Volume 3, Number 2, February 2004

WGR Presents:

Mobile Entertainment analyst

In-depth coverage of the wireless entertainment business

The Unquiet Mobile

by Elizabeth Biddlecombe

Depending on whom you talk to, worldwide sales of music on mobile phones last year were either US $1 billion (Jupiter Research) or $3.5 billion (The Arc Group). The global music market itself is said to be around $32.2 billion.

And now it looks as if ring back tones – whereby the caller hears a particular snippet of music while waiting for the phone to be answered – will be the next big thing. They are already a run-away success in Asia, and they are making their way to Europe and the United States.

It is shortsighted to think of music on mobile phones solely in terms of ring tones and wallpaper from your favorite artist. Many other types of content and applications are on offer, and they all have different roles.

"Buying content for personalization is the same urge as buying a particular car or suit," muses Edward Kershaw, Head of Music for Vodafone's Global operations. "It's quite different from content for entertainment. People might pay a stupid amount of money for a suit because it makes them feel better (than others). But if I pay more for an OutKast CD than you, I'm not happy."

Those selling ring tones should keep them quite separate in the consumer's mind from the full track available as an MP3 download. "When people make the comparison (in price), carriers will be in trouble," cautions Adam Zawel, director of Wireless/Mobile Enterprise and Commerce, at The Yankee Group.

Not that it's an issue yet. At present, nobody is offering MP3 downloads to mobile phones outside of Korea and Japan. Apple declined to comment whether they plan to make iTunes available to wireless devices or add local or wide area connectivity to that king of the MP3 players, the iPod.

There are some phones out there that play MP3 files: the Nokia 3300,

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Mobile Fun and Games

by Paul Skeldon, Juniper Research, www.juniperresearch.com

INTRODUCTION

Early in the evolution of the mobile phone, the ring tones and logos market for mobile phones showed that there is strong demand for mobile services in addition to voice calls and sending SMS. This market has grown rapidly and already generated a vast amount of revenue, but now it is waning as the novelty wears off and operators and content providers look for the next big thing.

At face value, mobile games appear to offer a potentially rapid route to revenue generation. As such, the opportunity has attracted considerable interest from all those concerned in the mobile games space. For some time now, basic handsets have come with simple games embedded within them, and it has been common to see users playing the likes of Snake on their phones while sitting on the bus or train since the late 1990s. This fact, combined with the runaway success of SMS services (nearly $30 billion being sent worldwide each month), has sown the idea that mobile gaming is set to be a huge market for mobile data services in the minds of operators, service and content providers. Moreover, they believe that success will come very quickly, since they are not wholly reliant on future networks and more complicated handsets – although these advances will improve the gaming experience, and hopefully, drive continued growth in the mobile gaming market.

There are other compelling reasons why mobile gaming is likely to thrive. For starters, mobile games are relatively cheap to develop, and thanks to the current trend for "retro" games such as Space Invaders and Asteroids, need no sophisticated programming or graphics. Mobile also offers an attractive market to games companies. Unlike the internet, gaming on

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Short Messages: It's Hip to be Square

by Steve Palley

Square Enix Mobile, to be exact

MEA: Let's start off with what everyone's dying to know: what's the word on when Final Fantasy will be reaching the mobile phone? I mean, Brave Shot is a solid space shooter, but Square Enix is traditionally recognized for its RPGs.

Ichiro Otobe: We recently announced that Final Fantasy will be coming to NTT DoCoMo's 3G handsets this spring in Japan. This will be the first Final Fantasy game to appear on mobile phones and it a complete port of "Final Fantasy" (released in 1987, Japan). We are still evaluating the game for the US market, from both a technological and business standpoint. As with any other game, we need to ensure that the handsets available in the US are capable of running the game. It may take some time before the two factors reach the ideal scenario/plan for it to be released in the US. The first offering of a "Final Fantasy product" on mobile phones in the US will be in the form of wallpapers and ringtones.

MEA: Ach! Fair enough. So if Final Fantasy isn't in our immediate future, which other types of games will Square Enix Mobile be concentrating on during 2004? Will Square Enix Mobile try to bring the overall 'feel' of Square Enix games to the mobile phone, or will it be more independent in terms of game design and production?

IO: In 2004, we plan to bring various types of content to the mobile gaming market:

1. Mini-games – to attract the "pick-up-and-play" audience.

2. Mobile version of our console titles – this will not be limited to complete ports of the game, but also can include new games using the concept or character(s) of the original console games.

3. New types of games utilizing the unique capabilities of mobile phones; for example, we are developing new content which allows users to access the world of Final Fantasy XI (online/MMORPG, first in the series), through phones. Users will be able to trade items and water their plants in their Mog houses (your "home" in FFXI) and others interesting features, even when you are not in front of your PC/PS2.

4. Non-gaming content, such as wallpapers and ringtones as they are the more popular content for phones now. Messaging related content is also very popular in Japan and we hope to bring similar content to the US and capture the audience of this fast growing market.

Whichever product category we pursue, our commitment to the quality of the content remains the same.

That's some FINE lookin' wallpaper.

MEA: I don't doubt it. Let's talk about your first US game, Brave Shot. According to your website, Brave Shot departed from the usual Square Enix policy in that it was released in the US ahead of Japan, which has a much more developed wireless gaming market. What's the thinking behind this departure?

