
Forward Look Group – Review of Market Developments

Prepared for ICSTIS by **fathom** partners

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Final Document

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Executive summary

- The markets in which premium rate services are offered are being impacted by significant change in several areas. Over the next 18-24 months the most significant areas of activity are likely to be mobile services, voice-over-IP (VoIP) services and e-payment
- These developments present significant opportunities for the industry (in terms of new revenue streams) but also a threat (in terms of consumer protection)
- Consumer VoIP services are already on offer in the UK, and penetration is likely to increase at a rapid rate. The key implications of these services are a possible 'rogue dialler' threat and the potential emergence of services that substitute for direct-dialled premium rate services
- The mobile content market is developing fast, with PSMS playing a key role to enable a wide range of profitable content-providers. However, as the mobile content market formalises and operators embrace a wider set of partners, the market for premium-rate content may decrease
- e-payment mechanisms will be increasingly provided and used by consumers in the next 18-24 months. Consequently, conventional 090 calls and reverse SMS will come under pressure as payment mechanisms in several areas. However, we expect existing premium rate payment mechanism to withstand competition in the 'heartland' of premium rate services (e.g. participation television services)
- The development of mobile payment mechanisms (e.g. Simpay) will be some of the most significant for the premium rate industry as these offer a direct substitute for premium SMS as a payment mechanism. Though consumer adoption of these services will take time, there will be a major impact over the longer term
- In summary, there is a strong outlook for forms of the premium rate as a payment mechanism, though it faces commercial and consumer protection challenges in several areas – all of which are developing at a fast pace



Contents

Executive summary 2

Contents 3

1 Introduction 5

1.1 Key developments and their implications 5

There are several developments that will have significant implications 5

1.2 Opportunities and threats for the premium rate industry 7

1.3 Consumer protection issues 7

2 Direct-dialled services 9

2.1 Consumer VoIP creates long-term opportunities for premium rate service providers, but also presents potential consumer risks 9

2.2 Provision of participation television programming is continuing at a high level, leading to potential consumer protection issues 13

2.3 New channels could be used to initiate premium rate scams 14

3 Mobile Services 16

3.1 Introduction 16

3.2 Mobile payment and consumer protection issues 17

3.3 The mobile is the fastest-growing market for premium rate services 19

3.4 Premium-rate MMS as an extension of PSMS 21

3.5 Premium rate video calling services 23

3.6 Threat to mobile users from rogue diallers 26

4 Internet services 28

5 Interactive television services 30



6 Developments in the electronic payments market 33

6.1 Developments in e-payment: mobile..... 33

6.2 Developments in e-payment: Internet 36

6.3 Developments in e-payment: Physical point-of-sale 37

6.4 Premium rate payment mechanisms in the emerging e-payments environment – opportunities and threats ... 38

7 Appendix: Glossary of Terms 42

8 Appendix: Interviewees 44

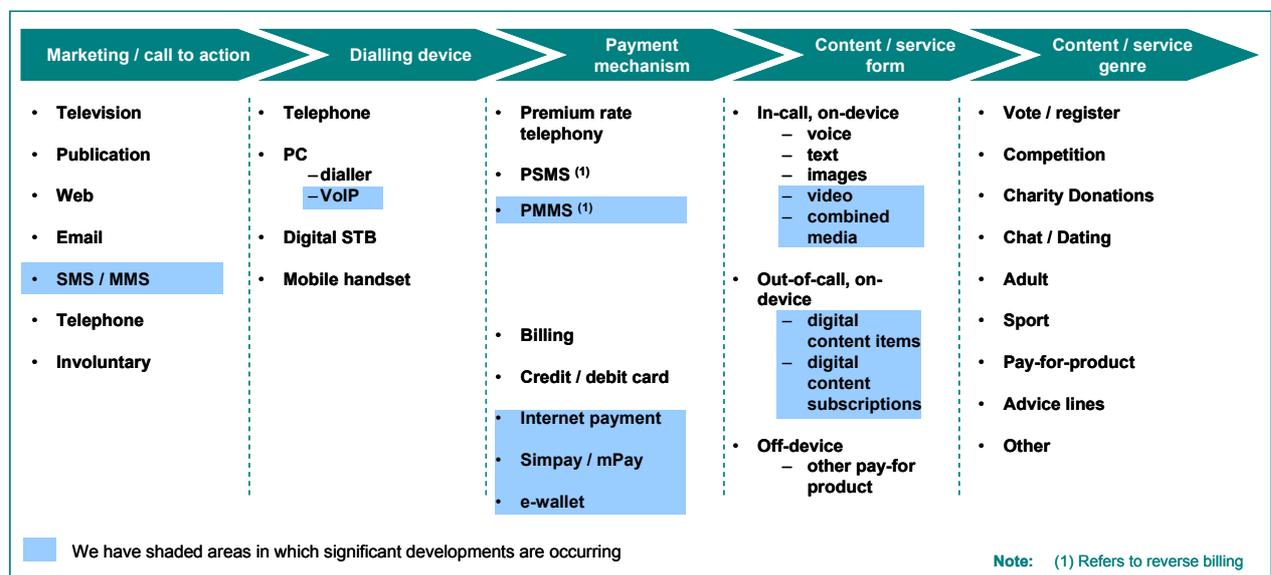
1 Introduction

Premium rate services¹ through fixed-line and mobile telecommunications play a significant role within the telecommunications industry and outside it. This review looks closely at the premium rate payment mechanism itself, and also at the market for content, products and services which are currently, or prospectively could be, paid for using the premium rate mechanism. Given the rapid pace of technological change in this area, there are a number of significant developments that will affect the industry going forwards – especially in the mobile and Internet markets. This creates implications for the industry, particularly as new payment mechanisms evolve and emerging service areas that present new consumer protection issues.

1.1 Key developments and their implications

The premium rate industry includes a range of activities from marketing a service (e.g. in a magazine advertisement) to creating and packaging the content for that service (e.g. sports results). We have outlined these activities in a simplified functional chain (see diagram). Technological and market change is occurring in several areas of this chain, in particular the emergence of new types of service, especially on mobile, and in the development of new types of payment mechanism.

Exhibit 1: Taxonomy of the UK premium rate industry



There are several developments that will have significant implications

Technological and market developments range from those that could potentially transform the premium rate services industry over the long term (e.g. voice-over-IP) to those that are likely to have a more marginal impact (e.g.

¹ For the purpose of this document, we have adhered to OFCOM's definition for "Premium Rate Services", that is: "some form of content, product or service or via telephone lines that is charged to users' telephone bills" (OFCOM "The Regulation of Premium Rate Services", 9 December 2004). We describe the collective grouping of services and the payment mechanism as "Premium Rate."

increasing penetration of digital television). We have ranked developments in terms of their likely impact on the industry – and identified a set of developments that will make a significant impact.

Exhibit 2: Key developments affecting the premium rate industry²

Development	Industry opportunity / threat	Consumer protection issues	Ranking
Voice-over-IP (VoIP) - increasing supply and uptake of consumer services	<ul style="list-style-type: none"> Opportunity to integrate premium rate services and payment mechanisms into web content Threat of substitution 	<ul style="list-style-type: none"> Overseas-provided services Risk of rogue VoIP 'diallers' Pricing transparency 	
Mobile content market – fast growth and maturity	<ul style="list-style-type: none"> High category growth, offset by strong new competitors to PSMS 	<ul style="list-style-type: none"> Several issues of content standards and control, esp. re: user-submitted material. Lack of pricing transparency 	
Premium video calling	<ul style="list-style-type: none"> Promising opportunity for the premium rate telephony industry – but long-term 	<ul style="list-style-type: none"> Significant risks of content standards and control 	
SMS payment for internet content – increasing use	<ul style="list-style-type: none"> Alternative payment mechanism to diallers for internet content 	<ul style="list-style-type: none"> Risks around content standards and age verification 	
Spam-initiated illegal scams - new channels for spam	<ul style="list-style-type: none"> Threat to the reputation of the industry 	<ul style="list-style-type: none"> Risk of financial loss due to scams 	
MMS – Multimedia Messaging Service	<ul style="list-style-type: none"> MMS growth may offer greater PSMS revenues; premium MMS will face challenges 	<ul style="list-style-type: none"> Potential issue if user-generated MMS service emerge 	
Rogue mobile diallers	<ul style="list-style-type: none"> Phones potentially vulnerable to PRS-dialling malware 	<ul style="list-style-type: none"> Highly unlikely to affect mobile users 	
New payment mechanisms - mobile, online and physical PoS	<ul style="list-style-type: none"> PSMS reverse billing usage by mobile content vendors could come under pressure 	<ul style="list-style-type: none"> New solutions likely to require high level of consumer education and protection 	
Participation television - increasing provision of services	<ul style="list-style-type: none"> Increasing opportunity for direct-dialled services and PSMS 	<ul style="list-style-type: none"> Risk of over-exposure to, and over-use of, premium rate services 	
Broadband – migration from dial-up connections to broadband	<ul style="list-style-type: none"> Forecloses opportunity for legitimate Internet diallers 	<ul style="list-style-type: none"> Forecloses major opportunity for rogue diallers 	

² These rankings are based on a consideration of the likely scale of each development over a 18-24 month time frame, the opportunity it presents the industry and the consumer protection issues it is likely to present. These rankings are explained in more detail in subsequent sections.

<p>Improving Internet security – at consumer PC and ISP levels</p>	<ul style="list-style-type: none"> • Opportunity for e-commerce in terms of consumer trust 	<ul style="list-style-type: none"> • Reduced risk from rogue diallers 	
<p>Digital television – increasing %</p>	<ul style="list-style-type: none"> • Increased opportunity for STB premium rate line usage 	<ul style="list-style-type: none"> • Very low risk 	
<p>Internet set-top boxes - provision of boxes providing Internet access</p>	<ul style="list-style-type: none"> • n/a 	<ul style="list-style-type: none"> • Very low risk of a 'dialler' issue 	

KEY:  Low  High

1.2 Opportunities and threats for the premium rate industry

New developments affecting premium rate create both opportunities and challenges for the industry. The main opportunities are around the use of premium rate services as a payment mechanism for emerging and growing areas of content and services, including:

- mobile content and premium video calling
- pay-for-product via PSMS
- initiation of direct-dialled premium rate calls from web content (via VoIP) – long-term development

At the same time, the premium rate industry should expect the emergence of new services and payment mechanisms. The main developments include:

- the emergence / growth of e-payment mechanisms
- the potential development of VoIP-delivered paid voice services that 'look and feel' like current premium rate telephony payment mechanisms, but bypass the Public Switched Telephone Network

On balance, traditional premium rate payment mechanisms are likely to continue to fulfil a role in relation to specific content and services (e.g. participation television voting) in which they have clear advantages over alternatives. However, there are likely to be a range of areas (e.g. out-of-call, on-device content) in which the traditional premium rate payment mechanisms are pressured by alternatives.

