ISSN 1344-4816

GLOCOM Review

Volume 5, Number 11
November 2000

今号の内容

国際大学グローバル・コミュニケーション・センター
Center for Global Communications
International University of Japan

2000 年 11 月 1 日発行（第 5 巻第 11 号通巻 58 号）
発行人　公文俊平　　編集人　土屋大洋
発行　　国際大学グローバル・コミュニケーション・センター

GLOCOM Review 5:11 (58)

The Big Bumpy Shift

Digital Music via Mobile Internet

Daniel P. Dolan

Table of Contents

Abstract

The promise and rise of mobile Internet technologies and markets will be remembered as one of the most profound global information technology developments of the next few years. Mobile Internet technologies and practical applications necessary for widespread public use are advancing rapidly in Japan and are likely to catch on quickly in other countries. The remarkable adoption of mobile Internet in Japan and the popularity of digital music file sharing services such as Napster in the United States create a situation in which powerful synergies are possible between these two fundamental forces. Digital music via mobile Internet creates attractive opportunities for music artists, music consumers, entrepreneurs, and major music labels facing an uncertain future for music industry distribution practices. The realization of such opportunities depends not only on technological and business innovations, but also on the willingness among all parties involved to collaborate in equitable and valuable ways.

1. Introduction

The year 2000 will be remembered by information technology observers for the trans-Pacific explosion of two seemingly unrelated Internet-driven phenomenon: NTT DoCoMo's i-mode mobile Internet service in Japan and digital music file-sharing services such as Napster in the United States. I-mode is gaining approximately half a million subscribers each month, and according to one study Napster user numbers in the United States increased from 1.1 million users in February 2000 to 6.7 million users in August 2000.[1] I argue in this essay that the fundamental forces driving these two trends will pull each other into a powerful synergy, creating opportunities for content and service providers, music artists, music consumers and major music labels. I first discuss features of i-mode that account for its popularity in Japan and potentially in other markets. Next I outline the challenges posed by digital file sharing to existing music industry distribution practices and propose a scenario for how mobile Internet and digital file sharing services might merge to leverage their strengths and generate new opportunities. Finally, I outline some of these new opportunities after discussing the needs of artists, consumers, and major labels in the era of digital music.

2. A Mini-Net Called "i-mode"

NTT DoCoMo's i-mode mobile data service, launched in February 1999, has become a cultural phenomenon in Japan.[2] Introduced with first-to-market and big name branding advantages over competitors J-Sky and EZweb, i-mode has racked up monthly subscriber increases of between fifty thousand and one million. As of October 31, 2000 i-mode had 14 million subscribers (see Figure 1).

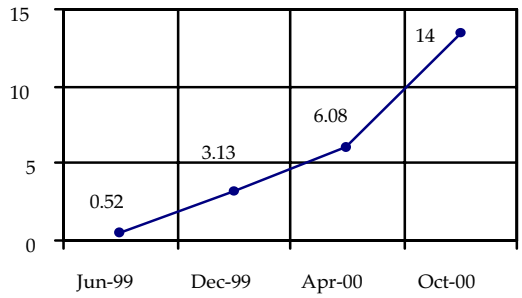

Figure 1: I-mode Subscriber Increase Trend (in millions)

In comparison, EZweb had approximately 4.2 million and J-Sky 3.5 million subscribers at the end of Octorber 2000.

Observers attribute i-mode's popularity to a variety of factors, but three are particularly significant. Perhaps most important is the convenient billing system devised by NTT DoCoMo, in which all costs associated with third-party content access and data transmission are included in the monthly DoCoMo telephone billing statement. I-mode users pay on average 1,500 yen ($15) per month for i-mode content or services from vendors approved by DoCoMo. That 1,500 yen is comprised on average of 300 yen (US $3) for basic i-mode service, 100-300 yen (US $1-3) for content service subscriptions, and 900 yen (US $9) for data traffic fees. Credit card or online micropayments are not popular in Japan due to security concerns among consumers and to cultural preference, so the opportunity to pay for i-mode content services through a trusted telecommunications company is attractive.

