Industry views

Convergence Monitor

Personal mobility*

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01 Executive summary

Imagine the scene: An e-mail pops up on every screen in your office authorising every employee, at company expense, to buy a smartphone. The goal of the new policy is to increase productivity, but, for that day, productivity is merely a dream. The stampede to the nearest brick and mortar retailer or most convenient e-store will put a crimp in your operations while employees rush to turn their suppressed demand into reality.

Sheer fantasy? Last year, following its earlier US launch, the Apple iPhone hit the European market – selling in Germany alone more than 10,000 on the first day[1]. Like all iconic Apple devices, the iPhone initially was targeted at consumers. More recently, Apple has announced its intention to move into the corporate market and compete directly with the likes of RIM's BlackBerry, while RIM has started to make a push into the consumer market with its BlackBerry Pearl.

In a professional environment, business needs play an important part in defining overall mobility needs. It is our belief, confirmed by the findings of our survey, that the implementation of a multi-faceted mobile enterprise solution acts as an accelerator to convergence between business and personal mobility. In this world, where the lines between business and personal increasingly are blurred, flexible corporate policy governing the use of mobile solutions will provide the definite push towards convergence.

Voice will be No.1 for the foreseeable future, but innovation focused on quality and the development of user-friendly applications and hardware will transform the market, opening the door to a myriad of productivity-enhancing or just-sheer-fun services. Advertising-subsidised price plans will not be the silver bullet to customer acquisition and retention, but with careful targeting they can provide a meaningful foundation on which to build a profitable business.

The future of mobile telephony is not limited to the business world. Wireless communications have reached into the farthest corners of the earth. In small, remote villages in India, individuals serve as communications hubs for their communities. Throughout Europe, Asia and the Americas, teenagers send text messages to their friends, while families connect via mobile phones and workers use smartphones to keep in touch with clients.

The next stage in wireless communications is upon us. Converged devices seamlessly integrate voice and data functionalities, making instant access possible anywhere and any time.

This report on personal mobility, the third in our series of global Convergence Monitor surveys, focuses on which devices and applications people are using today, how they are using them and what they would like to have in the future. More broadly, we look at the changes driving and enabling personal mobility, and the resulting challenges faced by service providers, equipment manufacturers and application developers.

We surveyed just over 7,400 PwC partners and employees in 22 countries. Our population is corporate, relatively young, highly mobile and, while not heavily skewed towards early adoption of technology, certainly no laggard in that respect. It is important to stress that as we discuss personal mobility throughout this report, we refer to our survey population, not the population at large.

1 T-Mobile website, 9 November 2007

02 On the verge of convergence

Two revolutionary forces – the advent of the Internet and widespread deployment of wireless networks – have swept the communications world in the past two decades, changing how individuals interact and companies do business.

Over the next three years the number of global residential broadband subscribers is expected to reach 527 million, while mobile subscribers will reach 5.5 billion within the same timeframe.[2]

Technology convergence is the culmination of those two forces. It promises access to personalised and location-aware content anywhere, anytime and through any device. It also accentuates the challenges created by an "always on" culture.

Today's consumers are likely to have a mobile phone – increasingly, in some countries, wireless networks are the only means of communication. But they also may carry a mobile music player, a portable PC and a smartphone to provide entertainment and instant contact with friends and work. People use their mobile devices in both a business and a personal context.

In a converged world, a single device allows consumers to talk, listen to music, send text messages, take pictures, play games, get directions, read the news and shop. It enables them to access their home or office remotely, manage their money, access e-mail and manage time, thus converging both personal and business use.

Convergence is changing how people communicate. They now can choose among multiple options, according to circumstance. In a crowded Tokyo subway, text messaging is the accepted mode. Ubiquitous instant messaging in the US allows quick communication, whether to make plans for the evening or to solve an urgent business problem. Increasingly, traditional Internet applications are moving into the mobile environment. Social networking sites, for example, Facebook, are pushing the mobile space, while mobile banking and commerce are also foraying into the arena. That is not to say that either Internet or mobile will replace the other, but rather that their convergence will allow consumers real freedom of choice.

These new media change how humans connect, making them constantly and immediately accessible. They also carry the risks of removing personal interaction and choosing the wrong medium to communicate messages.

2 Dataxis, October 2008

Technological innovation is making convergence possible. Service providers are rolling out progressively more advanced mobile networks with the bandwidth necessary to expeditiously handle vast amounts of data traffic. Mobile handsets are increasingly sophisticated, designed to meet user needs.

The market also seems primed. Subscribers, already comfortable with mobile services, declare themselves open to advanced applications if the cost is right and the quality good. This is where the bottleneck remains. Though we are starting to see successful fixed Internet applications such as Facebook and Twitter move into the wireless space and some traditional media such as TV go mobile, such changes as a rule have been slow to materialise.

Devices such as the iPhone, Nokia's N-Series and E-Series, LG's K-Series, Samsung's PDAs, Motorola's Moto Q™ products and Sony Ericsson's Xperia™ line embody this new, converged phase of personal mobility. While consumers are willingly paying high prices to enter this world, we believe that true mobility is still to be fully utilised.

The point of inflection is rapidly approaching, but technological, social and economic issues remain. The quality and maturity of mobile services as well as network infrastructure are not uniform worldwide. Concerns about privacy and security must still be resolved. Mobile Internet pricing models vary from country to country. Subscribers must still be enticed to pay for advanced services. And service providers, device manufacturers and software developers continue to grapple with the division of the value chain.

These challenges present risks, certainly, but opportunities more so – for those companies that understand the voice of the consumer.

The point of inflection is rapidly approaching, but technological, social and economic issues remain.

03 Global and regional trends

Convergence is becoming a reality, but are consumers ready for it? Are their aspirations for mobility in synch with their actual use? What barriers exist to more widespread adoption of mobile solutions? How can business influence the spread of personal convergence? Our survey results shed some light on these questions.

What are the key drivers of personal mobility?

Attitude toward technology, age and region are the key predictive attributes in explaining differences in use of personal mobility devices and prioritising of wants (see Figures 1,2 and 3).

In order to get a detailed understanding of our population, we grouped respondents by level of usage of mobile services and applications – high, medium and low (see Table 1 for definition) – and sought to distinguish the use and needs of each group. We get a similar picture, although certain characteristics stand out. High-usage respondents, typically aged 30 to 45 years old, are more likely to be early adopters of technology and tend to be concentrated among partners and the manager group. Medium-usage respondents include younger people, through 30 years of age, but are spread more evenly among age groups and staff levels in our firm. They are slower to adopt new technologies, but are not among the last to do so. Low usage is clearly linked to age (45 years and up) and a more cautious attitude toward technology.