1.3 Consumer protection issues

New developments also lead to the risk of consumer protection issues, including both the continuation of current issues, and the emergence of new ones. The main types of risk we identified include:

- premium rate scams
- rogue diallers – on current and emerging platforms
- content standards issues

Premium rate scams are likely to continue, with unscrupulous service providers potentially exploiting new channels such as VoIP and instant messaging to incite consumers to call premium rate numbers. However, as these scams will use telephony billing, the existing regulatory 'touch points' will continue to apply.

The threat of rogue diallers, an issue currently relating to dial-up Internet connections, is likely to diminish due to the migration to broadband Internet. However, there is a theoretical risk of involuntary dialling of premium rate numbers from VoIP software, mobile handsets and Internet-enabled digital television set-top boxes. However, it is likely that it will be harder for unscrupulous service providers to exploit these devices / software than the Internet.

Content standards issues could emerge in relation to some new forms of service. For example, paid voice services on VoIP platforms with internet payment could be delivered from overseas, removing UK regulatory 'touch points' and making it more difficult to protect consumers from unsuitable material.

For mobile users, there are consumer-protection issues concerning the clarity of pricing and description of premium services. The potential areas of pricing opacity (both deliberate and inadvertent) which apply to voice premium rate also apply to mobile premium services; but in addition to these are the consumer-risks presented by mobile-terminated premium SMS. The fact that users pay to receive is subject to exploitation by some service providers, who entice users into buying subscription services that are difficult to cancel. The other threat to consumer wellbeing, and to confidence in the premium rate industry, concerns access to age-sensitive (adult) content. With mobile-technologies enabling images and video as well as traditional audio, it will be difficult to contain access to adult or offensive content, both from publishers and shared between mobile users.

2 Direct-dialled services

Direct-dialled premium rate services are currently used for a range of applications including voting, competitions, adult and advice services. Though we expect these services to continue ‘as usual’, there are several developments that are likely to impact the market. The development of voice-over-IP (VoIP) is the most significant over the long term, potentially acting as a substitute to some traditional direct-dialled services.

Exhibit 3: Key developments affecting direct-dialled premium rate services

Development	Industry opportunity / threat	Consumer protection issues	Ranking
Voice-over-IP (VoIP) - increasing supply and uptake of consumer services	<ul style="list-style-type: none"> • Opportunity to integrate premium rate telephony into web content • Threat of substitution 	<ul style="list-style-type: none"> • Overseas-provided services • Risk of rogue VoIP ‘diallers’ • Pricing transparency 	
Spam-initiated illegal scams - emergence of new channels for spam	<ul style="list-style-type: none"> • Threat to the reputation of the industry 	<ul style="list-style-type: none"> • Risk of loss to scams 	
Participation television - increasing provision of services	<ul style="list-style-type: none"> • Increasing opportunity for direct-dialled services and PSMS 	<ul style="list-style-type: none"> • Risk of over-exposure to, and over-use of premium rate services 	

This section addresses each of these developments in turn.

2.1 Consumer VoIP creates long-term opportunities for premium rate service providers, but also presents potential consumer risks

Consumer voice-over-IP (VoIP) services are increasingly available in the UK, changing the set of features and services consumers have to make and receive telephone calls. With a clear set of benefits and the backing of major service providers, uptake of VoIP is likely to increase rapidly. The key implications include a potential reduction in the reach of direct-dialled services, an alternative channel for delivering live services and consumer protection issues around pricing transparency and potential security breaches.

Consumer VoIP services are increasingly available, with some facilitating calls to premium rate numbers

There is an increasing provision of consumer VoIP services in the UK, giving consumers a new way to make and, in most cases, receive calls. There are a range of services currently available, differing in the consumer hardware and software used and in the features available to users. However, all VoIP services offer the ability to call other users of the service, some enable calls to non-VoIP telephone numbers and, less commonly, calls to UK premium rate numbers. In order to use a VoIP service, consumers require a broadband (or ISDN) connection, and either a PC equipped with a microphone and speakers / headphones or an adapter to connect existing phones to the PC / broadband.

Consumer VoIP services are being offered by telecommunications operators, ISPs and VoIP specialists. Of the numerous services available in the UK, some of the most significant are shown below.

Exhibit 4: Features of leading UK consumer VoIP services

Service	Type of solution	Current uptake	Pricing and billing	Support of premium rate calls
BT Communicator	Software-only service, integrated into BT Yahoo! Messenger instant messaging (IM) client	Over 2 million users of the BT Yahoo! IM client. It is unclear what proportion of these use VoIP services.	<ul style="list-style-type: none"> Clic2Connect - set-up of traditional phone calls using the PC at same rate as home phone plus 1p per call Clic2Call – charged at standard BT rates on existing residential telephone bill Free UK local and national calls for the first month 	<p>Numbers with 0909 prefixes (adult services) are barred</p> <p>Consumers have the option of barring calls to other numbers</p>
BT Broadband Voice	Uses an adapter to connect to existing telephones	-	<ul style="list-style-type: none"> Unlimited UK (local and national) weekend and evening landline calls up to an hour per call for £4.99 a month Or Anytime plan - unlimited UK (local and national) landline calls up to an hour per call at anytime for £10.99 a month 	No premium rate services are supported
Skype	Software-only service. The SkypeOut paid service enables calls to non-VoIP numbers.	31 million registered users worldwide (April 2005)	<ul style="list-style-type: none"> Free calls to other Skype users €0.017 per minute to UK local and national numbers, and some international locations Charged calls facilitated by pre-pay to an online account 	<i>“It might not be possible to access some premium service numbers or other special numbers in some countries.” – Skype web site</i>
Vonage	Uses an adapter to connect to existing telephones	Over 500,000 lines in service in the US (March 2005)	<ul style="list-style-type: none"> £9.99 per month for unlimited UK local and national calls Per-minute charging for other calls 	<i>“Calls are supported to all UK numbers” – Vonage customer services</i>

Importantly, there is limited support of premium rate calls from the current set of consumer VoIP services. It is currently unclear whether this situation will be sustained.

The provision of these services is likely to increase, potentially following the US example. For example, AOL launched a US VoIP proposition on 7th April 2005 - unlimited local calls for \$13.99 per month, North American calls for \$29.99. Similar services are likely to continue to appear in the UK. (Source: AOL)

Uptake of consumer VoIP services will increase rapidly – though the impact will be long-term

Uptake of consumer VoIP will increase significantly with drivers including the lower cost of calls and enhanced features (e.g. indication of presence) compared to traditional fixed-line telephony, and the convenience of calling from the desktop. Current penetration of these services is low: Analysys estimated that 0.35% of residential lines use VoIP (Ofcom Quarterly Update, October 2004). However, analysts expect rapid increases in penetration: Analysys forecasts that consumer VoIP services could take as much as 13% of the Western European residential voice market by 2008, with a potential total of 50 million users.³

VoIP creates both a challenge and an opportunity for service providers

VoIP creates a challenge in terms of potentially reduced availability of direct-dialled premium rate services and potential substitution, but also offers an opportunity to embed premium rate services and payment mechanisms in web content.

If restrictions on calling premium rate numbers from some consumer VoIP services continue, then the reach of premium rate services will decrease in the long term. Services that act as a substitute for standard telephony services by connecting to existing telephones (e.g. BT Broadband Voice) will foreclose the opportunity to premium rate direct-dialled services. However, consumers would still have the option of using mobile telephones to call premium rate voice numbers. The overall effect would be to reduce the availability, and potentially the usage of, premium rate direct-dialled services.

The development of software-based VoIP services creates a potential long-term threat to direct-dialled premium rate telephony. For example, Skype is likely to support, through third-party developers, an offering analogous to direct-dialled premium rate services. On 4 April 2005, News.com reported:

Also in the works are Skype-based advice lines selling legal and medical information, astrology forecasts and other services. PayPal-style payment services for Skype have already been developed to handle micropayments involved in such transactions, potentially turning Skype into a sort of eBay for advice and dating services, if Skype developer Jyve has its way. The company is developing tools to let Web site operators cash in on just such a trend. "Where I see

³ Source: Analysys press release, November 2004

money being made is for professionals to charge for their time over a Skype line," said Jyve CEO Charles Carleton.

However, VoIP does also offer direct-dialled service providers an opportunity. Software-based VoIP services give premium rate service providers a potentially more convenient route of access to their services. 'Buttons' could be embedded into web content to take a user from a web site into a premium rate call initiated on VoIP. For example, applications for this mechanism could include a dating web site with a premium rate voice chat feature. One major premium rate service provider has shown an interest in this area. However, provision of services directly targeted at VoIP users is likely to follow consumer uptake rather than lead it, making significant development in this area unlikely in the 18-24 month time frame.

VoIP also presents potential consumer protection issues

'Buttons' in web content to initiate premium rate calls could, if not clearly signposted, lead to issues of lack of pricing transparency; there is the possibility that consumers would not be fully aware of the price being paid for the premium rate call. Given that consumer VoIP services are typically packaged as subscription services, consumers could be less likely to expect this charge than they would when using a regular telephony service.

There are also potential issues around age verification. The risk of minors accessing inappropriate material increases if premium rate services are made available without access controls – e.g. if these "buttons" were to take the user to adult content without protection by strict age-verification controls.

The potential new breed of paid voice services offered over Skype (or similar services) could be originated anywhere worldwide, with limited local 'touch points' for regulatory bodies. This creates potential consumer protection issues around the standards of content delivered over these services compared to regulated direct-dialled premium rate services. These services will, to a large extent, 'look and feel' like premium rate services and consumers might well view them as such.

Given the resourcefulness of hackers and the temptation of a premium rate payment mechanism, there is the possibility that hackers could attempt to take control of consumers' VoIP software in order to initiate calls to premium numbers (VoIP equivalent of the rogue dialler problem) or conceal premium rate calls as local / national rate calls. The scale of this risk is currently unclear, though experts in this area indicate a potential problem:

Until now, the modem hijacking [rogue dialler] victims were limited to dial-up Internet users because only the regular dial-up modems could be used to rack up charges for the unsuspecting user. Presently, users of PC-based diallers of VoIP services could potentially find themselves in a similar situation... Judging from the relative ease that new hacks are able to exploit Windows weaknesses, it is reasonable to expect that a VoIP version of the modem hijacking scam would soon surface. – IEEE Canadian Review, 2005

This threat is most relevant to services that use desktop software to initiate calls, rather than those such as Vonage that connect to traditional telephones.

In lowering the cost of calls, VoIP also makes the telephone a more economic channel for unsolicited pre-recorded or live messages: VoIP spam, which is beginning to be labelled SPIT (spam over Internet telephony). Though the cost of reaching a VoIP line will be lower for the caller than a regular line, this is also a potential risk for users of regular telephony. The users of Skype who use the 'Skype Me' mode (which allows strangers to contact them) have already reported spam and telemarketing contact – though, to an extent, this is invited. The implications of increasing spam are covered in section 2.3.

