Reaching the Interactive Customer

Integrated Services for the Digital World

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1 Permeation of the Information Age

Digital devices, complex networks, and interactive applications and services permeate our daily routines. The adoption of digital, integrated services in peoples' lives stems from a causal chain involving customers of new technologies, device designers, and application product planners. Consumer expectations, set by the growing capabilities of interactive devices, fuel innovation from application and service product planners. Product planners then push the device designers to accommodate their increasingly sophisticated features (see Figure 1-1). The key to continual improvement without costly design mistakes lies in understanding how the consumers' expectations evolve with usage.

For example, cell phones with Internet access influence the consumers' expectations about repurposing the phone for other uses. However, browsing the Internet on a cell phone is a frustrating experience due to the limited screen display. Application and service designers step in to meet consumers' expectations of Internet access with alternatives to Web browsing. Internet-based applications deliver discrete amounts of information suited to the cell phone's screen display, such as personalized weather and stock quotes. Internet-based instant messaging and chat allow consumers the ability to use the phone's small screen for shorthand text messages. The adoption of these types of services and applications provides incentive for device designers to develop new features to accommodate the different usage.

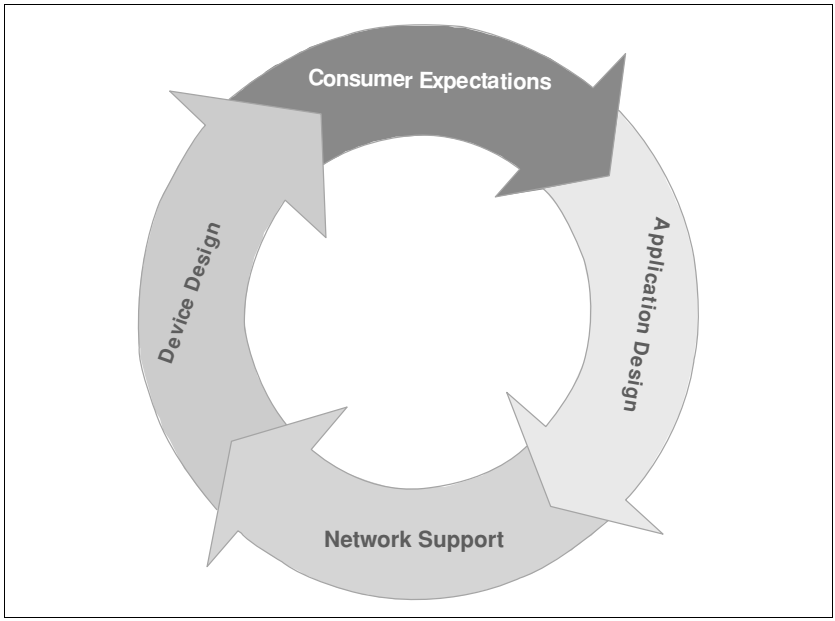

FIGURE 1-1. Evolutionary Cycle for Interactive Devices

The evolutionary cycle for interactive devices moves as fast as the device manufacturers and application providers release new variations of the product. As consumers become familiar with new interactive features, the consumer develops new expectations about the device itself and services and networks that support the service. The need to fulfill these shifting expectations results in an acceleration of the development cycle for device manufacturers and service providers. An accelerated speed of development can result in poor, costly design decisions. Balancing speed against market demands and accurate design requires an in-depth understanding of how interactive consumer expectations drive the evolution of technology. Starting with the consumer and the expectations of the consumer helps device designers and application and service planners to prioritize features and deliver successful products.