IO: Unfortunately, most of the games we offer in Japan are not compatible in the US due to the gap in handset capabilities. We plan to bring more content from Japan when advanced handsets become available in the US. Since we see huge potential in the US mobile phone market, we wanted to build a game specifically for the US market and for that to be our first offering the mobile arena.

MEA: The mobile world recently received news of the partnership between Square Enix and UIEvolution. Will UIEvolution be heavily involved in the production of Final Fantasy Mobile, or in any of Square Enix Mobile's other games?

IO: UIEvolution's technology will be essential for us to broaden our content offering. We are currently discussing joint content development initiatives and marketing. Whether or not that includes Final Fantasy Mobile is not clear at this time. We are very fortunate to have this partnership with a company that is as highly respected in the market as UIEvolution.

MEA: Cool. One last quickie for all of those non-BREWers out there: are there any plans to bring Square Enix Mobile games to platforms/providers other than BREW and Verizon?

IO: Yes, we certainly hope to bring our content to other major carriers/providers and to other platforms in the near future. ■

Editor & Publisher
Matthew Bellows
matthew@wgamer.com

Technology Editor
Cashman Andrus
cashman@wgamer.com

Copy Editor
Steve Palley
steve@wgamer.com

Design & Production
Anne McLellan Design
annemclellan@comcast.net
781 326 8007

Published by:
WGR Media Inc.
650 Cambridge Street
Cambridge, MA 02141
(US) 617 621 0875

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Games We Like

by Avery Score

T.H.U.G. Life

Tony Hawk's Pro Skater is a franchise that has met, in all its various iterations, with unmitigated success. Coupling high production values with a flavor of gameplay as old-school as a boneless 180-degree finger-flip, Tony Hawk has consistently defied the negative stereotypes associated with licensed, "extreme" games. Up until recently, however, I hadn't caught the craze. I played through Hawks 1-4 with limited enthusiasm. Until Tony Hawk's Underground, I hadn't realized that there was a vital element missing from the Hawk formula which would ultimately draw me in as a dedicated fan of the series: plot. Tony Hawk's goal-based gameplay has always featured such meaningless challenges as "Collect a series of items, scattered throughout the level." Those pointless endeavors are still intact; but they are now framed within the construct of a loose, but engaging, plot, involving your character's ascent to stardom.

T.H.U.G.'s appeal is evident even before you start scoring crazy air. The game gives you a peerless degree of customization options for creating your in-game counterpart. The PS2 version even allows you to use an EyeToy photo of yourself as your character's facial texture. Even without this feature, T.H.U.G. provides you with the tools to create a stunning likeness of anyone from your girlfriend to the X-Men's Nightcrawler. In my case, one model sufficed for both. This high level of customization translates to every area of play. You choose your sponsor; you design your Pro board; you lay down your signature tricks. Consequently, Tony Hawk's Underground can be replayed, again and again, each time providing a novel experience.

> Until Tony Hawk's Underground, I hadn't realized that there was a vital element missing from the Hawk formula which would ultimately draw me in as a dedicated fan of the series: plot.

You start the game as a lowly skate punk, grinding lines around Jersey's exposed sewer pipes and rampant "tweakers": skittish, wraith-like drug users who serve to deter gamers from pursuing a similar lifestyle. Once again, Hawk's rabid anti-drug stance manifests itself in a videogame. He hates cops, too. When you're not doing tricks over their burning patrol cars, you're GTA-ing them and engaging in high-speed chases. From Jersey, you head to New York City, along with your friend/rival, Eric Sparrow. Eric plagues your existence, throughout the game, attempting to ruin your career at every turn. Incredibly, your character forgives him every time, only to be cheated afresh. After you and Eric make a joint skate video in the Big Apple, you get your first sponsor, a New-Age hippy named Stacy Peralta – who was, incidentally, Hawk's first sponsor. From there, you start your conquest of the skating world, an endeavor which will put you under the employ of Moscow's KGB, lead you to pull a McTwist over a hovering police copter, and prompt you to perform myriad other bone-headed stunts – all without the protection of a helmet. Although the stars of the Tony Hawk series pervade T.H.U.G.'s levels, they have been de-emphasized in favor of a focus on the gamer. The gameplay remains fairly linear, but the player is given a choice as to how to complete missions, and in what order. It's up to the player whether to interact with NPCs for special bonuses, or just remain on track. This proves to be a smart and engaging design choice and is the biggest advancement the series has seen since THPS2's addition of manuals (tricks done while balancing on one set of wheels on the ground).

The backbone of the T.H.U.G. experience is, of course, the Tony Hawk engine's addictive gameplay. Intact are all the flatland and aerial moves of THPS4. Pulling off sick combos and meeting various requirements, such as "manualing for 10+ seconds," will increase your skater's stats, improving his ability to ollie, balance, etc. These abilities will come in handy in T.H.U.G.'s two-player mode, as well as in the single-player campaign,

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Fun and Games

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mobiles are targeted at an audience that is generally willing to pay-to-play. SMS and Premium Rate SMS also now offers an ideal billing mechanism for paying for content, as well as being a technology that most users are already familiar with and adept at using.

But, as games and gamers become more sophisticated and the mobile delivery channel together with the devices themselves become more sophisticated, competition is likely to ramp up – bringing operators and games suppliers into the already highly competitive arena of the dedicated games device systems such as Playstation, XBox and Nintendo. Competing against such well established players takes the mobile world in to a completely different sphere and adds many competitive and price related pressures. This could make mobile gaming less profitable in the long run.