2.2 Provision of participation television programming is continuing at a high level, leading to potential consumer protection issues

Participation television is programming that includes an on-air call-to-action for interaction such as voting (e.g. Big Brother), competitions or contributions to the programming. Typically, commercial broadcasters monetise these activities through premium rate fixed line, SMS and, in some cases, interactive television (the latter is covered in section 5). The continuing high level of provision and promotion of these services amplifies pre-existing consumer protection issues.

Participation television services are proliferating

The provision of participation television services in the UK is continuing at a high level, in specific programmes on terrestrial and multi-channel television, and in dedicated participation television channels. Fixed-line premium rate numbers are the main payment mechanism (due to preferable payout rates compared to premium SMS and interactive television) for these services, though growth in this area will benefit all platforms – as SMS and interactive television (red button) are used in some services.

The UK's major commercial broadcasters are pursuing premium rate revenues aggressively. Both ITV and Channel 4 have managers dedicated to the commercial exploitation of premium rate services. In 2004, ITV doubled its revenues from premium rate telephony.⁴ Consequently, a significant number of programmes in broadcasters' schedules include participation television calls to action for premium rate telephony services.

Nation 217, a dedicated participation television channel, launched on the BSkyB satellite platform in November 2003. This channel has devoted its schedule to live competition programming, with premium rate voice, premium SMS and interactive television used as payment mechanisms. In 2004, Channel 4 conducted a two-month trial of 9 Live, a dedicated participation television channel on E4 down time on the BSkyB platform. The service was reported to be a success though Channel 4 was reported to be "backing away" from launching the channel on Freeview.⁵

⁴ Source: Times Online, 10th March 2005

⁵ Source: Broadcast, 30th March 2005

In addition, the increasing number of television channels broadcasting in the UK (17 new channels launched in Q3 2004⁶) indicates a continued appetite for investment in this area. If this trends continues, the number of channels using micro-payments (e.g. gaming channels) could also increase.

The increasing exposure to participation television potentially amplifies current consumer protection issues

Given the increasing availability of participation television services (i.e. 24 hours per day), pre-existing consumer protection issues around potential over-use of services are likely to be emphasised. The incentives and means are increasingly in place to encourage consumers to make multiple competition entries, vote multiple times, potentially beyond their means.

Note: we have covered the use of the digital television set-top box return path in section 5.

2.3 New channels could be used to initiate premium rate scams

The development of instant messaging and VoIP increases the number of channels available to unscrupulous service providers to initiate scams which encourage consumers to dial premium rate numbers. The type of premium rate scams initiated by telephone through automated calling equipment (ACE), unsolicited SMS messages and email that have been witnessed to-date could in future extend to these new platforms.

Exhibit 5: Development of channels for spam, that could lead to premium rate scams

Channel	Growth / development	Potential spam risk
Telephone	Decreasing international calling costs, making unsolicited telephone calls cheaper for scammers	Risk that overseas organisations will increasingly use ACE to deliver spam
Email	28% of US web users claim that they are getting more spam email than a year ago ⁷	Risk of continued current or increased levels of spam
Instant messaging (IM)	Usage of IM is increasing – IDC forecasts 450 million IM users worldwide by 2007	In 2003, the Radicati Group forecast that 1.5 billion spam over IM (SPIM) messages would be sent, more than tripling annually
SMS	Increasing difficulty of delivering SMS spam economically – due to	Risk of continued activity in this area

⁶ Source: Ofcom Communications Review, Quarterly Update, January 2005

⁷ Source: Poll of US net users by the Pew Internet and American Life Project, January / February 2005.



	increased interconnect rates	
VoIP	Increasing penetration of consumer VoIP services	Commentators expect significant growth (e.g. reports of unsolicited calls to Skype Me users)

The use of these channels to deliver spam is likely to increase, some of this devoted to premium rate scams. The unscrupulous service providers behind scams could take advantage of the new channels: in particular the lack of consumer awareness or expectation of scams on VoIP and IM might pose a particular consumer protection issue in the early stages of these services.

However, these scams would still rely on premium rate payment as the revenue-generating element – leaving open the same regulatory ‘touch points’ as currently available to counter more familiar scams (e.g. ACE initiated premium rate scams).

3 Mobile Services

3.1 Introduction

Of all the areas under review in this study, it is mobile which is experiencing the greatest growth and change. From its launch 20 years ago, the mobile phone is now near-ubiquitous (some 90% of all over-16s use a mobile), and spurred by the launch of 3G networks, is increasingly capable of delivering advanced services beyond voice and text communications. As regards mobile's role in the evolving premium rate environment, the level of convergence and complexity is very high: a typical mobile handset today fulfils all of the following roles at once:

1. Voice telephone, equivalent to a landline. Some 36m voice minutes of premium rate calls were originated from mobile handsets in 2003⁸. Call charges to premium rate services from a mobile device tend to be higher than from a fixed line telephone, since the mobile operators routinely add a premium surcharge. However, there are some intrinsic qualities of the mobile which make it preferable for certain premium rate voice-calls, such as the fact that it is always with the user and "to hand", and it is more personal and private than a shared land-line.
2. Web browser. Using Wireless Application Protocol (WAP), the mobile is a web-browser. Most traffic is limited to operator's portals, but there are several popular independent sites (e.g., BBC for news or "monsternob" for mobile content). The mobile is thus directly equivalent to the PC as a terminal capable of serving up the WWW, albeit with higher data-costs, lower speeds than ADSL broadband, and form-factor constraints (i.e. small screen and keyboard)
3. Content consumption device. Thanks to rapid progress on affordable electronics (screens, batteries, audio playback) and increases in network capacity (launch of 3G services in UK, which have some 6 times higher bandwidth than GPRS 2.5G), it is now feasible to obtain and consume audio and video content on the mobile handset. To date, this market has been dominated by personalisation content. In the UK, €395m was spent on content specifically to decorate and personalise the device itself, such as ring-tones, caller tones, logos and wallpapers.⁹ Almost all this spend is transacted through premium rate payment mechanisms, in particular by PSMS reverse-billing.
4. Payment mechanism. The use of premium-rate reverse-billed SMS allows the mobile to be used as a simple, secure means to procure mobile content, either content for on-device consumption (e.g. ring-tone or video-clip) or products and services unrelated to the device (e.g. voting; parking-charges; charity donations). Note that other mobile-resident payment mechanisms, such as Simpay, will emerge both for on- and off-device products and services.

⁸ Source: Market Information Update, Ofcom <http://www.praltd.users13.donhost.co.uk> FAQ

⁹ Source: Jupiter Research 2004

Of this list, the first area is considered alongside fixed-line in the section on direct-dialled services. The fourth area is covered in detail in section 6, where we consider premium rate payment mechanisms alongside alternative payment mechanisms.

3.2 Mobile payment and consumer protection issues

The rest of this chapter discusses developments in mobile content which have particular relevance to issues of payment and consumer protection. Finally, we summarise the challenges and opportunities presented by mobile over the next 18 to 24 months for the premium rate industry, the well-being of the consumer and for the regulatory regime. The remainder of this document is structured as follows:

- mobile content as a market for premium rate
- premium-rate MMS
- premium rate video calling services
- rogue premium rate mobile diallers

There are complex areas of consumer-protection in future mobile content which cut across these different technologies. These areas are:

Pricing transparency of services. For all aspects of mobile service, pricing is very complicated for consumers to understand – even basic voice and messaging tariffs are beyond the comprehension of most consumers, with bundles, roll-overs, allowances, and differential prices according to network and time-of-day/week. This complexity is compounded for premium mobile services, with their many different transport platforms (WAP, MMS, SMS, video-call), and minimal pricing information from operators or content-providers. Furthermore, unscrupulous or inconsiderate content providers often lead users to sign up to long-running subscriptions (e.g. 3 ring-tones/week) and/or make it very difficult to unsubscribe to services.

In this environment, premium rate direct-dialled services provide relative security and familiarity to the user, and premium rate as a payment mechanism does have more inherent consumer-protection than open-ended credit-card payments. For example, duration-based calls for video-calling are likely to be more transparently priced than credit-card paid video downloads; and the £1.50 tariff cap on PSMS limits the exposure to consumers from the most unscrupulous content-providers. Heightened security and more robust payment controls would be necessary for the mobile to take on larger payments.

Short-codes. There are separate issues over the way in which short-codes are presented to the public, both in terms of which prefixes denote which content types; and the prices that consumers must pay to connect to the shortcode. The possibility of short-codes which can be accessed in any of three media (voice-call, video-call or SMS) will add to the potential consumer confusion.

Consumer vulnerability in mobile terminated payment. The introduction of mobile-terminated premium rate payment has been a significant driver of the mobile content industry over the last two years. However, the fact that

the consumer pays for receipt rather than origination (as is of course the case with traditional voice PRS) leaves consumers very vulnerable to services which make it difficult or impossible for consumers to cancel services. Unscrupulous service providers extract additional payment from consumers through various ruses, ranging from unclear small-print, to forcing subscriptions or “club memberships” in one-off purchases, to relying on consumer inertia or inability to cancel the service. This feature of mobile-terminated payment is likely to pose a threat to consumer confidence in all the emerging mobile technologies set out overleaf.

Content regulation Over the next few years, the mobile will become more commonly used as a device through which all genres of content in all media are consumed. However, the problems around the submission of adult images or video content from individuals are more complicated, and harder for ICSTIS (and other regulators) to address. This submission could be in the context of pornography (“DIY” pornography is a popular sub-genre) or of dating or matchmaking services. The Internet Mobile Classification Body (IMCB) regulates content for the protection of minors, similar to the way films are rated for age suitability, but user-generated content is a grey area and collaboration may be necessary.

Mobile diallers present a theoretical consumer-risk. However we foresee that mobile operators, handset vendors and internet security firms are likely to be ready to counter the threat of malicious code containing premium rate diallers. The opportunities for legitimate use of mobile premium rate auto-diallers are limited. See section 3.6 for a full discussion of these issues.