Understanding consumer expectations begins with understanding how consumers use (and don't use) technologies. Digital devices

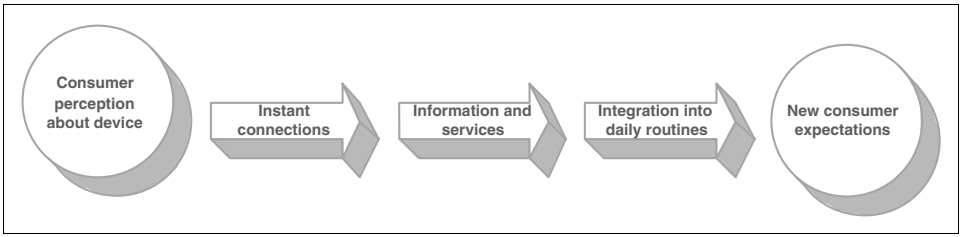

FIGURE 1-2. Changing Consumer Expectations Through Usage

and communication networks provide instant connections to other people, applications, and services. Consumers use these services to gain access to a world of limitless repositories of digitized information and media. The dual forces of instant connection and access to limitless information propel deeper adoption of integrated services in consumers' daily routines (see Figure 1-2).

Based on their dependency on the device, consumers who incorporate integrated services into daily routines expect greater capabilities from their devices. This book describes how device, application, and service providers can take advantage of and drive these new consumer expectations. By breaking down consumer expectations for different types of interactive experiences (like audio and visual), technology providers gain a better understanding of the customer for devices and services.

First, let's lay the foundation for understanding the interactive consumer by discussing the relationship between devices, services, and applications in an integrated service. This chapter describes the following:

- The definition of an "integrated service"
- How instant access and limitless information results in the adoption of new integrated services
- How digital networks and devices enable new forms of communication

Components of an Integrated Service

The options available to consumers today cannot easily be classified in traditional notions of a product or a service. Today, most interactive products have a service component and most integrated services have a product component. An integrated service combines products and services into a single package for the user.

Integrated services consist of the following three tiers:

- Devices
- Networks
- Applications and services

Each of the three tiers has different technologies and business models. Each tier provides value to the consumer in a way that would be difficult to achieve independently. For example, a cell phone without access to an Internet network has a very different consumer value proposition than a cell phone with Internet network access and a game application. The combination of the three tiers, as depicted in Figure 1-3, creates the most compelling package, which in turn raises consumer expectations for each tier in the integrated service.

Devices are the first and most tangible tier to the consumer. Devices take many forms and come with a wide range of capabilities. A device can be stationary in a given location (e.g., personal computers, cable television set-top boxes, and gaming consoles) or a device can also travel with the consumer [e.g., a cell phone or a personal digital assistant (PDA)].

Most interactive devices share the three following common characteristics:

1. The device has a user interface through which the consumer interacts with the device.
2. The device can connect to data communications networks.