I can't stress strongly enough how SMS is the key to achieving mass market penetration for all other mobile services in the future.

TYPES OF MOBILE GAMES

As with all mobile entertainment content, mobile games fall in to a number of distinct types and categories:

Embedded games

Games hardwired into handsets represent the roots of today's market opportunities, and are the reason why I am writing (and you are reading) this whitepaper. Nokia can claim to be behind this development, when its own developers added 'Snake' to the 6100 series of phones, along with 'Logic' and 'Memory', but these last two examples didn't really catch the imagination of the user to the same extent as Snake. Much like text messaging, Snake grew in popularity organically, with no active marketing, spread by word of mouth and seeing people playing it on crowded public transport.

This level of success (Nokia believes that around 1 million 6100 and 3310 owners play these embedded games at least once a week), has convinced many that mobile games offer a particularly strong potential for growth. The only drawback with many of these embedded games is that boredom gradually reduces their usage. The answer here is to develop and sell more new levels and games to replace them. . . and so the mobile gaming sector is born!

One other interesting aside that mobile gaming has provided is the ability to post highest scores on websites such as 'Club Nokia'. This has helped to reinforce brand loyalty and acted as a market driver for games development whilst providing incremental income.

SMS games

In many ways, SMS is wholly unsuitable as a games playing technology, particularly when it comes to 'shoot 'em up' games and the like. SMS, however, is excellent for short and sweet text messages, and has a limited potential as a delivery mechanism. That said, if you consider gaming to also cover 'voting games', then SMS becomes a very useful tool. The TV show "Who Wants To Be A Millionaire" – and any other quiz based game for that matter – is ideally suited to SMS and is a valuable part of the mobile gaming space.

This is good news for the wider mobile gaming industry. SMS is so widespread that, whilst not an ideal gaming medium, it is a great way to get users and potential users of mobile gaming used to relying on their mobile handsets for entertainment. This also aids the up-sell to more capable handsets and better services.

I can't stress strongly enough how SMS is the key to achieving mass market penetration for all other mobile services in the future. The key to mass uptake of future services lies in persuading users to upgrade to better, more expensive handsets. And the only way to perform this mass education task is to use existing mainstream channels to get users accustomed to thinking about their mobile phone in new ways.

MMS games

Multimedia Messaging Services (MMS) are the next stage in the development of SMS, allowing for the addition of graphics, photos and even moving images to be added to the text experience. From a phone personalization and a mobile news/information point of view, MMS offers some startling services. These include new screen savers, the ability to send photos from one phone to another, and receiving third party services such as news headlines in text and pictures.

From a gaming point of view, however, MMS functionality is somewhat limited. MMS could be used as a mechanism for some forms of rudimentary interactive gaming, but on the whole the games industry has been slow to move towards MMS, instead waiting for what it believes will be far more useful and long-lived Java/J2ME technologies. These will provide the significant step forward in mobile gaming.

Java games and beyond

Java and its variants are the key enabling technologies that will drive mobile gaming. This technology is what the mobile operators, handset makers and games developers have been waiting for in order to launch into the games sector of the business. Java's ability to handle

properly downloadable games with good animation and sound is the clear way forward.

Downloadable games of this quality not only make the proposition of mobile gaming far more attractive to the user, but also make for better and varied billing scenarios. In this way, games can then be sold according to their value. This means that some games can be sold cheaply and possibly on an arcade style business model, where the user pays and plays until their money or time runs out. Other games may cost the user a lot more money, but provide them with unlimited access to the game. There may also be the ability to pay for a particular game and be allowed (under the terms of Digital Rights Management law – DRM) to pass that game on to one other person.

The games supplier or network operator can decide how they price and sell each game according to their specific market and policies – but flexibility here is key, and it also gives a much more definitive guide to the revenue model for each game.

As I write this, Java handsets are starting to become more popular in the market and are likely to be standard for new phones from Christmas 2003 onwards. The advent of more powerful chipsets in phones, more memory and Java games being developed on a wider scale finally makes the mobile phone a proper gaming platform.

Java and its variants are the key enabling technologies that will drive mobile gaming.

Flash – even better than Java?

Not everyone is convinced that Java, and especially the cut-down J2ME, is the way to go for developing truly enticing mobile games. For starters Java is not everyone's 'cup of tea' for playing games on the Internet, and is starting to be replaced by Flash as a way of delivering much more dynamic games to web users. Flash protagonists believe that this same scenario can be applied to mobile phone games.

Up until the very recent release of more advanced handsets, one of J2ME's biggest drawbacks was its lack of multi-button/chording support. This limited the functionality of the games, impairing the longevity of mobile gaming as a genre. Flash is built to support chording from the get-go, and also allows for the delivery and operation of much more sophisticated graphics and sounds. There is also one last ace up Flash's sleeve. It allows for "swerve" to be built in to the mobile gaming application, so that in a driving game for instance, the user can turn the vehicle in the game by physically swerving the handset from side to side.

Flash has a long way to go before it is embedded in handsets and mobile games, but it is my belief that it will eventually be the standard operating environment for all mobile applications.

According to our research, sophisticated mobile games are already a significant $3 billion marketplace.

HOW MUCH IS MOBILE GAMING GOING TO BE WORTH?

For our analysis we have two categories. The first, text based games, which encompass quizzes and so on (delivered using SMS or SMS like services), and secondly, 'Sophisticated downloadable games'. These include the majority of future services.