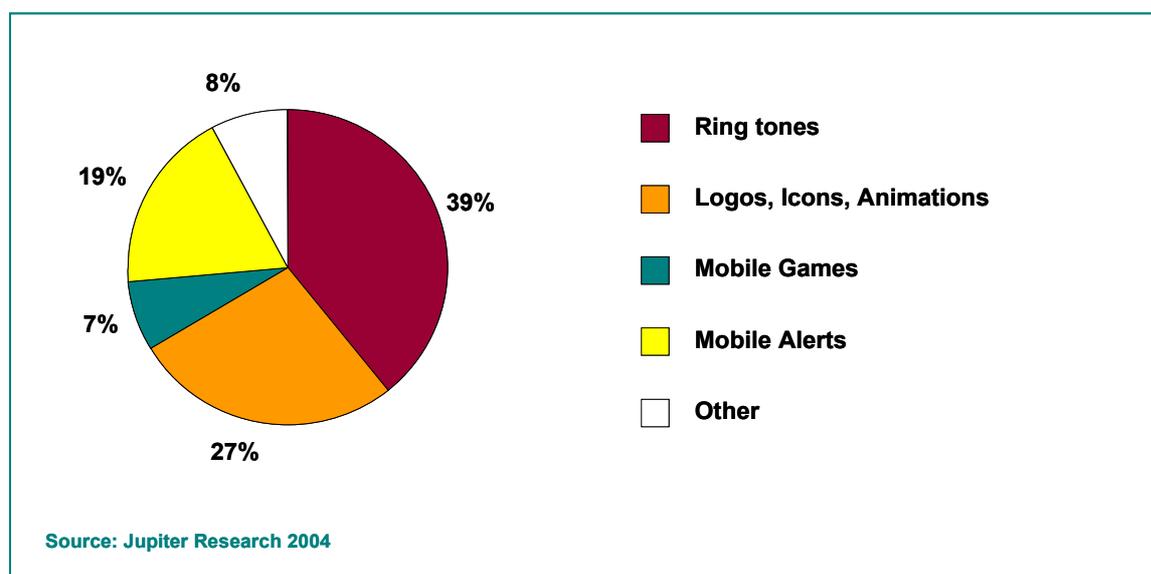
Exhibit 6: Key developments affecting mobile premium rate services

Development	Industry opportunity / threat	Consumer protection issues	Ranking
Mobile content market	<ul style="list-style-type: none"> High category growth, offset by strong new alternatives to PSMS reverse-billing 	<ul style="list-style-type: none"> Several issues of content standards and control, made complex by user-submitted material. Unclear regulatory responsibility Low levels of pricing transparency 	
Premium video calling	<ul style="list-style-type: none"> Promising opportunity for the Premium rate telephony industry – but long-term 	<ul style="list-style-type: none"> Significant risks of content standards and control 	
MMS	<ul style="list-style-type: none"> MMS growth may offer greater PSMS revenues; Premium MMS unlikely to take off 	<ul style="list-style-type: none"> Assuming PMMS does not take off, unclear whether MMS falls within ICSTIS’s ambit 	
Rogue PRS diallers	<ul style="list-style-type: none"> n/a 	<ul style="list-style-type: none"> Highly unlikely to affect mobile users 	

3.3 The mobile is the fastest-growing market for premium rate services

Mobile content is a large and fast-growing category. Approximately £200m was spent in 2004 in the UK on content to be consumed on the mobile device. Enpocket research conducted from February to April 2004 shows the level of consumer usage for the main types of mobile content: 78% of UK mobile users use text messaging, 18% are downloading monophonic ringtones, compared to 6% using downloadable games. The UK is one of the most developed mobile-content markets, well ahead of the US.

Exhibit 7: UK mobile content categories – revenues, 2004



The mobile content category can be usefully broken down into two groups: personalisation content and mainstream media.

Personalisation content. This includes ring-tones, logos and wallpapers, used to personalise and decorate a mobile handset. This content category is popular amongst younger mobile users, and driven by the fast-changing fashions which characterise these tunes and images – dozens of new ring-tones and images are launched every day, keeping up with the fast pace of popular culture – from “number one” records to images of Big Brother contestants. There are many providers of these services, of whom the majority are small companies. This industry structure is due to low barriers to entry, with low production costs, widespread disregard of copyright, and the ability for providers to advertise directly in press to customers. All modern handsets are capable of receiving and supporting ring-tones and images. The more advanced technology supports higher quality ring-tones, ranging from the most basic monophonic tones through to polyphonic tones (available since 2002) and on to real-tones (available since 2004).¹⁰

¹⁰ Source: New Media Age 14.02.05, 06.06.02

Mainstream media. Mainstream media are common content-items (e.g. a music-track, a short video, a game) bought for consumption on the mobile device. These assets can be downloaded (that is, the file resides on the handset and can be re-played) or streamed live (that is, the content is shown once-only to the user, akin to TV broadcasting). These content assets are likely to have digital rights management (DRM), to prevent the files from being shared between handsets or exported from the handset to other devices. Unlike personalisation content, the supply for this mainstream media is far narrower: most content is purchased from on-net (i.e. within the operator portal, or at least sanctioned by the operator), and is more likely therefore to be paid for through the operator-subscriber relationship (i.e. decremented from a prepaid account or added to the monthly bill of a contract customer).

New services are beginning to launch where live streamed video is overlaid by text “virtual chat”. This would allow viewers to “chat” either to one another, and simultaneously interact with the content-provider or the “talent” (like TV channels such as Friendly TV or Babecast where viewers can “text to screen”). The delivery and payment mechanic is as follows: the user requests the service by SMS. This initiates a premium reverse-billed SMS, and also sends a WAP URL link, which the subscriber follows in order to connect to the service. As far as we are aware, these services have recently been launched by providers of hardcore adult content: interviewees alluded to these services, but could not refer us to specific examples.

Mainstream media is currently a small area of mobile content, but it is likely to grow fast, driven by greater penetration of the high-end handsets which support video and music, greater investment and promotion from operators and more competitive pricing of content.

Exhibit 8: Growth of UK mobile content revenues (€m), 2001-2008

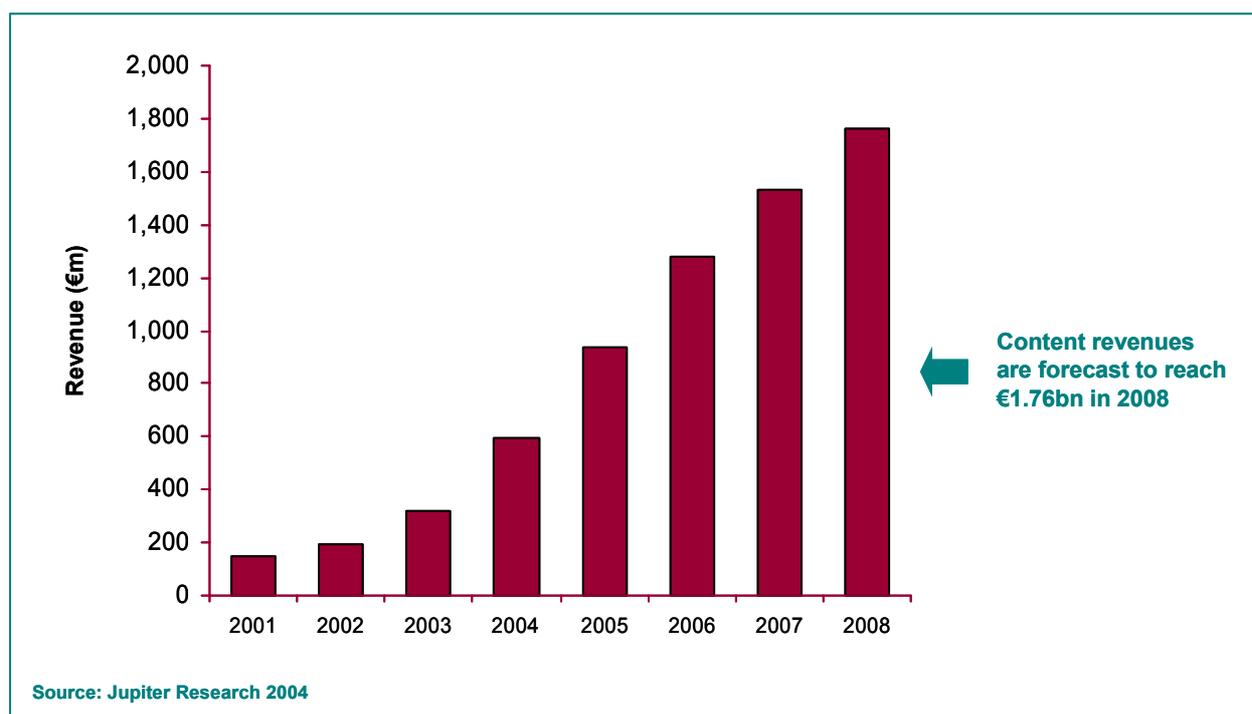


Exhibit 9: Size and growth prospects for different areas of mobile content

Mobile content type	Current market size	Likely growth over next 2 years	Content providers	Current role of PRS	Future role of PRS
Personalisation Content	Approx. £250m pa ¹¹	Limited – relatively mature	Hundreds, most with no relationship to mobile operators	High. Majority of personalisation content paid for by PSMS	High
Mainstream Media	Approx. £10m pa ¹²	High – forecast to double year-on-year	Few, all with direct billing relationships with operators. However, independent content-providers could emerge	Low – most media is sold from operator portals (and directly billed)	Limited role for the most content on operator portals – likely role for adult content.

The growth of this category presents a growth opportunity for PSMS operators: however, as we discuss in section 6, the way in which consumers pay for this content is changing fast as well, with operators extending direct-billing to their favoured content partners, and new payment mechanisms emerging as options for independent content-providers in addition to PSMS.

One specific consumer-protection issue implied by these developments comes in the area of user-submitted “chat” or images overlaying or supplementing adult-oriented material. Whilst the paid-for material itself is clearly regulated by ICSTIS and the IMCB, the user-submitted overlay is harder to control (impossible to stop at source; prohibitively expensive to moderate).

3.4 Premium-rate MMS as an extension of PSMS

This section outlines the development and prospects for Multimedia Messaging Service (MMS). This is pertinent to the premium rate industry at two levels:

1. MMS is a new form of mobile premium content, for which established premium-rate mechanisms (particularly PSMS) are a viable payment method. This represents a new market for providers of content providers, which is likely to be transacted through PSMS

¹¹ Source: Jupiter Research 2004

¹² Source: fathom analysis

2. Premium MMS could become a viable payment mechanism in its own right, either for the MMS message itself, or (akin to SMS), for a wider set of goods and services

The remainder of this section looks at each in turn.

MMS as a new form of mobile premium content

MMS was launched by UK mobile operators in June 2002. Its launch coincided with the beginning of the mass-market availability of camera-enabled handsets, and so MMS was initially promoted by operators as a way to send and share photographs. Although the majority of new handsets are MMS-capable, usage is very low. Usage has been held back by high prices, a lack of inter-operability between networks and also between devices, and a lack of consumer-awareness of the benefits of MMS. All premium MMS services currently in the market are paid for by PSMS (or in instances where the MMS service is provided by the operator, are directly billed).

We expect the market for MMS to increase steadily, as consumers gradually realise the benefits, operators increase inter-operability, and consumer-costs come down. There are many MMS services currently in the marketplace, including the following:

Picture messaging. Operators enable users to send multimedia messages to one another. The commonest application is linkage from the camera-phone functionality of the handset: after a picture is taken, the “send” option is promoted. At that stage, a mobile phone number or email address can be entered, to which the image is sent by MMS. The price of messaging varies by operator: O2 bundles MMS with SMS, with each MMS counting as equivalent to the price of 4 SMS messages; T-Mobile prices each MMS at a standard 35 pence, falling to as little as 21 pence if bought in bulk.

Emotional messaging. This is the capability to add text to complement images (available from operators’ WAP sites and websites). For example, a user can send a simple animated image of a kitten to say “I’m sorry”: in this regard the idea is analogous to greetings-cards. The cost is the same as picture messaging, with the pre-prepared images either free or paid-for. Usage has been held back by the lack of awareness and inter-operability between networks and devices. A variant on this service, which circumvents the lack of reliable inter-operability, are services (such as those offered by Minick and T-Mobil in Germany and UK) whereby the user sends a photo (e.g. a holiday-snap) and an accompanying message to the server by MMS, which is then printed and mailed as a postcard to the recipient. This service costs £1.50 in the UK, charged using PSMS.

