Broadband Innovation and the Customer Experience
Imperative

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Introduction

The Dawn of the Broadband Era

The rollout of high-speed broadband networks promises to change the nature and shape of innovation in the digital domain. Changes in successive generations of broadband technology will allow businesses to compete in radically new ways, thus possibly redefining several industry business models (Wolf & Zee, 2000). At the epicenter of this change is the Internet – the universal and low-cost medium for delivering information across various channels (Hillis, 2000). Given the nature of broadband connectivity, several major changes can be foreseen in the business landscape. First, businesses will have continuous and real-time access to consumers connected at high bandwidth across multiple interfaces, representing a major change over the fragmented nature of connectivity for most consumers today. Second, businesses will be forced to create, brand and distribute products and services in a multimedia-enhanced and interactive format. Third, businesses will be able to integrate customer knowledge collected at different interfaces and use it to drive their strategy across multiple channels: be it broadband, wireless, online, brick-and-mortar, or a combination of these. Finally, customers will be integral players in defining the context and content of consumption, and reward businesses that are able to respond effectively to demand.

These developments present significant business challenges and opportunities. In this paper, we examine the impact of this burgeoning broadband infrastructure for businesses hoping to attract, reach, retain and transact with customers, and what it means to compete in such a media-rich environment. We propose that the creation, delivery and customization of superior customer experience will be critical to long-term success. We also examine the role of content and infrastructure providers, and their interactions with end-customers in this evolving domain.

The Backbone: Work in Progress

Technically, the Federal Communications Commission (FCC) has defined “broadband” as: the capability of supporting, in both the provider-to-consumer (downstream) and the consumer-to-provider (upstream) directions, a speed in excess of 200 kilobits per second (kbps) in the last mile (FCC, 1996). Given that such speeds can be provided through a number of potential channels, it is not surprising that innovation in this domain has therefore taken place along different trajectories, like on the PC platform, interactive television, and mobile wireless infrastructure. In addition, broadband access can take place through sporadic, regular or “always-on” type connections, depending on the purpose and mode of access.

Wired broadband infrastructure is slowly but steadily being rolled out all over the United States, and in other parts of the world (Mehta, 2000). Major providers of cable broadband access in the United States include a. AT&T, which also controls former cable systems operated by Media One, TCI, as well as a partial interest in Time Warner’s cable systems, b. Comcast, which is backed by a $1 billion investment by Microsoft, c. Charter Communications, owned by Paul Allen, and d. AOL-Time Warner, through its Roadrunner service. In Europe, although only 2% of those online had broadband access in 1999, a number of firms are already laying the groundwork for the future. Among the major players are chello broadband and Europe Online (each serving 12 countries), T-Online in Germany, Wanadoo and AOL Numericable in France, B2 in Sweden, and Btopenworld and Tele 2 in the UK (Godell, et al., 2000). Interestingly, these European providers provide broadband access through multiple technologies including ADSL, cable, fiber, satellite, and fixed wireless. Up to 46 million subscribers (in the US) will have high-speed Internet access by 2005, and generate revenues in excess of $15 billion (Scaffidi & Zohar, 2000). Analysts estimate that nearly two million miles of optical fiber have already been placed in the ground, and more is on the way, potentially creating an oversupply of fiber capacity and obliterating major parts of the communications industry (Bhisie, et al., 1999). These developments indicate that it is a matter of time before broadband infrastructure achieves a significant penetration in households across the United States (Clark, 2000; Medin and Rolls, 2000). In the wireless local area networking (LAN) domain, a number of service providers are rolling out “Wi-Fi” that offers un-tethered Internet connectivity solutions with speeds reaching 11 Mbps. Industry observers have pointed out that the forces of consumer demand, coupled with attractive provider economics will ultimately accelerate broadband penetration in North America and Europe in particular to almost 50% of all online households.
Parallel to this rollout of infrastructure, there have been several developments in the area of consumer access to broadband and multimedia content. Following the AT&T-MediaOne merger, and the union of Excite and @Home, and AT&T’s buyout of TCL, the merger between AOL and Time-Warner merger has created a media giant that will have access to a vast network of consumers, a broad portfolio of media assets, and the capabilities to deliver interactive and high-speed media infrastructure and content. The AOL-Time Warner merger alone creates a combined total market of 33 million subscribers world-wide for the two companies across their multiple brands (Cheng, 2000). It is anticipated that broadband services will account for an increasing fraction of the revenue from all communications services to the household. Initial projections indicate that high-speed data access rates will grow despite low initial volumes. Consumer broadband and cable television growth rates will grow at four to nine percent, while high-speed data access is forecast to grow at an almost 100 percent annually (Insight Research, 1999).