Simple text based games

As a result of the low price point for text based games, the revenue potential for this sector may not be as high as one might first assume. That said, the large numbers of people likely to be playing such games among the

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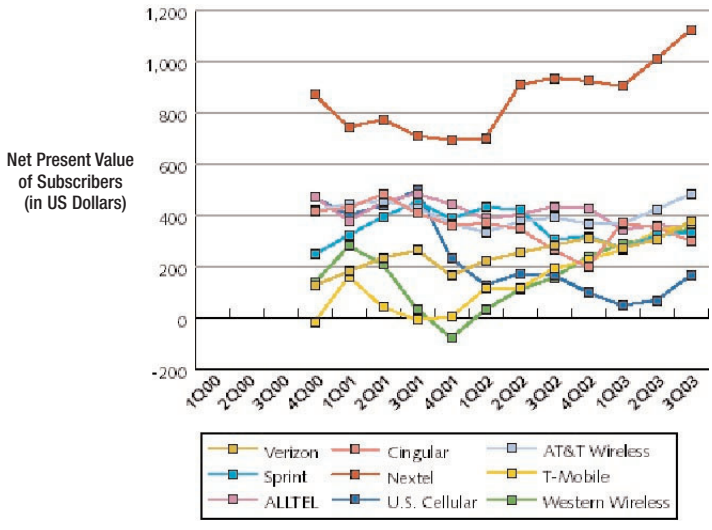
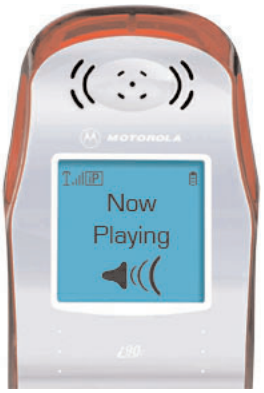
Stat!

Net Present Value of U.S. Cellular Subscribers



Source: The Yankee Group North American Wireless/Mobile Carrier Tracker, Third Quarter 2003



Unquiet Mobile

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Sony Ericsson's P800, and the Treo 600, for example. But these phones must all attach to the computer via a USB port or use SD memory cards for MP3 functionality. Neither Nokia nor Sony Ericsson could report back on how successful this feature has been.

Simply put, most mainstream handsets do not have the ability to act as an MP3 player. In order to turn into mobile jukeboxes, they would need a media player, track management software and storage capacity – not to mention stereo headphones.

Suzanne Cross, product marketing manager at Sony Ericsson, points to the expectation gap created by the iPod and what is actually possible on a phone. Cross compares the iPod hard drives (they range from 15, to 40 gigabits) and the 16 MB sported by Sony Ericsson's top model device, the P900. "Until the price (of storage) comes down, I don't think you will see a phone marketed as an MP3 player," she says.

However, according to a report by The Zelos Group ("Defining the Market for Full-Featured Handsets"), such hybrid handsets will present a serious challenge to single-purpose consumer electronics devices like digital cameras and music players by 2008. Only 10.9 million of these high-end phones were sold last year, but Zelos reckons this number will grow to 30.4 million in 2004. By 2008 they will represent nearly half of all phone sales.

Network throughput is another important factor to consider. Consumers would have to use advanced networks – such as CDMA 2000 EV-DO, EDGE or WCDMA – to download MP3 files without using up their entire monthly data allowance on one song.

Of course, file transfer does not have to be over a network. For instance, the Jay-Z Black Phone, a customized Nokia 3300 sold by Mobile Music USA, comes with Jay-Z's BlackAlbum preloaded on a memory card. Bluetooth is another option. Sony Ericsson has combined a digital music player and hands-free kit into one unit, the HBM-30.This device uses the Bluetooth short-range wireless protocol to connect to a phone, but can also be used independently.

Nevertheless, music on mobile is still very much a 'nascent' opportunity, argues Alex Slawsby, senior analyst on mobile devices at IDC. He believes it will be another few years before the new market really kicks in.

Alejandro Sanz

It's a natural fit to use such an ubiquitous device to listen to music – after all, FM Radios have been incorporated into mobiles for some years now. Neither Nokia nor Sony Ericsson has any feedback to share as to how popular they are. Suzanne Cross at Sony Ericsson describes the radio feature as more of a differentiator for phone manufacturers than an additional feature people pay extra for. Operators benefit, she says, because with an in-built FM radio, the customer always has their phone on and they will hear it ring when listening to music.

XSVoice has a modern-day take on broadcast radio for mobile, providing phone access via WAP, J2ME or BREW to over 100 streamed radio station via its Mobile Broadcast Network (MBN). Over 300,000 subscribers use on MBN via U.S. carriers such as Nextel and Boost Mobile. Jay Deragon, Chairman at XSVoice, says the subscriber total is growing by 100% a month – a rate that outperforms expectations. Not all stations carry music, but those that do largely attract a younger audience, he says. The typical time spent listening is three to five minutes twice a week, "though there are some pretty crazy people who listen for three hours," he reports.

Deragon talks up the demand for portable audio compared to that for portable video. "Most people won't take the time to watch the screen," he says. Both media types have one thing in common – user demand will be stunted by any per-minute access charges.

A number of companies like Real Networks are fusing images and sound in a video service – though in most cases the service is actually based on a slide show combined with audio. Subscribers to the PCS Vision service from U.S. carrier Sprint PCS can catch some music channels from U.S. cable TV via Vision's MobiTV service. V-Star provides its service through the 1KTV brand, providing music news and reviews three times a week.