Promotional and participative initiatives. MMS has been deployed to invite users to participate with an event or a TV programme: for example, this year on Channel 5, Endemol have invited viewers of a reality-show to “send in a picture of your worst body part.” Or another example: Vodafone and Radio 1 collaborated in 2003 with a competition “*Send a Picture Message of Yourself with your Name to vodafone@mmswin.co.uk before 5pm Today for a Chance to Win Exclusive VIP Area Access with Hospitality for You and a Mate. 15 Pairs up for Grabs*”

Delivery of purchased content. MMS is used to deliver still and animated images and short video clips, which the user has bought. Examples include: purchase of images and logos, or subscription to regular receipt of images (typically adult in content). It appears that operators are the principal users of MMS to send out such images; third-party content providers are more likely to prefer the economics of using SMS to send a WAP push. In both cases, PSMS reverse-billing is used for payment.¹³

PMMS reverse-billing as a new form of payment mechanism

Premium MMS reverse-billing could become a payment mechanism, in exactly the same way as SMS reverse-billing. Although it is technically possible, we believe that it is unlikely that PMMS reverse-billing will become a commonly-used mechanism. The reasons for our pessimistic outlook are as follows:

- The mechanism would not add any benefit to PSMS reverse-billing, and would not replace PSMS reverse-billing for the transaction of any content other than MMS content itself. The only consumer benefit would be that MMS content could be received by consumers without the need for a reverse-billed SMS. However, this is a limited benefit, since there is minimal inconvenience or cost to a purchaser of MMS content in receiving a reverse-billed SMS – it costs only 3 pence to send, and arguably gives the purchaser greater transparency, like a receipt.
- To emulate SMS as a payment mechanism, the operators and aggregators would have to agree tariffs, and standards for inter-operability. This is an arduous process (it took the operators over two years to agree to a common reverse-billed SMS), and it is unlikely that the participants would have the will to make it happen, given (a) relatively low usage of MMS to date, (b) the fact that PMMS reverse-billing would offer little incremental benefit over and above PSMS reverse-billing and (c) operators have many larger more pressing issues to debate and agree on (such as messaging interoperability, international roaming and indeed common payment-systems).

3.5 Premium rate video calling services

With the increasing penetration of 3G handsets which are enabled to make video-calls, there is the prospect of a new set of premium-content services where users dial in services which deliver interactive video as well as audio.

At its simplest, this is a direct extension of traditional audio premium rate services, but instead of merely hearing content, the user can also view moving-images, and can interact directly with the content provider. Like audio premium rate services, the video-service could be pre-recorded or could be live; navigation and menus could be introduced through IVR; and the service could be priced per-event or by duration.

¹³ Source: Fathom analysis 2005

Premium rate video calling holds several advantages over alternatives

However it is in its interactivity that this technology stands out from existing services, Streaming live video services (see section 3.3). The specific advantages for the industry of services delivered in the call rather than through the data-channel are well summed up below (source: MX Telecom):

- **Simplicity** - Dialling a short code and pressing one button is much simpler than having to type in or go to a URL and navigate through a portal, to eventually find the relevant content, and then download it on to the phone. For content providers, a single short-code can support either text or video, making it easier to promote a single short-code.
- **Per-minute billing** - This is not available when using the data channel (which is based purely around "per event billing"), but is available for video short codes, which offer both per-minute billing and drop charges, as well as free-phone and standard rate tariffs. Duration-based pricing is inherently easier for consumers to understand than content pricing based on file size or volume.
- **Return video path** - The camera in the end user's phone is always passing a live camera feed back, which can be used for many applications - for example, dating services and video conferencing.
- **Quality of service** - Guaranteed bandwidth is available for a video call, unlike video streaming, ensuring quality of service. This means that, as opposed to video streaming, the video call picture quality will not degrade when a cell gets busy.
- **Digital rights management** - There are no DRM issues associated with in-call video content as content cannot be saved or recorded on to the 3G handset. If content providers wish to allow users to access content after viewing it on their handset, they can send the end user a URL (via an SMS or WAP Push message) through which to access the content.
- **No need to download a viewer** - Some companies have written Java applications to stream content to an end user's 3G phone. The main problem with this lies with the fact that the end user needs to order the Java application (usually via SMS), download it onto the phone, save it, install it and finally load it. This cumbersome procedure is not user friendly and can be very confusing to the average consumer - most of whom fail to successfully install and use such Java applications

Services are emerging and service provision is likely to expand

Vendors such as UK based Requestec have launched video shortcodes as early as November 2004. In conjunction with Hutchinson 3G, they allow users to receive video streamed back too their 3G handset after dialling a 5-digit video short code.¹⁴

An example of a messaging software company active in this area is UK based Requestec, who claim to be the first UK company to offer 3G video conferencing and broadcast facilities.

“ Our video IVR platform allows callers to switch between live broadcast streams, as well as choosing between pure video and voice channels simply by pressing different buttons on the phone's keypad. The interactive, 2-way nature of a 3G video call, which captures the callers own video via the camera built into all 3G phones, whilst simultaneously streaming video content to that phone, gives rise to a multitude of novel possibilities. Built in, 'per second' billing makes this the ideal platform for interactive revenue generators of the future.” – Requestec web site⁷

Another service-provider at the forefront of this area is MX Telecom, who has developed a Video Gateway Service, which is clearly outlined at their website¹⁵. MX are working with the BBC, ITN and other major clients who are planning to offer services delivered through the video-call.

In all cases, users would dial into the service by initiating a video-call from a 5-digit short-code. Mobile operators are reserving short-code numbers especially for video, and that most operators (currently Orange, Three and Vodafone) have agreed revenue-split agreements for premium video services. The outpayment rates from operators are lower for video than for voice calls: we understand that an operator would typically pay out just £0.70 from a £1.50/minute video call to the content-provider.

The medium suggests a myriad of new possible services for the premium content industry. The interactive element means that this service is especially suitable for one-to-one services. Some ideas put forward by the interviewees for this project include:

- Horse-racing and betting – users can view horse-races, and can simultaneously connect to a call-centre to place a bet. Requestec are planning to launch such a service with attheraces (BSkyB's racing channel) and William Hill
- One-to-one psychic and fortune-telling services

¹⁴ Source: Requestec 01.11.04, www.requestec.com

¹⁵ Source: www.mxtelecom.com/uk/index.jsp?m=video

- Linkage to broadcast output. BBC Sport (working with MX Telecom) offered a service complementing their TV coverage of the Grand National at Aintree on April 9th 2005, allowing mobile users to dial a video shortcode to watch the race. Because of the BBC's public service remit, this service is offered on a standard-tariff call. Note that this trial service does not include any interactive element
- Dating – several technology companies are developing platforms to support dating services, using a premium-rate video-call. One such company is ICE 365¹⁶, who is working in partnership with BT Agilemedia.
- Adult interactive services – a model could take cues and direction from, or chat with, the viewers of the service
- Educational – a “virtual classroom” enabling distance learning in specialist fields, potentially interactive group communications
- Business – as a medium for conferences, presentations, teach-ins, internal communications etc.
- Celebrity audiences – limited participants in an hour Q & A with a celebrity

This is a very promising area of opportunity for PRTS providers, who can migrate services and apply consumer-knowledge from the voice PRTS arena. The fact that the technology is being supported by blue-chip brands such as the BBC is very promising. However, penetration of video-enabled handsets is still low, consumer awareness of these services very limited, and initial growth is likely to come in the adult sector.

3.6 Threat to mobile users from rogue diallers

This section addresses the possibility that the mobile internet could be targeted by rogue diallers (that is malicious software which covertly changes the user's outbound settings to a premium-rate number). It is likely that such malware would be concealed in other downloads, such as mobile games. The “seeds” of such a possibility already exist: legitimate applications can change mobile settings; and games companies such as Nokia N-Gage are promoting the spreading of software through Bluetooth.¹⁷

There are no confirmed cases of such diallers appearing on mobile phones. (The reasons for their non-appearance are probably two-fold. Firstly, the fragmentation of the market (many different devices and operating systems), in contrast to the Microsoft-centric standardisation of the fixed PC environment, coupled with very low usage of mobile internet, means that this is not a sufficiently lucrative target for malevolent “hackers”. Secondly, it seems that the Wireless Application Protocol and the WML scripts which support mobile browsing, may not be vulnerable to such

¹⁶ Source: www.ice365.com

¹⁷ Source: www.n-gage.com

diallers, and also that users would exert a degree of vigilance before accepting or downloading any questionable executable (.exe) files.

Although there have not been any reported instances of such mobile rogue premium-rate diallers, recent mobile viruses have raised the spectre that they could be developed. As well as the “Cabir” and “Mabir” mobile viruses emerging in 2004, the most threatening recent virus, emerging in March 2005, is CommWarrior, which can spread by both MMS and Bluetooth, and is limited to Nokia 60-series handsets (these are expensive handsets, mainly used by business-subscribers, which run the Symbian Operating System). The “Trojan” virus infects the telephone directory software, in order to replicate itself, randomly selects one directory profile at a time and sends a copy to that person. It can be sent to any kind of wireless terminal, but if that device does not run the Symbian Series 60 software, it will not be infected. A recipient also has to accept and download CommWarrior in order for the Trojan to launch itself. In order to trick the recipient into opening the files, the virus uses more than 20 different messages to try to lure users into opening its file, including text designed to look like legitimate software updates from Symbian, or pornographic photographs. The worst-case outcome for a mobile user infected with the virus is that they could run up a large phone-bill as their phone auto-sends MMS messages. These messages would be sent at the standard operator rate, rather than at a premium rate. One commentator, Adam Biviano, Senior Systems Engineer at Trend Micro, warned that future variants of the virus could be modified to behave like a premium rate phone dialler. Full technical information about the CommWarrior virus can be found at <http://www.f-secure.com/v-descs/commwarrior.shtml>.

The security and virus-protection industry that has grown up around the fixed internet is closely monitoring developments on the mobile internet. Companies such as Symantec F-Secure and Network Associates are focused on potential mobile threats, especially to ensure that corporate clients are as well safe in the mobile environment (both cellular and wi-fi) as in the fixed PC environment. Operating System developers are also ensuring that new releases are highly secure: the next release of Microsoft’s Windows OS (codenamed “Longhorn”, and due to be released in 2006) will contain high security and anti-virus measures covering both the fixed and mobile environments, and Symbian reassures its customers (including Nokia) that it “continually invests in development to ensure that Symbian OS continues to offer the most sophisticated, secure operating system possible.”

On balance of probabilities, it seems that the rogue-dialler phenomenon is not likely to affect the UK mobile user in a major way. As the fixed PC industry (with all its hard-earned expertise of countering malicious software) brings its expertise to bear on the mobile, the consumer is likely to be well protected against viruses such as rogue-diallers. Furthermore, should such a virus appear, it is likely to be able to be addressed quickly, with limited adverse impact on consumers.