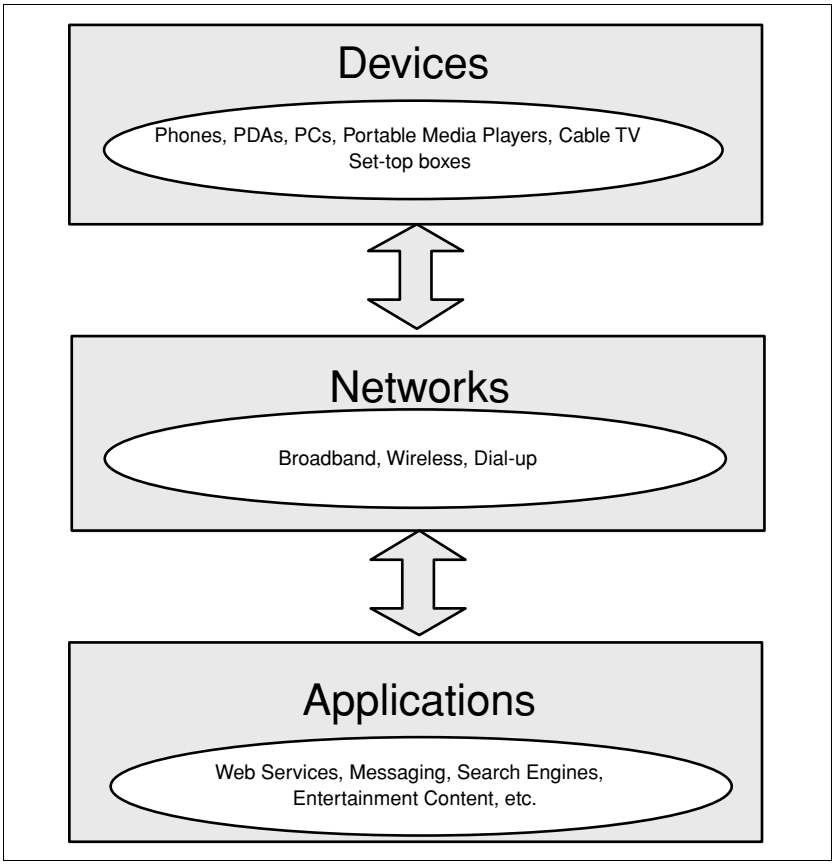

FIGURE 1-3. Integrated Service Tiers

3. The device has computing capabilities such as a microprocessor and memory.

These characteristics support the enhanced features that change consumer expectations about the device.

Devices play a crucial role in an integrated service by serving as the tangible touch point for the consumer. The consumer sees the device as the point of access to a digital world. Without the device,

the other tiers in integrated services are hard pressed to deliver value to the consumer. At the same time, devices need the other tiers to offer consumers new, exciting features that depend on access to communication, computing, and data resources. Data communication networks comprise the second tier in the integrated service. Devices need to be connected to a network in order to communicate with other devices or with application and data servers. Devices exchange data in digital formats through data communication networks. (Chapter 3 talks in more detail about the evolution from analog to digital networks.) Traditional telecommunication providers, wireless carriers, and cable television service operators have built out large, consumer-oriented data networks to support the next generation of integrated services.

Application and service providers form the third and final tier of the integrated service. This tier offers a wide diversity of options for the consumer to use the device and networks. Applications and services also act as a tool for service providers such as cable companies to help foster lasting relationships with consumers. Services in the third tier span the spectrum of entertainment, governmental, informational, and financial services. Examples include MSN Hotmail for email, eBay for auctions, and Amazon.com for retail. Application and service providers host their own applications and provide features to end users in exchange for subscription fees and pay-per-use fees or by having the value subsidized through sponsorship.

Successful integrated services take advantage of each of these tiers to provide an integrated product to the consumer.

Targeting the Interactive Consumer

The interactive consumer is a constantly moving target. Designers of interactive products must not only understand what the consumer has always expected from a product but also predict how those expectations will evolve. Using the device creates a whole new set of consumer expectations that need to be met by the next generation of

devices, networks, and services. For the companies providing these new devices, networks, and service, understanding the evolutionary trends for the interactive consumer can mitigate the risks inherent in bring expensive new devices and infrastructures to market.

Interactive consumers possess common traits and characteristics. As a group, interactive consumers include almost all members of society. By 2002, 58 percent of all Americans ages twelve and older owned a mobile phone. One of every three adults ages eighteen and older plays computer games. The adoption rate for integrated services in the home points to how quickly integrated services become part of household life. It also demonstrates the interdependence of the three tiers in an integrated service. Consider the relationship between personal computers, the Internet, and Internet-based applications. One prominent consumer research firm found that by the end of 2001, 67.4 million U.S. households owned a personal computer (PC). Personal computer ownership in turn fostered the consumers' desire to be connected to a network (the Internet). About 94 percent of households with PCs also had Internet access.[1] This Internet access in turn spawned development of online applications and services. A recent Forrester Research survey found that 94 percent of the people surveyed used email at least once a week with almost equal usage across demographics and age groups.[2] Fifty-four percent entered Internet-based sweepstakes and competitions. Thirty-one percent of PC owners used their computers for playing games daily. As integrated services become part of daily routines, consumers begin to expect to expect more from the device—the PC evolves in the household from a word processor to an interactive gateway to people

1. Forrester Research, Inc., Consumer Survey, "Forrester's Consumer Technographics 2002 North America Benchmark Study," Boston: Forrester Research, Inc., 2002.
2. Forrester Research, Inc., Consumer Survey, "Devices & Access, 2002 Online Survey," Boston: Forrester Research, Inc., 2002.

and products. The changing expectations in turn drive the PC manufacturers to build faster devices with more audio and video capabilities.

