The feasibility of a central registration service for premium rate service providers

A final report for Ofcom

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Executive Summary

Ofcom has decided to undertake a fundamental review of premium rate service (PRS) to take account of the increasing convergence within the communications sector and the growth of PRS as a micro payment mechanism. As part of that review Ofcom asked Indepen to assess the feasibility of a central registration system for PRS providers.

The promotion and content of PRS is regulated by Ofcom and ICSTIS using a Code of Practice. This Code sets out the rules which different players in the PRS value chain are required to follow. ICSTIS then monitors behaviour and investigates complaint to determine whether any of the market players, and especially any premium rate service provider, has breached the code. If so the ICSTIS board then imposes appropriate sanctions.

The current system of regulation uses a series of on-line and off-line databases to function. Some in the PRS industry believe that it would make economic sense to collect some or all of this information into a central registration database, run by an independent body, and accessible to all key stakeholders. Such a database might incur significant set up costs but could help reduce Code breaches, and hence consumer harm, significantly, while leading to lower operating costs in the long run.

In this report we evaluate such ideas using cost benefit analysis. We have carried out a series of interviews with a selection of PRS industry players and their regulator ICSTIS to help establish how the current system of regulation works, the incentives it provides for compliance, and how the existing registration and other databases help the current system to function. We then used these findings to develop five options for a central registration database and applied cost benefit analysis (CBA) to them.

Our findings are as follows.

Finding 1: The ICSTIS number checker should be expanded to include as many PRS numbers as possible. At the moment the number checker provides contact details on the ***service provider***[1] for 40% of calls to 09 PRS numbers and on the terminating communications provider (TCP) in the other 60% of cases. Increasing the former proportion to near 100% leads to a reduction in costs for TCPs and end users in avoided calls to the TCP to get the service provider's details. The benefits exceed the costs of expanding the number checker by a factor of five.

Finding 2: ICSTIS should in future publish the names of ***service promoters***[2] involved in all breaches for which adjudications are made. Such publication provides valuable reputational information to TCPs and service providers when they are deciding with whom to do business.

Finding 3: Our CBA indicates that there are likely to be major economic benefits in implementing a central registration scheme in which a public registrar takes on the due diligence functions associated with establishing the identity of a service provider and which provides on-line access for TCPs and other PRS platform providers to information on the reputation of those registered there. Such a central registration scheme means that some of the identity due diligence, currently undertaken by TCPs, is avoided. But this benefit alone does not justify the costs of setting up the scheme.

[1] The entity which contacts with the TCP in the PRS value chain

[2] The entities which promote a PRS through advertising or other means and exercise editorial control over the content of a PRS

Finding 4: A central registration scheme is economically justified if it leads to a reduction in Code breaches of at least 0.42%. It is difficult to believe that a central registration scheme would have no effect in reducing code breaches. Making information on the reputations of service providers and promoters easily available through an on-line registration database enables TCPs, service providers and other market participants to make better judgements about the risks of doing business with a service provider or promoter. It also provides service providers and promoters with stronger incentives to protect their reputations. But the scale of the reduction in Code breaches as a result of these effects is a matter of judgement for policy makers.

Finding 5: Some in the PRS industry have proposed a central registration scheme in which regulation shifts away from the current system, with its focus on the TCP and service provider, to direct regulation of the service promoter. There is strong and simple rationale for this idea. It is the service promoter who is responsible for the promotion and content of the service and it is precisely these areas which the Code is designed to regulate. But our CBA leads us to reject this option, which generates substantial economic losses, for two main reasons:

- This option greatly weakens the incentives for service providers and TCPs which act as platform providers to monitor the behaviour of their service promoter customers. These platform providers are inherently well informed about such behaviour given their position in the PRS value chain. A central registrar is not well placed and would need to devote substantial additional resources to substitute effectively for the current monitoring activities of these TCPs and service providers
- TCPs and service providers who act as platform providers can make much better use of the reputational information available from a central registration database than a public registrar. They can use the information to inform contracting decisions and hence reduce Code breaches by refusing to contract with doubtful service promoters. A central registrar cannot. He must follow due process if he wishes to refuse a service provider or promoter registration. This means that reductions in Code breaches are unlikely to occur under this option.

Finding 6: It is not possible for us to determine from the CBA whether it is better to implement a central registration scheme for service providers alone or to extend it to include those service promoters who are not service providers as well. The latter costs more to implement but is preferable if it leads to an additional reduction in Code breaches in excess of 0.45%.

Finding 7: The distribution of costs and benefits between stakeholders means that everyone is likely to be better off if a central registration scheme is implemented. There are net benefits for end users, communications providers and service providers/promoters.

Finding 8: There is another option which Ofcom should consider as an alternative to a central registration scheme in its PRS review. A stand alone reputational database, which provides the same on-line access and search functions for TCPs and service providers as a full central registration scheme, could capture most of the benefits of a central scheme while avoiding a significant proportion of the costs.

Finding 9: ICSTIS should run any central registration scheme which is chosen. There is general agreement that any central registration scheme should be run by a body which is independent of all the industry players but knowledgeable about the industry. ICSTIS is the obvious candidate.

Finding 10: ICSTIS should consider funding the central registration scheme out of an increase in the levy rather than through a separate registration fee. The former avoids the substantial transaction costs generated in collecting many thousands of registration fees each year.

Finding 11: ICSTIS should consider introducing a requirement for service providers/promoters to have an EU bank account before they are eligible for registration.

1 Introduction

1.1 The need for a study

Ofcom has decided to undertake a fundamental review of PRS to take account of the increasing convergence within the communications sector and the growth of PRS as a micro payment mechanism. The aim is to decide whether the current PRS regulation meets the needs of consumers whilst supporting an innovative and growing PRS industry. As part of that review Ofcom has asked Indepen, following a competitive bidding process, to assess the feasibility of a central registration system for premium rate service (PRS) providers.

PRS offers UK consumers a wide and growing range of micro payment based services. Over the last eight years revenues from PRS grew from £230 million per year to around £1200 million per year. The promotion and content of these services is regulated by Ofcom and ICSTIS using a Code of Practice. This Code sets out the rules which different players in the PRS value chain are required to follow. ICSTIS then monitors behaviour and investigates complaint to determine whether any of the market players, and especially any premium rate service provider, has breached the code. If so then its board imposes appropriate sanctions on the offending player(s).

The current system of regulation uses a series of on-line and off-line databases to function. In combination these databases help identify the service provider from the number called; they provide contact details for the service providers; and they provide reputational information on those service providers and information providers which have breached the code. Some in the PRS industry believe that it would make economic sense to collect some or all of this information into a central registration database, run by an independent body, and accessible to all key stakeholders. Such a database might incur significant set up costs but could help reduce Code breaches, and hence consumer harm, significantly, while leading to lower operating costs in the long run.

In this report we assess the economic value of various options for developing such a central registration database system.

1.2 The study approach

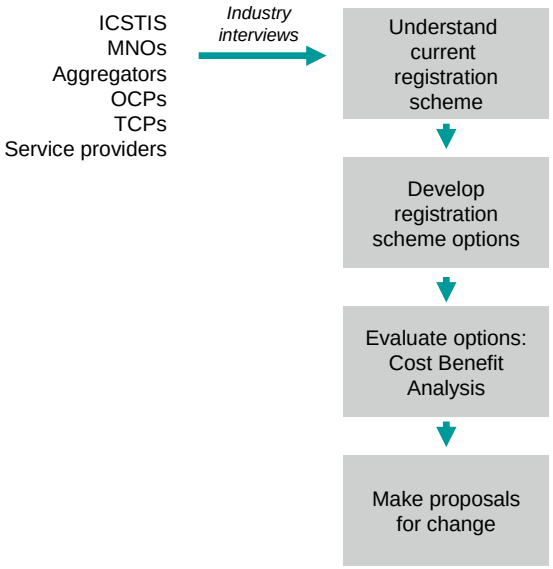
Figure 1.1 sets out our approach to the study in graphical form.

We began our work with a series of interviews with a selection of PRS industry players and their regulator ICSTIS. We interviewed seven network operators, six service providers and two trade bodies - the Network for Online Commerce (NOC) and UKCTA. In addition we held several meetings with ICSTIS for information gathering purposes.

We used the interviews to help establish how the current system of regulation works, what incentives it generates, and how the existing databases help the current system to function. Chapter 2 presents a factual summary of our findings while Chapter 3 provides a summary of views on the strengths and weaknesses of the current system.

We then use these findings to develop five options for a central registration database. These are described in Chapter 4. Then in Chapter 5 we provide a qualitative discussion of the incremental costs and benefits associated with each of them and how we might establish their magnitude.

Figure 1.1 Indepen's approach



Chapter 6 then presents our formal cost benefit analysis (CBA). It sets out the assumptions we use in quantifying the various incremental costs and benefits, together with a comparative summary of our estimates. For each option we estimate the incremental costs and benefits, both one-off and ongoing, which are generated in moving from the current system of databases to that of each option. We then calculate the net present value of these incremental costs and benefits streams combined. Finally we conduct sensitivity analysis, in which we vary the key assumptions made in the CBA across a credible range of values to see if it alters the CBA findings.