Table 1: Typical profile of high, medium and low users of mobile devices and services

Mobile service	High user	Medium user	Low user
Hours spent on mobile phone per week	12 hours or more	Between 2 and 12 hours	2 hours or less
Kinds of mobile devices owned	Mobile phone and / or Smartphone or BlackBerry	Mobile phone	Mobile phone
Personal spend (after reimbursement) per month	$60 or more	$21 - $59	Less than $20
How many services used daily	Using 80% or more of services[3]	Using 20-80%	Using less than 20% of services
% of respondents	24%	62%	14%

3 Services covered included: voice, email, SMS, video, games, music, GPS and Internet access

These results disguise a critical distinction. PwC believes that members of the younger generation are underrepresented in our survey as a potential market because, although they are very open to adopting new technologies – approximately 85% of 20- to 29-year-olds classify themselves as first or next to purchase – their access to converged devices is relatively limited. The reason is likely to be a combination of price sensitivity and corporate policy allowances (see section on corporate policy).

Figure 1: Consumer attitudes towards their personal adoption of new technologies

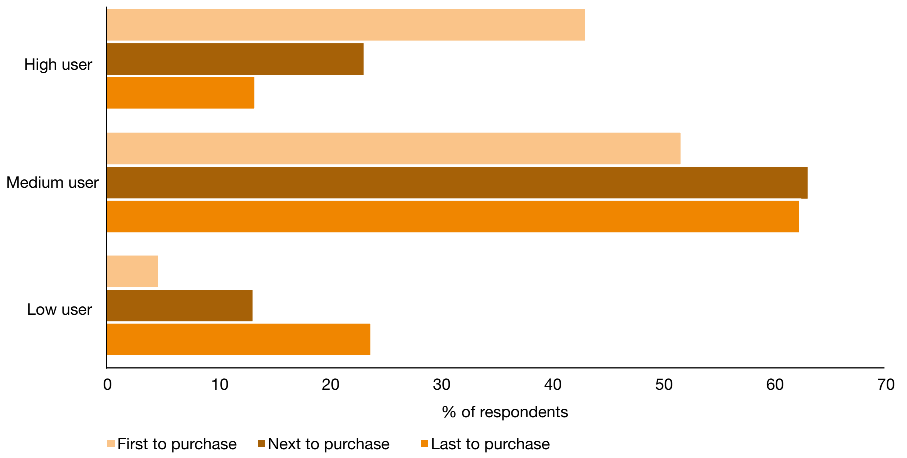


Figure 2: Level of usage by age

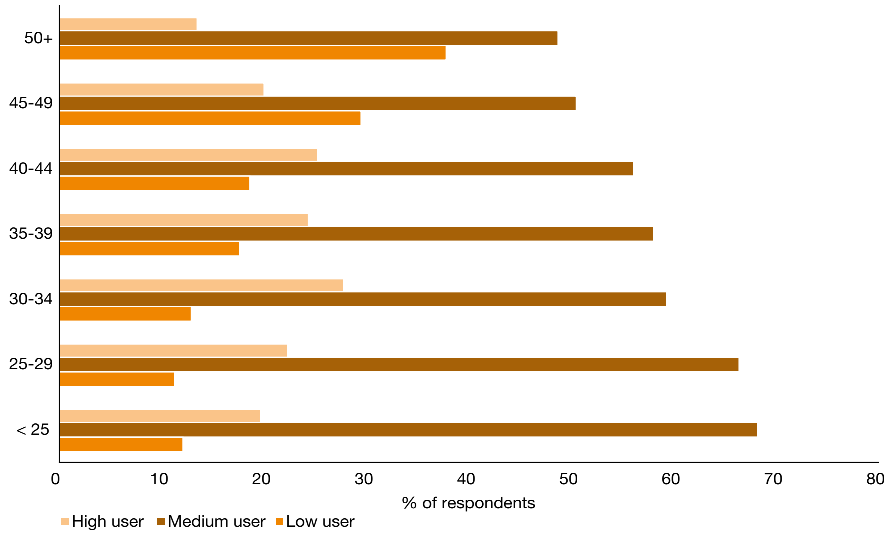


Figure 3: Level of usage by region

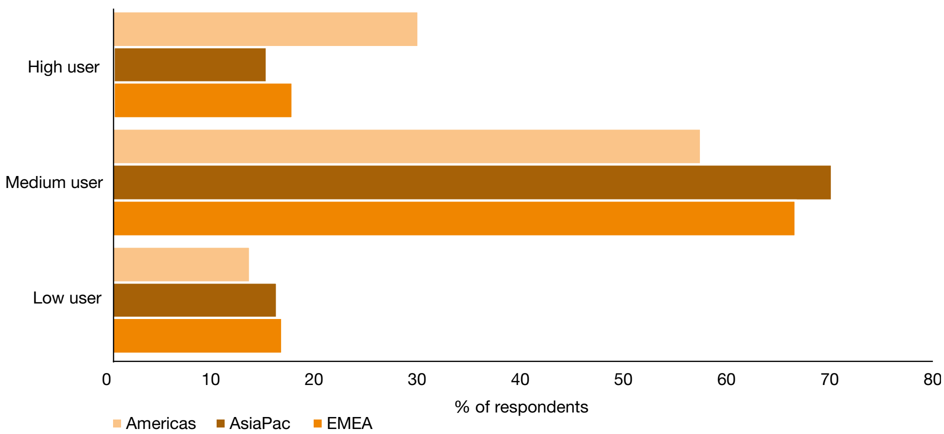
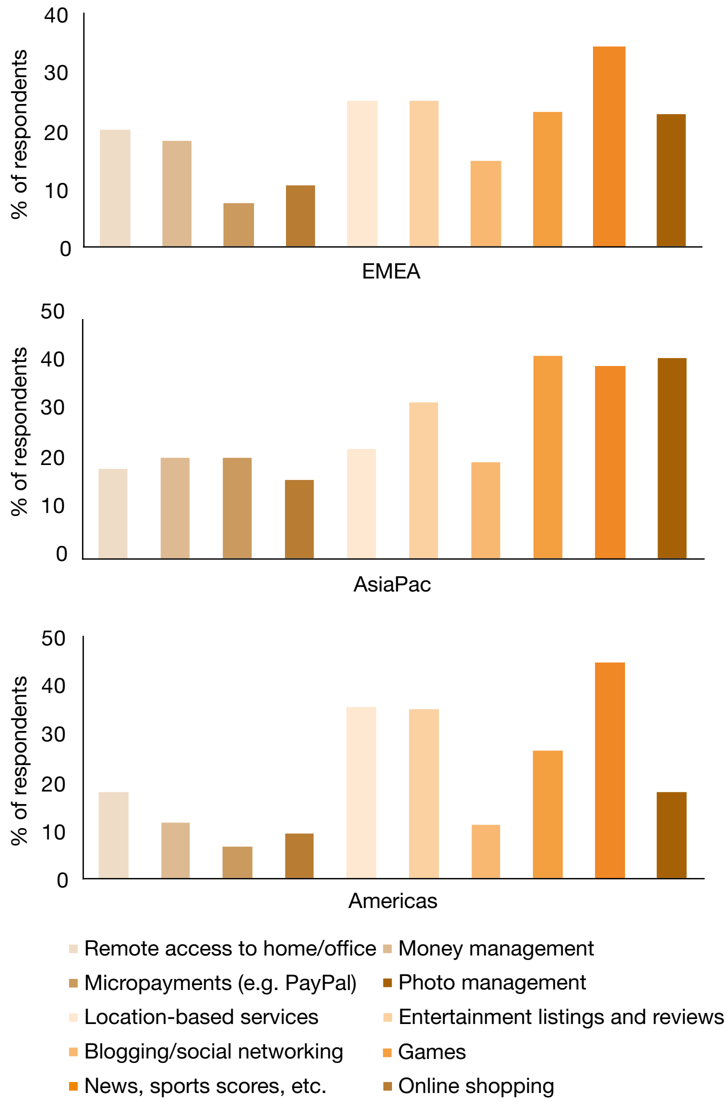