Keeping up with evolving consumer expectations requires an understanding of what the consumer wants to get out of the ownership of the device. Consumers who own interactive devices use the technology to *enhance* the consumer's lifestyle. The consumer buys the device to facilitate personal preferences. Device selection becomes a reflection of the buyer's personal style. As a result, many designers create phones and other devices that target demographics and age groups. Likewise, application and service providers give consumers more options for personalization and customization in the services accessed via the devices. Consumers want control over the incorporation of interactive technologies in their lives.

It's important for device and application product planners to understand that the average interactive consumer is not drawn to an integrated service purely for the technology. Only "early adopters" of new devices (a small demographic in the total potential market) are drawn by the lure of the technology. The average consumer adopts an integrated service because the technology enables an end goal—perhaps to be more productive, reinforce a sense of identity, or stay connected to important people. Integrating an integrated service into a consumer's lifestyle often translates into the consumer's growing dependence on "instant connections"—the ability to always access information and services via a device.

Instant Connections

High-speed networks form the backbone of instant access to information. The Internet exemplifies how a network enables the dissemination of information to consumers. Millions of documents live on the World Wide Web, providing a combination of fact and fiction for consumers to access via interactive devices like the PC and

Web-enabled cell phones. On-demand information can entertain, inform, and educate the consumer's daily life. Access to information from interactive devices changes how providers disseminate information and consumers use it.

For example, many potential car buyers turn to online information sites like www.carpoint.com to compare, contrast, and learn about all aspects of automobiles and financing. Most consumers still prefer to buy a car from a car dealership rather than through an online service, due to the size of the transaction and the desire to test drive. In 2001 only 300,000 buyers purchased their vehicles from online dealerships, less than 0.5 percent of the total households online.[3] Car research sites are popular destination sites for car enthusiasts and potential purchasers. Car research sites provide users with extensive information on new car models, model comparison tools, trade-in values for old cars, and pricing tools that help buyers see the full cost of a vehicle with options. As a result, more informed consumers come to car dealerships armed with detailed information about the purchase. Therefore, taking a test drive can mark the end rather than the beginning of the buying process. The overall transaction time can be significantly reduced (and simplified) if the buyer comes to the car dealership with more information for the purchase decisions. The easy availability of information makes it easy for consumers to integrate on-demand information into daily routines as well as facilitate large purchases like an automobile. For example, interactive devices like Web-enabled PDAs give consumers the ability to access information from any location. Consumers can check stock quotes and execute a stock trade while waiting in line at the airport. This level of access facilitates the integration of the integrated service to the consumer's lifestyle. Online auctions demonstrate how an integrated

3. Kelley, Christopher M. "Retail & Media April 2002 Data Overview: Covers Email Marketing, eCommerce Growth, And Print Media Cannibalization," Boston: Forrester Research, Inc., April 2002.

service achieves success by giving control to the consumer. In the past when people participated in a physical auction, they traveled to attend the auction and place their bids. Now, using interactive devices like a mobile phone or a personal computer, people can participate in online auctions from wherever there is network access. This ease of access makes online auctions simple to integrate into a person's schedule. In fact, one consumer survey found that over one quarter of all online consumers had bid in an online auction.[4] The ability to access information from any location at any time makes the consumer, rather than the physical location of the information, the center of the experience.

The "Digital Lifestyle"

Consumers grow to depend on obtaining information and services at their own convenience. The "digital lifestyle," while a popular phrase, is a misnomer. People simply have lifestyles and choose to use technology to augment their lifestyles. While early adopters may adopt technology for technology's sake, the mainstream does not. Average people adopt interactive technology into their lives when it increases their productivity, reinforces a sense of identity, or maintains connections with others. Mainstream consumers value what *can be done* with the technology rather than the technology itself.