In Chapter 7 we then summarise our findings and make proposals on how best to modify the current system. As part of this final chapter we consider the implications of our proposals for the different categories of stakeholders in terms of who bears the bulk of the incremental costs and who enjoys the incremental benefits.

2 The current regulatory and registration system

2.1 The PRS value chain

Terminology

The UK PRS market generates end-user revenues of over £1,200 million per year[3]. 40% is generated by end-users calling mobile short codes and 60% by end-users dialling 09 numbers. There is a wide range of services which includes:

- Mobile ringtones
- Sports alerts
- TV voting
- Competitions
- Directory inquires
- Supply of business and consumer information
- Chat lines and
- General entertainment services.

The value chain for the 09 and short code calls differ but in both cases there are essentially five functions involved. These are listed in Table 5.1

Table 2.1 The five functions of the PRS value chain

Function	Description
The originating communications provider (OCP)	Whose customers originate the calls, who bills the end user and often deals with her queries and complaints over PRS calls
The terminating communications provider (TCP)	Who owns the terminating network for the call and who passes it on to the platform provider
The platform provider	Who provides the facilities on which the PRS runs and often provide the technical capability and billing expertise required to operate the service
The service promoter	Who promotes the service to the public, through advertising or other means, and who has editorial control over the content offered
The content provider	Who supplies content to the service promoter

The value chain is complex. In some cases the same organisation performs all five functions. In other cases a different organisation might carry out each function. The discussion is also complicated by the fact that the industry and its regulators use two other terms:

- ***The service provider.*** This term is used in the ICSTIS Code to denote the organisation which contracts with the TCP on the upstream side to supply PRS. The service provider might be a platform provider who sells its platform services to service promoters or a service promoter who uses a platform provided by the TCP

[3] Estimates of the revenues generated from PRS vary between £1200 million and £1600 million pa

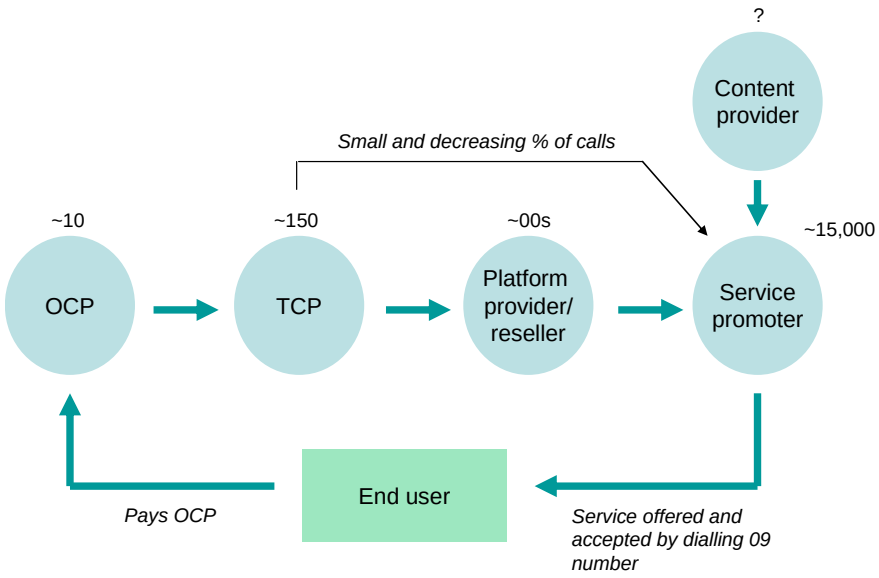
- ***The information provider.*** Again this term is used in the Code. It denotes a party involved in the value chain upstream of the service provider. Typically it is a service promoter who is using a platform supplied by a service provider and/or an organisation which fulfils the content provider function.

We use the five terms listed in Box 2.1 to denote the functions they describe. We also use the term service provider as defined in the Code. We use the term information provider only where necessary.

The 09 value chain

Figure 2.1 shows the 09 value chain. It has proved impossible to make precise estimates of the number of players of each type. But we have provided indicative estimates of the number of different organisations involved at each stage.

Figure 2.1 The value chain for 09 PRS calls



There are relatively few fixed OCPs[4] but there are around 150 TCPs. From the TCP most 09 calls are routed via platform providers which offer routing, billing, voice announcements, connectivity and content hosting facilities to service promoters. Service promoters advertise the services and provide the content. In some cases they buy in content from content providers. End-users can dial 09 numbers from mobile as well as fixed OCPs, as long as the mobile networks have provided access. This does not change the value chain of Figure 2.1. But it does affect the split of revenue along the value chain.

The value chain of Figure 2.1 has changed substantially over the last ten years. When premium rate services first started TCPs dealt mostly with service providers who were also service promoters. But now the bulk of 09 PRS calls are routed via a platform provider. These platform providers often deal with multiple TCPs.

From 2008 the ICSTIS Code, which regulates PRS content, will apply to 0871 as well as 09 numbers. This will significantly increase the number of service promoters in the value chain of Figure 2.1. We estimate that there are several hundred thousand 09 numbers and 170,000 0871 numbers in use now.

[4] Eg BT, Virgin Media, Kingston Communication and TalkTalk

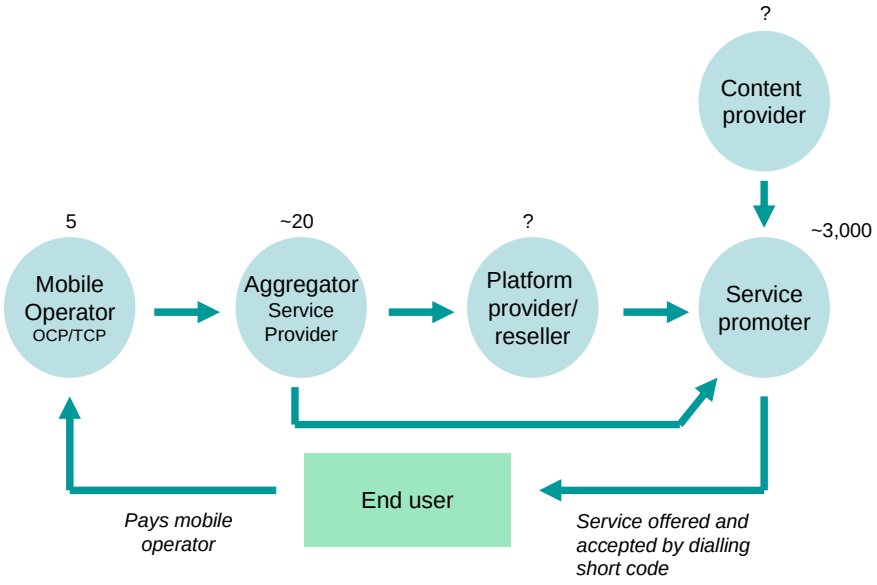
Changes to the rules on charging for number translation services could lead to a migration of 300,000 more numbers from the 0870 to 0871 range by the beginning of 2008.

The short code value chain

Mobile users dial five digit short codes to make the bulk of PRS calls from mobile terminals. The value chain then looks like Figure 2.2[5]. The short codes are taken from a numbering scheme[6] administered jointly by the five UK mobile operators. Each short code is uniquely allocated to one aggregator. Service promoters can rent a whole short code or share it with other service promoters. To share short codes the aggregator to whom the code is allocated provides the service promoter with a key word. The service promoter then advertises his PRS using both the short code and the key word.

As Figure 2.2 shows each mobile operator acts as both OCP and TCP when handling short code PRS calls[7]. All calls are routed to an aggregator who might act as the platform provider and route the call to the service promoter. Alternatively the aggregator might direct the call to an independent platform provider. The same platform provider might be connected to both an aggregator for short code calls and a TCP for 09 calls in order to provide the same content.

Figure 2.2 The short code PRS value chain



Revenue sharing along the chain

The end user revenue is shared between the players in the value chain. In Figure 2.3 we provide rough estimates of how the revenue from a call charged at £1.50 per minute might be shared out for:

- an 09 call made from a fixed network
- an 09 call made from a mobile network
- a short code call.

[5] Users can also dial 09 numbers. Then the value chain of Figure 1 applies with the mobile operator acting as the OCP

[6] Which is private to the UK mobile operators

[7] These calls may be SMS, voice, MMS or video calls

The split of revenues is only indicative and varies considerably with the end user price. But we can see from Figure 2.3 that:

- The mobile operator enjoys a significantly greater share of PRS revenues for calls made from its network than the fixed operator (OCP plus TCP)[8]
- The aggregator and platform operators retain a small proportion of the revenues
- The service promoter receives the largest share of the call revenue, although much less for mobile short code and 09 calls.

Figure 2.3 Typical revenue sharing arrangements along the value chain

Player type	09 call	Mobile short code call	Mobile 09 call
OCP	2%	40%	40%
TCP	10%	With OCP	10%
Platform operator/aggregator	5%	5%	5%
Service promoter	83%	55%	45%
Total	100%	100%	100%

The end-user's contractual relationships

In a normal contractual relationship an end-user pays money to a supplier in exchange for goods or services and the contractual relationship is clear. This is not the case for PRS as Figures 2.1 and 2.2 demonstrate. Here the service promoter offers a service which is accepted when the consumer makes the PRS call. But this consumer pays the OCP rather than the service promoter for the call when paying his or her telephone bill. So there are two contractual relationships to consider when regulating PRS – the consumer's relationship with the service promoter and with the OCP. This complexity in the contractual relationship has lead some stakeholders to argue for focussing regulation on one end of the value chain and others on the other end.