According to Kenn Raaf, V-Star's VP of Marketing, demand for music-related content makes up 5-10% of overall consumption per week. Entertainment accounts for 25% of all user requests. V-Star also provides the Sony Music Front Row service on PCS Vision. Sony is not the only record label packaging its content: Warner Music is also in on the act, providing ring tones, wallpapers, quizzes, tour information, even mobile blogs from bands.

Some labels are cutting additional artist-specific deals with mobile operators. Vodafone has been

offering exclusive ring tones and images of Robbie Williams as part of an international pact. In the United States, Verizon Wireless hooked up with Warner Music Latina to promote Latin Grammy winner Alejandro Sanz. The two companies offer exclusive ring tones from Sanz' new album; as his U.S. tour approaches, they are now providing subscribers with concert news, though the content is somewhat buried in Verizon's WAP deck.

For Verizon the deal provided a good way to reach out to the Hispanic market. It enabled Warner Music Latina to reach people born in the U.S. to Spanish-speaking parents, whose music tastes are normally a little more mainstream. "The response has been higher than our expectations," enthuses Gabriela Martinez, VP of Marketing at Warner Music Latin America. "Absolutely it has driven sales up though it is hard to measure how much exactly. Definitely awareness has increased."

Martinez is open to the possibilities engendered by the marriage of a mobile phone and a music star. "If we are able to find more ways of exposing our artists to a bigger audience, creating a bigger fan base and commercializing our music, we're interested," she states.

Record labels are open to the possibilities presented by the cell phone, their appetite whetted by the ring tone market. But at least one executive has expressed concerns about the ability of some handsets to allow users to compose their own ring tones. There are already ways to bypass provided content for your mobile phone. For example, Xingtone has a legitimate service that allows you to convert a snippet from your PC-based MP3 collection into a ring tone.

But early in February, industry leaders announced a Content Management License Administrator that will undertake licensing and compliance for the OMA DRM Version 2.0 interoperability specification, further strengthening digital rights management for mobile phones. Xingtone recently announced a deal with Disney's Hollywood Records whereby the Disney label will sell ring tones directly to the customer, cutting out the carrier altogether.

Record industry representatives explain in private that some ventures – putting out an artist-branded device like the JayZ or Nelly Phones, for instance – are less attractive to them. This is not only because merchandising is handled by a separate company, but also because the manufacturing process is hard for an outsider to get a grip on.

Elsewhere in the market, however, we see several examples of happy marriages between music and mobile phones. Virgin Mobile USA pivots its "Virgin Xtras" service around content from MTV. This isn't high-tech, being based around text messaging and IVR, but it fits the budget of Virgin's target youth audience. Special content includes MTV show listings, but also covers the ability to make requests for videos on TV, vote for your favorite artist, and play games and quizzes. There is also an MTV-branded phone, the Kyocera slider. VH1 2 Go content allows the customer to "Hear Music First" by calling in and listening to a track over their phone. "We've hit a home run with MTV," says Bridget Russo, PR director for Virgin. There are no numbers available to support her statement at present.

A handful of companies are offering an entirely new breed of music application. For instance, UK-based Shazam provides its music recognition service on a white label basis in 15 countries around the world. In the UK, they have augmented their product with information on where to buy the ring tone, as well as the ability to send a 30 second "Song Mail" clip to a friend.

US-based MusiKube has been trying out its Personal Music Guide application in San Francisco's Virgin Megastore. After customers scan the bar code of a CD on a souped-up iPaq, they are presented with information about the artist, some samples to listen to and so on. MusiKube has developed a similar application that uses camera phones to scan special bar codes on printed material such as adverts or flyers. Information such as liner notes, album art work, track listings and buy links are then returned to the phone.

MusiKube is positioning itself as an informational companion to the music consumer. But which company will be chosen by the consumer as their exclusive provider of online storage for MP3 downloads, play lists, the music they are track-

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Fun and Games

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younger end of the market still makes for an impressive revenue growth model. In certain sectors this offers players spectacular returns on their investment in simple games delivery.

...we estimate that the total mobile games sector is already worth an approximate $4.8 billion, and will grow to almost twice that in the coming five years . . .

Some text based services command premium prices, particularly in Europe, where a billion dollar industry has grown. The North American market is currently a disappointing $800 million, but offers huge growth potential, as text based games continue their reciprocal development. This figure should grow beyond the billion dollar mark, post-2008.

Sophisticated downloaded games

Despite the pressures already discussed in this section, not least the trend in falling prices per game download during the next five years, the total revenues for sophisticated mobile games is highly encouraging. Even taking a conservative view of the likely number of players and downloads, and adjusting pricing to take into account a mixture of cheap and casual games alongside exclusive and complex mobile games, we can see that revenues for mobile games are likely to be very high.

According to our research, sophisticated mobile games are already a significant $3 billion marketplace, and as other regions get switched on to the technology and as handset prices fall, this is going to rise significantly to be a market worth in excess on $6 billion. Quite an opportunity.