**Broadband: One Step Closer**

Broadband clearly represents a change over the way in which business will be done. Let us first examine some of the ways in which this new-media world of broadband is different. First, broadband expedites the creation, adoption and use of multimedia applications. Content, communication and commerce applications are likely to dominate the bulk of transactions that will be enabled by new broadband infrastructure (Green, et al., 2000; Maxwell, 1999). In the content area, high quality entertainment in the form of audio, video, television, interactive gaming, interactive program guides and high-quality digital photographs can be accessed from consumer desktops and networked appliances. In the communications domain, applications like voice over Internet Protocol (VoIP), video conferencing (Ditlea, 2000), video-on demand (VOD), and data sharing capabilities will be enhanced, both at the consumer and more importantly, at the corporate levels. Developments in the areas above will impact on the third dimension, i.e., the commerce applications. Video catalogs, on-line customer service and support, and collaborative and group buying applications can be facilitated as consumers share and interact with electronic commerce outlets, and business networks use the infrastructure to do business with suppliers, partners and customers. This myriad of applications promises the creation of sophisticated product and service attributes that are rooted in multimedia.

Second, broadband will take us closer to the notion of instant interactivity, and therefore, towards instant gratification. One the one hand, it might simply and instant access to a movie or a music single through the PC or TV set, while on the other, it might mean an ability to find a detailed restaurant review and instantly reserve a table using a cell phone or PDA at a busy street corner. Traditional models of advertising and marketing are turned upside down in this world of instant gratification. As the consumer expects and demands instant information and transaction capabilities in an interactive and multimedia environment, businesses have to ensure that they are not left out of competing at this level of interaction (Pavlou & Stewart, 2000). A creative blend of push and pull type marketing models need to be implemented across multiple channels. While push based marketing models enable the rapid deployment of codified business rules, pull based models take into account real-time changes in consumer preferences and behavior, and help generate new business rules. Marketers can derive further efficiencies from a more granular approach to marketing, and also through "enlightened self-service", i.e. where the customer pulls the information based on his or her needs, and is willing to undertake search and data entry functions (Perkins, 1999). This type of instant interactivity is not restricted to the consumer market. The business-to-business broadband market has emerged as an attractive initial market for using multimedia promotional solutions to build and update corporate and image marketing efforts online. Business customers can currently visit several vendor sites to obtain the latest multi-media product information and downloads, participate in instant promotions, view web-casts and corporate events, and track responses to promotional campaigns in real time.

Third, broadband shifts marketing emphasis from a broadcast model to a model focusing on one-to-one relationships, where consumers decide the time and terms of interaction (Bhandari, et al., 2000). Several business models have already emerged based around this concept. TiVo, ReplayTV and UltimateTV, for example, allow customers to access content like movies and TV shows that are digitally archived and indexed at the service provider level, and stored on hard drives at the customer household or delivered instantaneously over high bandwidth connections. Instead of being forced to watch unwanted or irrelevant content or commercials, consumers can now decide what to watch, and then interact with this content in interesting ways. As consumers gain the ability to skim through or avoid commercials (like in the ReplayTV interface, for example), the use of product placements in movies and TV shows will become more widespread. In cases where the interface does not allow the ability to skim commercials, advertisers can be more focused and serve ads based on their understanding of customer profiles and preferences. Users will be able to freeze the action on the TV or computer screen while they “scene surf” for items that may be of interest to them (clickable “promercials”). OpenTV has filed for a patent on “one-button-press shopping” through a TV remote con-
The Role Of Customer Experience