2.2 Current regulation of the PRS value chain

Introduction

The PRS value chains of Figures 2.1 and 2.2 are regulated in three main ways:

- Ofcom regulates the revenues which BT can retain as an OCP. Other fixed OCPs are constrained by competition to set similar rates. There is no regulation of the OCP retention for mobile operators
- Ofcom requires the TCPs to conform to the conditions set out in its general authorisation of communications providers. In particular fixed TCPs are required to use 09 numbers for PRS with special ranges (0908, 0909, and a new range, 098) for sexual entertainment PRS

[8] When 09 is accessed via mobile, we are not clear whether the greater revenue share for the mobile companies reflects a higher price for these calls or a lower share for the SP

- ICSTIS regulates the content of certain PRS services and the way they are promoted to end-users. An independent body funded by a levy on premium rate service providers, ICSTIS specifies obligations on PRS industry players through its Code of Practice. This is now in its 11th edition, which was published in November 2006.

The current Code imposes obligations on TCPs, on service providers and on information providers (to a limited extent). We summarise the main obligations below.

Code requirements on TCPs

TCPs are required by the Code to:

- Collect accurate information to allow ICSTIS to identify and communicate with service providers and to satisfy themselves that service providers have adequate arrangements and resources to comply with the Code. This due diligence requirement was introduced at the start of 2007 and TCPs have 10 months to collect this information for existing service providers
- Collect relevant information and provide it to ICSTIS as required to investigate complaints
- Cut off services if required by ICSTIS
- Withhold payments to service providers for at least 30 days after a caller uses a PRS.

TCPs which fail to meet these obligations are liable for refunds and fines arising from a breach of the Code which are not met by their service providers. This contingent liability is capped at the amount which the TCP should have withheld from the service provider under the 30 day rule.

Code requirements on service providers

Service providers are required by the Code to ensure that they and their upstream suppliers in the value chain comply with all relevant provisions of the Code. These relate primarily to ensuring that the content of services and the way they are promoted comply with the Code. Other requirements include the provision of satisfactory customer service facilities.

Breaches of the Code normally arise from the behaviour of the service promoter. But it is the service provider who is liable for the administrative costs and fines which arise from these breaches. This arrangement gives the service provider strong incentives to monitor the behaviour of upstream suppliers.

Code requirements on information providers

Information providers upstream of the service providers are required to comply with the Code. Any sanctions for Code breaches by a service promoter are normally imposed on its service provider. But the Code allows for ICSTIS to deal directly with an information provider when investigating a breach of the Code if the information provider accepts full responsibility for this role, and the service provider is content to have backstop responsibility for any subsequent ruling and sanction.

2.3 Current databases used in operating PRS

The main databases currently used

There are a number of databases which are currently used in operating and regulating PRS. These are:

- The Ofcom numbering database. This public database maps numbers within the 09 number range to specific TCPs to whom they have been issued. It forms an input to the ICSTIS number checking database
- The short code and keyword databases. The mobile operators jointly run a publicly available database which allocates short codes to aggregators. A mobile network consults this database when routing a short code call to an aggregator. The aggregators also run key word databases which map short codes and keyword combinations to specific upstream suppliers in the value chain of Figure 2.2.
- The ICSTIS registration database which, in theory, contains information on all service providers. This database is internal to ICSTIS. See below for more details
- The ICSTIS number checking database. This publicly available database allows the user to enter a PRS number or short code to get more information about the service provider offering service on the number entered in a proportion of cases. Again see below for more details
- The ICSTIS records on barred directors and service providers. A list of barred service providers and directors with contact details is available in Excel spreadsheet format on the ICSTIS web site
- ICSTIS records of which service providers have prior permission to run certain categories of premium rate services and the service numbers used.
- An internal database of complaints to ICSTIS
- Publicly available records on all adjudications made by ICSTIS on breaches of the code since 2004.

The ICSTIS service provider registration database

Service providers are now required to register with ICSTIS, using a web interface, and get acknowledgement of registration before seeking a contract with, and getting 09 numbers or short codes from, a TCP. TCPs are then required to check that the registry information supplied to ICSTIS is consistent with the information they collect as part of their due diligence process. ICSTIS also registers service promoters on a voluntary basis.

There are around 7,000 registered service providers. Roughly 20% are inactive. ICSTIS estimates that there may also be a thousand or more unregistered service providers. We expect this number to decline towards zero once the TCPs have completed due diligence on all contracted service providers.

The registration process ensures that service providers formally acknowledge that they will comply with the Code. The database also provides ICSTIS with the information it needs to contact any service provider in the case of a complaint. But the registration database does not currently provide:

- Any record of sanctions against the service provider or its directors
- Information on the numbers used by the service provider and its upstream suppliers.

The ICSTIS number checker

The ICSTIS number checker is a publicly available database service which is used by both end-users and industry players. It provides:

- The price of the service, the name of the service provider and a contact number for that service provider for ***the top 500 09 numbers***. These top 500 numbers include numbers under investigation plus the most popular numbers. ICSTIS adds a number for which it gets more than

10 enquiries on its customer services line in a given period and regularly removes those numbers which are searched for infrequently

- The price of the service, the name of the TCP and contact number for the TCP ***for all other 09 numbers*** entered. This information comes from the Ofcom numbering database
- The name of the aggregator or of the information provider with contact details for ***any short code*** entered. This information is supplied to ICSTIS by the mobile operators and their aggregators.

There are 85,000 hits on the number checker each month. Some come from end-users who are querying PRS numbers on their bill. Others come from OCPs such as BT who are dealing with enquiries from their customers. End users can access the number checker via an interactive voice response system after calling an ICSTIS service number or through Web access. At the moment there are separately administered databases supporting each of the two access methods.

2.4 Key incentives in the current scheme

Introduction

The current Code and the databases which support it are designed around the idea of regulating the PRS value chain from the TCP end rather than directly regulating the service promoter. In particular:

- TCPs are required to withhold payments from service providers for at least 30 days
- The TCP is liable for the liabilities of its service providers[9] if it cannot demonstrate that it has carried out adequate due diligence on them **and** they do not meet these liabilities
- The service provider is liable for Code breaches by its upstream suppliers.

We provide our view on how each of these measures is functioning, based on our discussions with industry participants.

The 30 day rule

There is a strong consensus that the 30 day rule has worked well in reducing scams on 09 PRS[10]. The rule is not foolproof. It does not prevent fraud which involves TCPs. But most stakeholders believe it has substantially reduced out-and-out scams.

Due diligence by TCPs

The due diligence requirement on TCPs is new and TCPs are only just starting to implement it. The requirement is trivial for the mobile operators since there are only 20 aggregators to check. But it is more challenging for the TCPs who need to check around 7,000 service providers, some of whom contract with several TCPs. Our research suggests that:

- The due diligence obligation has generated additional work for the TCPs
- The extent of the due diligence done varies significantly from one TCP to another. Some require proof of identity from directors (e.g. photocopies of passport and utility bill). Others do more cursory due diligence, especially if they know the service providers well. No TCPs that we spoke to do cross checks with information from Companies House

[9] This liability is capped at the amount which the TCP should have withheld from the service provider under the 30 day rule

[10] The rule has had no impact on a short code PRS. The mobile operators have always paid their aggregators more than 30 days in arrears

- Some large TCPs plan to repeat the due diligence process every time the service provider contract comes up for renewal. In most cases contracts are renewed annually
- The due diligence process leads to some duplication of effort when compared to a central system. Many of the platform operators and aggregators have contracts with several TCPs. In addition there is a requirement for additional due diligence when a service provider changes TCP. But this effect is small. The costs of switching TCP are substantial and the rate at which the service providers change is low

Service provider liabilities

All short code PRS calls and the bulk of 09 PRS calls are routed via service providers which are not service promoters. These service providers[11] are liable for Code breaches by their service promoters. So there are strong incentives to check service promoters before contracting with them and subsequently to monitor their behaviour. Our discussion with service providers in this category indicates that they:

- Vary the due diligence they do on service promoters significantly. If they know the service promoter is reputable, from personal or industry knowledge, then they carry out very few checks. If the service promoter is unknown then they typically request promotional material and review content before signing a contract
- Rely to a significant extent on industry knowledge and gut instinct to identify and reject questionable propositions
- Carry out little if any credit checking. They are (nearly) always in a position of holding a significant amount of the service promoter's money and there is little financial exposure
- Sign contracts which require the service promoter to obey the Code and include back-to-back requirements for the payment of any fines. Some service providers also use bond schemes with service promoters of doubtful provenance
- Monitor press publications in which the service promoters' advertisements are likely to appear and run occasional checks on content and length of initial voice announcements. However monitoring is very variable - some service providers do very little or none
- Are keen to get telephone complaints from customers. These are a quick way of alerting them to problems. They are also conscious of the need to keep consumers happy if they are to continue to generate revenues
- Balance the costs of dealing with the service promoter they think might breach the Code against the revenues that service promoter would generate
- Balance the cost of doing due diligence against the reduction in risks of fines.