Second, all third-party content available to subscribers from the i-mode content menu has been carefully selected and in some cases shaped by DoCoMo's content gatekeepers and strategists to meet certain rigid standards of quality. For example, hyperlinks from official i-mode content pages to external sites are not allowed, sex-related content is banned, and until recently banner advertising also was not allowed. The result of such controlled content is that subscribers know what to expect and can conveniently locate content from the well-organized content menu page.

Finally, aside from a limited number of content services targeting English speakers in Japan, i-mode content and the service menu used to access content is in Japanese. This linguistic factor is critical for removing the barrier to Internet use experienced by the great majority of Japanese. A related conveniences is freedom from the tyranny of non-intuitive "qwerty" keyboards because i-mode is navigated via dual thumb dexterity on the handset control buttons.

Although a convenient billing system, rigorously regulated content offerings and a native language user experience have contributed to i-mode's explosive popularity, these same features have raised questions regarding what many observers perceive to be its "walled garden" architecture, what I refer to as a "mini-net." Critics argue that i-mode should not be considered a mobile Internet service because i-mode shares few features most users of the wired Internet have come to expect, such as unrestricted access to any kind of content made available by a wide selection of service providers. Regardless, there is no disputing that i-mode is working in Japan, and that other markets appear ready for take-off. Analysts' projections for mobile Internet users suggests a huge market for service and content providers, with Asia-Pacific leading a global user base pegged at 484 million by 2005 (see figure 2).

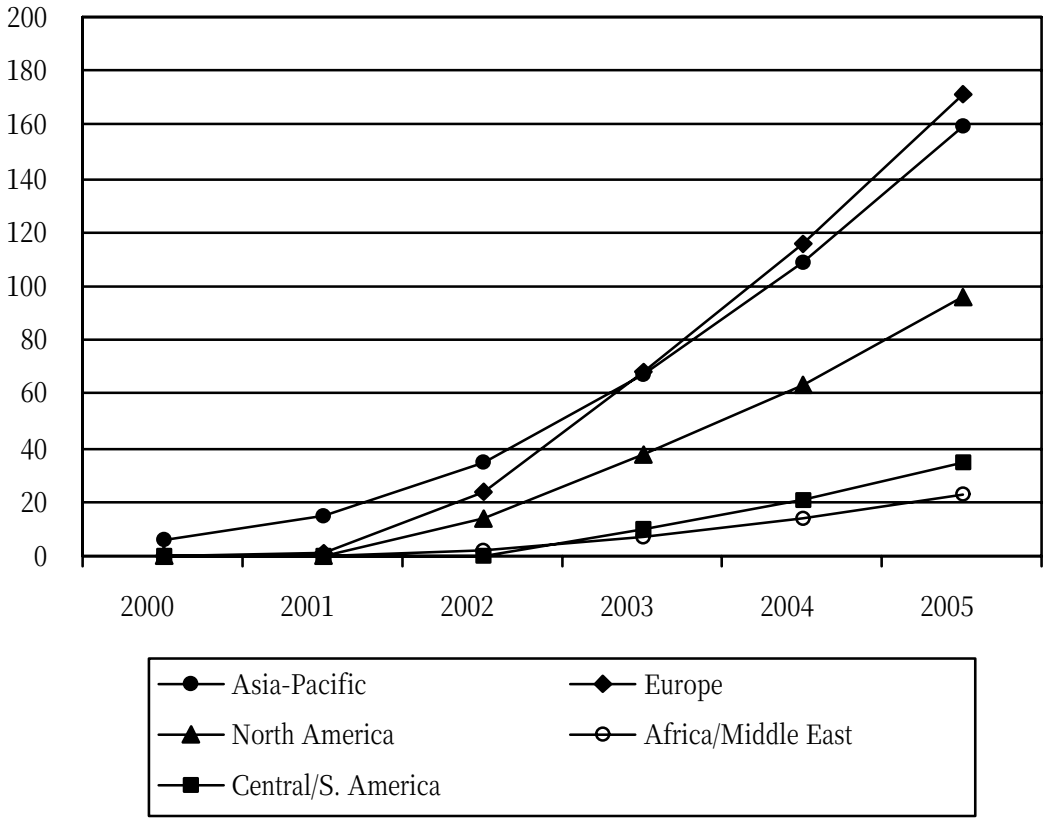

Figure 2: Mobile Internet Users World Wide (in millions)