Consumers' lives are becoming increasingly dependent on digital devices, networks, and services. The combined forces of instant connections and access to limitless information enable people to be more productive and intensify the pursuit of personal interests. Let's take a look at how integrated services increase a consumer's expectations around hobbies, education, and communication.

4. Kelley, Christopher M. "Retail & Media September 2001 Data Overview: Covers Retail Channels, Online Advertising, Online Auctions, And Delivery," Boston: Forrester Research, Inc., April 2002.

Hobby Central

We all possess a concept of our own identity. As people change jobs and geographic locations more frequently, a person's identity and associations become increasingly defined by the affinity to particular interests rather than to a location. The Internet provides a common communication medium for communities to share interests. The Internet also changes a consumer's expectations around participating in that interest and community. Before the advent of interactive devices and networks, genealogists (people who study ancestry and family heritage) spent a considerable amount of time investigating courthouse records and public institution files. Integrated services, like those offered by Ancestory.com, facilitate locating and displaying information about family histories.

Ancestory.com is a genealogy Web service that is part of the MyFamily.com group of services. Web services such as Ancestory.com provide novice to advanced researchers in genealogy with access to research repositories. Ancestory.com has a repository of over a billion names from over 3,000 databases such as the Social Security Death Index and the U.S. Census Bureau. Sites like Ancestory.com make it possible for hobbyists to enhance their participation in the hobby. In the case of Ancestory.com, there are over 500,000 paid subscribers to the genealogy service.

The combination of access and information helps the hobbyist explore his or her interests in a more effective manner. As a result, the hobbyist comes to expect more from the integrated service (in our example, the genealogy research site) itself. Instead of simply providing access to information to form a family history, interactive consumers demand more features, such as community chat rooms, to discuss research techniques and online templates to display family trees. The evolution of consumer expectations drives service providers such as Ancestory.com to add additional features that support the consumer's dependency on the site.

Learning Center

An increasing number of jobs require continuous learning of new skills in a given area. The traditional education system focused on the full-time student at a centralized location. That framework did not easily accommodate the professional looking for continuing education. Learning institutions use the combination of connectivity and information to provide a new educational integrated service: distance learning. Networked, integrated services form the backbone of distance learning. Through email, Web applications, and download sites, the teacher and students are able to discuss assignments and address questions. Online information resources provide a virtual library for students researching a paper. Online bookstores make it possible for the student to quickly and easily order the books for his or her next term's classes. Students submit assignments to the teacher or professor via email or use the Internet to take an online test.

The student participates in the distance learning according to his or her own schedule, in contrast to appearing in a classroom according to a course schedule. Professionals can participate at times that do not conflict with their professional obligations. As an integrated service, distance learning allows the consumer to choose how to integrate the integrated service with his or her own lifestyle.

The University of Phoenix provides one example of a distance learning integrated service. The University of Phoenix is a fully accredited university with extension campuses around the United States, Canada, and Puerto Rico. What makes the University of Phoenix unique is their intense focus on continuing education for professionals. The University of Phoenix began providing its Internet-based degree programs in 1989. Professionals can put in ten to twenty hours of coursework per week toward a degree, without needing to co-reside with the university.

The classes themselves are available over the Internet. Students retrieve lectures, questions, and assignments from their instructor to review. Students also have access to a range of online research

libraries and services. Adoption of this continuing education approach has been dramatic. Since 1978, the University of Phoenix has grown to be the largest private university in the United States. Students choose from purely online integrated services or blend their online studies with on-site classes given at over 116 distributed campuses. The integrated service combines applications like email, Web-based applications with a dependency on devices such as the personal computer, and data communication networks. The result fosters new expectations about a consumer-focused education, with the consumer determining the schedule and participation format for classes.

Family Connections

Prior to the Internet, people stayed in touch with family and friends through written letters, through the spoken word over the phone, and in face-to-face meetings. Digital communication networks give consumers new ways to communicate. The adoption of the cell phone shifts communications from a location-to-location transmission to a person-to-person transmission. A person's phone number becomes tied to a person's account rather than to the person's location.