[11] Aggregators and platform operators/resellers

3 Views on the current system

3.1 Introduction

As well as gathering factual information on the way the current system works, our interviews also revealed a range of views on its strengths and weaknesses and how it might be improved. These have helped shape our choice of options for evaluation. We set out the main views which came from our discussions below.

3.2 The value of an expanded number checker

There is a general consensus that a more comprehensive number checker is of considerable value. The current number checker is highly valued. But it only directs the user to the responsible service provider for the top 500 09 numbers (which account for around 40% of 09 calls). Extending the database to deal with (say) 98% of 09 calls would:

- Reduce significantly the time required by (and frustration of) end-users in reaching the appropriate service provider or service promoter to register a complaint
- Reduce significantly the time TCPs take to answer customers by pointing them directly to the service provider or service promoter.

Our discussion with TCPs and service providers suggests that such an expansion should be viable at relatively modest costs given that:

- There are several hundred thousand numbers in use, but these numbers rarely change service provider or promoter
- TCPs and service providers are keen to co-operate in maintaining such a database by sending relevant information[12] to ICSTIS in a standard form at regular intervals.

3.3 The different kinds of due diligence

Several TCPs made the point that the due diligence process which they undertake has two main components:

- Due diligence to ensure that the information provided by service providers as required under Sections 2.3.1 (a), (c), (d) and (e) of the ICSTIS Code of Practice (111th edition) is accurate. This due diligence on the ***identity*** of the service provider might sensibly be done by a central registration authority rather than by the TCP
- ***Commercial*** due diligence to ensure that the service provider is a fit and proper organisation with which to do business. It is important that the TCP conducts this process. It would be difficult for a central registration authority to undertake and, even if it did, the TCP would still need to duplicate the process.

We have built this distinction between commercial and identify due diligence into the design of the options for evaluation.

3.4 The need to make reputations more visible

There is general agreement that there is a need to make the reputation of market players more visible to all industry participants. Different players made different suggestions on how to do this:

[12] For example the 09 number, the service provider contact details and the service promoter contact details

- There is strong support from TCPs and some service providers for the idea that the adjudication history of service providers should be made available online as part of the central registration scheme. Other service providers object to this idea, arguing that the Code breaches are caused by the actions of their service promoters over which they have little control
- Several stakeholders suggest that adjudications should always name the service promoter involved and that this information should be available online
- Some players suggest that yellow card/red card penalties[13] against information providers by mobile operators should be included in any online reputation service. Others disagree. They argue that the mobile operators do not follow the same high standards of due process as the ICSTIS adjudicators
- Several stakeholders suggest that any reputation service should cover individual directors as well as the companies they run.

These comments have prompted us to design options which make relevant and reliable information on the reputation of service providers and/or service promoters available via a central registration system. They might then use this information when reaching decisions on whom to contract with. Such information is already in the public domain through various ICSTIS databases. But a central registration scheme, in which end users can make reputational searches, means that the information is more conveniently available than at present.

3.5 Who should run any central registry?

There is almost universal agreement that ICSTIS or its agent should run any registration scheme which is developed. There is general agreement that any registration should be run by a body which is independent of all the industry players but knowledgeable about the industry. ICSTIS is the obvious candidate.

We have assumed in our CBA that ICSTIS runs any central registration system. In other words we have estimated the incremental costs to ICSTIS rather than the stand alone costs to a new organisation. More specifically we have assumed that any central registration scheme would replace the current ICSTIS registration scheme. The current scheme ensures that service providers formally declare that they will comply with the Code. But otherwise stakeholders can see little value in it.

3.6 Who should be registered?

The NOC and many of its members propose that the focus of PRS regulation should shift – from the current system with its focus on the TCP and service provider to direct regulation of the service promoter. There is strong and simple rationale for this idea. It is the service promoter who is responsible for the promotion and content of the service and it is precisely these areas which the Code is designed to regulate.

Such a scheme would involve registration of the service promoters and the NOC has proposed that it should work as follows:

- Any service promoter wanting to offer premium rate services would need to register with ICSTIS and receive a registration number. The register would record the names and addresses of directors of the service promoter. The registrar might then do basic due diligence to establish the accuracy of this information

[13] Mobile operators warn service promoters (yellow card) and, if problems persist, may cut off customer access to these service promoters (red card) if they infringe the operator's content policies

- TCPs and facilitators would be required only to sign contracts and deliver calls to service promoters with a valid registration number. They would be subject to sanctions if they did otherwise
- Service promoter applicants with a previous history of breaches of the Code may not be allowed to register. This feature of the proposal might conflict with the EU's e-Commerce Directive. One way round this difficulty is some form of graded registration where those with a poor history attract higher regulatory fees/monitoring of services. This might be preferable to a system that excludes providers, as this may raise competition issues.
- ICSTIS would investigate complaints against service promoters (on content or promotion).
- ICSTIS would fine service promoters in breach of the Code and the breach would be recorded against the organisation and its individual directors
- Non payment of fines would lead to further sanctions which would include withdrawal of the registration number on a temporary or permanent basis
- TCPs and platform providers would have access to the register to search for the history of service promoters and their directors. They would use this information in deciding whether to contract with any given service promoter. So the registration scheme facilitates commercial due diligence but does not replace it
- TCPs and platform providers would not be liable for breaches by service promoters, only for contracting with unregistered service promoters.

The NOC proposal focuses attention on the behaviour of the service promoter and gives it increased incentives to behave properly when compared with the current system. It does not remove the need for commercial due diligence by TCPs and service providers. But it does significantly reduce the regulatory due diligence they are required to perform. The only regulatory requirement is not to issue a number or short code to an unregistered service promoter. The NOC proposes that this scheme should be run by ICSTIS or its agent. In addition the NOC proposes that, to enable the scheme to work effectively:

- the registration number of the scheme promoter should be quoted on all promotions
- the service promoter should pay a registration fee to cover the costs of running the scheme
- service promoters should be required to establish a UK bank account before they can register.

We evaluate this scheme in our CBA with two small modifications:

- The requirement for applicants to hold a UK bank account may not be consistent with EU legislation requiring the free movement of goods, services, finance and people across the EU[14]. We therefore evaluate in our CBA an option in which service providers are required to hold an EU bank account
- A registration number offers a useful reference to each service promoter. But we do not believe that it is practicable to require this registration number to be published with each promotion given that:
  - many consumers will not understand the significance of such a registration number

[14] This is unfortunate. Some kind of restrictions on the country of origin for PRS providers would appear to have value. It is worth noting that less than 2% of PRS providers on the ICSTIS registration database are located outside the UK yet 27% of those banned by ICSTIS for non payment of fines are foreign and 20% are based outside the EU.

- enforcing publication of the registration number is difficult with some media.

In any case an enhanced number checker should provide a better way of associating a service promoter with a particular 09 number or short code. We therefore exclude the requirement for the publication of registration numbers with every promotion from our evaluation and consider instead the merits of an extended number checker.

Finally we consider the issue of a registration fee under a more general discussion of how to fund a central registration scheme, once the relative merits of the different options are clear.

4 Options for evaluation

4.1 Introduction

In this chapter we set out the options for cost benefit analysis. We start by establishing the counterfactual against which the incremental costs and benefits of each of the options under evaluation is measured.

4.2 The counterfactual

The counterfactual is the current registration scheme without modification. We use it as the baseline from which we measure the incremental costs and benefits of each of the options. Under the counterfactual ICSTIS continues to operate the current registration service and databases on barred service providers. TCPs are responsible for due diligence on service providers and service providers are responsible for compliance with the ICSTIS Code. ICSTIS operates a number checker service for the top 500 09 numbers[15] and most short codes. For these numbers the number checker provides information on the identity of the service provider, the price of the call and contact details for the service provider. For other numbers, the number checker provides the name and contact details of the TCP.

4.3 The choice of options

Our choice of options is guided by a number of considerations:

- We note the general view that an expanded number checker would have significant value and consider this development from the counterfactual as Option A. We evaluate this option independently of the options for a centralised registration scheme. These are Options B to E
- Any practical option must use well defined entities. There are two entities in the complex value chain of PRS which are well defined:
  - The ***service provider*** which is the up-stream entity in the value chain which contracts with the TCP
  - The ***service promoter*** which is the entity which is responsible for promoting and taking editorial control over the service content.