Figure 4: Penetration of Web applications



Note: Percentages equal greater than 100% due to respondents being able to select multiple options

We found sharp regional differences in usage. Respondents in the Asia-Pacific region are clearly more advanced in the use of most Web applications (see Figure 4). Not only are they more avid gamers, photo managers and social networkers, but they also use their mobile devices much more frequently for online shopping, micropayments and money management. This may be driven in part by the maturity of technology, but we suggest also that there may be a direct correlation between the use of advanced mobile applications and the use of mass transit. Unlike in the US, where commuting by car is the norm, the intense use of mass transportation systems in much of the Far East frees up commuters to socialise, play games and conduct personal business via wireless devices while on the way to and from work.

Corporate policy has a part to play

While the focus of this survey is on personal mobility, the crucial role of corporations in encouraging their employees to go mobile, and in determining how they do so, makes exploring this topic in more depth worthwhile. It is our opinion that the widespread adoption of converged devices within the corporate world will provide the needed impulse for ubiquitous convergence. This will depend, however, on the resolution of issues such as ease of use, quality, security and privacy.

Organisations often look to the adoption of mobile services as a means to improve access and enhance productivity. In order to make this possible, companies frequently reimburse work-related expenses or facilitate access through discounted service plans offered by their own vendor. To the extent that the cost of mobility does not fall entirely on employees, companies are important partners for device manufacturers, service providers and application developers that are striving to expand their markets.

Our survey found that the average monthly cost to respondents was in the US$40-59 range, with a mode in the range of US$21-30 per month. The results also show that 20% of respondents acquired their mobile devices through a PwC plan in return for a discount.

Corporations also influence choices for personal mobility by establishing guidelines within their IT (information technology) groups. They define what technology services they will support, who will have access to company-owned mobile devices, what expenses they will reimburse and restrictions on how these services can be used. They do so to ensure cost effectiveness, security and capability.

But employees can also influence corporate policy by pressuring IT departments to adopt the types of devices they want: entertainment friendly, yet able to function effectively in a business environment. There is anecdotal evidence that the iPhone tidal wave is lifting all boats by creating a buzz around converged devices. In response, devices intended originally as consumer devices are being bulked up to conform to corporate concerns as to compatibility, security and robustness. Meanwhile, corporate devices such as the BlackBerry are being modified to meet consumers' needs.

Because the interests of the individual may not be perfectly aligned with those of the corporation, the comingling of personal and corporate information on a single device raises significant issues.

It is possible that employees would be less likely to relinquish control and comply with prescriptive corporate mobile policies where the device in question is heavily used for personal purposes, such as music, photos and games, as well as company business. Control over manner of use, privacy, security and cost then become the most important challenges that will be faced.

People recognise that they do not own their laptops, which are property of the enterprise, although they use them for certain personal applications or services such as storing pictures or music. However, they may not recognise the distinction when it comes to mobile devices used for work, and may object to blocks imposed by corporate policy on certain elements of functionality. Indeed, road warriors who want to retain control over their devices and their lives often have two devices, one for work and another for personal use. If application-rich devices become the norm for corporate use, however, this separation may become less attractive from a cost-benefit perspective, increasing the risk of misunderstanding as to control over use, during convergence between business and personal use.

Corporations can play a crucial role in speeding up personal adoption of mobile technologies.

Big brother and security still concerns

Employees are very concerned about privacy. Our survey showed that respondents highly preferred service plans that did not pass location data along to the employer (see Table 2). This was a particularly important attribute in the Asia-Pacific region but also resonated in the Americas and in the EMEA region. Employers, in contrast, may want this feature, whether to facilitate finding a lost device or to locate the employee.

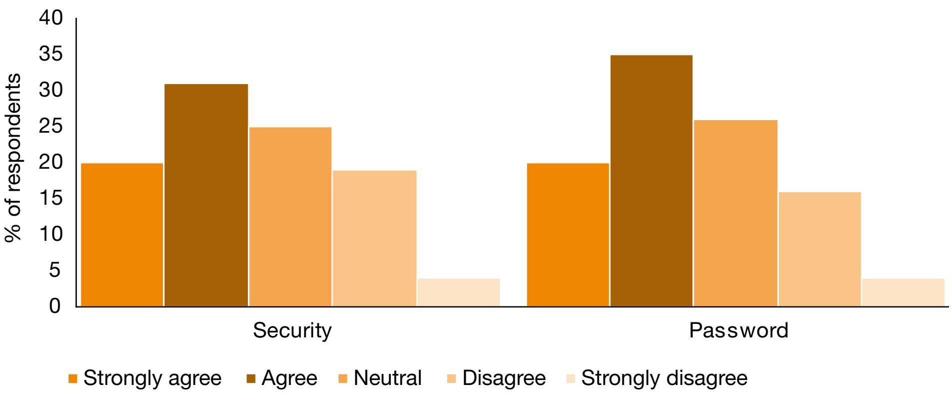
The use of a single converged device also raises the issue of security. Our survey shows there is considerable awareness of this risk; 55% of respondents either strongly agree or agree that password protection is important (see Figure 5). Corporations will view the risk differently. They will want to wipe a lost mobile device clean to avoid a breach in security. The user, in contrast, may well prefer to wait for the handset to be found, if wiping eliminates not only corporate information but also personal data, pictures and music stored there.

However, perhaps not surprisingly, there is relatively high demand for other location-based services such as traffic updates. The regional differences are likely to be a direct result of the Asia Pacific mass transit commute compared to commuting by car in the Americas and EMEA.

Table 2: Importance of different service offerings

Service offering	Americas (%)	AsiaPac (%)	EMEA (%)
Traffic update	31	12	30
Location data being passed on to employer	30	42	29
Targeted advertisements	15	11	18
Untargeted advertisements	11	4	14

Figure 5: Level of agreement with concern over security and password protection



Note: Percentages equal greater than 100% due to respondents being able to select multiple options

Questioning the effectiveness of the marketing message

As well as concerns over potential invasion of privacy, there is some resistance to both targeted and non-targeted advertising. At the same time, targeting presents an opportunity for advertisers to refine and polish their messages to meet the needs of their audience.

We found that attitudes toward advertising are very closely aligned with age. Younger respondents are much more open to receiving such advertisements – the younger the respondent, the more receptive to the practice.