The Strategis Group[3] projects global e-commerce mobile revenues at $3.5 billion in 2000, $37.8 billion in 2002, and skyrocketing to $140.2 billion in 2004. By region, Europe leads the revenue forecast with $51.1 billion by 2004, followed closely by Asia-Pacific at $46.5 billion and North America at $32.4 billion. An estimated 1.2 billion mobile telephone subscribers, 322 million mobile Internet users, and 373 million mobile e-commerce buyers in 2004 will drive these revenues. Global mobile e-commerce comprised only of goods, services, and information is estimated to be worth $200 billion by 2005, generated by 500 million users.

But will the i-mode mobile Internet business model catch on outside Japan? NTT DoCoMo's global aspirations are clear in its recently announced collaboration with AOL Japan, as well as partial purchases of overseas telecommunication companies. Talks with Telecom New Zealand in October 2000 mark DoCoMo's latest international foray. What remains to be seen is the degree of compatibility of NTT DoCoMo's i-mode service with other markets. The technology that supports i-mode and the html-friendly markup used to write content is easily exportable, but cultural factors will force service and content providers to pay attention to market-specific telecommunication environments and needs of consumers. In the next section I discuss one potentially powerful mobile Internet application for the U.S. market and perhaps for many youth-driven Internet markets worldwide:

digital music access and file sharing.

3. Music Industry: Big Market, Big Questions

Despite complaints and panic-induced lawsuits against file sharing services such as Napster by major music labels in the United States, the U.S. and global music markets are flourishing. The global market has grown by 3.4% annually since 1991 and the U.S. music market is the largest in the world, having grown 71% in value since 1991 to U.S. $13.2 billion in 1998.[4] More importantly, Napster use appears to be boosting music sales both online and offline. One study, commissioned by Napster and prepared by Peter S. Fader, associate professor of marketing at the Wharton School of the University of Pennsylvania, found that "over 91% of Napster users buy as much or more music than before they used Napster, with 28% purchasing more." However, another more recent survey by PC Data suggests that 90 days after first using Napster, online purchases decrease dramatically. Either way, the major music labels and their mouthpiece the Recording Industry Association of America (RIAA)[5] appear to be frantically searching for a strategy to maintain control and revenues. The industry is being challenged not only by technology innovators such as Napster, Gnutella, and MP3.com, but also by alliances of music artists and supporters such as the Future of Music Coalition.[6]

Internet research firm Jupiter Communications[7] suggests that if the music industry were to let players like Napster stand it would drive incremental sales, but if the industry partnered with networked music-sharing technology companies through licensing schemes, the benefit would be exponentially greater. The EMI record label and Microsoft created just such a partnership in July 2000, making available for online downloading 100 popular albums. Jupiter also proposes that "a subscription service to an online music community with high-quality digital music, virus protection, and a wide variety of content could eventually be a more successful driver of revenues for recorded music than individual downloads sold through an online store." More significant is the October 31, 2000 announcement by German media conglomerate Bertelsmann that it has joined forces with Napster to offer a membership-based service in which users will have digital access to Bertelsmann's entire catalogue of copyrighted songs. It is not clear what this proposed membership model involves, but apparently members will have unrestricted access to downloading and sharing files in the Bertelsmann catalogue. There also is uncertainty regarding how the two companies intend to deter copyright violations.

A July 2000 essay in the Economist agrees that if the music labels can put their songs online in a format that is more organized and more appealing than their illegal competitors can, fans will be willing to pay something for that privilege. Although online sales — both CD and digital downloads — represented only 2.4% of total music sales for 1999, according to one survey 50% of online U.S. youths ages 16-22 report that they will purchase music online in the near future. Online Internet economy publication The Standard reports Jupiter's prediction of download sales in particular to increase through 2004, reaching 25% of total music sales in 2005.[8] Media Metrix[9] forecasts that in 2005 76 million users will purchase $5.4 billion of music online, and another $1 billion will be spent on online music subscriptions. In October 2000 both Universal Music and BMG announced new online initiatives to capture some of this projected revenue, with BMG charging users per download and Universal experimenting with a subscription model offering users unlimited access to more than 20,000 songs. The Universal plan is not offering actual downloads of music, however. Instead, users can listen to streaming song files, which are extremely difficult to record and share at high audio quality.