  Our options for centralised registration systems, Options B to E, all involve registration of some combination of service providers and service promoters. Options B and C involve registration of service providers only; Option D service providers and service promoters; and Option E service promoters only
- We note the general view that there is value in making the reputation of service providers and/or service promoters more easily available. So our central registration scheme options all provide reputational information. In particular Option C provides reputational information on individual directors as well as service providers
- We considered and rejected the idea of registration of content providers. Such registration would incur significant costs with no obvious benefits.
- We considered and rejected the idea of developing separate registration schemes for 09 and short code services. The value chains for the two call types are not dissimilar; service promoters often

[15] The most popular/problem numbers

make their service available using both methods of access; and in the past we have observed major breaches of the code for both call types

- We note the division of opinion between those who favour the direct regulation of service promoters and those who simply want to see incremental improvements to the current system in which regulation is focussed on TCPs and service providers. We evaluate the former approach in Option E, the latter in Options B and C, and a mixed approach in Option D.
- We do not consider the idea of making OCPs or TCPs responsible for the PRS content provided over their network. Such an option would require fundamental changes to the regulatory framework including the current division of roles between Ofcom and ICSTIS. At the same time it is not directly relevant to the question of a central registration service. This approach would need to be considered as part of a more fundamental evaluation of the regulation of PRS which is beyond the scope of a review of registration services.

4.4 The options evaluated

Figure 4.1 specifies the options for evaluation in tabular form and compares them with the counterfactual. We then provide a brief description of each of them below.

Option A: The enhanced number checker

Under this option ICSTIS continues to operate the current registration service and databases while due diligence remains the responsibility of the TCPs. But information on the service provider associated with all (or nearly all) numbers or short codes is provided by service providers or TCPs to ICSTIS and updated on a regular basis. End users and OCPs can access this database via a web interface or via an interactive voice response service provided by ICSTIS[16].

While service providers that are platform providers are well placed to provide this information, it is TCPs which can provide number information for service promoters which contract directly with them. This suggests that it may be appropriate to place an obligation on TCPs to provide the information, but to allow TCPs to delegate this obligation to service providers.

[16] At the moment these interfaces consult separately administered databases

Figure 4.1 The options for evaluation

Option		*Counterfactual*	*Option A*	*Option B*	*Option C*	*Option D*	*Option E*
Title		Status quo	Number checker	Registration of service providers	Registration of service providers with associated persons	Registration of service provider and service promoters	Registration of service promoters (NOC scheme)
Registration of		Service provider	Service provider	Service providers	Service providers	Service providers and promoters	Service promoters
Due diligence on		Service providers	Service providers	Service providers	Service providers	Service providers and promoters	Service promoters
***Identity** due diligence by*		TCPs	TCPs	Registrar	Registrar	Registrar	Registrar
***Commercial** due diligence by*		TCPs	TCPs	TCPs	TCPs	TCPs on service providers and service providers on service promoters	Registrar checks for breaches, EU bank account, banned organisation or directors
Availability of phone numbers and short codes		Top 500 09 numbers + short codes	Almost all	Top 500 09 numbers + short codes	Top 500 09 numbers + short codes	Top 500 09 numbers + short codes	Registration number on all promotions
Access to registration database		ICSTIS	ICSTIS	Public	Public	Public	Public
Reputations history available from registration database		No	No	Service providers who breach code	Service providers who breach code and directors or associated persons	Service providers and promoters who breach code	Service promoters who breach code and directors or associated persons
Liability if breach by service promoter	*on TCP*	If TCP due diligence faulty	If TCP due diligence faulty	If TCP due diligence faulty	If TCP due diligence faulty	If TCP due diligence faulty	Only if contracts with unregistered service promoter
	on service providers	Yes	Yes	Yes	Yes	Yes	Only if it contracts with unregistered service promoter
	on service promoter	Only if it volunteers to accept liability	Only if it volunteers to accept liability	Only if it volunteers to accept liability	Only if it volunteers to accept liability	Only if it volunteers to accept liability	Yes

Option B: a central registration scheme for service providers.

Under this option the central registrar performs due diligence to cover the requirements set out in the Code in Sections 2.3.1 (a), (c), (d) and (e). This includes the responsibility to check the identity of each service provider and its directors and to record names and addresses of directors together with other relevant information as set out in Section 2.3 of the Code. Once it has performed these checks the registrar issues a registration certificate to the service provider. Under this option:

- TCPs remain responsible for requirements under Sections 2.3.1 (b) and (f) and Sections 2.3.2 to 2.3.4 of the Code. This includes ensuring that the service providers with whom they contract have

the financial and other resources needed to discharge their obligations under the Code. In addition they should contract only with registered service providers.

- Service providers are responsible for compliance with the Code for all services provided over their platform as at present.
- Service promoters who are not service providers are required to comply with the Code as at present and are only subject to prosecution under the Code where they consent.
- The registration service also records and makes publicly available information on previous breaches by service providers.

Option C: Option B with reputations for individual directors

An extension of Option B is to associate information on breaches with each director and associated persons so that those using the database can examine the reputations of key individuals involved in running an organisation with which they are considering placing a contract.

Option D: a central registration scheme for service providers *and* service promoters.

Under this option central registration is extended to include service promoters as well as service providers. Specifically:

- The registrar undertakes due diligence on the identity and reputation for both service providers and service promoters. In particular the registrar collects and records information on service promoters from any adjudication process where there is a breach. This information would be publicly available
- Service providers remain responsible for compliance with the Code and are required to deal only with registered service promoters
- TCPs remain responsible for undertaking the rest of the due diligence on service providers as under Option B. TCPs are also required to deal only with registered service providers.

Option E: central registration of service promoters.

Under this option, proposed by the NOC, the focus of regulation shifts from the TCP and the service provider to the service promoter. The Code is rewritten to give service promoters the prime responsibilities for complying with the Code.

A central authority registers each service promoter, checks the identity of the service promoter and its directors and requires it to agree to comply with the Code. It also checks that the service promoter has an EU bank account and does not involve banned persons in key roles before issuing a registration certificate and registration number.

Service providers and TCPs are required to contract only with registered service promoters, but are not otherwise responsible for compliance with the Code by the service promoter.

Access to the registration database

Note that while the registration database is accessible only to ICSTIS under the counterfactual and Option A, we propose that the information in the database is publicly available under Options B, C, D or E. This is designed to make reputations public and provide appropriate incentives for good behaviour. Users who access the database would be able to search for specific service providers,

service promoters and individual directors, depending upon the option, and to review any code breaches with which they are associated.

It is clearly important to consider whether such accessibility raises issues of commercial confidentiality or privacy (for individuals) which are illegal or against the public interest. We do not foresee any problems here. All of the information which we propose to put in the central registration database for public inspection is already in the public domain, albeit in a less readily accessible form.

5 The incremental costs and benefits of the options

5.1 Introduction

In this chapter we provide a general and qualitative discussion of the nature of the incremental costs and benefits generated by a move from the current system to each of the options of Chapter 4. We then quantify the costs and benefits in Chapter 6.

We start by considering the costs and benefits of expanding the number checker of Option B. We then go on to consider the incremental costs and benefits generated by moving to the central registration schemes of Options B to E.

5.2 The costs of an enhanced number checker (Option A)

There are three main costs in developing and operating an enhanced number checker:

- The cost of redesigning the number checker database so as to expand its capacity and incorporate the functionality to allow the regular input of information in standard format from TCPs and service providers on the numbers used by service providers and their contact details
- The cost to TCPs and service providers of providing the necessary information. This includes both the cost of establishing the mechanisms for reporting on numbers and short codes used in standard form and the monthly costs of this reporting
- The costs to ICSTIS in maintaining the database by validating and entering the information sent by the TCPs and service providers each month.

5.3 The benefits of an enhanced number checker (Option A)

An expanded number checker means a significant increase in the availability of information on the service provider/promoter associated with each number. This generates two main benefits:

- Avoided costs for TCPs and end users. An end user might query a call to an 09 number or short code on her bill by consulting the number checker directly or calling her OCP or ICSTIS. In the latter case the OCP/ICSTIS then consults the number checker. At the moment the number checker provides contact details for the service provider in 40% of cases and the TCP in the other 60% of cases[17]. Increasing the former proportion to near 100% should lead to avoided costs for TCPs and end users in terms of calls to the TCP to get the service provider's details. In the case of calls to OCPs, a more comprehensive number checker may result in fewer calls as customers use the internet checker rather than calling their OCP. However, it is likely that many customers may still refer to their OCP in the first instance as it is billing query.
- Detection and response to breaches of the code. The number checker enables a rapid response to breaches of the Code by ICSTIS by providing accurate and up to date information on the service provider and/or promoter operating a given PRS number or short code. Enhancing the number checker increases the proportion of complaints for which this is possible.

5.4 The incremental costs of central registration schemes (Options B to D)

The incremental costs of a central registration service are listed in Figure 5.1. These costs are determined by the number of service providers/promoters and whether a search facility on the

[17] ICSTIS – discussion with ICSTIS on 23 April 2007.

reputations of individual directors/associated persons is included. This, in turn, is determined by the option under evaluation.

Figure 5.1 The costs of a centralised registration scheme

Cost	Who bears?
Designing and testing the database and access to it and training staff to use the database	Registrar
Due diligence process to check the initial information going into the databases	Registrar Service providers and promoters
Adding reputational information on a retrospective basis	Registrar
Cost of changing the Code of Practice	Registrar and industry

The cost of ***designing and developing a new registration database*** to replace the old one involves:

- the design of the new database structure
- designing and implementing consistency checks
- building the database and testing database entry
- developing and testing database access and search capability
- training the registrar's staff to use the database

There may be economies of scope between this work and the upgrade of the number checker carried out in implementing Option A.