We believe there is a close correlation between acceptance of advertising and the burden of paying for service. Younger people, who generally are more price sensitive, welcome discounts in return for ads. For older respondents, however, perhaps there is no cost benefit, since their bills are paid by the firm and they are likely to earn more money.

Mobile phones and MP3 players are pre-requisites

Mobile phones and MP3 players are the most popular mobile devices, our survey found. About 85% of respondents have one or more mobile phones. Not surprisingly, considering our population, devices such as the BlackBerry and other smartphones also ranked high. Thirty-seven percent of our respondents have a smartphone. All this reflects a need or desire to have multiple devices for multiple needs. It will be interesting to see how the introduction of converged devices such as the iPhone moves this behaviour over time.

The choice of mobile device is partly a function of age (see Figures 6). Middle-aged people are more likely to possess utilitarian equipment such as smartphones, PDAs and GPS devices. Younger groups are more attracted to entertainment devices such as MP3 players and handheld game consoles.

Gender influences choice as well (see Figure 7). Men have a higher propensity for smartphones, while women favour mobile phones, our survey found. For all other types of mobile devices, however, ownership by men outstrips that by women.

Regional differences are also noticeable. More than 50% of respondents in the Americas reported owning a smartphone, compared with just 12% and 27%, respectively, in the Asia-Pacific and EMEA regions. Accessibility to smartphones through the firm's corporate policy might be an influencing factor, as might social preference. Corporate policy is encouraging device substitution in the United States, where on-the-go professionals use smartphones for voice communications.

MP3 players are quite popular worldwide, but particularly in Asia-Pacific. Handheld game consoles also have a significant following in that region.