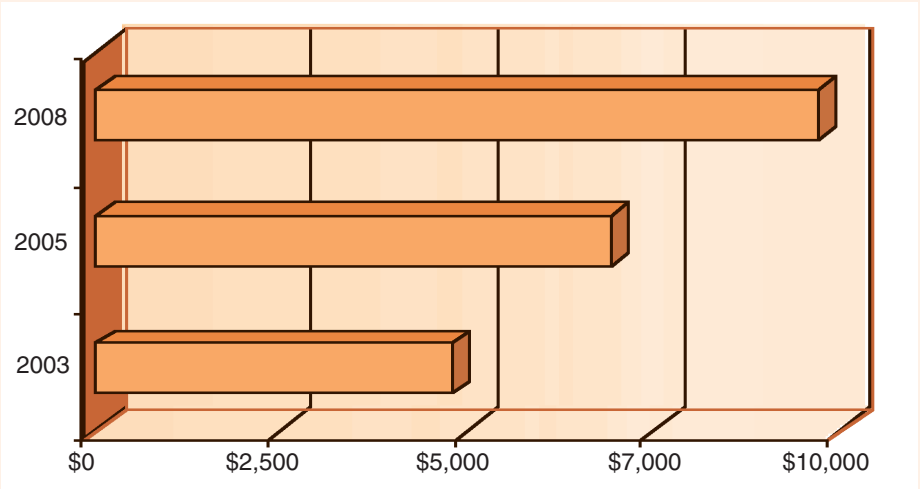
Total mobile games download revenues

Looking at the overall market for mobile games, the figures for both sophisticated and simple text based games together offer an attractive and growing market for the next five years. *(See graph below left.)*

Gaming growth will occur across all geographic regions. In some regions, this will partly be a result of the increased penetration of 2.5 and 3G handsets and associated networks.These will make sophisticated game playing a lucrative market niche. However, it would be wrong to overlook the contribution made by simple text games to the vast revenues that mobile gaming will generate. Many of these games have a good chance of becoming a widely accepted part of the media culture. Whilst the price-per-play will be very low, the volume of plays will probably be very high, offering lucrative gaming traffic for both the third party games providers and the network operators that carry them.

So, despite conservative estimations on pricing and the number of games played per person (as well as omitting gambling type games, which is dealt with in a separate Juniper report), we estimate that the total mobile games sector is already worth an approximate $4.8 billion, and will grow to almost twice that in the coming five years . . . but only if key drivers are met, and if the regulatory and billing environments make their use conducive to the mass market.

Total Revenues from All Mobile Games Revenues ($m) Regional Forecast 2003, 2005 & 2008



Source: Juniper Research

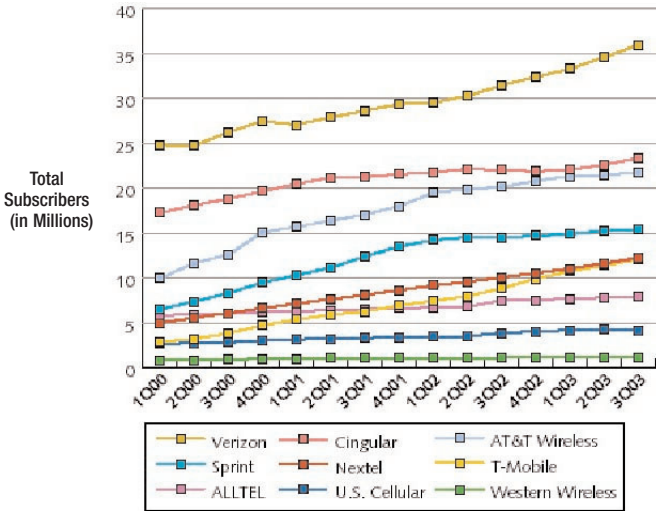
HURDLES

Handset form factor

One of the obvious drawbacks for all mobile entertainment services comes down to the screen size and resolution. Until recently, phones were not designed for gameplay – they are optimized for making voice calls and possibly sending text messages. The rise of colour screen technology has gone some way to making phones more compelling for other uses – in fact, colour screens are the biggest driver in selling new handsets at present, purely for the novelty value – but it is really down to games mak-

Stat!

Total U.S. Cellular Subscribers as of 3Q03



Source: The Yankee Group North American Wireless/Mobile Carrier Tracker, Third Quarter 2003

ers to make mobile games that are suited to the screen capabilities. Embedded games and some of today's retro games are ideally suited to basic mobile phone screens, as they are low-res and users expect a degree of antiquity to the experience. On the other hand, trying to expand the gaming experience to encompass games that will have greater popular appeal will require much higher resolution screens.

Handset memory constraints

Mobile phone handsets have only limited memory, which is fine for most of today's games and other entertainment applications, but very limiting for some of the new generation of games. For example, the average phone (even some of the more sophisticated ones coming to market at present) can probably only hold around four games at any one time. This means that the gaming experience is already becoming limited for the player. They have to decide between keeping favourite games and effectively embedding them, or having to ditch those they like if they want to try new games.

Handset uptake

Current designs of games are suited to all but the most archaic handsets in circulation. However, for the games market to have a sustainable and prosperous future, handsets that can handle colour graphics, polyphonic sounds and, eventually, Java downloads must be widely available and adopted by the mass market. Further still down the line, there has to be a significant uptake of 2.5G and 3G handsets to allow for the new wave of interactive gaming to take place.

Network technologies

Currently, most users have 2G based digital phones, which are generally suitable for the SMS delivery of simple quiz-style games and services. For a more rounded gaming experience, users will require WAP, 2G or even 3G handsets, which are still far from achieving critical mass. Furthermore, WAP has in many ways crashed and burned in the eyes of the consumer. Early

to have a sustainable and prosperous future,...handsets that can handle colour graphics, polyphonic sounds and... Java downloads must be widely available and adopted by the mass market.