Experience Matters

In addition to impacting marketing methods and tools, widespread deployment of broadband infrastructure forces a fundamental shift in how firms think about consumers, competitors and their partners, and their role in value creation. It was proposed as early as 1994 that the Internet would lead to the dramatic dis-aggregation of the content, context and infrastructure elements in various industries (Rayport & Sviokla, 1994), and the move towards an economy dominated by experiential consumption (Pine, et al, 1999). As many firms can attest today, this is exactly what has happened since, forcing many to re-examine their position in the value chain. In tomorrow’s broadband economy, we will see a further confirmation of these trends, with elements of the content, context, and infrastructure industries both simultaneously diverging and yet converging in very interesting and innovative ways. The number of channels through which firms communicate will be many, and access to the Internet will be ubiquitous. The fundamental determinant of these divisions and unions will lie at the understanding and implementation of a core concept: the creation, delivery, and customization of superior customer experience. Figure 1 provides a delineation of this model based on the original framework proposed by Rayport and Sviokla (1994).

We define customer experience in the broadband context as the value chain that ranges from a) the creation of unique and marketable content, b) the tools, techniques and infrastructure of experience delivery, to c) the ability to read, react, and interact with consumers in a very personalized fashion. Given the dis-aggregation of content, context, and infrastructure elements already taking place, business entities at each of these portions of the value chain should understand how best to leverage their expertise. Telco’s and other infrastructure providers, for instance, will find their competencies woefully inadequate to create and provide entertainment services. They might find it more lucrative to enter into alliances with media firms and other content partners, and channel content through their infrastructure. Media firms on the other hand, have access to a large library of content, and are in the business of creating new content. However, in order to reach mar-

Figure 1: Delivering Experience in the Broadband Era

Creating the Experience
- Producing Original Content
- Syndicating of Existing Content
- Re-packaging and Versioning Content
- Identifying the Niche and Value

Delivering the Experience
- Setting the Context
- Matching Content to Context
- Connectivity with End-customer
- Delivering through Multiple Channels

Customizing the Experience
- Personalizing to End-customer
- Fostering Community Interaction
- Collecting Customer Feedback
- Learning from Customer
- Co-Creating with Customer
- Reinforcing the Experience Package
- Refining the Value Proposition
kets through the broadband channel, they need relationships with the infrastructure players. Infrastructure players and content providers have to rethink the notion of context: and figure out new and innovative ways to create experiential contexts that drive consumption (McDonald, 1997). A closer examination of the process by which customer experience can be created, delivered, and customized will help in a better understanding of this notion.

Creating the Customer Experience

Digital products and services have been an important mainstay of the global economy. The ability to create meaningful customer experiences will hinge largely on how businesses create content and manage the content-context interface. Music, entertainment, publishing, software, education, and the consulting industry, to name a few, have already been exposed to the possibilities of instant digital exchange. In the broadband world, owners of exclusive or proprietary content rights will gain from their ability to license and syndicate high-bandwidth content like music, video, games, and other types of digital entertainment. In the movie business, for example, many small firms have begun to obtain rights to content like independent movies, documentaries and niche films and with the objective of syndicating them to Internet portals, cable companies and other video-on-demand providers. By building such libraries of content, service providers can reach out to consumers across multiple channels. Consumers could purchase content through e-commerce outlets or portals, download or view content instantaneously through a VOD provider, and watch content on their TV screens or desktops. World-wide licensing fees for online digital content is expected to grow from $343 million currently to almost $1.5 billion by the end of 2004, indicating the importance of and hunger for content in a globally networked society (Borzo, 2000a). Broadband infrastructure can also create new markets for content that would have been lost in the traditional broadcasting world. Atom Films, a Seattle-based distributor, aggregator and producer of short films and downloadable movies, has established itself as a leader in this niche. By making money off of syndicating a huge library of content, Atom Films reaches out to extremely small audiences per film, but has a significant combined audience across all of its content holdings. On top of its efforts online, the company hopes to reach a wide audience through wireless Internet, an ideal channel for the distribution of short films. Thousands of user have already downloaded films onto their Windows-based Pocket PCs from their website (Borzo, 2000b). Mainstream content creators like Hollywood studios, major music labels, and the publishing industry can solidify their role in this part of the value chain, by creating, syndicating and versioning content that can fuel the broadband content engine. By identifying the value-add at the content-context interface, these content creators can extend their reach into the identification of the exact niche in which their content will be consumed, and the context in which the consumption will take place.

