

DigitAll

With high-speed wireless access and the minution of essential components, digital technologies are poised to reshape communications. It's a threshold that opens on to a horizon of seemingly endless opportunities, but Yong-il An, Mark Delaney, Tom Hardy, and Jeff McFarland recommend that designers stick to creating what is useful and needed qualities that can be identified by market segment a cultural research—rather than going after technology for technology's sake.



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





Jeff McFarland

It may be a surprise to many people that South Korea has become the envied “promised land” of instant high-resolution access to the Internet. The South Korean broadband digital network—100 times faster than the normal United States connection—has created a pervasive national environment for shopping, entertainment, education, and communication.

With government support, South Korea's telecommunication providers have created the world's most comprehensive Internet system, with reliable and affordable high-speed access that surpasses broadband offerings found anywhere else. Broadband lines now reach more than half of all homes with Internet access (see Figure 1). With such high-speed online capability, many South Korean daily activities are via digital interactions. As a result, a large part of the population now has super-fast access to information and communications that will help them to increase productivity, gain knowledge, and create new business opportunities. The South Korean experience is truly an example of a culture in the process of being significantly transformed by digital

Figure 1. Broadband access as a percentage of Internet households.

South Korea	57.4%	
Canada	49.9	
Japan	25.6	
United States	22.8	
Sweden	18.4	
Germany	18.1	
France	14.6	
Italy	10.8	
Britain	10.7	

Source: The Yankee Group and The New York Times

media.

"The killer application of the Internet is speed," says Lee Yong Kyung, CEO of KT Corporation, the telecom group that controls a large part of the Korean broadband market.¹

Combining high-speed and digital media capabilities enables significant changes in methods of visual communications, and calls for new digital product concepts.

How are digital media transforming culture and the way people interact and communicate?

The past 20 years have brought us an astonishing array of digital technologies and, with them, a bewildering variety of new media forms—such as Web pages, instant messaging, image email, multi-player online games, multimedia CD-ROMs, DVDs, music downloads, online photo albums, and highly refined animation. Together, many argue, these and other forms of nonlinear digital media are reshaping the way we live, work, and play.

Marshall McLuhan's famous dictum, "The medium is the message,"² is right on target in our digital world. In other words, the medium (including design) through which information is communicated affects the content of that information and its communicative effect.

We stand at the edge of the digital revolution—the products and services we have today are simply the tip of the iceberg. Soon, digital convergence will create the potential for products that will allow user access to a wide range of comprehensive services, simultaneously, from

anywhere, at any time.

Wireless communication technology enables products to communicate visibly or invisibly. Visible communication is consciously initiated and controlled by users. For example, a mobile phone becomes an electronic wallet, allowing one to buy a can of Coke from a vending machine or a ticket for the bus, or even to conduct weekly grocery shopping at the supermarket; with 24/7 broadband Internet connections, we are already able to download pictures, music, and movies, while our cars can wirelessly communicate with satellite-linked GPRS systems to obtain current traffic information and get us to our destinations via the fastest, safest routes.

Invisible communication, on the other hand, will take place without our being aware of it; our personal data assistants, (PDAs) will automatically communicate with our primary computers to seamlessly update our calendars, to-do lists, and address books so that we always have up-to-date information, even when on the move; our cars will talk to the service center to identify and diagnose engine problems and then let us know if and when a service appointment should be scheduled; and our refrigerators will monitor dates of perishable contents, advise us on when to discard items, and order more from the supermarket as needed.

Even looking at the relatively simple digital technology we have at our disposal today, we can see a massive social impact on the way in which we communicate with the people around us. Such a dramatic shift is exemplified by the passionate way in which young people have adopted mobile communications. While their parents use



Samsung's digital multimedia information manager was designed to be a personal, mobile accessory.

1. *The New York Times* (May 5, 2003), p.C1.

2. Marshall McLuhan, *Understanding Media: The Extensions of Man* (New York, NY: McGraw-Hill, 1964), p.7.

mobile handsets as traditional phones with which to communicate verbally, the young are pushing primitive technologies like SMS (short message service) to their limits, developing their own unique text language and using it as a means of simple direct communication with their peers.

In Tokyo, the “keitai kids” (*keitai denwa* translates as mobile telephone) are known as *oya yubi sedai*, or the “thumb generation” (figure 2). These youngsters use their thumbs for texting, playing games, and dialing numbers. In many cases, the thumb has replaced the index finger as the primary digit; it is even used for pointing at things or ringing doorbells.



They're known as *oya yubi sedai*—the thumb generation.



Samsung's exchangeable digital media concept enables the “socialization” of information.