Due diligence costs include both the costs to the registrar and to service providers/promoters to undertake the initial due diligence process. The cost is a function of the number of providers. We need to estimate the number of service providers/promoters relevant to each option and the cost of undertaking due diligence for each service provider based on information from the interviews. Note that the ongoing costs of due diligence are excluded. These costs are considered under incremental benefits in the next section

The ***cost of adding historical reputational information*** depends on how far back the registrar goes in adding such information. We estimate the cost of entering reputational information form the ICSTIS adjudications for the last five years.

The ***cost of changing the Code of Practice*** varies by option. Option E requires significant changes to the Code as it shifts regulation away from the service provider. It may also require changes to legislation. The cost of producing the 11th edition of the Code was estimated to be £150,000[18] for ICSTIS. Costs to the industry to respond to the proposed changes are likely to be of the same magnitude, as there are a range of participants affected by the changes including network operators, service providers and promoters. Options B, C and D also require code changes. But these are minor by comparison and we propose to estimate them at a significant discount to that for Option E.

5.5 The incremental benefits of central registration schemes

The incremental benefit of a centralised registration scheme can be estimated as:

[18] Meeting with ICSTIS, 11 April 2007.

- Avoided costs of due diligence being undertaken by TCPs ***plus***
- The percentage reduction in code breaches which result from a centralised registration scheme ***multiplied by***
- The current economic cost of Code breaches.

This formulation assumes that each component of the cost of breaches is proportionate to the scale of breaches. Our research and interviews suggest that this is a reasonable assumption.

We consider how we might estimate each of these three factors below.

5.6 The avoided costs of duplicated due diligence

We anticipate that, by the time the scheme is implemented, TCPs will have undertaken due diligence on all existing providers under the requirements of the 11th edition of the Code, given that this edition requires due diligence for existing service providers to be undertaken within ten months of the Code coming into force[19].

The cost of due diligence on service providers who switch TCPs and on new service providers who contract with more than one TCP are avoided under the central registration scheme. We therefore need to estimate the number of new service providers who enter the market each year (some of which may establish relationships with more than one TCP) and the number who establish a new business relationship with a TCP. Note that some service providers have a relationship with several TCPs and switch business among the TCPs depending on demand and prices. The cost of due diligence per service provider can be estimated from the information obtained from the interviews. We also need to consider whether there are costs avoided from the need to update due diligence on existing service providers.

5.7 The percentage reduction in code breaches

A registration scheme may increase compliance with the Code, and hence reduce breaches, in four main ways:

- It might promote compliance with the Code by increasing awareness of the Code obligation's among service providers and promoters.
- As a result of the due diligence it might reduce entry by potential service providers who will breach the Code
- It might reduce such entry by making information about the record of existing providers more easily available to TCPs and others using PRS eg television companies.
- It might increase speedy detection and response to breaches of the code. A registration service may enable a more rapid response to breaches of the Code by ICSTIS by providing accurate and up to date information on the service provider and promoter. In our formulation of the options this information is a function of the scope of the number checker which relates numbers called to service provider rather than of a registration scheme which registers the details of providers and/or promoters.

Before we can assess the extent to which a central registration scheme would reduce code breaches, we need to consider a broad range of factors which influence the level of code breaches. They include:

[19] Section 2.3.4 of the Code of Practice, 11th edition. This edition came into force at the beginning of 2007.

- The evidence of a reduction in harm following the introduction of the 30 day rule which suggests that changes to the regulatory framework can have significant effects on the level of consumer harm
- New measures to be targeted at participation TV. These may have a more direct effect on harmful activity in this area than a central registration service
- The new due diligence provisions in the 11th Code which should have some effect in preventing entry of service providers who will breach the Code.

Even after allowing for these effects there does appear to be a case for arguing that making information on the reputations of service providers and promoters easily available through an on-line registration database enables TCPs, service providers and other market participants to make better judgements about the risks of doing business with a service provider or promoter. It also may provide service providers and promoters with stronger incentives to protect their reputations.

Quantifying these effects is very difficult.

We expect that Option B would generate a small reduction in breaches with slightly larger effects for Option C and D, which provide additional information on associated persons and service promoters respectively. We assume in our cost benefit analysis that each generates the same reduction in breaches and then estimate the minimum proportion by which a central registration scheme must reduce breaches before it generates net economic benefits. This provides a guide for decision making by policy makers.

In contrast we expect that Option E would actually increase the number of breaches. Our arguments here are as follows:

- At the moment service providers who act as platform providers or resellers have strong incentives to monitor and detect behaviour by service promoters on their platform which results in code breaches since the platform provider is liable for these breaches. While the cost of fines may be laid off in back-to-back contracts with service promoters, a service provider still incurs costs in responding to complaints and dealing with the adjudication process. It is also possible that repeated breaches of the Code may result in suspension from providing PRS services.
- These platform providers are also well placed to monitor the behaviour of their service promoters since they are also likely to be best informed as to the activities of service promoters. This is because they have direct dealing with the service promoter and are familiar with any previous dealings with that promoter. They are also aware of their traffic patterns and turnover and any change in business patterns as they pass revenue onto the service promoter. Service providers can also exercise discretion in refusing to do business with a service promoter, whereas a publicly accountable registrar is bound by requirements to follow due process in any investigation and adjudication
- Under Options B, C and D these mechanisms remain in place. But under Option E, a platform operator is no longer liable for the behaviour of service promoters – beyond a requirement to deal only with registered service promoters. Instead, enforcement of the code relies on the registrar becoming aware of any code breaches and undertaking enforcement activities, either by use of emergency processes for urgent cases or by use of the standard process otherwise. The registrar relies on complaints from end customers or reporting of suspicious activity by participants in the value chain. As the end customer may not realise the existence of fraudulent behaviour until they receive a bill or breaches are reported in the media, Option E is likely to be less effective than other options in the prevention or quick detection of code breaches.

To deal with this effect we estimate the costs which the registrar would incur in monitoring the behaviour of service promoters so as to substitute for the automatic monitoring which is currently done by service providers and TCPs. This would help to preserve the level of Code breaches at current levels. But it would not lead to reductions. The reputational information, inherent in the central registration schemes considered, is of significant value to the TCPs and platform operating service providers when they decide whether or not to contract with a service promoter. It is of much less value to a central registrar who must follow due process before refusing to register a service promoter.

5.8 The current economic cost of code breaches

Introduction

The economic cost of code breaches has three main components:

- The cost of investigating complaints and adjudications for both ICSTIS and the industry players involved
- The harm done to consumers as a result of the breach
- The loss of consumer confidence resulting from well publicised breaches which leads to a smaller market for PRS.

We consider each of these components below.

The cost of complaints and adjudications

ICSTIS received 19,593 complaints in 2005/06 and expects to receive around 12,000 complaints in 2006/07. These complaints generate costs for both ICSTIS and the complainants.

There are significant additional costs for those who investigate the complaints. These costs fall on the OCPs, TCPs, platform and service providers and ICSTIS when they respond to customer inquiries and complaints. This cost is a function of the number of investigations and the cost per investigation to ICSTIS, the network operators and service providers.

Adjudications also generate costs – both for ICSTIS in adjudicating on complaints and complainants and for respondents involved in the process. ICSTIS made 214 adjudications in the 2005/06 year and expect to make around 190 adjudications in the 2006/07 year. It levied adjudication fees of £135,000 in the 2005/06 year. These fees are designed to cover its costs. It also undertook around 300 informal adjudications in the first 9 months of 2006/07 year.

The harm done to consumers

The Code is designed to protect PRS consumers from harm. Consumer harm from code breaches covers a range of potential losses and costs. These breaches may include misleading advertising, unsolicited promotions, failure to disclose call costs and inadequate technical quality. The result of the breach may be to defraud consumers or to result in them receiving services of significantly less value than they expected when they entered into the transaction. There are two components:

- Direct losses to consumers which are transferred to fraudster (and which include an amount retained by the OCP/TCP).
- Intangible losses to consumers - distress from loss, reduced trust of other PRS commerce. The OFT report describes the impact on victims and their families as devastating in terms of future peace of mind and health. We do not propose to quantify this benefit, as there is no evidence

available on the quantitative level of harm. It should be considered as a non-quantified benefit in addition to other benefits.

We have used three different approaches to estimate the harm currently done to consumers as a result of Code breaches:

- The recent OFT estimates
- The relationship between fines levied by ICSTIS and harm done as a result of the breach which was investigated
- The harm done as a result of major recent breaches.

OFT estimates

The OFT estimated losses from mass market scams in a recent study[20]. It sought to estimate losses from a range of scams using consumer surveys conducted in early 2006, which included estimates of the annual losses from PRS prize draw scams and PRS rogue diallers. The study estimated that PRS prize scams costs the UK public £80m per annum, with around 1 million victims annually. It estimated that internet dialler scams cost the UK public around £60m per annum, with around 400,000 victims annually. However, it is not clear how the OFT estimated annual losses from the survey data. The survey questions asked victims whether they have been the victim of a scam, rather than whether they have been a victim of a scam in the past year. It is not clear if or how this number was adjusted to estimate the annual number of victims. So the study may overstate the losses and be an inaccurate guide to the scale of current scams.