As digital information (like music, movies, and software) moves to a distribution channel like a super-fast broadband network, variable costs almost disappear due to non-existent manufacturing, packaging and shipping costs (Varian, 1998). Not only are the margins in this kind of business high, but digital content providers can also enhance revenue streams by repackaging and versioning of their original intellectual property. Versioning and syndication thus emerge as major forms of value-creation in this domain. Reputed and uniquely positioned content providers can move aggressively to capture the opportunities using such a strategy. A niche content creator like The National Geographic Society, for example, can generate several versions of the same original content (video, audio, still photographs, text, interviews, and other material), and deliver it to different audiences in different formats (CD-ROM, magazine, Internet, TV, radio, wireless devices), based on the value of the content to those audiences, and their willingness to pay for it. This model will eventually be extended to products and services that are not digital, but have components that can be digitized: for example, one might not be able to “download” a car, but could view the specs and interior using an interactive online interface, set up an appointment with a neighborhood dealer for a real test drive, and receive continuing alerts on the brand through opt-in SMS messaging.

While industry observers point to the fact that the content industry is inherently unprofitable as compared to the infrastructure business (Odlyzko, 2001), content drives customer experience and consumption. Further, content allows marketers to reach small niche audiences that might not otherwise be accessible. Good content, once created, can be repackaged and presented in the appropriate format to the right audience. Content allows for product and service differentiation, which in turn mean higher margins, unlike the infrastructure area where commoditization is the order of the day. Broadband service providers will do well to acquire competencies in specific areas relating to content management, and build viable content libraries that will serve them in the long run. See Table 1 for a listing of these competencies as suggested by Brothers (2001),
Delivering the Customer Experience

It is not enough if unique and original digital content is just created. There is a separate portion of the value chain that is focused on delivering this experience to consumers in various contexts. The ability to provide this service requires an understanding of the types of consumption contexts, and the distribution channels through which this consumption will take place. For example, while facing serious challenges, might also be blessed with a unique market opportunity. They command a leadership position among Internet users in their markets, and possess billing relationships with their customer base. However, as an industry, they have been slow to innovate, and suffer from a defensive mindset. It is clear that the infrastructure part of the business is about to undergo a massive shake-up. New and nimble businesses have shown their expertise in being able to deploy superior marketing skills and operational execution. Future broadband service providers (BSPs) like AOL Time-Warner focus on both the creation and delivery of customer experience. By leveraging Time-Warner’s media assets, which serve as the content base, a gateway is provided into an Internet world that is interactive and integrated. By reaching customers through their desktops, networked appliances, and wireless devices, AOL-Time Warner is creating the content, the context of consumption, and providing the infrastructure through which customer experience will be delivered. Japan’s NTT DoCoMo focuses on the creating a unique customer experience out of syndicated content that is delivered as part of a bundled package on the i-Mode data service. DoCoMo realized early on that the key to success would be to provide a unique experience to their customer, by integrating disparate sources of content, and delivering them through a reliable infrastructure, in a context that was well understood and meaningful. It is their understanding of the context of consumption (i.e. market needs, trends and information demand), which essentially drove every other element of their strategy. Japan has over 49 million mobile phone users, most of whom do not have either cheap or reliable access to the Internet at home and the office. The mobile phone is therefore the single most important way of communicating, finding and exchanging information. DoCoMo’s i-Mode service offers e-mail, proprietary information and access to a variety of websites, and services like banking, email, travel, and information service while on the go, all ideal for delivery on the mobile phone form-factor. Thus, while one may view NTT DoCoMo’s basic business model as that of an infrastructure provider, it is the creation and understanding of a meaningful context of customer experience that explains their phenomenal success. Through its 3G and 4G technologies, DoCoMo is now moving into areas like high-speed broadband wireless, which incorporates several advanced features one would associate with high-bandwidth, on small, mobile devices (Rao, et al., 2000). The lessons for broadband infrastructure providers are very clear. It is not enough to provide connectivity to end-customers. The real value will come from understanding how to position and market services that might be deliverable through that infrastructure, but in a context that adds high value to the final package. Once this aspect is understood, managers can further elaborate on the elements that define the context and infrastructure elements. Broadband marketers can take a lesson out of the book of successful retailers and entertainment companies. By identifying a unique market segment or niche, and building a shopping experience around it, several retailers and entertainment providers have been able to create consumption contexts that are unique and differentiated. A similar progression can be expected in the case of digital content.