Figure 6: Ownership of mobile device by age

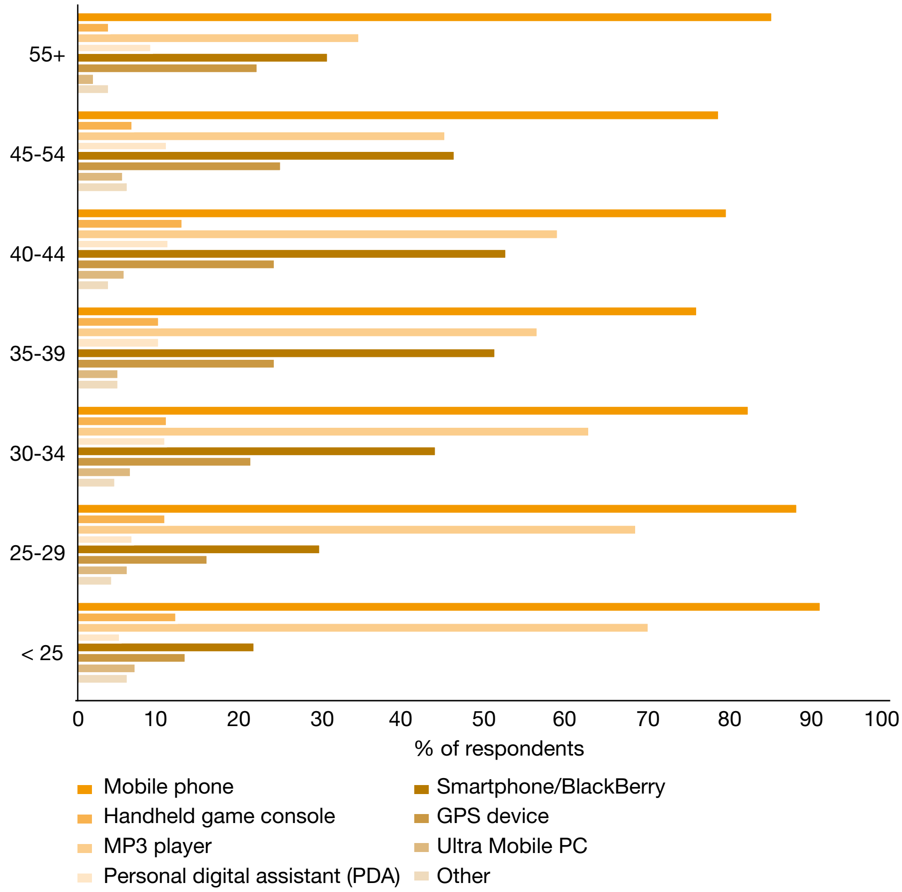


Figure 7: Ownership of mobile device by gender

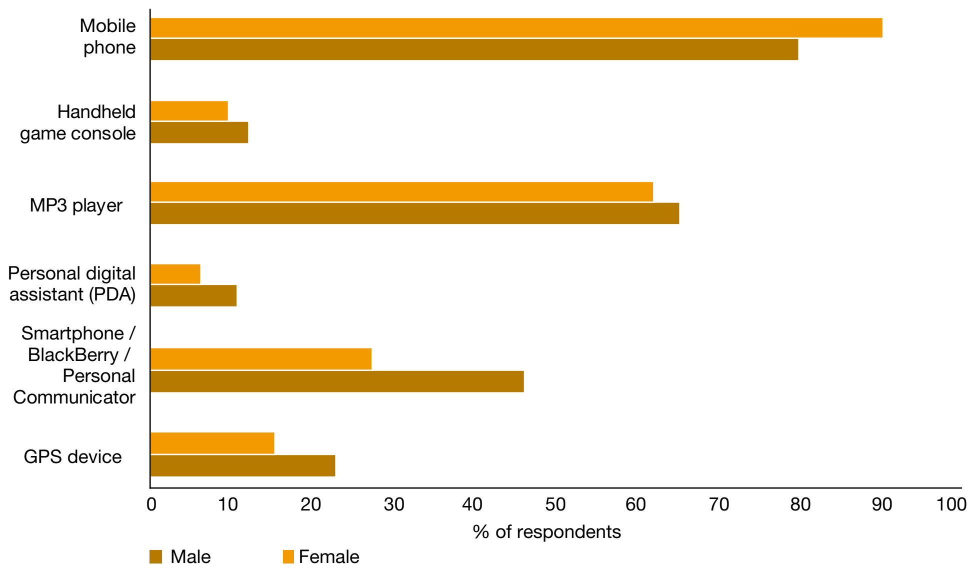


Figure 8: Priority mobile applications by user profile

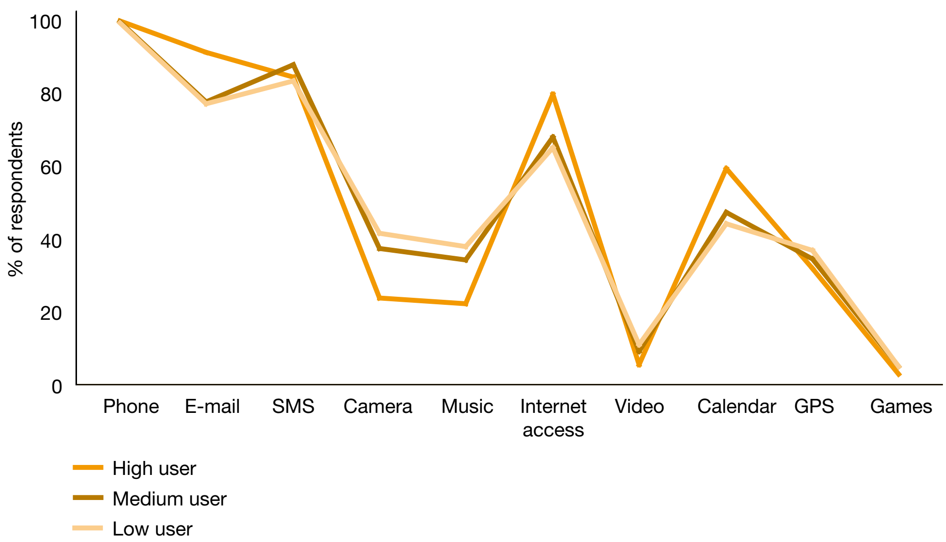


Table 3: Priority Web value applications by user profile

Priority	High user	Medium user	Low user
First	News and sports	News and sports	Games
Second	Entertainment listings and reviews	Entertainment listings and reviews	News and sports
Third	Location-based information	Games	Photo management

Voice is still No. 1

As expected, our survey found that voice calls are the most commonly used mobile application. There is a clear trend toward mobile telephony, which is displacing fixed-line service among our population.

While the top priorities for mobility are the same across usage profiles, a different pattern emerges when we look at the features ranked "top 5" for each group of respondents (see Figure 8). High-usage respondents were keener on practical applications, such as e-mail, calendar and Internet access, than were respondents with lower usage patterns. The use of mobile devices as productivity enhancers may explain the importance of e-mail to high-usage respondents. On the other side, medium and low-usage respondents had more interest in entertainment features, such as camera and music, than did the high-usage respondents.

In our survey, quality issues were cited as major inhibitors for camera and video applications. In the case of GPS, games and music, there was a lesser demand.

Our survey also drilled down to discover how our population uses Web applications on mobile devices. Although there are nuances among respondents according to their usage levels, certain applications stand out. All groups valued access to news, sports scores and other such information (see Table 3).

News, location-based services and entertainment listings and reviews top the list for the Americas. The priorities of EMEA respondents are similar to those in the Americas, although they use financial services more frequently than do their peers.

Consumers want practical considerations, with some pizzazz

According to our survey, cost, design and battery life are the key attributes consumers look at when buying a new mobile device, regardless of how much they use the device (see Figure 9). About 60% of our population considers these the three most important attributes.

Within this, to high users, design is most important and cost less so – perhaps supporting the notion that high users are part of the segment that is supported most by corporate policy.

Despite all we read in the press about mobile devices as fashion accessories, women seem more price sensitive than men in their approach to purchasing a handset. Cost is the top priority for 31% of female respondents, and the second most important attribute for another 16%. Men seem more focused on design and on what the device can do. This attribute ranks at the top for 26% of men, and in second place for another 14%.

While regional differences were not that significant, respondents from the Asia-Pacific region tend to give greater weight to design than did their peers in the Americas (see Figure 10). EMEA users are the least concerned with design – perhaps because the region's communications market is quite advanced technologically and devices already are multimedia enabled.

Games, calendar, camera and security/password protection are the least important attributes, according to our survey.

Figure 9: No. 1 attribute desired in a mobile device by level of usage

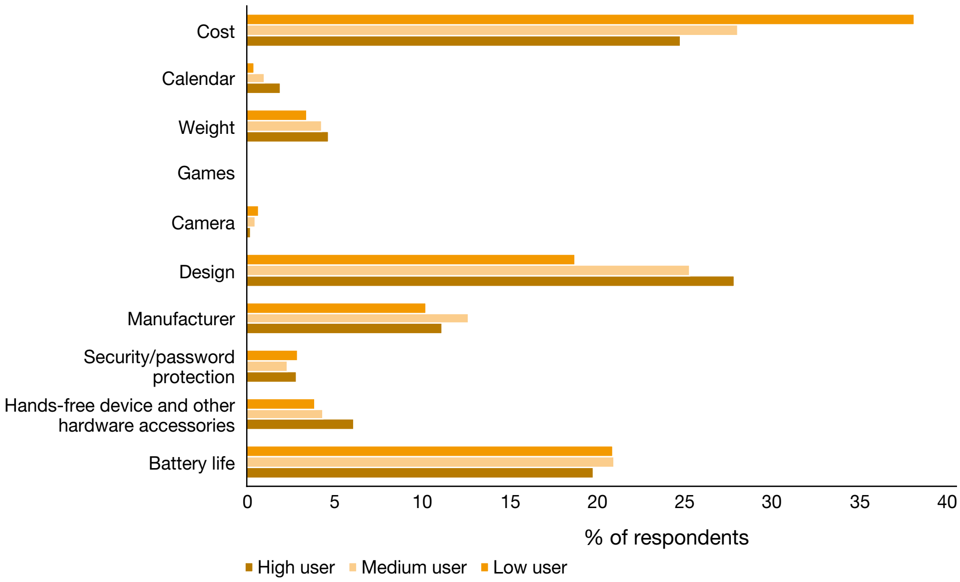
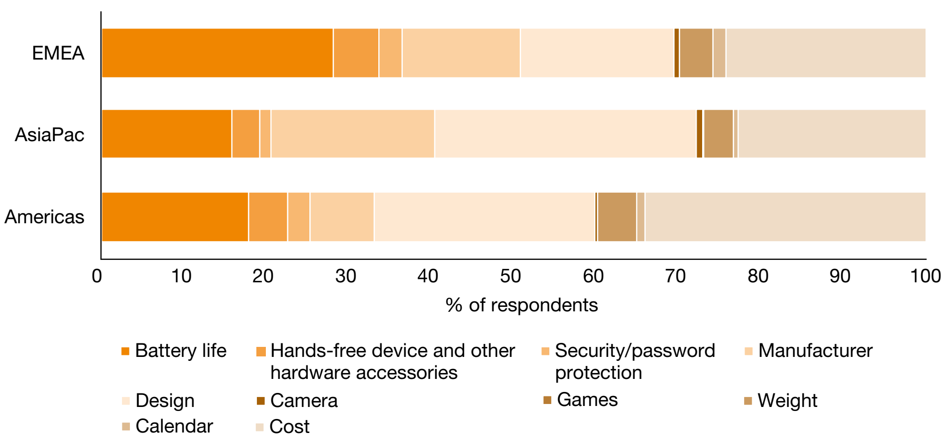


Figure 10: Importance of attributes by region



Online shopping still a favourite

Online retail still proves to be a popular channel choice. High usage respondents behaved differently from other users in how they purchased their devices, being more likely to make a purchase online and to use the service provider discount through PwC (see Figure 11).

When asked about inhibitors to talking on a mobile phone, high-usage respondents were more sensitive to the quality of connection and coverage. On the other hand, medium and low-usage respondents cited low value for the money and not liking to be accessible as their key inhibitors.