New digital networks now enable the mobile phone to support many modes of communication from one device. Data-capable mobile phones and networks transport voice and data communications in synchronous and asynchronous modes. Synchronous communication involves people communicating at the same time, such as having a conversation on the phone. Asynchronous communications occurs when people communicate with one another at different points in time, such as through email or a written letter. Digital networks support both synchronous and asynchronous forms of communication and bridge multiple forms of communication. For example, modern data-capable mobile phones support not only voice-based synchronous communications but also text-based asynchronous communications through the use of the simple mail service (SMS) protocol. For example, billions of short text messages are sent between mobile phones in Europe and Asia.

On personal computers and many data-capable communication devices, communication applications provide capabilities in both synchronous and asynchronous modes. Email is a "store and forward" technology that travels over the simple mail transport protocol (SMTP). Email messages are stored on your email server and periodically forwarded to the address of the intended recipient. Transmission can happen within the fraction of a second across a continent. Email provides a dramatic improvement over physical mail systems, especially given that there is no postage to pay for the delivery of the message. Email messages also support attachments so other documents in electronic formats can be distributed. Consumers have grown to expect "instant communication" of ideas and thoughts through email. The growing dependency on email is reflected in the ubiquity of its usage; 94 percent of all connected households use email at least once a day.

Another popular communication technology, instant messaging (IM), was introduced to the public in 1996. Instant messaging blends the strengths of synchronous and asynchronous data communication into a single application. A person using instant messaging can communicate in real time with other people. Instant messaging service providers can maintain buddy lists, instantly create private chat experiences, and have knowledge about the online presence of any buddy they have identified in their list. Instant messaging has gained great popularity, growing from zero users in 1996 to millions of users today. In 2002, 44 percent of all connected households in the United States used instant messaging at least once a day.[5] The popularity of instant messaging and email has pushed these applications into devices like the cell phone. Email and instant messaging have become part of millions of consumers' daily routines. The usage propels

5. Forrester Research, Inc., Consumer Survey, "Devices & Access, 2002 Online Survey," Boston: Forrester Research, Inc., 2002.

changes through all three tiers of the integrated services as follows:

- Different *device* manufacturers support email and instant messaging
- *Networks* handle the increased volume of email and instant message traffic
- *Service and application providers* build new features into email and instant messages to support customer demand

The integration of instant communication into consumers' routines encourages new features and technologies. Some data-capable mobile phones support a new technology called the multimedia messaging service (MMS). Multimedia messaging service lets mobile phone users exchange small digital images or audio clips with others. For example, a spouse will be able to send a message from his or her mobile phone with a small image, a little music, and text in order to celebrate a special occasion such as an anniversary, birthday, or graduation. One company called PacketVideo helps make mobile phones capable of receiving streamed video. New technologies such as MMS involve all three tiers for an integrated service as follows:

- Device tier: Digital video-capable mobile phone
- Network tier: Wireless digital networks that support video
- Application tier: Specialized streaming video servers that serve the video up from a hosted environment

As consumers grow to expect more from devices and services, product planners for devices and applications layer on additional capabilities that help integrate that particular service into the consumer's lifestyle.

An integrated service consists of three levels as follows: the device (such as a computer or cell phone), the network (such as the Internet or a data communication network), and the application (such as an email program or a stock quote delivery tool). Consumers adopt

integrated services that enhance their lifestyle. Successful integrated services facilitate the tasks in a consumer's routine whether they involve communication, research, or entertainment. As consumers become accustomed to the advantages provided by an integrated service, the consumer begins to take the features for granted and expect more from the integrated service. For example, it's not enough to be able to simply access information on the Internet—the consumer wants only information relevant to the consumer. These changing expectations from the interactive consumer drive more innovation into new generations of the integrated service. Device, network, and application designers need to thoroughly understand how consumers integrate interactive devices into their lifestyle in order to effectively satisfy a moving target of consumer expectations. The next few chapters describe the evolution of devices, networks, and applications in response to the shifting demands of the interactive customer.