The online music file access strategies as currently conceived by the major labels are likely to fail for four main reasons. First, few music consumers purchase music of only one particular label, so until the labels create some form of comprehensive access from one website to all of the songs in their combined catalogs, any consumer response will be tepid at best. The recent alliance between Napster and Bertelsmann, in which members to the service have access only to Bertelsmann's catalogue, should be revealing. It is reasonable to assume that separate subscriptions or memberships to each of the four big labels will not be an attractive option.

Second, pricing of subscription or membership models will need to be significantly lower than current pay-per-song models. For example, BMG's current per song or per "CD" download model is priced at levels similar to CD costs in a physical store, giving consumers little incentive to move from existing no-cost file sharing services. In contrast, the alliance between Napster and Bertelsmann reportedly makes memberships available for $4.95 per month.

Third, streaming of music will not replace the appeal of downloading song files because the ability of consumers to share music appears to be a major motivation behind current use of Napster, MP3.com and similar services.

Finally, current industry initiatives appear to make no concessions to music artists' increasing dissatisfaction with recording contract restrictions enforced by major labels and what many artists and supporters consider to be unreasonable

percentage takes of sales revenue. Although it is not clear given the popularity of free file sharing services that music consumers feel compelled to pay artists for their music, if paid subscription access becomes the dominant model in the future there may be increased interest among consumers in seeing that artists get a better deal from the labels than in the past. Put differently, if consumers are forced to pay for digitally downloaded music, they probably will demand that artists get a fair deal. In fact, some well known artists have declared a kind of unilateral divorce from the labels and have pledged to support innovative schemes by entrepreneurs that give artists more control and compensation for their art, and give consumers the flexibility and convenience of digital downloading.

To compound the RIAA's headaches, researchers at Xerox PARC, Princeton, and Rice University apparently have cracked the digital watermarks created by RIAA's Digital Music Initiative (SDMI) encryption scheme. Critics on all sides are attacking SDMI as a waste of time and resources, and many analysts believe that the effort will die on the vine. In the next section I describe some possibilities for music experience innovation using mobile Internet business models and technologies.

4. Music Industry Meets Mobile Internet

Noted UC Berkeley economist Hal Varian argued in a recent New York Times essay that to encourage consumers to pay for music, current music industry distribution practices will need to change to offer more value to consumers. Varian suggests that the music industry could, for example, adopt a strategy (recently employed by author Stephen King) of releasing just ten seconds or so of a new song and delivering the entire song for digital download only after receipt of a certain fee sent by a minimum number of consumers. Motivation could take the form of artist T-shirts, autographs, or some kind of interaction with artists. A survey of young Americans reveals another potentially potent motivator--mobility. The study found that among those young people who do not use online file sharing services, one key reason is lack of portability.[10]

Enter the mobile Internet. Although mobile MP3 players such as Diamond Multimedia's Rio have been on the market for years, until now the convenience of one easily portable unit with digital telephone, email, web browsing, music download and music file playback capabilities has been denied consumers due to technological challenges and uncertain market conditions. But Japan's DDI Pocket Inc, an affiliate of KDDI, has announced the November 30, 2000 release of

just such a service called Sound Market, made possible with Sanyo's RZ-J91 mobile Internet unit (which has a compact digital camera built in as a bonus). Promotional literature for the service claims that a three-minute digital music file of CD quality will be downloadable in 7-8 minutes at 32 Kbps. Data transmission fees will be 13 yen ($0.12) per minute. Headphones are used for playback and copyright protection of downloaded music is afforded by a technology called Secure MMC — but any such technology is unlikely to foil determined hackers. Sony also has developed a prototype mobile Internet unit that employs a small external clip for MP3 playback. That external clip probably will make its way into the unit's interior in later versions.