Figure 11: Preferred place of purchase

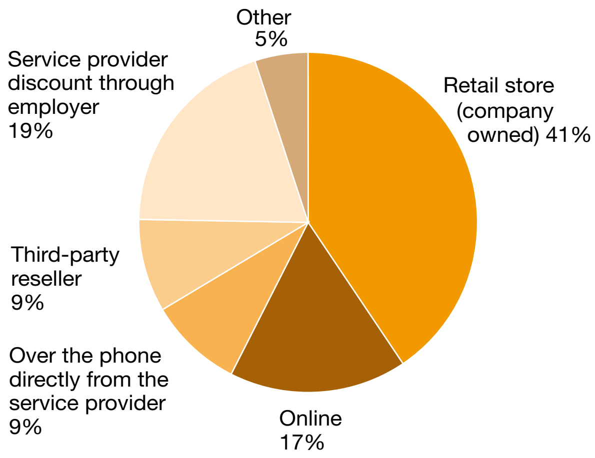
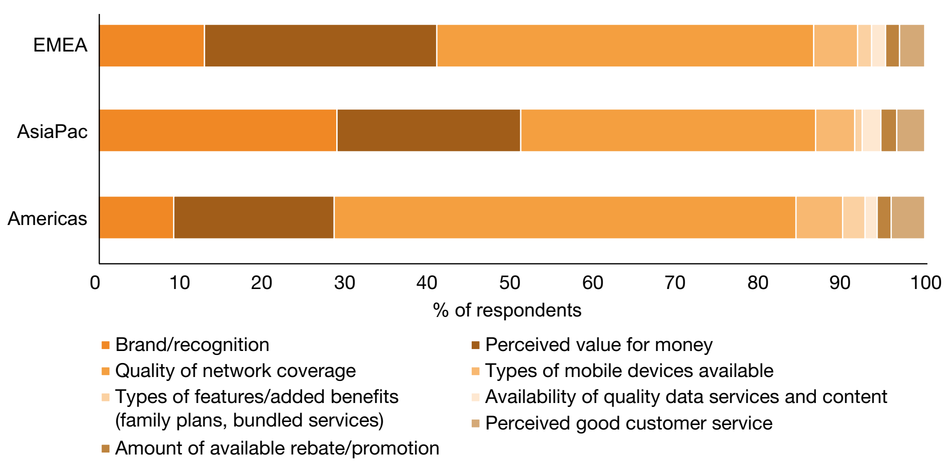


Figure 12: Key attributes desired from a service provider



Coverage, coverage, coverage

Mobile users also have a very clear priority in choosing a service provider: quality of network coverage. For 49% of our population, this was the most significant attribute. More than 23% considered value for money to be their top priority, while 14% considered brand to be the most important attribute when choosing.

With regard to choice of service providers, our survey found few differences in terms of age, gender or region. Older respondents seem to value quality of data services and content more highly than the younger groups do, though it was not among the most desired attributes. The Asia-Pacific region stands out for the importance ascribed to brand or reputation of the service provider (see Figure 12). This attribute was ranked No. 1 by 29% of respondents in the region. Not surprisingly, when asked about what they look for in service providers, high-usage respondents ranked the quality of network coverage higher than did other users and were less price-sensitive.

The issue of pricing still hangs over the advanced mobile services segment. Customers may be shy about trying out new applications, worried that they will receive a nasty shock when the next bill comes in. To attract traffic and get customers to experiment, some service providers are launching flat-rate plans, though they risk giving away potential revenue-generating offerings by doing so.

Make my life better!

Our survey found an interesting discrepancy between what consumers actually use and value, as discussed above, and new services they would like to add.

When asked what applications they would like to have in the next six to twelve months, some respondents suggested refinements that would make life easier and more enjoyable. These aspirations fall into five broad categories: work, financial, social networking, travel and entertainment, and security. The most desired applications in terms of a wish list are listed in Table 4.

Many respondents requested applications that are available on new advanced devices. Some service providers already enable playing of DVD files and offer live TV, video calls, Wi-Fi, music in MP3 or advanced format, Internet on mobile, anti-theft software, scanning and sending faxes.

This raises several questions: Have their service providers not yet launched these applications? If the services are available, are customers aware that these options exist? Is the user experience good? Are the services priced attractively?

Table 4: Key features desired in the next six to twelve months

Work	• Connect to office or home to access files remotely • Fill in time sheets • Get calendar reminders	• Access directions to next meeting venue • Use instant messaging • Use device to pass security gate at office
Financial	• Use device as cash card • Use device for money management	• Get stock quotes and alerts
Social networking	• Access social networking sites	• Use device for VoIP calls
Travel & entertainment	• Use device to enter and start cars • Use device as boarding pass • Book flights or train seats • Get flight and traffic alerts	• Get listing of local entertainment events, including movies • Book seats for events • Have web cam compatibility, space to store movies, RSS feeder, dictionary, translator, self-health checker, temperature gauge
Security	• Have encrypted security password • Have second factor identification	• Ban calls from unwanted numbers

Technology underlies it all

Quality of service and speed emerged in our survey as key attributes in the uptake of mobile services, and as inhibitors to the adoption of advanced applications. They are direct functions of the technology that underlies each wireless network.

Mobile technology has come a long way since the early days of first generation handsets, dropped calls and limited coverage. Robust networks and application-filled handsets have transformed the mobile experience, and plunging costs have enabled low-cost service to reach into some of the most remote and least developed areas of the world.

Challenges to transforming ubiquitous mobility from dream into reality remain. They touch on all aspects of technology: the mobile device itself, which speaks to the user experience; applications, or the various entertainment and productivity-enhancing options available to users; and infrastructure, which determines coverage and speed of access, and thus affects the ability to use a device or service.

Mobile devices were originally created to meet one dominant need, voice communications. The other function was an add-on. The BlackBerry, used widely in the corporate world, enables instant and easy text communication, but is considered by some to be less user-friendly than a phone. Mobile phones, on the other hand, are voice centric; while more advanced technologies enable texting and other data features, these remain limited, often tricky to use and of poor quality.

Ideally, converged devices will provide both services well – and also a myriad of other functions. Handsets such as the iPhone go a long way towards resolving many of the technology issues, but, as the results of our survey show, service providers must still find the key to unlocking consumer demand.

Bandwidth-hungry applications require new or optimised infrastructure. 3G and, just now appearing on the distant horizon, 4G technologies will help maximise existing spectrum, making it possible for service providers to launch speedy and attractive new applications.

Economics and regulation play a part in determining how quickly new infrastructure is rolled out. Service providers must perceive a compelling financial reason for investing in upgraded networks. They also must have access to appropriate spectrum in order to roll out advanced systems, and in this they depend on government policies.

04 Conclusions

The twin communications revolutions of our age – instantaneous access to information via the Internet and unfettered access to people via mobile – are transforming social, political and economic structures worldwide. At work, accessibility means speed, efficiency and a competitive edge. At home, it means sharing private and social interests.

In an "always on" world, where business and personal needs are fused, individuals must balance demands on their attention. The ultimate goal? Flexibility, simplicity and personal control over communications.