There is also another problems in using the OFT estimates. The rogue dialler scam was at its height in 2004, these numbers will be reflected in the OFT report. However, this is unlikely to be a good estimate of the expected number of victims in 2006 or 2007, due to stricter ICSTIS regulation and the diminishing number of dial up internet access customers. This means that the OFT estimates are unlikely to be a reliable guide to expected consumer harm from PRS scams over the next 5 years.

ICSTIS fines

A second approach to estimating losses is to consider the evidence from the ICSTIS adjudication process. The adjudication process records the fines levied each year and it is possible to estimate the relationship between consumer harm and the size of the fine by examining the records for selected individual cases. The size of the fine depends on a number of factors including the level of consumer harm and mitigating or aggravating factors. Based on examining the records of 10 cases, we estimated a ratio of £1 of fine for every £2 of consumer harm, with a significant degree of variability between cases. One problem with this measure is that it is limited to breaches of the code which lead to adjudications resulting in fines. Evidence from the OFT study is that many scams are unreported, for example, 2% of respondents with experience of prize scams reported them to BT and 1% to the Police and other agencies. However we note that one complaint may be sufficient for ICSTIS to investigate and take action against a scam which targets many other victims. We also note that scams which affect many people or which take large sums of money are more likely to result in complaints.

ICSTIS imposed fines of £4.7m in 2004/05, £4.5m in 2005/06 and £1.1m in 2006/07. This suggests consumer harm of between £2.2m and £9.4m per annum.

Recent major code breaches

[20] OFT, Research on impact of mass marketed scams, December 2006.

A third approach is to consider the major Code breaches that have taken place over the last few years and estimate the consumer harm from these breaches. Figure 5.2 presents a summary for three major types of breaches. In each case the scale of the harm is measured in tens of millions of pounds.

Overall findings

The potential scale of consumer losses is uncertain with estimates ranging from OFT's £140 million per annum to £2m to £9 m per annum based on fine revenues. As fine revenues are likely to understate consumer harm, and in light of the emerging evidence of reported losses from participation TV, an estimate of consumer harm of £20 million per annum appears to be reasonable as a central estimate[21]. There is some indication of a decline in the level of harm in the last 18 months, given the reduction in complaints, adjudications and fines.

Figure 5.2 The scale of consumer harm from major breaches of the Code

Breach	Description
The Crazy Frog case	This refers to a ring tone download subscription service. Consumers subscribed to the service by texting a short code. The ICSTIS adjudication panel found that the advertisements for the service were likely to mislead some consumers, as the advertisements did not make clear that the consumers were subscribing to a £5 per week ring tone subscription service rather than purchasing individual ring tones for as little as 30p. The ring tone subscription service was extremely successful, earning £40m in the UK in 2005 and was downloaded 11 million times across Europe[22]. The extent of consumer harm is unclear. As the ICSTIS hearing noted, only some consumers were misled by the advertisement. ICSTIS received 338 complaints about the Crazy Frog service[23]
The Rogue dialer case	The rogue dialer scam involved the installation of dialer software on a consumer's PC without the knowledge of the consumer. The dialer software then made repeated calls to a PRS number at £1.50 per minute. Customers were unaware of what was taking place until they received a phone bill. ICSTIS received up to 80,000 complaints about the rogue dialer scam and estimated losses at £10 million[24] per annum at the height of the scam. In the 2005/06 the number of complaints fell sharply - ICSTIS received 2727 complaints in relation to internet dialers.
Participation Television	Code breaches relating to participation TV relate concerns that TV voting and quiz shows were taking PRS calls after the competition had closed. For example, in one week, the You Say, We Pay (Richard & Judy) show took 32,000 calls when there was no chance of winning the cash prize[25]. The X Factor, an ITV show is alleged to have overcharged viewers £200,000[26]. These shows are still been investigated and the actual extent of consumer harm is not clear. Panorama estimated that GMTV phone in quizzes took £10 million per year for the last 4 years from callers who no chance of winning. Opera Interactive Technology, the service provider concerned has acknowledged errors in procedure in relation to these allegations[27]

[21] With a need for sensitivity analysis to examine the impact on our findings of changing consumer harm to £10 million and £40 million per year

[22] The Times, *Crazy Frog makes £40m. That really is very annoying*, 24 December 2005.

[23] ICSTIS 2005/06 Activity Report, page 27.

[24] The Guardian, *Florida twisters dial up a fortune from Brits*, 27 November 2004.

[25] NOC E –Newsletter, 22 February 2007. http://newsweaver.co.uk/eletra/mod_print_view.cfm?this_id=757326&u=noc&issue_id=000162228&lid=b95JKvD&uid=b6l3mfF4&XXDESXXpower=Created%20with%20%3Cb%3E%3Ca%20href%3D%27http%3A%2F%2Fnewsweaver%2Eco%2Euk%2Feletra%2Fredirect%2Ecfm%3Fa%3D%5Baccountname%5D%26t%3Dnw%5Fuk%5Btracking%5D%27%3ENewsweaver%3C%2Fa%3E%3C%2Fb%3E

[26] Action as TV quiz scandal grows, http://www.thisismoney.co.uk/campaigns/tvquizswindle/article.html?in_article_id=418227&in_page_id=509

[27] The Times, 25/4/07

Loss of consumer confidence

It is likely that publicity for major breaches in the Code reduces consumer confidence in PRS. This results in:

- The PRS market being smaller than it might otherwise be
- Some services not being sold or services being sold by an alternative mechanism which is more expensive, less convenient, or inferior for some other reason.

This is a potentially significant economic loss, but it is difficult to directly link a reduction in the size of the market with any particular code breach activity. However, the suspension of a number of participation TV PRS in the wake of concerns about Code breaches provides direct evidence that Code breaches can undermine the demand for PRS. For example one PRS provider reported a 20% reduction in business in unrelated PRS sectors in the wake of participation TV scandals. We can use this statistic to make an order of magnitude estimate of the economic impact of loss of consumer confidence as follows. Let us assume that:

- There is one major, well publicised, breach each year
- Each major breach depresses demand by 20% for two months
- PRS generate £1200 million in revenues per year
- All of this lost revenue is lost consumer surplus

Then the economic loss is given by:

20% x £1200m x (2/12) months = £40 million per year

It is reasonable to assume that the lost revenue is of the same order of magnitude as the consumer harm itself (estimated at £20 million per year in the previous section). Our estimate passes this sanity check.

5.9 The inclusion of 0871 services

ICSTIS will regulate 0871 services from 2008. The precise form of this regulation was the subject of an ongoing consultation at the time this report was written in June 2007. This change is likely to more than double the number of number regulated by ICSTIS. We take account of this expansion of scope in our CBA as follows.

For the registration scheme options we do not adjust our CBA (Options B to E) for three reasons:

- There is a possibility that registration will exclude 0871 service providers
- If 0871 service providers are registered then the additional workload is likely to be small. It may be sensible to include 0871 service providers and the largest service promoters in any registration scheme but to exclude the bulk of service promoters, which are typically small businesses using 0871 numbers for basic inbound voice telephony. If these service promoters are excluded the number of additional registrations reduces to a few hundred
- If 0871 service providers are registered then much of the work would have to be done anyway. Under the current system ICSTIS would still need to register the 0871 service providers and the TCPs would need to do due diligence on them. These costs are excluded from the CBA which measures the incremental costs of moving to each option from the current system

For Option A (the enhanced number checker) we have included the costs of establishing a system which covers 0871 numbers but excluded the benefits of including 0871 numbers.

6 The findings of the cost benefit analysis

In this chapter we quantify the costs and benefits identified in Chapter 5. This allows us to carry out cost benefit analysis (CBA) on the options of Chapter 4 to see whether the net present value of the incremental benefits of moving from the current system to the option outweighs the incremental costs.

6.1 Generic parameters

There are several generic parameters used in the cost benefit analysis.

We believe that the relevant time period for the cost-benefit analysis is five years. This time period reflects the rapidly changing nature of the premium rate services market. A longer period would give undue weight to ongoing benefits rather than set up costs, especially given the likely changes in the PRS sector and developments in other micro payments mechanisms over the next five years.

A discount rate is required to calculate the present value of future benefits and costs. A discount rate is used to adjust future costs and benefits to present values. Discounting is based on the principle that people prefer to receive goods and services now rather than later. It is a separate concept from inflation. We have used a discount rate of 3.5%, as this is the discount rate for cost-benefit analysis recommended by HM Treasury[28].

We have conducted the analysis using constant prices, as opposed to nominal or current prices. This means that the effect of inflation is excluded from the analysis.

6.2 Option A - the expanded number checker

Figure 6.1 summarises the incremental costs and benefits of expanding the ICSTIS number checker. It provides our estimates of the net present value (NPV) of each cost and benefit stream over the five year life of the project.

Incremental benefits

An expanded number checker provides the end user with information on the provider of a PRS, rather than the TCP involved. This eliminates the need for end users to call the TCP to identify the service provider of a PRS. So the primary benefits are avoided costs to consumers, TCPs and OCPs.

