information can be communicated very quickly. "Fiber optic" is a glass cable (replacing the technically inferior copper cable in the case of the telephone network and coax cable in the cable TV network) already widely used, which makes broadband communications economically and technically feasible. While the deployment of fiber optic cable will provide almost unlimited capacity to a network, there is still a lot of copper in existing networks. New "compression" technologies in cable and telecommunications networks are allowing greater amounts of video to be transmitted over these copper networks. The "network" refers to a huge, interconnected "information highway" system (see Table I for a non-technical explanation of terms).

The SBBN is fast approaching implementation, and to some extent prototype networks already exist. France's Minitel system uses a visual display attached to a telephone through which consumers can select information or services interactively by choosing options from a menu on the screen. Programs to establish SBBN networks are also well under way in Japan, the UK, and many other countries.

Public Network
A network available equally to everyone in a population. A network is a combination of terminals and circuits serviced by switching or processing centers. A public network, usually built and operated by a regulated common carrier (i.e. a cable or telephone company), is available to all ubiquitously and comparatively inexpensively. Private networks are closed and available only to select parties.

Switched
The ability for users to self-connect two or more locations within a network at any time. Dedicated point-to-point video networks are currently available but are expensive and not generally controllable by individual users. A switched video network, by contrast, would allow users to make a video call to any other party, inexpensively, and as easily as making today's voice telephone call. Today's current cable networks lack switching capability (and the necessary real-time billing capability), but some are adding such capability in order to offer voice services initially and video services later.

Broadband
A communications channel capable of carrying massive amounts of information of virtually unlimited bandwidth. Voice, data and video information have different signals of bandwidths. Video has the greatest bandwidth. Broadband can carry many hundreds of times more information than today's narrowband telephone line or cable TV's coaxial cable.

Digital
The representation of information (voice, data, video) in the form of discrete digits. Digital information requires much less space, is of higher quality, and costs less to use compared with a continuous analog signal.

Fiber optic
Glass cables about the size of a human hair which use light (often from lasers) to convey information, and capable of carrying massive amounts of information. Most networks today use electrical signals over copper cable. They are less efficient, lower quality, and carry much less information.

Table I.
The Public Switched Broadband Digital Fiber Optic Network

In the USA a number of technical and market feasibility tests (or trials as they are called in the industry) have been undertaken by telecommunications, cable and entertainment companies. While they are too numerous to list in their entirety, a partial list includes trials of various aspects of VDT by AT&T and Time Warner, Bell Atlantic, US West, BellSouth, TV Answer, ACTV, and others. A number of these trials do not have the benefit of networks with fiber from end to end, but are relying on a new compression technology known as ADSL (asymmetric digital subscriber loop), an extension of ISDN technology that allows video to be sent over existing telephone wires.

Regulatory Issues

The biggest obstacle to VDT in the USA is not technical but political, as there are many powerful business interests – cable television, telephone companies and newspaper publishers, among others – competing to take advantage of this new service. While the courts, regulators, and Congress continue to debate the rules for competition in the information services business, it is our contention that consumer pressure and global economic realities will force an early and equitable solution to the legislative and regulatory log-jams. One of the most important steps was taken recently when the US courts allowed the Bell operating telephone companies to provide information services as well as being common carriers for such services. This has had the effect of spurring most of the major players to begin to implement their plans for VDT networks.

A number of countries are rapidly and widely deploying information service technologies to improve services and reduce costs for consumers and businesses alike and, as a consequence, improve their global competitiveness. The USA must and, we believe, will move to bring the benefits of these new services to businesses and consumers. As we will describe, the benefits are enormous, as markets and marketing become faster and smarter.

Faster and Smarter

To see the potential of VDT, we must abstract its key contributions. In its most basic form, VDT may be thought of as a system which combines faster communication with smarter information processing. Thus, from a business standpoint, the defining characteristic of VDT is its ability to make marketing faster and smarter.

Faster

To see clearly the impact of VDT on faster service, we must imagine service time approaching zero, and then use that image to conceptualize the service under VDT. Let us consider some examples.

Consider “movies on demand” as discussed previously. What does a consumer currently have to do to see a movie? Either he/she must wait until show time, and then drive to the theater, or wait until broadcast time, and then switch on the TV. Either way, the consumer is waiting until a scheduled time. What if the consumer did not have to wait? That is, what if the service time went to zero? Then the consumer could see the movie whenever he/she wanted to, immediately. This is accomplished in VDT by selecting a movie and having it shown immediately.

Consider the banking transaction of shifting funds from savings to checking. Originally, the customer needed to wait until business hours and then drive to the bank. The advent of the ATM reduced service time by eliminating the need to wait until business hours. VDT will eliminate even the drive

time. The transaction will be completed at home over the network.