Consumers are likely to balk at these high prices and slow downloading times, however. KDDI apparently recognizes this, and announced November 1, 2000 that with the start of 3G services in 2001 it will lower per packet data transmission costs dramatically to accommodate music and video downloads. Currently KDDI charges between 0.1 yen and 0.3 yen per 128 byte packet. It is not clear, therefore, when music downloading and sharing via some kind of mobile Internet telephone device in Japan or elsewhere will be sufficiently fast and inexpensive to actually attract significant numbers of users. What is certain is that data transmission rates and telephone device data storage capacity will increase, and data transmission costs will drop.

Despite these problems, music over mobile Internet is a compelling proposition. The main significance of mobile Internet digital music access is the new level of flexibility and convenience afforded the consumer. The digital music revolution has shown that music consumers want music quickly, any time, in any configuration, and at minimal or no cost. Add "music any place" to the formula, and the ability of consumers to transmit music files quickly between mobile units via infrared (IrDA) or Bluetooth, and the value of digital music distribution strategies using mobile Internet devices is clear. Even so, is mobile Internet music likely to play in the United States?

This question brings us full circle to NTT DoCoMo's i-mode service. I believe that the success of the i-mode model or any other mobile Internet service in the United States will depend largely on two factors: (1) pricing structures low enough to attract users accustomed to low, flat monthly fees for wired Internet use, and (2) consumers' perceptions of content value. As noted earlier, data transmission costs will need to be low enough to support consumer downloading and sharing of relatively large digital music files. Advances in compression technology and data transmission rates hopefully will help to keep costs down. Regarding content, the animation characters or telephone ring melody selections so popular in Japan may not persuade many U.S. consumers to reach for their

wallets. For music services, content providers should consider how to reduce relational distance between music artists and music consumers through strategies such as fan-to-fan communication forums, concert ticket contest prizes and email dialogue opportunities. Furthermore, although NTT DoCoMo's strategy of consolidating third-party content services on one mobile Internet service billing statement may prove attractive in the United States, it is likely that potential U.S. users will prefer less control over content by telecommunication companies or other providers.

Mobile Internet music access eventually will hit the United States, but Japan will be first. NTT DoCoMo announced on August 2, 2000 that by the end of 2000 i-mode-capable handsets will allow i-mode users to download music files. Japan Telecom has announced plans to offer music downloading via 3G mobile phones by December 2001. Charges will be shown on user phone bills, and music downloads also will be available from train station kiosks. Java developments are critical for making mobile Internet music a reality, because Java will allow device users to download software directly to mobile terminals, and the software will run on the CPU of the device. Content providers will gain flexibility in service offerings, and will enjoy reduced production and delivery costs of multi-media content such as music, video, and games. Java's digital identification cards also will improve security for mobile commerce applications. The first Java service for mobile Internet devices will be offered by South Korean carrier LG Telephone, with release scheduled for September 2000. NTT DoCoMo plans to release a similar Java service in December 2000, with KDDI and J-Phone scheduled to offer services in 2001.

One potentially big barrier to smooth uptake of Java for mobile Internet devices in Japan is compatibility problems. Although the Java service to be used by NTT DoCoMo is Sun Microsystems' Kilobit Virtual Machine (KVM), which is a likely candidate for industry standard, NTT DoCoMo has adjusted the application programming interface, in effect tweaking the standard. The result is that even if J-Phone and KDDI opt for KVM Java, applications probably will not run similarly on the services of all three carriers, creating huge headaches for content providers.

When might the United States become mobile Internet music capable? As of July 2000, the U.S. and Canada lag far behind many Asian and European countries in mobile Internet usage. Cahners In-Stat Group[11] forecasts that in 2002 100 million handsets will be sold in the U.S., up from 55.7 million in 1999. The U.S. Commerce Department reported in June 2000 that in the U.S. mobile telephone subscriber numbers will grow by an average of 16.8 million users per year over the next four years reaching 187.6 million in 2004. By 2001, 68% of users will have

digital Internet access-capable telephones. In 2000 800,000 Americans are expected to use web-enabled handsets. But as of July 2000 only about 6% of mobile devices in the U.S. and Canada are web-enabled, whereas nearly 100% of mobile devices in Japan should be web-enabled by 2001. Moreover, as of July 2000 only 7% of Americans report wanting access to mobile Internet services.