How communications companies meet these needs will define how successful they are in attracting and retaining customers, and enticing them to use the advanced devices and value-added services. Their strategies must guarantee that their investments in expensive new technologies generate healthy returns.

Finding the growth segment

Mobility is a fact of life, and always being connected is critical but means different things to different people. Even within a tech-savvy group such as PwC, usage patterns and aspirations vary. As our findings have made clear, to a large degree they reflect age, gender and geography.

We believe the 30- to 54-year-old age group is the sweet spot in the mobile market. While younger subscribers are, in general, more open to using a broader range of advanced services – games, music, video – they are less likely to have the financial wherewithal to do so. They are the big spenders of the future, however, and so must be cultivated.

There are distinctive differences between the genders in acquiring and using mobile devices. Women tend to favour mobile phones and to focus on price when buying them. Company-owned retail stores, where they can touch the devices and learn about the various features, are women's preferred source. Men are more apt to be early adopters of technology and also more willing to buy their devices online. Design is a key feature for them.

Attitudes and usage patterns vary by geography as well. It is our opinion that regional disparities result in large part from differences in the availability and ease of use of devices and applications. These, in turn, reflect the very different environments in which wireless services were rolled out.

Wireless telephony enjoyed astounding success early on in developing markets such as Latin America, Africa, Central and Eastern Europe and parts of Asia, by filling a yawning gap between the demand for communications services and the constricted supply offered by the fixed-line segment. Often supported by governments that saw it as a means to leap to the forefront of technology, the wireless segment filled a void between interest in the Internet and the slow diffusion of personal computers in these regions. Operators continued to prosper by providing exciting options to an already hooked customer base.

Continued rapid growth requires identifying and fulfilling other needs or aspirations, and providing new and exciting offerings at the right price. Service providers must crack the code to attracting subscribers to the more advanced services that, in theory at least, are the most profitable.

Pushing convergence

Convergence is happening. As technological barriers to true mobility crumble, the foremost challenge for service providers is to bring consumers on board.

There is ample anecdotal evidence that professionals will adopt advanced mobile devices if their job requires it or corporate policy favours it. Our survey bears this out: 63% of our respondents have business subscriptions. In other words, because corporate policy subsidises subscription of smartphones and BlackBerrys, it acts as an accelerator to convergence; this includes not only multiple features or applications into one device, but also personal and business uses into one device. We believe that mobile service providers can help move customers up the technology curve by increasing their offerings of business-friendly applications, whether their own or those provided by third-party vendors.

The transition, however, will occur if the user experience is kept front and centre. Often-cited inhibitors to the adoption of advanced services include inadequate interfaces, unsatisfactory quality, difficulty in setting up applications, difficulty in use and lack of value for money. These point to the irrefutable need for all participants in the mobile communications value chain to focus on providing subscribers an irresistible inducement to move from potential to actual users.

Device manufacturers, software developers and service providers must partner to ensure speedy service, accessible through any device. They should enable users to get up and running quickly, and should offer intuitive interfaces and display functionality. Not only must they be user friendly, but also devices must have the battery life and storage capacity required for music and video features. In short, they must meet consumers' needs.

All stand to gain from market growth

Although all parts of the value chain play a part in creating a truly mobile world, the division of the spoils is still unclear. Some functionalities are intrinsic to devices, while others are accessed through the Web. Where should the line be drawn in remunerating device manufacturers, service providers and applications developers?

Service providers have long worked hand-in-hand with device manufacturers to define what features and price points to offer customers. In today's rapidly evolving market, such partnerships remain crucial, but acquisitions are increasingly enabling companies to broaden their portfolios.

Nokia's acquisition of Navteq, a leader in digital navigation technology, places the device manufacturer squarely in the centre of location-based services for the enterprise and consumer markets and confirms its move into the online services segment.

Apple's move to open its device to third-party application developers, a well-established business model in the thriving Japanese market, points to recognition that all participants in the mobile value chain gain when the market grows. While the iPhone has garnered the lion's share of attention, other vendors have benefitted from the increased interest in converged communications. Nokia estimates that the global market for converged devices grew 81% in the final quarter of 2007. The company's sales of such handsets grew 69% year-on-year in that period[4]. Sony Ericsson hopes to benefit from this surge as well when it starts selling its Xperia™ line in the second half of 2008[5].

Service providers face a distinctive challenge: how to monetise value-added services and maximise profits within the context of a sometimes contentious relationship with device manufacturers and application developers. Pricing plans must balance the inducement to the customer with the return on investment. The service provider must guard against giving away applications as part of fixed-price plans and find ways to gain incremental revenues from each new offering. Providing the customer choices in bundling advanced services may make these applications more palatable. Opt-in advertising in exchange for lower costs is another alternative, particularly when targeting younger people.

4 Nokia Web site, 24 January 2008
5 Sony Ericsson Web site, 10 February 2008

05 Recommendations

Focus on the customer experience

Technology has changed the balance of power in the world of communications. Consumers are increasingly in command, deciding when and where they will consume services. They have a rich trove of devices from which to choose. The quality of the customer experience, in part determined by the devices and applications available, is central in determining a service provider's success.

Success will require companies to:

- Know your customer/target segments: Utilise customer relationship management tools and customer analytics to identify their varying needs and wants, then develop relevant and exciting applications to match them
- Improve the customer experience: Enhance network quality and focus on increasing battery life, functionality and ease of use. Address issues of interoperability between devices and software platforms, and among service providers' technology platforms
- Engage the customer: Use each point of contact to reinforce the customer's perception of the brand
- Inform the customer: Capitalise on every sales opportunity to educate the customer as to what is available and how to use it
- Provide outstanding service: Implement a model for sales and service excellence that combines a strategic alignment of channels with the organization's overall strategy, improved channel efficiency and effectiveness and enhanced employee engagement and enablement. This can boost revenues, as well as unleash wider operational and strategic benefits

Leverage the business and personal link

The line between corporate and personal use of mobile devices is blurring. Consumers, eager for new forms of communication and entertainment, have snapped up the most innovative and exciting devices. The spread of converged devices, on the other hand, has to a large extent resulted from business needs. The iPhone craze may be a turning point, as the clamour to make a consumer device compatible with company applications forces corporations to rethink their IT policies, and device manufacturers to rethink their product road maps. At the same time, those same manufacturers need to consider the converse and switch from business to personal.

In order to garner the best results from converged technologies, corporations must:

- Invest in new technologies, though always with an eye towards maximising productivity gains. This requires understanding the business benefits of applications and devices
- Have clear guidelines for employees on usage of converged devices. Consider issues of cost, including storage, as well as privacy
- Create and implement a strong security policy that will guarantee the integrity of corporate data
- Work together with device manufacturers and operators to fully determine the implications of the wants and needs of both personal and business users

Collaborate with value chain partners

All participants in the value chain – service providers, software developers, content owners and device manufacturers – must collaborate to offer ever more useful options within the corporate environment. No one participant can make this happen alone.

While the consumer is taking over the driver's seat now, the increase in time spent on mobile devices gives operators vast new opportunities to touch the customer. To transform this into reality, it is critical that the service provider offer exciting and valuable content.