As more service providers come online, so will the number of distribution models that seek to match content and context to the final customer. At the part of the value chain closest to the customer, there is the proliferation of new types of hardware and access devices. This includes everything from game consoles, to small devices that tap into a broadband network, be they wire-line or mobile. Of course, these devices will need software applications that both differentiate the customer experience, and integrate with the broader technical standards in the industry. The music industry has been one of the first industries that have truly felt the impact of this type of transformation, through the MP3 and Napster phenomenon. A digital compression model like MP3, a viral distribution model like Napster, and ubiquitous access devices like MP3 players, game consoles and even CD players has led to widespread adoption and usage of digital music, albeit controversial from the legal perspective. While it is impossible to stop all theft of digital content, creating irresistible service packages around digital content will lead to their commercial adoption (Scheirer, et al., 2000).
Arepa, a broadband startup, offers consumers with broadband connections the ability to play any CD-ROM or DVD-ROM available on its servers without needing to download client software of any kind. This model will eventually be extended to software packages and other productivity tools that normally need to be either downloaded or installed (Gove, 1999). ASP type distribution models will be an important way of delivering digital intellectual capital in the future. With continued innovation in the areas of encryption, security, and micro-payments, there are reasons to remain optimistic that the floodgates will open for mainstream digital distribution of all forms of content (Ghosh, 1998). The itemized monthly broadband access bill of the future might very well be unrecognizable from today’s phone or cable bill.

Customizing the Experience

Besides mastering the creation and delivery of content, the biggest challenge to businesses will come from understanding and catering to customer behavior, and using customer knowledge to improve their value proposition. Customers continuously provide valuable information at the individual and community levels, and are not passive recipients of information. Armed with inexpensive technological tools, they will in fact be the dynamic creators of useful and value-added content, media and commercial services. Businesses should therefore recognize the value of customers in shaping the characteristics of new products and services, and should incorporate customer input at every stage of complex, disaggregated, and dynamic networked value chains in their respective industries. By adopting a customer-centric model, and by co-opting the customer in the value-creation equation, efficiencies can be realized and new forms of innovation can be unleashed (Prahalad & Ramaswamy, 1999). The traditional marketing mix (4 P’s) will have to be deployed in a fluid fashion, depending on the customer and the context of consumption – experts point to the rise of contextual marketing across access platforms, and the need for businesses to truly understand customer needs and desires (Kenny & Marshall, 2000). By combining a customized marketing strategy with mass customization, firms can truly exploit the potential of the co-creation with the customer (Wind & Rangaswamy, 2001). Figure 2 shows the changing nature of customer engagement in the broadband era. We propose that customers will emerge as the focal point of innovation, even as they shape the patters of future demand, thus necessitating an approach that is rooted in superior service and individualized experience.

Given the importance of customers in value creation, it is expected that online communities of connected consumers will play a critical role in enhancing the overall quality of customer experience (Gil, 2000; Hagel & Armstrong, 1997). These communities facilitate information exchange, and result in the dynamic creation, sharing, and shaping of new content. In addition, they bring people with similar interests together, which means that marketing messages to groups and sub-groups can be targeted based on what is known about community members age, gender, income, education, and ethnic group – with their explicit consent under clear privacy policy guidelines. The initial waves of business-to-consumer e-commerce services have been geared towards high-income, middle-aged adults with a me-
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Thus, online communities will
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personalization.

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nels of consumption. Often times, the
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customer interaction with it. Third,
the customer serves the role of demand
forecaster, by providing valuable data
to businesses about trends and demand
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The Road To Profitability

As new business models proliferate in
the broadband era, there are significant
concerns about the ability of firms to
deriver what they promise, and
make money out of it in the long run. Often,
managers make assumptions
about trends that take years to reach
maturity, or ignore ground realities.
Several observers have expressed caution
over the rush to stake a claim on
the broadband turf, without a sound
money making proposition (The Eco-
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concerns whether infrastructure
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delineation of sample revenue models
for players who seek to compete in the
realm of creating, delivering and per-
sonalizing superlative broadband cus-
tomer experience.

It is vital that businesses understand
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from the fixed infrastructure.