Therefore we do not foresee a threat to consumer confidence in premium rate coming from these rogue diallers. However, the ICSTIS Forward Look Group should retain a “watching brief” in this area, periodically monitoring news from the online security industry.

4 Internet services

Premium rate services currently act as a payment mechanism for some Internet content through the use of Internet diallers. An internet dialler is software that uses the PSTN (telephone) modem to dial a premium rate number in order to access premium online content. Diallers are offered by some legitimate Internet content providers as a payment mechanism, though diallers have also been exploited by unscrupulous service providers. These ‘rogue diallers’ are typically downloaded without the consent of the user or legitimate diallers are adapted by hackers to behave maliciously, leading the user to build up significant call charges through involuntary premium rate calls. Increasing uptake of broadband Internet access is foreclosing the opportunity for Internet diallers, while improving Internet security is further narrowing options for unscrupulous use of these services in the remaining dial-up base.

Exhibit 10: Key developments affecting premium rate services’ role in Internet services

Development	Industry opportunity / threat	Consumer protection issues	Ranking
Broadband – migration from dial-up connections to broadband	<ul style="list-style-type: none"> • Forecloses opportunity for legitimate Internet diallers 	<ul style="list-style-type: none"> • Forecloses opportunity for rogue diallers 	
Improving Internet security – at consumer PC and ISP levels	<ul style="list-style-type: none"> • Potential image improvement and subsequent consumer trust 	<ul style="list-style-type: none"> • Reduced risk from rogue diallers 	
SMS payment for internet content – increasing use	<ul style="list-style-type: none"> • Alternative payment mechanism to diallers for internet content 	<ul style="list-style-type: none"> • Risks around content standards and age verification 	

The migration to broadband is diminishing the opportunity for diallers (legitimate and rogue)

The internet access market is rapidly migrating to broadband – provided via ADSL and cable modem. In April 2005, BT reached 5 million broadband ADSL customers (wholesale). In addition, cable operators NTL and Telewest accounted for 2.028 million broadband cable subscribers at the end of 2004. BT will have enabled sufficient exchanges for 99.6% of the UK population to have the option of receiving these services by summer 2005. Analysts forecast 9.8 million broadband subscribers by 2007, with 5.4 million remaining on dial-up internet connections.¹⁸

The key implication of this development is a decrease in the addressable market for diallers: consumers with broadband are unlikely to retain a dial-up modem connection. This will reduce both the opportunity for the premium rate services industry (in providing legitimate diallers) and the risk of consumer harm relating to rogue diallers. However, it is likely that the group of consumers who continue to rely on dial-up Internet access (forecast 5.4 million households in 2007) will be those least technologically savvy, and consequently, in terms of understanding, those most at risk from rogue dialler scams.

¹⁸ Source: BBC 04.04.05

Looking ahead, the role formerly performed by Internet diallers is likely to be filled by various Internet payment mechanisms (covered in section 6) and potentially in the longer term, by web-initiated VoIP calls to premium rate numbers (covered in section 2).

Internet security is improving, reducing the threat of rogue diallers

The level of internet security is increasing, making it more difficult for unscrupulous service providers to distribute rogue diallers to consumers' PCs. Improvements are being made at both network level (e.g. ISP controls) and at an individual consumer level. However, it is unclear to what degree there will remain a group of consumers with a low level of security who would be susceptible to unscrupulous service providers.

The level of Internet security in place on consumers' PCs is improving. Consumers are increasingly having access to functionality including pop-up blockers, cookie blockers and security zone control, reducing the threat from 'trojan' diallers. In addition, Microsoft's release of Windows XP Service Pack 2 has closed other vulnerabilities in consumers' desktops. By September 2004, 20 million downloads of SP2 had been downloaded and 80 million more were expected by Microsoft. A new version of Microsoft's Internet Explorer is due to be released mid-2005 and "is intended to support tabbed browsing and defend users from phishing as well as deceptive or malicious software.

ISPs are also increasing the level of security in place, on the network side and in their user software. It is increasingly common to find features such as anti-virus in packages provided by ISPs. Some examples of security features of leading UK ISPs include:

- AOL UK offers anti-virus scanning on emails, spam filters and pop-up blockers
- BT Yahoo! provides virus protection on incoming emails

Across the industry, these developments reduce the threat from rogue diallers.

SMS is emerging as a payment mechanism for internet content

SMS is being used by some online content providers to give customers an additional payment option. In some cases this replaces the internet dialler payment mechanism, and provides a convenient solution until internet payment mechanisms are more widely adopted by consumers.

Although it is a convenient payment mechanism for internet content, it carries risks to consumers in the areas of content standards and age verification; it could potentially allow minors to be able to pay to access inappropriate material.

5 Interactive television services

Digital television penetration is increasing, expanding the opportunity for interactive television services, some of which will use the set-top box's telephone path (where available) at premium rate. The set-top box environment is highly controlled by service providers – we believe that consumer protection risks in this area are low, though the use of Internet-enabled Freeview set-top boxes could create a very small theoretical risk.

Exhibit 11: Key developments affecting interactive television services in relation to premium rate

Development	Industry opportunity / threat	Consumer protection issues	Ranking
Digital television – increasing penetration	<ul style="list-style-type: none"> Increased opportunity for STB premium rate line usage 	<ul style="list-style-type: none"> Very low risk 	
IPTV – increasing provision and use of television services on the web	<ul style="list-style-type: none"> Increased opportunity to promote premium rate services 	<ul style="list-style-type: none"> Risk of consumer harm due to less trusted brands launching services 	

The digital set-top box return path is employed for a range of services, some of them premium rate

This section covers services that use the digital television set-top box telephone return path, focusing on those that dial premium rate numbers. Currently, there is limited provision and usage of the telephone return path by digital television service providers – mainly due to limited provision of dial-up modems in set-top boxes. The most significant current use is by BSkyB.

Exhibit 12: Growth of digital television platforms, and provision of PSTN modems

Platform	Number of households, Q4 2004 (million)	Quarterly growth (net), Q4 2004 (million)	Provision and use of PSTN return path
Sky Digital ¹⁹	7.262	0.177	Dial-up modem in set-top boxes
Digital cable (NTL / Telewest)	2.514	0.012	Cable modem return path – no PSTN modem
Freeview ²⁰	4.593	0.678	The majority of boxes have no modem, though some manufacturers (e.g. NetGem) supply boxes with a modem to enable Internet access

¹⁹ Excludes free-to-air satellite homes (estimated 385,000 in Q4 2004)

BSkyB's installed base of set-top boxes is equipped with and uses the telephone return path for a range of interactive television services (e.g. Sky Gamestar, Sky Active and third-party services). Freeserve set-top boxes and integrated digital television sets are generally not equipped with a dial-up modem. The exceptions are the legacy installed base of ITV Digital boxes, and boxes marketed as 'web enabled' (e.g. the NetGem i-Player).

Applications for the telephone return path rate include:

- participation television voting (e.g. Sky News)*
- participation television competition entry (e.g. Nation 217)*
- premium games (e.g. Sky Gamestar service)*
- standalone Internet access services (supported only on some models of set-top boxes)

* The use of premium rate numbers for these services competes with premium rate direct-dialled and SMS payment mechanisms.

Uptake of digital television services is increasing, expanding the opportunity for premium rate usage

Uptake of digital television services in the UK is increasing rapidly, though a large proportion of this growth comes from Freeview: 678,000 additions in Q4 2004. The number of households subscribing to BSkyB, and therefore relevant to premium rate services, is increasing at a much lower rate: 177,000 net additions in Q4 2004. In addition, an increasing number of consumers are using interactive television services: the BBC reported 10 million UK households (Freeview and satellite) accessing its 'always-on' services in April / May 2004 as representing "growing reach and usage" (though these figures do not indicate the level of return path usage).

However, there are several barriers which are deterring broadcasters (other than BSkyB) from providing interactive television services and using the telephone return path to monetise their services. The main issues include the high cost of development of new services (applications development and testing costs), the long lead times required to set-up these services and the low payout rates compared to direct-dialled premium rate services and premium SMS.

Consumer risk associated with digital satellite set-top boxes appears to be very low. The hardware and software environment is highly controlled by the service provider, blocking the way for hackers or unscrupulous service providers to change the dial-up settings.

Some Freeview boxes provide dial-up modems for Internet access

Though the majority of Freeview set-top boxes do not include a dial-up modem, some models include a modem for internet access (e.g. NetGem i-Player). As with BSkyB's boxes, the software environment is highly controlled – in this

²⁰ Counts households in which Freeview is the only digital platform (estimated 1.791 million households in which Freeview is present in addition to digital satellite or cable)

case by the manufacturer – such that consumer risks to consumers of hackers accessing the boxes is very low. In addition, the user base of these devices is likely to be relatively low. For example, the NetGem box shares the Freeview market with a wide range of other products, many at a lower price point.

IPTV services are increasing, leading to potential consumer protection issues

Both the provision and uptake of IPTV services are increasing. The two main types of services emerging are:

- IPTV over DSL or cable, providing premium content for viewing on the television set (e.g. the “Homechoice” service launched by Video Networks in London)
- video services provided over the web to the PC, on a subscription basis or for free (e.g. Nation 217 ²¹)

The former category acts mainly as an extension of the existing pay television market, and does not present any major issues to the premium rate services industry. However, the latter category could impact the industry in two ways:

- lowering barriers to entry for those wishing to launch a television channel or provide video content
- enabling content provision to move beyond the reach of UK regulators

Given lower barriers to entry, it will become easier for less trusted brands to launch television services, some of these including participatory elements. However, fathom believes that given the wide range of content available on the web, it will be challenging for any particular television service to achieve a significant audience. The exception will be those services simulcast on multi-channel television and IPTV, though these will pose less of a risk as the broadcast content will be regulated, Web video services can be delivered from overseas, distancing them from the UK regulators, and raising potential issues of content standards.

²¹ www.Nation217.tv

6 Developments in the electronic payments market

Summary

A raft of services are competing for the emerging e-payments market, impacting traditional premium rate in several areas. Traditional premium rate payment mechanisms will come under increasing pressure from a range of new payment mechanisms. Several internet payment mechanisms, some of them suited to micro-payments, have emerged and are likely to grow in popularity. Mobile payment mechanisms, generally still based on telephony billing, are also emerging with a specific impact on PSMS reverse-billing. The timelines for uptake of all these services are likely to be relatively slow due to issues around consumer awareness, potential consumer confusion and time taken to acquire merchants and content providers.