WAP services were rolled out too soon, and as a result were unreliable and painfully slow, often dropping the connection. Yet WAP is likely to be the platform of choice for delivering mobile games in the early days. Of course, this is a newer and improved version of WAP, and when used over 2.5G or 3G, it will work much more like the 'wireless internet' as promised by the early advertising of WAP 1.0. However, the damage is already done to the image of WAP, and to overcome this, services will need to avoid referring to the "WAP factor". One of the great mistakes in the bungled launch of early WAP services was that operators tried to sell the technology itself, rather than its uses and benefits."■

Stat!

European Carrier ARPU

Company	ARPU (in Euros)										
	1Q01	2Q01	3Q01	4Q01	1Q02	2Q02	3Q02	4Q02	1Q03	2Q03	3Q03
Bouygues				33.7	34.4	35.0	36.5	36.7	38.4	39.3	41.6
Orange (France)	34.6	33.7	32.9	32.7	32.3	31.8	31.7	31.4	31.3	31.3	31.4
SFR				40.3	40.4	40.1	40.6	41.0	40.8	41.0	40.7
E-Plus				22.4	22.2	22.7	23.1	23.3	23.5	23.9	24.3
O2 (Germany)	31.5	28.8	26.3	25.8	26.3	27.3	28.0	28.2	28.3	29.0	29.5
Vodafone (Germany)	31.5	28.5	26.4	25.3	24.8	25.2	25.7	26.0	26.1	26.1	26.0
TIM			27.9	27.7	27.7	27.8	27.9	27.7	28.0	28.6	28.5
Vodafone (Italy)	28.2	28.1	27.7	27.7	28.8	28.8	28.8	28.9	28.9	29.3	29.6
Wind			20.0	19.0	18.8	18.9	19.6	19.6	20.3	21.6	22.5
Amena	26.8	27.6	27.1	27.2	28.2	28.5	29.0	29.3	30.2	30.9	31.3
Telefonica				31.0	28.3	28.4	28.5	28.7	27.8	29.5	28.6
Vodafone (Spain)	35.2	30.8	30.8	30.8	30.9	31.0	31.2	31.4	31.0	30.7	30.7
O2 (United Kingdom)	33.2	31.0	29.4	28.4	28.5	28.9	29.4	30.0	30.5	31.3	32.0
Orange (United Kingdom)	30.6	29.2	30.7	30.4	30.5	30.9	31.8	32.0	32.5	32.9	33.3
T-Mobile (United Kingdom)				26.6	27.2	28.5	29.7	30.2	31.2	31.0	29.8
Vodafone (United Kingdom)	37.8	35.9	34.7	33.8	34.1	34.3	34.6	35.4	36.0	36.7	36.7

Note: ARPUs of European carriers are increasing. This exhibit illustrates the significant variation among operators, but the overall trend is upward.

Source: The Yankee Group 2003 Wireless/Mobile Europe Carrier Tracker

Games We Like

Continued from page 3

as your skater's stats must be significantly boosted to be a match for a Tony Hawk or a Chad Muska. Speaking of the two-player mode, a new mini-game has been devised: a match of fireball hurling! Yes, you heard right! In this mode, throwing a fireball at your opponent can be included in a combo, just like any other trick. Burned!

My favorite feature of the series, however, has always been its excellent, licensed tracks. Underground kicks it up a notch, providing a killer mix of hot Hip Hop, Reggae and Punk beats. A personal highlight is the inclusion of (Boston's own) Mr. Lif's I-Phantom, from his eponymous EP, in stores now. Yes, I'm plugging it.

Fortunately, mobile is now included in Tony's multiplatform philosophy. In addition to its appearances on PS2, Xbox and Gamecube, T.H.U.G. is now available on AT&T, for Series 40 and Series 60 phones. While the mobile version lacks the customization options and graphical resplendence of its console counterparts, it captures Underground's focus on odd-jobs, rather than huge skate contests. If only there were more NPC interaction and a more pronounced break from the rigid linearity inherent in level-based game architecture. Also, where are the tunes??!? T.H.UG. on mobile is much more than a cash-in on a big release, but its production values, along with those of the entire mobile arena, still lag behind current console and PC standards.

Tony Hawk's Underground is likely to attract the three gamers who, like me, weren't quite onboard with the whole Pro Skater craze. T.H.U.G.'s increased focus on the individual gamer means that you don't have to be an "Alterna-Teen," glued to the X-Games, to appreciate the title. All that's required of you are some quick fingers and a predilection for twitchy, arcade-style gameplay. Oh, and I dare you to beat my best combo of 867,200 (done using only flatlands tricks). Thought so, punks. I'm straight THUGgin' it.■

Unquiet Mobile

Continued from page 7

ing but have not yet bought, recommendations, and perhaps even a good old physical CD itself? Will it be Rhapsody, MusicNet, iTunes, Coca Cola, Vodafone, or someone else?

Edward Kershaw at Vodafone avoids answering this question. But he adds, "The mobile is the only device that you have with you all the time that has payment abilities and location information." The phone will not replace the PC, but it might, he suggests, store information about the customer's right to access content on the phone. He also implies that, aside from ring tones, Vodafone is making little money from music content at present, although the numbers are growing.