A service which is likely to be transformed by VDT is the supplying of news. Currently, there are several options, among which the most prominent are newspapers and TV newscasts. But let us consider these options from the standpoint of service time. To get printed news, we must wait until the newspaper delivery hour when the newspaper is tossed on our driveway or we can pick it up at a news-stand. Instead, suppose we could choose printed news on the VDT menu, and then have it printed on our printer, whenever we wished. The "newspaper" could be edited on a continuous basis, with a story remaining on the network for a specified length of time. It would also be possible to store recent stories, so they could be recalled for a period of time after the fact.

A similar service could be created for industries like the airlines that rely on suppliers for service, training, and up-to-date documentation. Providing technical specialists in real time, in interactive video sessions, will dramatically reduce the service-related "downtime" in manufacturing and repair situations.

Smarter

Just as we imagined the impact of *faster* service by imagining service time going to zero, we can imagine the impact of *smarter* service by imagining a service provider which is much more intelligent, and much more knowledgeable about the consumer.

Let us again consider the example of supplying news. The previous section talked about how this could be done faster. But it can also be done smarter. One way in which this service can be smarter is by realizing that consumers do not really care about choosing between TV and newspapers. What they really care about is the news. Thus, if the menu is set up by news story, there might be *both* video and print related to the story. A consumer may wish to see both in succession. Alternatively, the consumer may choose whether it is detailed facts and arguments he/she wants (which would be available in print, usually) or whether a visual presentation is needed. Audio (similar to radio) could also be supplied in this context.

Also, the news supplier could give the consumer exactly the news he/she wanted. For example, if Joe is a sports fan, then sports would be emphasized in Joe's newspaper, newscast, etc. The presentation of news would be individualized, based on stated preferences or past choices (or both). A smarter news source would also be sensitive to changes over time in news preferences. Thus the individualized "newspaper" would be constantly changing to adapt to the changing desires of the consumer.

Let us consider another example of a smarter service which should be feasible under VDT. Suppose a consumer wishes to buy some clothing and bill it to his/her credit card. A smarter network would already know the consumer's mailing address and credit card numbers. It could also connect directly and instantaneously with the clothing company. This makes the ordering process much faster and easier. Also, the link to the television makes it possible to show the merchandise, perhaps from many angles, and perhaps in moving video, before purchasing. The system would also know the consumer's size, without asking, and could comment on availability.

Consumer Power

One of the most startling results of VDT will be the increase in the power of the consumer. This is a direct result of the dramatic increase in the quantity and quality of information which will be available to the consumer.

Price

When the consumer has competitive price information readily available, the only result

can be a market which approximates, in economists' terms, pure competition. This should result in a lowering of prices, since any business that priced too high would be conspicuous. This would result in fierce price competition, all to the consumer's benefit.

Channel Power

The advent of scanner data resulted in a major shift in channel power in the 1980s. Retailers became much more powerful with respect to manufacturers. The reason for this is information. Prior to the arrival of scanners, the manufacturer had access to nation-wide survey data, while the retailer was essentially operating in the dark. This resulted in the manufacturer having significantly more power than the retailer. How could the retailer doubt the manufacturer, if the manufacturer told the retailer that product A was doing very well in markets similar to that which the retailer served? With scanner data, however, the retailer has available reams of data about *exactly* what is selling in *that particular market*. This gives the retailer the upper hand.

A similar shift will occur under VDT. This time, though, the consumer is likely to have the advantage. Suddenly a vast amount of information will be available to the consumer, and almost all of it will be received by personal request. This gives the consumer great power over the process. Two results are predictable:

(1) the transformation of advertising; and

(2) the emergence of artificial intelligence tools to help the consumer to consolidate his/her control over the incoming information.

These two predictable results are discussed below.

Personalized Advertising

If the consumer can choose exactly what he/she wants, then advertising must be intentionally chosen by the consumer, to be effective. It must "stand on its own", without being tied to media vehicles. To see why this is, ask yourself the following question: "Which ad is more effective, the one embedded in a TV program, unsolicited, or the one actively sought out by the consumer?" Because ads have always been linked to content, we have an image of advertising as being unwanted. *This attitude will change under VDT*. The fact is, pertinent advertising has always had useful information content. The mechanism which ensures pertinence has been missing; that is, an efficient way for the consumer actively to choose the ads which interest him/her.

Because consumers *will* actively seek pertinent advertising, and that advertising will be vastly more effective than ads linked to programs or news content, advertising resources will shift toward supplying voluntary ads, and away from traditional advertising, linked to traditional media vehicles. The result will be the probable demise of "free" television, and a tendency for most services under VDT to be pay services. Consumers will tend to see advertisements of their own choosing, and that advertising may be multimedia, or of the form desired (e.g. text if details are desired, video if visuals are desired). Annoying ads will disappear because they will not be chosen.