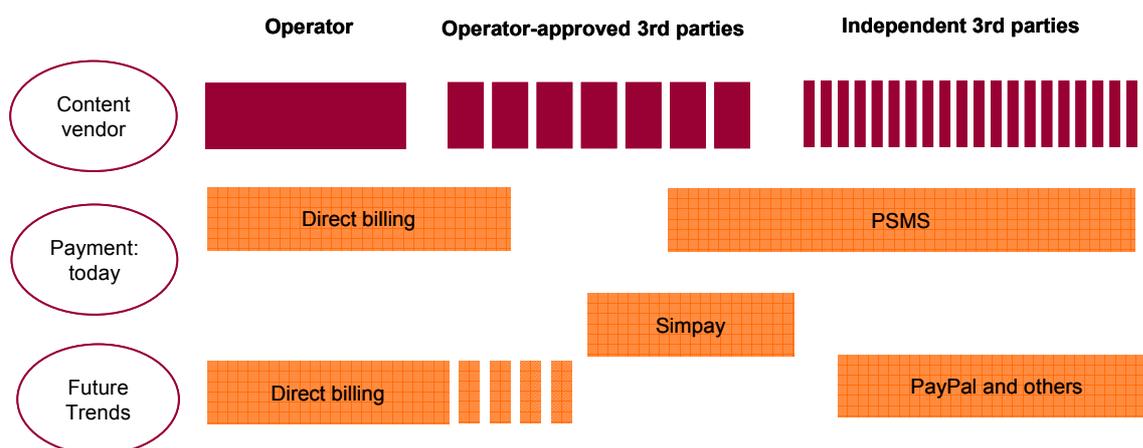
There is likely to remain a set of product and service categories in which traditional premium rate payment mechanisms defend or grow their share, thanks to the inherent advantages: immediacy, convenience, anonymity and a lack of need for registration, banking facilities or age verification. Users are not required to register or provide personal information, which provides anonymity and privacy. Content and services in which traditional premium rate payment will retain advantage include participation television, live sports services, live voice services, some adult content and services which are inherently text-based such as voting and competitions. However, in a range of other content areas (e.g. ring tones) it is likely that premium rate variations or alternative payment mechanisms will gain share.

This section provides an introduction to the mobile, internet and physical point-of-sale (PoS) e-payment markets, with a factual overview of the key companies or trends in each category. This review focuses especially on mobile, since this is currently the richest area for premium rate services.

6.1 Developments in e-payment: mobile

There are three levels of merchants of mobile content: the operator itself (e.g. Vodafone), a set of approved “content partners” (e.g. ITN), and a large number of independent content-partners.

Exhibit 13: Payment structure by merchant type: current situation and future trends



From the perspective of premium rate operators, there are two important trends in mobile e-payment, as illustrated by the above diagram.

- Operators are extending direct-billing payment arrangements to include third-parties. Operators are developing ever more sophisticated ways of extending direct billing to include third-party content providers. Examples of these are Vodafone's m-pay (currently in market), and O2's 2006 launch of i-mode.
- New payment mechanisms are being launched to serve independent third-parties outside operator relationships (who are currently the core users of premium rate payment mechanisms). Some of these are being launched with the backing of operators (e.g. Simpay which is due to launch in UK Q4 2005); others, like PayPal, will cross over into mobile from the online environment.

Each of these specific examples is covered in the rest of this section.

6.1.1 Vodafone m-pay

"m-pay" is a brand-name for a set of proprietary Vodafone services. Vodafone provides their customers with two m-pay options: m-pay bill and m-pay cards. This overview reviews each in turn:

Vodafone m-pay Bill

Launched in March 2002, Vodafone m-pay bill is a way to make small payments by charging them to your phone bill or airtime credit. Other operators have similar functioning payment schemes, which are simply identified as a billing option in which micropayments are added to the mobile bill.

A Vodafone mobile and m-pay bill registration is required. Whether through web or WAP, registration requires a user to provide a mobile number, choose a username, password and a four digit PIN. A secret question is also required for security. A text message is sent to the mobile phone to confirm ownership and the account is ready for use.

Purchases are then made by selecting m-pay bill as the method of payment and using the username and password if online and a PIN on WAP purchases.

Vodafone m-pay Cards

Vodafone m-pay cards is an operator hosted e-wallet designed by Vodafone and supported by Worldpay for their user base. It is aimed at providing a more convenient and secure way to pay over WAP or online with a debit or credit card. If mobile content accessed through Vodafone's WAP portal service called Live!, a charge is added to the mobile bill. If an online purchase is made with m-pay, a charge is levied to a registered credit or debit card. Vodafone account holders must register their credit or debit card details and contact information with m-pay. Both the user and

merchant must be registered with m-pay to take advantage of the service. A user can select m-pay online or on a WAP portal and then must confirm their details and authorise a payment for the transaction to take place.

The process of purchasing online involves selecting m-pay cards as the payment mechanism, then entering in a username and password, then receiving a text with an authorisation code which needs to be typed into the website for confirmation and selecting the card to be used that Vodafone has stored (e.g., Visa) for the transaction to be completed. The process of purchasing through WAP involves choosing the m-pay cards option, selecting the card to be used that Vodafone has stored (e.g. debit card) and entering a PIN to complete the transaction.

Communications regarding a transaction are made via SMS and email. Vodafone is presenting its own branded Ticketshop (in conjunction with call center based Way Ahead Box Office) as a method of purchasing event tickets on the mobile device.

6.1.2 Simpay

Simpay is a payment mechanism that allows the user to bill micropayments to their operator managed bill. It aims to eliminate the various different forms of operator managed billing systems with a single technical standard open to all operators. This would link all operator partner merchants and make them available to all users rather than be limited by the merchants only partnered with their particular operator.

European operators Orange, Telefónica Móviles, T-Mobile and Vodafone jointly backed new payment mechanism Simpay. This came in reaction to growth in digital services both on and off portal. Operators are likely to maintain on-net payment relationships. Simpay is expected to compete with PSMS and e-wallets (e.g. m-pay cards). Simpay was founded with the intention of creating a payment solution for European mobile customers, having particular advantages for non-credit card holding users as the charges are billed onto the user's mobile phone bill or debited from the prepaid balance.

Simpay will initially focus on small ticket transactions up to £7-8 for items such as digital content. They expect existing banking instruments to cover higher-value purchases as these take a lower share of the transaction (fee) than Simpay / PSMS channels at this price point. Simpay will use mobile aggregators as a route to market in signing up merchants. They predict that their service will cannibalise SMS and consider micropayment for digital services its own emerging market.

6.1.3 i-mode

i-mode is a model for a mobile portal that was developed by NTT DoCoMo in Japan, and has proved to be a highly successful model, with some 17 million users since its launch in February 1999. i-mode is live in several European markets (offered by Bouygues in France and KPN in Netherlands), and has recently been licensed by O2, who plan to launch it in the UK in mid-2006. Unlike current UK mobile portals, it allows a much wider set of third-party content partners to transact directly with the consumer, billed through the mobile operator. For example in Japan, DoCoMo has 3,000 portal partners and as many as 75,000 independent content providers, all able to transact with customers through the operator's billing system. The revenue share relationship is considerably more favourable to content-

partners with i-mode than with current portal business-models: mobile operators currently offer their content partners a payout of between 40-50% of the ex-VAT consumer payment; with i-mode, O2 expect this payout to rise to 85%.

Because it allows disparate content-partners to establish a direct billing relationship on these favourable terms, i-mode eliminates the need for a premium-rate solution.

6.1.4 PayPal for Mobile

PayPal, the person-to-person payment network owned by Ebay, is considering a dedicated payment scheme for mobile users. PayPal currently offers payment options through wireless application protocol (WAP) for mobile users, but this is believed to be unwieldy and little-used. If PayPal do launch a simple mobile-payment model similar to their successful online service, it will directly threaten the position of PRS in serving independent third-party content providers. However, it is unlikely that PayPal will launch a mainstream consumer service in the UK in the next 18 months – and it will have to compete with Simpay and others in winning the trust and the usage of the UK mobile user.

6.2 Developments in e-payment: Internet

More and more money is being spent online in the UK: e-commerce has grown from £300m in 1999 to £14.5bn in 2004²². According to the Bank of England, 60% of Internet users had made purchases online in 2003. The growth of e-commerce can be ascribed to three main factors:

- fast growing internet penetration, with 56% of homes connected to the internet in 2004, of which about one-third were broadband at the end of 2004²³
- increased awareness of online-purchasing over time, with internet-only brands (Dell, Amazon etc.) becoming mainstream, and physical brands promoting their online offering (supermarkets, banks, etc).
- greater consumer confidence in online payment mechanisms

In 2003, 90% of the transactions made online were credit card purchases.²⁴ This section focuses on the new electronic payment mechanisms which make up the remaining 10% of online spend. The most significant developments in online e-payments are as follows:

PayPal is emerging as the most popular proprietary payment system. PayPal launched in 1999, to provide secure payments between individuals trading on online auction sites, and was bought by Ebay in 2002. It is an online payment mechanism that enables purchasers to use their credit or debit cards to pay for items sold on the internet by other individuals (who are not accredited with banks as merchants). Charges are typically slightly higher than high-

²² Source: IMRG

²³ Source: Ofcom

²⁴ Source: Bank of England

street bank merchant charges, at 1.9-3.4% plus a small fixed fee/transaction. Because it is less formalised and less regulated than the banking system, it presents an attractive alternative to PRS for certain online content providers. We therefore see PayPal as a significant threat to the (albeit very small) market for premium-rate payments (whether user-dialled or auto-dialled) for online content.

BT Click and Buy: BT have launched a service which allows BT customers to have online micropayments charged to their landline telephone bill, credit / debit card or a direct debit. BT Click and Buy was launched in 2002., and provides consumers with a payment scheme wherein they can pay for content as they want it rather than subscribe to an ongoing service. BT Click and Buy certainly represents competition for premium rate payment schemes for content sold on the Internet and as a subscription only service. This service may appeal to users without payment cards (especially young users) because it would not require a credit card account. About 20% of the partner websites cater to mobile content, a potential threat to PRS micropayment for mobile ringtones, logos, news, betting tips and games.

Usage of premium rate as a payment mechanism in the online environment is limited today. With the emergence of these new online e-payment solutions, it is clear that premium rate payment schemes will be less favoured payment-systems for the online environment.

6.3 Developments in e-payment: Physical point-of-sale

There are several interesting developments in the way that customers in the physical environment may use electronic payments, in particular to carry out very small transactions (“micropayments”). The main developments are:

- developments in the physical technology for proximate point-of-sale. For example: contactless or proximity cards such as Oyster (as used by Transport for London)
- integration of micro-payment technologies into mobile handsets. For example, i-mode and Sony are launching Felica in Japan, a proximate technology (like Oyster) where real-world PoS purchases will be able to be billed through the mobile operator
- changing consumer behaviour, and in particular greater willingness to use new e-payment technologies. Although smart-cards have long been deployed in private communities (e.g. university canteens, sports-clubs), cards such as Oyster - with 2.3 million cards in use a year after launch - have taken these technologies into the wider mass market

Our view is that these developments will gradually increase the level of usage of electronic micro-payments in the physical PoS environment, and in so doing will reduce the possibility that PRS could play a role in this environment. Furthermore, the convergence of payment-cards with the mobile handset could introduce further competition to PRS in the mobile content market. The implications of these developments for the premium rate industry are discussed in greater detail in section 6.4.3.