Table 2:
Sample Broadband Revenue Streams

<table>
<thead>
<tr>
<th>Add value</th>
<th>Earn revnues Through</th>
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<tbody>
<tr>
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<td>Fulfillment</td>
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<td>Providing distribution infrastructure</td>
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<td>Value-added services</td>
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<th>Delivering Experience</th>
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<td>Concierge services</td>
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<td>Loyalty programs</td>
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<td>One-to-one advertising</td>
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<tr>
<td>Outsourced (customer) R&amp;D</td>
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<tr>
<td>Market research</td>
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<td>Bundling and cross-promotions</td>
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<td>Push-pull hybrid marketing</td>
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<td>New product/service development</td>
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<th>Personalizing Experience</th>
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The Road T o Profitability

As new business models proliferate in
the broadband era, there are significant
concerns about the ability of firms to
deriver what they promise, and
make money out of it in the long run. Often,
managers make assumptions
about trends that take years to reach
maturity, or ignore ground realities.
Several observers have expressed caution
over the rush to stake a claim on
the broadband turf, without a sound
money making proposition (The Eco-
mist, 2000). There are also substantial
concerns whether infrastructure
rollout will go as fast and smoothly as
promised, what if any impact it would
have on marketing capabilities. Initial
research indicates that there might be
several routes to profitability in the
broadband world. Table 2 provides a
delineation of sample revenue models
for players who seek to compete in the
realm of creating, delivering and per-
sonalizing superlative broadband cus-
tomer experience.

It is vital that businesses understand
that sustainable profitability should be
at the core of every broadband innovation
they plan to bring to market. In
an era of instant information and em-
powered consumers, it becomes par-
ticularly important for marketers to
consider what stage of the commod-
ty-specialty continuum their product or
service offering is. As we move from a
commodity product to a product with
look-and-feel and variable quality char-
acteristics, the intensity of consumer
experience becomes very important
and takes on new meaning in different
contexts (de Figueredo, 2000; Bruner &
Kumar, 2000). Marketers should pay
close attention to determining the con-
text in which consumers see the prod-
uct or service offering, and anticipate
the premium or discount associated
with that particular setting. In some
contexts, even commodity products can
command high premiums (due to other
value associated with them in a particu-
lar purchase context: temporal value,
for instance). Convenience and ease of
access should be integrated across chan-
nels using innovative delivery tools.
Such integration can yield rich divi-
dends, enabling businesses to increase
margins through mass-customization
and deep service. By hosting and man-
aging content in-house, or by
partnering with the right content
sources, service providers should tran-
sition from infrastructure-based mod-
els to businesses that offer a compre-
hensive customer experience within a
particular context. With the appropri-
ate content in place, BSPs can enhance
their offerings and collected increased
revenues through high-value subscrip-
tion and on-demand pay services on top
of the base access fees. This effectively
enables them to derive higher margins
from the fixed infrastructure.
Managerial Impact

New types of interactivity were foreseen in marketing thought right at the advent of the Internet (Deighton, 1996). Online marketing channels have fundamentally changed how customers interact with media, be it television, the Internet, the phone, or combinations thereof. This has necessitated changes in the way in which information about customers is collected, analyzed and put to use, and the consequent rise of a “new media” mindset. Ted Leonsis, CEO of Redgate Media describes the transition from traditional media to new media as follows: “Traditional media is broadcast in nature, and new media is highly targeted, personal, and granular. Traditional media is unaccountable, new media is very accountable” (Perkins, 1999). By its very nature, the combination of broadband infrastructure and personalization tools together offer high bandwidth, multi-media interactivity, and a significant degree of granularity. The widespread deployment of broadband infrastructure will increase the use of interactive and data-intensive marketing models that take into account how consumers access and use information. The promise of interactive, always-on connections, lower costs, and deep customer reach point suggest that broadband Internet might well be the next frontier that direct marketers need to conquer.