Rapid-fire innovation is changing the communications, media and entertainment landscape quickly. In this type of environment, collaboration within the value chain – service providers, content owners and device manufacturers – can result in a sum larger than its parts. Synergies among partners create opportunities for dynamic innovation.

Top companies will:

- Manage the customer service/care function with partners in order to solve problems
- Develop relevant applications where there are growth opportunities, using expertise of each to provide alluring product bundles
- Use partnerships and alliances as a quick way to obtain innovation or fill gaps in expertise. Be aware that they are not necessarily easy to manage
- Ensure that alliances are transparent, so that participants know what each party is contributing, what Intellectual Property (IP) is being used and how it is being monetised
- Manage the interaction between content owners and platform companies to maximise the returns
- Manage associated rights within partnerships. Partners must be confident that there is no leakage and that revenue due to the content owner will be paid in full. The distribution of returns must be fair
- View IP as an asset to be managed rather than as one to be defended. Decide which parts of the IP portfolio should be invested in, which licenses discarded and which acquired through purchase or partnership
- Use M&A when appropriate. Though it may give the acquirer more control over IP, it also presents challenges and may take too long to realise in such a competitive environment

Flexibility in what and how to offer

Digital technologies have made possible an explosion in the number of channels available. The resultant fragmentation of the market makes it imperative that content owners and service providers be flexible in identifying consumers' wants and in providing the desired services.

User-generated, and specifically video, content is growing exponentially, but there is still demand for well-produced content of good quality. This warrants attention, and can be monetised through advertising.

Winning companies will:

- Create innovative ways to reach target audiences. Advertisements within content – as part of games, for example – are just one of the options
- Segment their target audiences by age in order to take advantage of the greater openness of younger people to advertising
- Offer alluring pricing options, but weigh the advantages and risks of each model. Fixed-price plans, bundling of services and opt-in advertising in exchange for lower prices are some of the alternatives

06 Methodology

PricewaterhouseCoopers surveyed 7,411 PwC partners and employees from 22 countries on their current use of mobile technologies and their demand for mobile services and applications. This is the third in a series of online surveys that we have titled the Convergence Monitor.

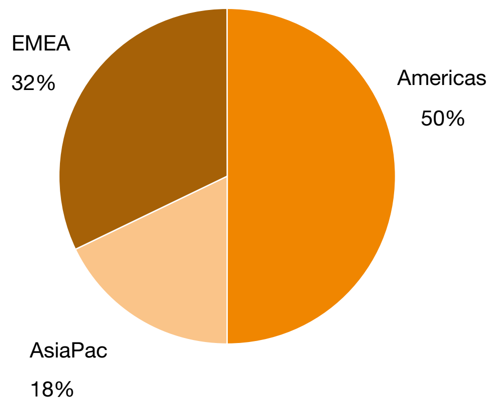
We believe that the trends identified from the survey will provide insights into consumers' preferences and attitudes that are of interest to communications service providers, equipment manufacturers, software developers, and media and entertainment companies.

The survey represents the following countries: Australia, Brazil, Cambodia, Canada, China, France, Germany, Hong Kong, Hungary, Laos, Mexico, The Netherlands, Poland, Romania, Russia, South Africa, South Korea, Switzerland, Thailand, the United Kingdom, the United States of America and Vietnam.

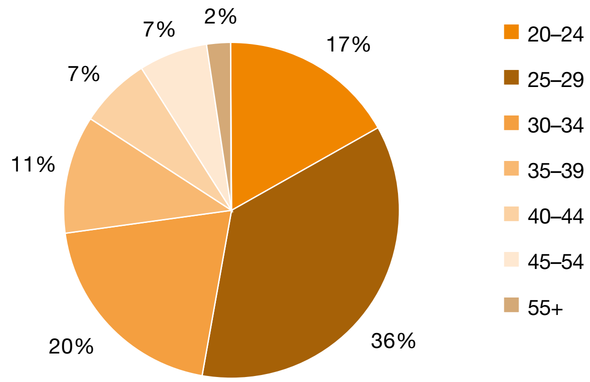
Note on preference of subscription options

We measured how people value different features in mobile services through conjoint analysis. Conjoint analysis is a multivariate technique used to understand the dimensions of respondents' preferences for different services or products. It is a statistical tool that allows for evaluation of trade-off scenarios. The conjoint part of the survey was developed by PwC Advisory in the US.

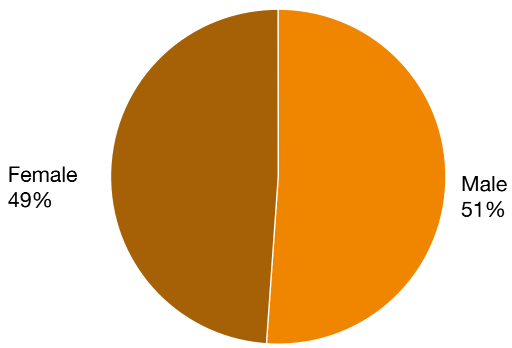
Percentage of respondents by region



Percentage of respondents by age



Percentage of respondents by gender



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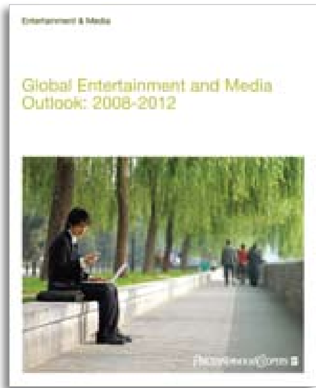

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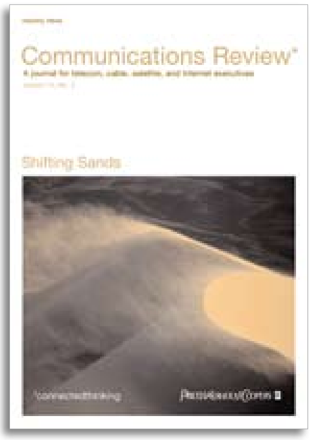
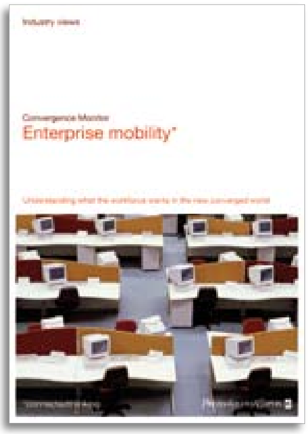


Convergence Monitor: Enterprise Mobility



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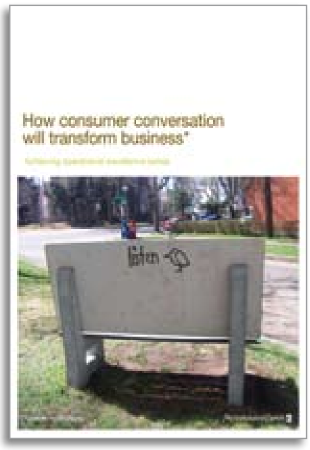
How consumer conversation will transform business



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