6.4 Premium rate payment mechanisms in the emerging e-payments environment – opportunities and threats

This section considers the opportunities for, and threats to, premium rate payment in the context of the fast-changing e-payments environment. Are premium rate’s “home markets” under threat from new forms of e-payment? And what new areas of micropayment are emerging, where premium rate payment mechanisms could play a greater role? To answer these questions, we look in turn at the three categories of content and services for which premium rate is a viable payment mechanism:

1. On device, in-call
2. On device, out of call
3. Off device

The composition of these categories is illustrated with example services and products in the following table:

Exhibit 14: Examples of types of premium rate content and service by category

In call, on device	Out of call, on device	Off device
<i>(i.e., any service bundled with payment)</i>	<i>(i.e., any goods or services not bundled with a voice call)</i>	<i>(i.e., any goods or services not bundled with voice call or received on device)</i>
Television voting	Ring-tone, logo, wallpaper	Physical goods (e.g. CD)
Technical helplines	Music video or news clip downloads	Travel on bus or tube
Chat (live or virtual)	SMS and MMS alerts	Scratch cards
Horoscopes, psychic reading service	Entry to prize draw	Vending machine items
Directory inquiry	Competitions	Parking meter payment
Voicemail	Mobile games	Cafeteria purchases
Counselling services	Charity donations	University bookstore purchases
Dating or employment service	Dating services	Send flowers
Premium access to website	Location services	DVD

In assessing the prospects of premium rate against alternative forms of electronic payment, we have compared the relative strengths and weaknesses of each payment-mechanism, from the perspective of both the consumer and the service provider.

6.4.1 On device, in-call

On device and in-call products and services are those in which the product / service and the payment mechanism are inseparable: for example, calling a 090 number and receiving a pre-recorded horse betting tip. This category also includes premium video-calling, as discussed in section 3.

This is the “heartland” of the premium rate telecoms industry, and this area is relatively well protected from new threats from competitive payment mechanisms, for the following reasons:

Voice calls come mainly from land-lines, where few new technologies threaten PRS

94% of calls to premium rate numbers were originated on landlines in 2003, accounting for 85.5% of all premium rate services revenues²⁵. This proportion may be gradually falling, but still landlines are likely to be widely preferred to mobile for these calls, largely because of mobile operators’ premium charges.

Substitution of premium rate mobile calls by other activities (and payment mechanisms) will be a slow process, and this market segment is relatively insignificant

PRS calls on mobiles, whether they are voice or video, live or pre-recorded, face challenges from other forms of content. Over the long term, the category could be substituted for by other forms of mobile content.

The premium rate industry does face potential risk of losing its share of payment for mobile calls because micropayment mechanisms are being developed by operators and third parties with the intention of displacing premium rate as a payment mechanism. Although most alternative payment mechanisms are in their infancy and offer a similar share of payout, they are positioned to overtake premium rate payment schemes because they are integrated with the operator platform and will not incur extra cost to the user. When users call premium rate services from a mobile, an extra charge is usually levied by a further premium which is charged by the operator. Callers will not want to pay more for their premium voice or video calls. This extra charge for a premium rate call is not always obvious to the caller. Ambiguity of operator billing practices may hinder the uptake of PRS calls via mobile.

The market for mobile originated mobile calls is small relative to fixed line: the revenues generated from mobile-originated PRS are £88m or nearly 15% of all PRTS industry revenues²⁶.

Of all payment mechanisms available for products and services received in a call on the originating device, premium rate services are in an inherently dominant position. The PRS market will not be threatened greatly by payment mechanisms aside from premium rate ones because premium rate mechanisms offer advantages that other mechanisms cannot. Payment by premium rate calls has the advantage of providing users with anonymity, a quality

²⁵ Source: Market Information Update, OFTEL

²⁶ Source: Market Information Update, OFTEL

highly valued by many users of adult services. Other aspects enforcing PRS' prevailing position are immediacy, convenience and a lack of need for registration, banking facilities or age verification.

Premium video-calls could in theory be charged by mechanisms other than payment by premium rate (for example by direct billing by operators or by Simpay). However, we expect that premium rate will be the dominant payment means for these services, because (a) the payment mechanic it is so conveniently and transparently embedded into the delivery of the service itself, (b) premium short-codes are the perfect call-to-action for service providers, and (c) its immediacy and anonymity play to the strengths of the adult-content industry, which is likely to pioneer these premium video-call services over the next 18 months.

6.4.2 On device, out of call

This category is defined as services delivered to the telecoms terminal (in practice, this means the mobile phone), but which are not delivered as part of a call. Therefore the category includes the main types of mobile content (e.g. ring-tones, news-alerts, video-download services). Where these services are bought from independent third-party providers (that is, not directly from operators or their approved content-partners), PSMS reverse-billing is currently the dominant payment mechanism.

PSMS reverse-billing revenues in mobile content are under pressure from two factors:

Mobile content sales will gradually migrate away from independent third-party providers (where PSMS reverse-billing is ubiquitous) towards operators and their approved partners

Mobile operators will increase coverage of their mobile portals and widen payment models to include approved content partners. The amount of mobile content that is purchased on operator portals is likely to increase due to increasing content supply (operators are improving the depth and range of their offering and become less worried about including adult content) and more "mainstream" brands are offering more adult mobile content.

Independent third-party providers will have access to other payment mechanisms which may be preferable to PSMS reverse-billing

Those third-party content providers who have remained independent and have not entered into any direct-billing relationship will have a wider range of payment solutions from which to choose. PSMS is the current dominant mechanism, and will face competition from new solutions such as Simpay and possibly Paypal, which make it easier for these merchants to accept credit and debit cards for micro-payments. The extent of the threat to PSMS will vary by genre and the different business-models of each premium content provider. It may be that incidental attributes of PSMS, such as the shortcodes, will preserve the share of PRS, even though outpayment margins compare unfavourably to alternatives. For example, providers who rely on print advertising to prompt a response (e.g. ring-tone advertisements in magazines) may well prefer to continue

to use PSMS short-codes as payment, especially for the next 18-24 months while consumer awareness of alternative solutions develops.

6.4.3 Off device

“Off device” products and services are services which are not delivered in the call, or to the device itself. So for example, the purchase of a soft-drink from a vending machine, or a concert-ticket, or a parking permit.

This is an area from which premium rate payment services have been absent. The principal reason for this absence is: the out payment share offered by premium rate as a payment mechanism is unacceptable to merchants of non-digital low-margin products and services. Secondly, the European Commission’s e-money directive has mitigated against the use of premium rate at the physical point of sale. Even if the legislation changes (as seems possible, based on the FSA’s interpretation of the directive), off-device services are likely to remain an area where premium rate payment mechanism will not have a role to play.

The reasons for this negative prognosis are that (a) there have not been any significant changes to the marketplace which would alter the prospects of premium rate payment mechanisms in off-device commerce, and (b) the emergence and adoption of a new generation of smart-cards, some of which may be embedded in the mobile device, further excludes the possibility of premium rate payment mechanisms in this area.

7 Appendix: Glossary of Terms ²⁷

Dialler	A dialler is a computer program which creates a connection to the Internet or another computer network over the analog telephone or ISDN network. A rogue dialler is a malicious piece of software that alters the existing dialler, usually by changing the access number, to dial a premium rate number or harm the dialler in some way
DRM	Digital Rights Management, also termed digital restrictions management, is an umbrella term for any of several technical arrangements which empower a vendor of content in electronic form to control how the material can be used on any electronic device with such measures installed.
E-commerce	Electronic commerce is the buying and selling of products and services by businesses and consumers over the internet.
E-wallet	Electronic wallet, an encrypted storage medium holding credit card and other financial information that can be used to complete electronic transactions without re-entering the stored data at the time of the transaction.
ICSTIS	Independent Committee for the Supervision of Standards of Telephone Information Services, the industry-funded regulatory body for all premium rate charged telecommunications services.
IMCB	Independent Mobile Classification Body
ISP	An Internet Service Provider is a company that provides Internet access to other companies and individuals.
IVR	The systems that provide information in the form of recorded messages over telephone lines in response to user input in the form of spoken words or, more commonly, DTMF (Dual Tone Multiple Frequency) signaling.
MMS	Multimedia Messaging Services is a mechanism to send not only text messages as with the SMS (Short Message Service) but also drawings, photographs, music or voice clips and even short video. The system operates on the “store and forward” principle with messages being stored and possibly formatted at a MMSC (Multimedia Messaging Service Centre) when sent between users.
POS	Point of sale

²⁷ Sources: ICSTIS, www.mpirical.com, www.wikipedia.com, www.investorwords.com

PRTS	Premium rate telephony service
SMS	The Short Message Service is a simple store and forward text messaging system. SMS messages are limited to 160 characters in length although it is possible to concatenate several messages to produce a much greater macro message
SPAM	The use of any electronic communications medium to send unsolicited messages in bulk..
SPIM	Messaging spam, sometimes termed SPIM, makes use of instant messaging systems, such as AOL Instant Messenger or ICQ. Many IM systems offer a directory of users, including demographic information such as age and sex. Advertisers can gather this information, sign on to the system, and send unsolicited messages. Spammers have similarly targeted Internet Relay Chat channels, using IRC bots that join channels and bombard them with advertising messages.
SPIT	Internet telephony spam is also termed SPIT. It has been predicted that voice over IP (VoIP) communications will be vulnerable to being spammed by pre-recorded messages.
VOIP	Voice over IP is a system enabling voice data to be delivered using the IP (Internet Protocol). It is sometimes referred to as IP telephony.
WAP	A standard designed to allow the content of the Internet to be viewed on the screen of a mobile device such as mobile phones, personal organisers and pagers. WAP also overcomes the processing limitation of such devices. The information and services available are stripped down to their basic text format.

8 Appendix: Interviewees ²⁸

Organisation	Interviewee	Position
Broadsystem	Caroline Worboys	Managing Director
BT Agilemedia	Andy Shaw	Product Development Director
BT Agilemedia	Mike Steel	Mobile Manager
Channel 4	Riccardo Donato	Business Development Manager, Interactive
Mobile Networking Ltd	Craig Barrack	Director
MX Telecom Ltd	Mark Fitzgerald	Managing Director
Opera Telecom	James McNab	Head of Corporate Affairs
Premium Rate Association	Cathy Gerosa	Principal Administrator
Redstone	Giles Whiteley	Commercial Manager
Requestec Ltd	Marek Zwiefka-Sibley	Business Development Director
Visa Europe	Guido Mangiagalli	Consumer Market Development
WIN	Peter Norman	Head of Commercial
WIN	Ben King	Account Manager
ICSTIS	Paul Whiteing	Deputy Director
ICSTIS	Simon Armson	Committee Member and Forward Look Chair
ICSTIS	Sam Hill	Monitoring Officer

In addition, we have benefited from the perspectives of the members of the ICSTIS Forward Look Group.

²⁸ We also spoke to respondents who requested that their participation in the project is not revealed publicly.