Regardless of apparently mild interest by Americans in mobile Internet and in a display of enormous industry confidence in the future of mobile Internet, IBM recently announced that by 2002 it will not ship any software without mobile capabilities. IBM's move probably is in response to a recently passed law in the United States mandating that all cellular phones sold after October 1, 2001 have physical location identification features to assist emergency crews to react to calls for assistance. A mobile Internet commerce provider called SNAZ Commerce Solutions also has announced plans to introduce i-mode service to the United States and Europe, taking advantage of NTT DoCoMo's strategic alliances with AOL and Dutch telecommunications company KPN. SNAZ's i-mode service, slated for rollout in late 2000, currently is in beta testing in Europe.

5. Music Industry Needs and Opportunities

The coming possibilities of digital music over mobile Internet create excellent opportunities for music artists, entrepreneurs and especially the major labels to consider reforms in existing music industry practices. Unlike in Japan, where prohibitively high wired Internet access costs controlled by NTT have encouraged a quantifiable split between the wired Internet and mobile Internet user populations, mobile Internet users in the United States are more likely to use wired Internet for some purposes and mobile Internet for others. This means that the introduction of mobile Internet in the United States should increase both B2B and B2C e-commerce activity in all service and product markets where a mobile Internet presence makes sense, such as digital music file access and sharing. To envision how mobile Internet services might bring value to digital music practices, it is necessary to consider some of the apparent needs of the music industry, music consumers, and music artists.

Music industry needs:

- Must create viable revenue model or models for digital music downloading.
- Must retain collaboration with artists (or artists might go directly to consumers).

- Must relax artistic control over artists and copyright control over consumer activities enough to satisfy the critical needs of both groups.

Music consumer needs:

- Music any time anywhere.
- Lower than CD prices for music if forced or motivated to pay for online access.
- Total music purchase and access flexibility.
- To connect more closely with artists.

Music artist needs:

- Greater ownership of music.
- Greater percentage of music revenues.
- Greater contract flexibility.
- Greater marketing options (e.g., direct access to consumers via Internet).

Given the various needs suggested above, questions to address in any effort for meaningful music distribution reforms include (1) What added value can consumers be given to motivate them to pay for access to music? And (2) How can major music labels regain the trust of artists and consumers through more equitable revenue-sharing schemes and a music access environment that goes beyond the advantages of current file sharing services? Monthly subscription models via wired Internet will need to reflect such added value offered to consumers. Although one study revealed that 58% of college students will pay $15.00 per month for unlimited download privileges,[12] and another study found that 78% of Napster users are willing to pay $12.89 for a monthly subscription, these figures do not take into account possible deal sweeteners such as limited access to artists, contests, or music-related information services.

Mobile Internet will add value to wired Internet digital music services because it will increase music access and purchasing convenience to consumers while enhancing m-commerce opportunities for service providers and artists by untethering music consumers from desktops. Importantly, mobile Internet also will create opportunities for consumers to communicate with each other at work, school, or on the street about favorite music artists and songs and to share song files, effectively contributing to the marketing of music. In addition, the lure of increased music revenues potential of mobile Internet services might encourage the music labels to open their music catalogues to downloading with pricing structures that satisfy both users and artists. If the big labels resist they may find

that enterprising businesses step in quickly with valuable services to take at least some of the revenues pie from them.