Knowbots – Knowledge Robots

With so much information to sort through, consumers will need some help in deciding what to consider attending to. Anyone who has seen a television directory for satellite broadcasting has had a small preview of the problem. There are so many available programs on satellite that it is very time-consuming to scan them all. Even on cable systems, where the number of choices is smaller, studies have shown that consumers tend to select from only a small number of

cable channels. With VDT, choosing the initial set of alternatives will be an overwhelming task.

The solution to this problem is the knowledge robot (knowbot), which is an artificial intelligence system designed to select information options based on the consumer's desires. Likewise, new car models which are likely to interest the consumer might have their ads selected by the knowbot.

The knowbot will be the consumer's own agent, housed in the consumer's own system. It will work directly in the consumer's interest and will be a vehicle for enhancing consumer power. It will be portable and available at home, work or play. The earliest manifestations of the knowbot are the personal digital assistants (PDAs) announced by Apple, AT&T and others. While not specific to the VDT market, they are the forerunners of the sophisticated knowbots which will help consumers to cope with vast amounts of information in a VDT world.

The Transformation of Media

The preceding sections have shown that media as we now know them are likely to be transformed dramatically by VDT. First, the media will no longer be distinct. A single presentation may involve video, high fidelity stereo sound and available print. Even smell or 3D video may become available as the technologies are developed. We will consider the impact of VDT on two types of media: "moving media" and "still media".

Moving Media

The "moving media" are those which unfold in real time. They include such things as TV, radio and movies. For the purposes of VDT, TV and movies are essentially the same. Because of the transformation of advertising, these media are likely to be pay-for-view, and a large library of alternatives is likely to be available for immediate viewing, on demand. The knowbot can help to narrow down the huge number of alternatives. Recorded music also fits into this category, as SBBN technology will permit the transmission of CD-quality digital data.

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Music may be purchased by the song

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Increasingly therefore, music may be purchased by the song or the album as a service (perhaps as customized MTV-like programs designed and delivered to the customer's specifications) rather than a physical product. A "party tape" of various songs could be assembled over the network on a pay-per-listen basis. Thus the actual physical ownership of CDs, tapes and records is likely to decline. Cable systems are already offering similar services.

The vast increase in the number of choices, and the network nature of the system, will make it possible (and common) for someone from California to watch Georgetown basketball games or someone from Washington DC to watch UCLA games. There will be no such thing as local media anymore. All media options will be national. There will still be a market for local Nashville news, for example, but, although most viewers will be from the Nashville area, some will be from widely scattered parts of the country.

Still Media

The "still media" include the traditional print media such as newspapers and magazines, plus art forms such as photography and painting, and knowledge forms such as books, encyclopedias, and databases. All of

these are likely to be pay-per-use. There are several potential presentation modes. The first is video display, which is currently widely used for computer networks. The advantages are high quality color images and efficient disposal of the used images. The second presentation mode is print. A printer, hooked up to the network, can produce hard copy of the presented information. This has the disadvantage of being wasteful of raw materials. A third presentation mode, already in common usage in computer databases, is the transfer of information to a local computer file.

A fourth mode of presentation seems to be the most promising for media which have traditionally been held in the hand, such as books and newspapers. This mode has not yet been perfected technically, but we know what characteristics it must possess. It will be a flat, electronic display, but will feel like a book, and its screen will not be shiny or reflective. It will use very little electricity, reducing health risks and annoying static. A simple control, built into the "liquid book", will control the moving forward or backward in pages. The liquid book will have no resident memory, but rather will send and receive radio messages to and from the system's local computer, where the information providing the images is housed. Although it is well-known that people do not like to read large amounts of text on a screen, liquid books will have the advantage of audio and video information to add interest and excitement. Viewers/readers of these books will have the option of using a disk or CD, or receiving information remotely through a wireless network.

Implications for Management

The dramatic media revolution pictured in the preceding sections will destroy marketing as it is currently practiced, and provide a new set of marketing opportunities. We will examine the impact on marketing management by inspecting each of the major decision areas. For our purposes, we will consider the "four Ps" (promotion, price, product, and place), plus a "fifth P" (people).

Promotion

Promotion includes advertising, sales promotion, and direct selling. We have seen in a previous section how advertising will change from *involuntary* to *voluntary*. This implies that ads will focus less on grabbing attention and more on persuading the consumer of benefits. Advertising will thus contain more information, both factual and emotional. Considerable effort will be expended to construct ads which will be selected by knowbots. Ads may also be multi-media whenever such a move can be cost-justified. For example, a GM ad may look like a TV commercial but then provide optional facts, figures, and details for examination using the liquid book or for storage on the local computer.