One potential user group is the artists themselves. Lyrics Born, vocalist and co-founder of independent hip hop label Quannum Projects in San Francisco, looks forward to the day that he can access iTunes from his phone. When asked whether he would like to put out a specially branded phone with dedicated content, he replies, "That would be dope. I would love to do that."■

Handset Highlights

SonyEricsson does it again

S-E Z600

reviewed by Steve Palley

SonyEricsson has been noted for their slick industrial design since the beginnings of the modern handset, from the statuesque T630 to the wonderfully compact T616. S-E's newest flagship handset, the Z600, continues this proud tradition. It's generally a very nifty device from tip to tail, encapsulating a multitude of features that should satisfy teenaged gamers, business users, and mobile lifestyle addicts alike.

The first thing you'll notice about the Z600 are its external panels, which default in a dark imperial purple. These sheets are pleasingly slick to the touch and can quickly snap on and off for customization purposes. Pop the somewhat recessed clamshell open, and you'll see backlit, silvery number keys, a brilliant 128x160 screen, and burnished-metal navigation buttons that look like expensive jewelry. Yum. Some users have complained about the clamshell's hinge placement, which causes the screen to open about a half-inch behind the keypad, but I felt that it made the screen present at a more viewable angle. In all, the handset seems to have absorbed a lot of careful design mileage before hitting market – although putting in a larger external LED display wouldn't have been a bad idea.

Blessed with a speedy processor and plenty of memory, the Z600 makes for an excellent gaming handset. It's also nice to be able to play both J2ME and Mophun games. Some handset navigation pads make game control difficult because they're either too small or indented – which can lead to accidental 'OK' button presses in the middle of heated action. By contrast, the Z600's nav pad is amply sized and extruded, giving users a leg up in control. If you're looking for gaming control above and beyond the capabilities of a normal handset, you can jack into the Gameboard EGB-10, SonyEricsson's proprietary shoulder-button rig. S-E clearly learned some lessons from Samsung's primordial gamepad attempt, as the EGB-10 feels a lot sturdier and sports more realistic button action; however, it's something of a pain to disconnect from the phone, and several games suffer from erroneous key-mapping to the peripheral.

The Z600's package of additional features is comprehensive and fairly high-quality. Camera images are sharp and easily edited and emailed from within a simple menu system; there's also a raft of imaging options that allow you to take negative and sepia-toned photos, in case you're really depressed. Navigating the handset's software is easy enough, thanks to the OS's nicely-animated icons. The predictive text feature is sort of pain to learn, but is actually quite efficient with some practice. Veteran triple-tappers might prefer to turn it off to avoid confusion. I'm a huge fan of the Organizer section, which is sort of a one-stop-shop for all practical needs – including calendars, notes, calculators, timers, and even a stopwatch you can use to ascertain the tip-worthiness of valets and waiters. The Z600's stacked with Bluetooth, infrared, and a Yahoo internet portal, so you can use it to interface with pretty much every modern computer on the planet.

In all, the Z600 is a super-solid handset that merits its position at the front of SonyEricsson's line. I want one.

Gaming Features: 8.7

Communications: 8.5

Other Apps: 8.8

Design: 9.1

Overall: 8.8

Contributors:

Cashman Andrus left a career of slinging code and herding cats to co-found Wireless Gaming Review. Before WGR, Cashman was Director of Development at Yesmail and an award-winning application developer for the Palm platform. He earned a Bachelor of Science degree in Brain and Cognitive Science, with a concentration in Computer Science and Linguistics, from the Massachusetts Institute of Technology.

Matthew Bellows' Matthew has worked in telecom and the Internet since 1995. Before co-founding Wireless Gaming Review, Matthew was Director of Business Development for Engage (NASDAQ:ENGA). At Engage, Matthew managed the team responsible for 4,000 advertising contracts that drove $30 million in annual revenue. He received his MBA with high honors from the Olin School of Management at Babson College. Matthew's first job in the game industry was as a tester at Infocom, where he spent the bloom of his youth playing Leather Goddesses of Phobos.

Elizabeth Biddlecombe (ebiddlecombe@apex-mail.com) has been writing about the telecom industry since 1997, contributing to a range of trade titles on diverse subjects. She moved to San Francisco from her native London in spring 2001 to cover the Americas for Emap's comms titles. She has a BA Hons. degree from Manchester University in English and Philosophy.Paul Skeldon

Paul Skeldon is a Senior Analyst with Juniper Research. He holds a number of magazine Editorships, including 'World Tele-Media' Magazine - the On-line & Wireless Entertainment/ Commerce publication, 'Contact Centre Management' & 'Contactcentrelink.com'. Paul has a vast experience in the mobile Entertainment field and regularly contributes to the GSM Association's annual Yearbook, 3G Mobile Strategies Magazine, The Times and The Financial Times.

Anne McLellan (annemclellan@comcast.net) has varied experience in graphic design, specializing in publications. Anne has worked as a consultant in corporate training and development, and in marketing, for education and arts clients. She has a BA from Brandeis University, and has studied graphic design and illustration at Mass College of Art, the Art Institute of Boston and Rhode Island School of Design.

Steve Palley, a recent Phi Beta Kappa graduate of Dartmouth College, is quite new to the mobile gaming arena – but an old hand at video games in general, having been brought up on a steady diet of Nintendo, Sega Genesis, and PC games. He is now an editor of, and major contributor to, WGamer.com.