Above all is the need for recognition by all concerned parties that what underlies the new digital economy and prospects for mobile Internet music is, as pointed out by John Perry Barlow, not things as possessions, but rather relationships and synergies. Referring to the digital music copyright fracas, Barlow suggests a memorable guide for right thinking: "If I sell you my horse, I can't ride him after that. If I sell you what I know, we both know it."[13] This fundamental tenet of most Internet activities is reflected in the popularity among some entertainment fans of "fanfic," which involves the often elaborate written positing of scenarios related, however loosely, to particular popular movies or television shows. Fanfic empowers consumers to participate in the creation of alternative futures, and some observers argue that entertainment industry officials should embrace and encourage such involvement rather than attempt to suppress it with cease and desist orders against fanfic websites.[14]

The collaborative opportunities available to visionary mobile Internet-related businesses during this chaotic transition are suggested by a speech music artist Courtney Love delivered May 2000 at the Digital Hollywood conference. Proclaimed an exasperated Love, "I'm looking for people to help me connect me to more fans...there's an unbelievable opportunity for companies who dare to get it right ... I'm leaving the major label system and there are hundreds of artists who are going to follow me." Momentum for change seems to be building, with the Future of Music Coalition planning a "Policy Conference for the Future of Music" for January 2000. The stated goal is to "draw together the strongest voices in the technology and independent music communities" to discuss how both groups can work together.

6. Conclusion

The introduction of mobile Internet music access and file sharing likely will be met with considerable skepticism in many markets, particularly in the United States where mobile Internet as a concept has been slow to excite consumers. But just as the remarkable success of NTT DoCoMo's i-mode mobile Internet service eventually caused consumers in the United States to take notice, Japanese technological and market innovations will spur tremendous growth in mobile Internet music in both countries. The mobile Internet model or models that eventually take root in the United States to support mobile Internet music probably will borrow one or more features from NTT DoCoMo's i-mode service such as its

billing system, but should be shaped strategically around unique U.S. telecom market structures and the specific needs and Internet practices of U.S. consumers.

Globally, increasing consumer enthusiasm over digital music file sharing likely will force monumental changes in existing relationships between artists, music companies, and consumers, with opportunistic new businesses filling as yet unrealized business needs. The upheaval in the music industry will create huge opportunities for entertainment-related content providers and application developers, and may force major music labels to loosen certain copyright restrictions on selective downloading and sharing of music materials and performances. The initial disruption created by these transformations is projected to result in a massive shift in music revenues by 2005, with artists gaining $1 billion and third party service vendors gaining $2.8 billion.[15]

Then there is China, the most promising mobile Internet market in the world. In 1999 there were 43 million cellular telephone users in China, with an additional 20 million expected to join the ranks in 2000. The Economist reports 57 million mobile telephone users in China as of July 2000. This penetration rate represents only 1% of China's population, leaving tremendous room for growth. By the end of 2000, 10% of China's mobile telephones should be web-enabled, with handset prices dropping 10%-15% annually.

Mobile Internet devices will not replace the wired Internet in most markets any more than mobile telephones have replaced wired telephones. The two platforms will coexist in various configurations and ratios depending on local telecommunications infrastructure, applications development, and consumer demand. More certain is the flexibility and empowerment millions of users world-wide will gain from any time any place access to information and services such as digital music. How and when we get there will depend largely on the imagination of technologists and entrepreneurs, the wisdom of regulators, and the willingness of currently antagonistic parties to collaborate to realize an exciting new social possibility.

Daniel P. Dolan
Senior Research Fellow, GLOCOM

References

1 Media Metrix press release, October 5, 2000.
2 An excellent resource for information related to mobile Internet in Japan is online

at http://www. mobilemediajapan.com

3 The Strategis Group website is at http://www.strategisgroup.com

4 International Phonographic Federation Industry, "The Recording Industry in Numbers 99."

5 The RIAA website is at http://www.riaa.org

6 Future of Music Coalition website is at http://www.futureofmusic.org

7 The Jupiter Communications website is at http://www.jupitercommunications.com

8 The Standard, "Net Music Sales are Still Ringing." August 21, 2000. Jupiter Communications.

9 The Media Metrix website is at http://www.mediametrix.com

10 Survey by International Data Corp.

11 The Cahners In-Stat Group website is at http://www. instat.com

12 The Standard, "Stats Speak Kindly of Napster," July 21, 2000.

13 John Perry Barlow, "The Economy of Ideas: A Framework for Patents and Copyrights in the Digital Age."

14 The New York Times reports in a September 20, 2000 article that 20th Century Fox has sent cease and desist orders to a 16 year-old Ohio native to prevent him from posting sounds and images allegedly copied from the "Simpsons" television series.

15 Forrester Research