Sales promotion will change dramatically, too, as consumers gain the ability to seek out actively which products are on sale or which stores are having a store-wide sale. Knowbots may also be useful in sorting through promotions to see which would be of greatest interest.

Direct selling is likely to decline in importance, but not disappear, for the simple economic reason that unit promotional output will stay about the same for personal selling, but decrease for media promotion. Personal selling through videoconferencing will become a commonplace alternative. Some companies are already planning videoconferencing networks from the central customer service locations to retail outlets. Once the SBBN is in place, the video-conferencing can be direct to the home.

Price

We have seen that well-informed consumers force prices down, because the conditions which result in perfect competition are more

nearly met. An implication for business is that competing on price becomes a very effective way to get consumers' attention. Those not wishing to compete on price must work especially hard on the reciprocal variable in the value equation, quality. Fortunately, quality is more easily demonstrated in a multimedia setting, especially since a longer demonstration is likely to be tolerated if the ad is voluntarily selected.

Product

In a world defined by VDT, products and services will have to meet an emerging set of criteria we call "VIP" – visual, intelligent and personal. Static, visually uninteresting products and services will lose out to those which have an exciting visual personality, and communicate clearly and quickly. Products and services which provide real information and intelligence will be those sought out and used by consumers. Such products will be priced on the basis of their "intelligence value" to consumers and older products will be able to be revitalized on the basis of their information and intelligence quotient. Finally, the products and services which succeed in an era of VDT will be personal – that is, they will allow consumers to be involved in their creation and will be highly tailored to individual consumers' needs. An excellent example is the on-board navigation system currently being tested for cars. The device is mounted in the dashboard and on command will provide a visual map of a desired destination, real-time analysis of traffic conditions (through wireless communications with a central traffic control point), and exact directions on the most convenient, safest, and most economical route. VDT will not be confined to the home or office, but will be available everywhere. New portable video devices are already being introduced.

Place (Distribution)

Information services can be provided at any time, from anywhere, if there is a network. Since information services will be the most rapidly growing part of the economy under VDT, the concept of place will become relatively less important. Also contributing to the decline of the importance of place will be product information available network-wide, which will make competitors out of businesses which are widely separated geographically.

Both wholesalers and retailers will become less important because direct communication with the manufacturer will be facilitated. The consumer can order direct, over the network, perhaps after selecting and viewing an extended "infomercial". This cuts out traditional channel intermediaries.

People

In an information economy, the "fifth P" (people) becomes more important. The fifth P includes such concepts as customer service, customer satisfaction, relationship management, and complaint handling. All these elements are significantly strengthened by VDT. Customer service is strengthened because greater communication is possible. Suppose, for example, the consumer is having some problem with a product. The customer service department can use video to demonstrate how to fix or use the product properly, in real time, over the network.

Customer satisfaction monitoring and complaint handling are improved because the network itself has two-way communication ability, so the customer can complete a satisfaction survey electronically and immediately, perhaps for some small reward. Relationship management is strengthened because a business can keep track electronically of the ordering history of a customer, instantaneously updating a consumer profile. Relationship management

must become much more than junk mail, however, as identifiable customer benefits must be offered to motivate customer receptiveness.

Marketing Strategy

The key concept here is segmentation and, with mass advertising being replaced by individually selected advertising, the size of a profitable market segment will probably become much smaller. Thus "micro-niching" (addressing market niches which were formerly too small to be profitable) becomes the winning product/service strategy. This concept combines very well with flexible manufacturing. Imagine also the concept of an individual-specific banking service where the fees and services are designed to maximize the individual's benefits at the least cost. Individualized products and services will become dominant in the VDT environment.

Summary

To summarize, VDT (a combination of advance telecommunication and computer technologies) is likely to revolutionize marketing in the next 20 years. Its implementation – long blocked by law and court rulings and maneuvering by various industry groups – is currently accelerating. Businesses will have to rethink their strategies – particularly marketing – as almost all products and services will be able to be provided *faster and smarter*. VDT is a bonanza for the consumer, because the vast amount of available information portends a shift in power from business to the consumer. Advertising will become voluntary and the media will merge. Pay-per-use will probably replace advertiser-supported media and multi-media presentations will become commonplace. Print media will become a historical curiosity as soon as a tactilely acceptable electronic book substitute ("liquid book") is devised. All this will have enormous impact on the practice of marketing, as price becomes more important, place becomes less important, and "micro-niching" becomes the segmentation strategy. Customer service, customer satisfaction, relationship management, and complaint handling will all be facilitated and become more important in the environment of VDT.

We must all get ready to change the way we do business.

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