While activities such as texting, e-mail, Internet chat, and instant messaging represent improved modes of communication, there can also be negative effects. It has been observed by psychologists that heavy users of digital communication are becoming less capable of direct social communication.

Observers of this digital revolution have noticed that constant connectivity is in some cases undermining users' self-reliance, thereby making them unable to operate without

having their mobile phones close by as a crutch. Being constantly in touch and in control, people have fewer opportunities to experience the vagaries of chance, the surprise encounter, or an unexpected adventure with surprising results.

On the other hand, the ability to instantly communicate electronically via text, image, and voice, rather than face-to-face, enables those with neurotic, introverted tendencies to temporarily suppress them and build confidence in communication skills. As with the introduction into society of any new technology, there can be

both positive and negative aspects, depending on context.

Within the home, we are already seeing the effects of digital convergence, as products like the classic “hi-fi” system disappear and are replaced by digital radio delivered via the TV set-top box and CDs played on the DVD player. Services are being developed and implemented that allow the convergence of TV and PC into one box, and while products of this nature are currently available, none of them amount to much more than either a TV with basic computer functions, such as email and Internet, or a PC with an integrated TV tuner.

However, future products of this nature will move out of the technology ghetto and become mainstream when companies pay attention to integrating technology with the more intangible aspects of the product—specifically, interactive user relationships.

For example, as digital TV becomes more interactive, we find that the user has to switch between the traditional “lean-back” passive mode (watching TV, listening to music) and “lean-forward” active mode (surfing the Net, reading/writing email). Each of these interaction modes requires a different form of engagement from the user and traditionally demands different types of products.

As technology makes convergence possible, the challenge facing designers is to determine whether to pursue integrated solutions that will allow multiple modes of interaction to be carried out successfully and enjoyably. Recently, Samsung tackled this problem with a project involving an integrated laptop home entertainment system for younger people, which would take the place of separate PC, TV, DVD, and VHS systems, while incorporating a surround sound system.

Although this type of converged-system concept is targeted to a specific user segment, it is important that the evolution of digital media be driven by considerations of which convergence is the most appropriate for the context in which it's being used—not simply because the miniaturization of technology allows for the integration of multiple functions. More often than not, the most appropriate direction will be toward individual devices that do a selected number of things extremely well and can readily communicate across a network.

When and for which users are digital media the most effective means of communication?

Digital communication is not limited to a specific group or culture. However, it does seem that the younger generation has the clearest grasp of digital technology and with their relationship with it. Less techno-savvy consumers are simply interested in basic, utilitarian services and don't desire the gratification of pushing technology into new territory.

Digital media offers almost unlimited opportunity for convergence, because miniaturization and advances in technology mean that products can potentially "do more stuff," anytime, in many different places. The challenge for companies at the forefront of this digital revolution is to find methods of self-control that will ensure that the convergence they create is both beneficial to the customer and appropriate. Faced with the vast array of digital media opportunities, it is tempting to succumb to the eternal marketing lure of "creeping featuritis."

The most successful examples of digital products and services are found in products that don't try to do too much. A good example is the Yepp brand of Samsung digital audio player. This product has the technological potential to offer a whole range of services—PDA, digital image viewer, mobile telephone, camera, and so on. However, Samsung has sensibly decided to limit the product to doing one thing—acquiring, playing, and managing music on the move—and making sure that it performs this

service very well.

Rather than a one-size-fits-all digital product, the most strategic approach seems to be a number of wirelessly linked digital devices that allow the user to assemble a suite of products to suit his or her lifestyle and particular purpose. Such customization allows each product to be designed with one specific, or a couple of closely related, functions in mind. If a product is designed with too many functions and services, the designers will inevitably have to compromise on issues of functionality, leading to a less-than-satisfactory customer experience.

We can see this customized approach emerging as companies bring out ranges of products—computers, mobile phones, and PDAs—that share elements of physical, as well as graphical, user interfaces, making it easy for the customer to move between them. A coherent visual interface, combined with the common removable digital media memory format and seamless interconnectivity, means that a customer will more than likely add products from the same system, rather than from another company.

Another interesting opportunity that digital media, removable high-density memory, and common interconnectivity offer is the ability to provide users with personal accessories for storing and sharing music, images, and video. These types of devices will allow for the creation of new communication behaviors, especially in the visual, sensory-driven youth culture.



Samsung's wearable yepp digital audio player focuses on a specific function—music on the move.



The mobile USB digital memory concept is Samsung's personal accessory for storing and sharing music, images, and video.

How can visual communications reflect national and regional cultures?