An initial study on the impact of broadband marketing messages shows that click-through and purchase intentions among consumers were much higher for broadband content than for narrowband versions of the same advertisements (Brandmarketing, 2000). While customer loyalty is often stated as one of the desired goals of online marketing, the notion of customer loyalty in the broadband era can be fickle, given increased choice, shortened attention spans, and the rapidity of feedback. While marketers continue to make traditional assumptions of customer loyalty (e.g. the need for customer involvement with brands, and the 80/20 rule as applicable to customer purchases), it turns out that many core customers might be loyal to multiple brands or in the broadband context, multiple “channels” (Dowling & Uncles, 1997). This multi-channel loyalty phenomenon is fostered by the fact that connected customers often form a network of business relationships, and their tastes and preferences are created through experience with multiple brands and offerings, even for the same product category (Gory, 2000). Each of these experiences comes laden with subtle variations in the value proposition, be it in the area of temporal benefits, demand and usage situations, or pricing. Managers should cater to this change in the following ways:

1. Recognize and respect multi-channel loyalty. Use it to better understand your end-user profile and dynamics of brand interactions across these channels. Use this knowledge about customers to create and reinforce offline and online brands (Neuborne & Hof, 1998).
2. Ingrain variety and choice as critical product or service attributes. Work with partners to create seamless interfaces across these channels. Provide your core value proposition and syndicate or outsource the rest through a network of partners.
3. Respect consumer trust and privacy at all costs. Treating consumer profiles and behavior data as a tradable commodity will backfire in the long run. Make explicit the company’s privacy policy through simple, easy-to-understand communication.
4. For low-involvement products and services, figure out innovative ways to deliver value, and move them up the value chain. This can create unanticipated streams of service revenue as in the case of NTT DoCoMo. The company charges users around a dollar a month for a new “Bandai” cartoon character to be downloaded automatically onto users’ cell phones every day. This mundane service adds nearly $20m to their annual revenues (Rao, et al., 2000).
5. Radical changes in technology consumer behavior call for radically new strategies. Develop innovation capabilities within and outside the organization to foster innovative approaches to reaching customers (Achrol & Kotler, 1999).

Conclusions

Online marketing sophistication in the broadband era will lie at the intersection of creative multimedia content, the use of in-depth market data, and the deployment of interactive and analytical technological tools for data analysis and knowledge management. In order to reap the rewards of the broadband era, businesses need to adopt a model of innovation centered on the creation, delivery and personalization of superrative customer experience.

It is inevitable that there will be a strong demand for broadband-optimized and multimedia content. Managers will have to develop capabilities in integrating and exploiting the convergence of content, communications and commerce applications. High-quality audio, video, and interactive gaming and commerce applications will be the most in demand, and will change the nature of distribution in the media, entertainment, software industries. Television will operate bi-directionally, both as a receiver of media programming and content, and as a transmitter of information, customer profiles, and commerce. In a broadband world, content assets like audio and film libraries and various other media will be invaluable to infrastructure providers, who will use it to package and version content in interesting ways to the final audience. There will be a sharing of distribution and content assets to a broader audience through this partnership, and of other possible partnerships that
might be forged in the future. Further, managers need to pay close attention to the concept of media-on-demand and instant interactivity. Just as the Web enabled anyone with a computer and an Internet connection to become a desktop publisher, broadband infrastructure will increase the ranks of individual audio and video broadcasters. This type of interaction will also be extended to a mobile arena, and necessitate the integration of information databases across multiple vendors, and the ability to rapidly deliver custom information in real-time. By seamlessly connecting all types of Net devices and appliances in the home, office, car, and on person to the Internet, through a physical broadband connection, service providers will build new business models to provide functionality, ease-of-use, and instant access.

Managers will have to adopt a strategy that is centered on the notion of superior customer experience, and co-create digital products and services in a dynamic fashion. The dis-aggregation of content, context, and infrastructure elements across various industries will be accelerated through the widespread deployment of broadband. Businesses who operate at various parts of this disaggregated value chain will have to examine and understand how best to leverage their expertise. A direct managerial implication of this dis-aggregation will be the rise in the number of alliances between infrastructure and content providers, and the need to build revenue models based on syndication, versioning, and re-packaging of content.

In this paper, we looked at how the widespread deployment of a high-speed broadband infrastructure would potentially impact value creation in the “always-on”, and information intensive business world of the future. We argued that firms should focus on creating a superlative customer experience, through a creative blend of content, context and infrastructure elements that shape their business. They need to clearly identify their capabilities and competitive position in this disaggregated value chain, and focus in on elements that deliver the most value. Non-core elements should be outsourced, and partnerships should be aggressively pursued in cases where complementarities are evident. By adopting a customer-centric model of innovation and value-delivery, centered on user experience, the true potential of broadband can be unleashed.

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