In most cultures, a picture is worth a thousand words, because the depiction of an image has always been one of our most basic forms of communication. Therefore, the ability to send pictures, text, and sound wirelessly is a compelling opportunity on a global scale. National and regional characteristics will manifest themselves in the nature of the communications and in how much the customer is willing to spend to access these services. The challenge for mobile providers is to structure content and pricing plans that respond to the unique needs of customer segments, as well as to cultural context.

In Europe, telecom service providers aggressively market image messaging and are keen to encourage their customers to upgrade their handsets (and, naturally, increase the provider's revenue per user). Interestingly, unlike the last revolutionary mobile service, wireless application protocol (WAP), which was over-hyped as the "Internet in your pocket," image messaging is now being sold via user scenario advertising. Potential customers are asked to "role-play" owning one of these products so that they can see how an image messaging service would fit into their lifestyles. Such a real-life approach is more user-centric than lecturing people about how a new technology with wider bandwidth sends and receives data faster.

The Samsung mobile communicator, with built-in camera and high-resolution color display for digital multimedia messaging.



In Asia, mobile phones are currently a more important part of people's lives than in Europe or the United States. Multimedia messaging service (MMS) has been a huge success in Japan and Korea and represents a strategic platform for business growth, because it allows mobile phone users to send and receive text, pictures, video, and sound instantly. MMS is very similar to short message service (SMS) text-only messaging in its provision of automatic, immediate delivery of personal messages between phone and email or phone and phone. To some degree, MMS's success in Asia reflects a cultural fascination with cartoons, comics, gaming, and "cute" icons, as well as an ongoing love affair with technology.

But even in this techno-savvy part of the world, Asian telecom service providers report that when customers first purchase a camera phone, there is an initial surge of activity as the user takes and sends lots of photos, and that use of the service declines as the novelty wears off. However, usage is beginning to rise dramatically as camera phones are priced to reach the hands of the customer segment that will use them the most—teens and young adults. In fact, camera phones have become a flagship product in Korea.

Visual imagery has enormous intrinsic value to groups such as teenagers. And after all, the value of digital media is what specific consumer segments are prepared to pay for it. Many subscribers, for instance, readily pay to download images, icons, animations, and ring tones from Internet services.

How are visual communications becoming more interactive, and what implication does this have for businesses and marketing?

Most "developed" societies have become accustomed to multi-tasking, hyperactivity, and multimedia as a part of everyday life. Today, people can absorb greater volumes of information and comprehend the most complex visualizations at speeds not experienced by prior generations. According to author James Gleick, "We have learned a visual language made up of images and movements instead of words and syllables." The flip side is that too much visual excitement can cause an "overload" condition that is incomprehensible and eventually becomes boring.

In contrast, a more subtle and simple

approach can stand out from all the fast-paced, animated visual clutter and can enable more-effective communications, as well as provide a unique image. While dynamic visual communications are surely appropriate for some applications, context of use should be the very first consideration. In our world of speed and easy manipulation, designers should first step back and focus on the intent of specific visual communications with a coherent set of ideas before rushing to incorporate all the latest digital design tricks. To quote preeminent information designer Edward Tufte, "The two strategies for improving information design are (1) to reduce the noise, and (2) to improve the signal."

This fundamental design approach is even more crucial as mobile products become smaller for the sake of portability, while the amount of visual information grows larger due to broadband networks. The screen size has become inversely proportioned to the capability of displayed content. While this dichotomy can be addressed by simplifying information navigation and increasing screen resolution, it is a complex design problem with no easy answers.

Looking ahead

The forces of globalization and the power of digital media are combining to create significantly enhanced forms of visual communications. From a technological perspective, the digital revolution is well underway. From a human-adaptation point of view, it is just beginning.

The rapid proliferation of digital media and communications across a specific stratum of society has resulted in whole demographic entities being almost completely excluded from this global information revolution. The uneducated, the poor, and those with physical and mental limitations, especially those in developing nations, are becoming a population of have-nots in the scenario known as the "digital divide."

Of course, social differences will continue to exist into the foreseeable future, based on a multitude of variables such as intellect and economics. However, it is unwise to have society polarized in such a way as to inhibit large segments of people from participating in the social and commercial benefits of such an historic, important, and global revolution.

Given that the success of business depends on

an educated workforce and an economically viable population, it would seem fitting that all of us in the business community focus on bridging the digital divide by working to make information more understandable and access more equitable for *all* segments of society.

Consequently, it is only fitting that the new frontier in visual communications be a global effort for *inclusiveness*.

DigitAll...everyone's invited.