Our estimate of the avoided costs to consumers and TCPs is based on the current volume of number checks per month (85,000) and the proportion of these number checks which only provide details of the TCP (60%) to end users. We assume that 30% of these end users then make a call to get more information from the TCP on the identity of the service provider.

A comprehensive number checker would enable consumers to identify the service provider without making this call. We note that some number checks are by OCPs in response to calls from end users. A comprehensive number checker would enable the OCP to provide information to the caller on the service provider and avoid a further call to a TCP to get this information. We have not allowed for an increase in number checks over the five year period of the CBA. However any additional number checks would increase the net benefits. We have used £25 per hour as the cost of labour and related overheads for TCPs and £5 per hour for the value of end-user time, for further details, see section 6.3.

We do not quantify any benefit to those end users who currently use the number checker, do not receive information on the service provider and do not make a further call to obtain this information. While it is clear that these consumers receive some benefit with an expanded number checker, it is

[28] HM Treasury, *The Green Book – Appraisal and Evaluation in Central Government*, 2003.

likely to be less than for those consumers who do make further efforts to get this information. Otherwise the former group would have sought this information by calling their OCP or the TCP.

Figure 6.1 Benefit and costs of expanded number checker

Number checker	**Total 2007-12**
Discount Rate	**3.50%**
Benefits	
Avoided costs for end users	**459,000**
Avoided costs for TCPs	**2,295,000**
Avoided calls to OCPs	**200,000**
Quicker response to reported breaches	**500,000**
Total Benefits	**3,454,000**
Total Discounted Benefits	**3,118,998**
Costs	
Establishment costs to Registrar	
Scoping and analysis	**28,400**
Architecture/Build/prototype	**54,200**
Test and enhance	**18,200**
Release	**6,450**
Training	**4,000**
Total Establishment Cost to Registrar	***111,250***
Compliance costs for TCPs	**144,000**
Up date content and maintenance of number checker	**250,000**
Infrastructure costs (hardware, software etc)	**120,000**
Total Costs	***625,250***
Total Discounted Costs	**591,304**
Net Benefits	**2,527,695**

Based on information provided during our research, we estimate that OCPs receive 80,000 calls every year from consumers in relation to PRS calls. These calls are likely to cover a range of issues. However many of the callers seek information on the identity of the service provider or the nature of the service. We assume that 20% of these callers would use a comprehensive number checker to obtain this information. It is likely that a high proportion of callers could satisfy their questions via the number checker. But we assume that many consumers will still seek this information from their OCP, either because they are unaware of the number checker or because they prefer talking to their OCP about billing queries in the first instance.

The final category of benefits is the quicker detection and correction of Code breaches. A comprehensive number checker would provide instant access to the details of the service provider in relation to a complaint to ICSTIS. This would enable ICSTIS to take swifter action in response to complaints about PRS services. In a number of cases urgent action is required to prevent further consumer losses from PRS services which breach the ICSTIS Code.

Based on information provided by ICSTIS, we assume that:

- Instant information on the identity of the service provider would assist in 10% of breaches that cause consumer harm
- This information would then assist in reducing harm by 5% in these cases.

It is not possible to calculate the scale of this benefit precisely. However our estimate provides an indication of the order of magnitude of this benefit.

Incremental costs

There are incremental costs for both ICSTIS and the TCPs in expanding the number checker.

For ICSTIS our estimate of the cost of expanding the number checker is based on the cost of constructing a new database capable of containing several hundred thousand numbers. We estimate that 177 person days would be required at cost of between £400 and £950 per day for a range of IT expertise. This includes the cost of training registrar staff in the operation of the number checker. In addition we assume that there is a cost of £50,000 per year in maintaining the database plus £20,000 per year for rental of software and hardware. See Annex B for more details.

TCPs would incur costs from providing regular updates on numbering information. Based on our interviews with TCPs and service providers, we understand that TCPs have this information readily available and costs would largely be limited to developing an interface to upload this information to the registrar in the format required. For most TCPs this cost is likely to be modest. We have assumed that:

- 20 TCPs spend 5 days each in developing an interface at a cost of £400 per day
- The remaining TCPs require 2 days to develop an interface at a cost of £400 per day.

There is also a cost associated with maintaining and updating the database. This is likely to be modest. IT systems should enable the automation of the number upload process and associated validation checks.

Findings

Our CBA suggests that there is a very strong case for expanding the number checker to include all PRS numbers. The NPV of the benefits, at £3.1 million, exceeds the NPV of the costs, at £0.6 million, by a factor of five. Sensitivity analysis, in which we vary key assumptions across a credible range, does not change this conclusion

6.3 Options B to E - the central registration scheme

Figure 6.2 summarises the incremental costs and benefits of the four options for the central registration scheme. These are:

- Option B: a central registration scheme for service providers only
- Option C: as Option B but with the facility to search on the reputations of individual directors
- Option D: a central registration scheme for service providers and service promoters but with the focus of regulation remaining on the former
- Option E: a central registration scheme for service promoters only.

We provide the detailed calculations on which Figure 6.2 is based in Annex A.

Figure 6.2 Benefits and Costs of Registration Service Options

All costs and benefits in £ for 2007 to 2012	Option B	Option C	Option D	Option E
Discount Rate	3.5%	3.5%	3.5%	3.5%
Benefits				
Avoided cost of due diligence being undertaken by TCPs - Churn	131,250	131,250	131,250	131,250
Avoided cost of due diligence being undertaken by TCPs - New entrants	157,500	157,500	157,500	157,500
Avoided cost of updating due diligence undertaken by TCPs	105,000	105,000	105,000	105,000
Avoided cost of receiving complaints	24,900	24,900	24,900	0
Avoided cost of investigations for ICSTIS and industry players	84,000	84,000	84,000	0
Avoided cost of adjudications for ICSTIS and industry	75,000	75,000	75,000	0
Reduced consumer harm	2,000,000	2,000,000	2,000,000	0
Reduced losses to PRS market	3,200,000	3,200,000	3,200,000	0
Total Benefits	*5,777,650*	*5,777,650*	*5,777,650*	*393,750*
Total Discounted Benefits	**5,166,740**	**5,166,740**	**5,166,740**	**355,560**
Costs				
Establishment costs for database				
Design, testing and training	181,980	181,980	181,980	181,980
Add reputational information	15,625	15,625	15,625	15,625
Maintenance of database	240,000	240,000	240,000	240,000
Infrastructure costs (hardware, software etc)	100,000	100,000	100,000	100,000
Due diligence process				
Initial	525,000	525,000	1,125,000	1,110,000
New entrant due diligence	105,000	105,000	315,000	310,800
Annual update	210,000	210,000	450,000	444,000
Changes to the code -ICSTIS	40,000	40,000	100,000	150,000
Changes to the code -Industry	40,000	40,000	100,000	150,000
Additional monitoring costs	0	0	0	1,050,000
Total Costs	*1,457,605*	*1,457,605*	*2,627,605*	*3,752,405*
`	**1,360,876**	**1,360,876**	**2,459,834**	**3,484,452**
Net Benefits	**3,805,864**	**3,805,864**	**2,706,906**	**-3,128,892**

Incremental benefits

There are two main benefits from introducing a central registration scheme:

- The costs of duplicated due diligence which are avoided by moving to such a scheme
- The benefits which arise from a reduction in the number of Code breaches.

Avoided costs of due diligence

We have estimate three types of benefits relating to the avoided costs of duplicated due diligence following the establishment of a central registration scheme:

- A central registrar would only undertake due diligence once on a service provider. Under the counterfactual of the current system, a TCP performs due diligence every time a service provider establishes a new contractual arrangement with it. This avoided cost of due diligence relates to contract churn. To quantify it we have assumed that:
  - There are 7,000 service providers under Options B and C
  - There are 15,000 service providers and promoters under Option D
  - There are 14,800 service promoters under Option E
  - Contract churn is 5% for service provider and 7% for service promoters. This estimate is based on discussion with service providers and TCPs, who noted that while service providers may switch business between TCPs, they tend to have stable contractual relationships with between one and three TCPs.

Note that there is a difference between churn which requires a new contractual relationship between a TCP and a service provider and churn which involves a service provider in switching business between TCPs with which it has existing contractual relationships. The latter change does not require additional regulatory due diligence.

- A central registration scheme means that TCPs do not need to undertake due diligence on service providers who enter the market, although the central registrar will, and this is included as a cost. Under the counterfactual, this due diligence cost is determined by the rate of entry of new service providers and the number of contracts each new service provider has with TCPs. We have assumed, based on discussions with the industry:
  - a 5% entry rate each year
  - a ratio of 1.2 contracts per service provider i.e, a small proportion of new entrants have contracts with more than one TCP
  - a 5% per annum exit rate ie zero growth in the total volume of service providers and promoters over the CBA period
  - a value of time (direct labour plus overheads) for TCPs and service providers of £25 per hour
  - that regulatory due diligence on a service provider or promoter takes TCPs 2 hours and service providers/promoters 1 hour.
- A central registration scheme might also lead to avoided costs when updating due diligence information. TCPs need to update the information they hold on service providers when renewing contracts or as circumstances change anyway, and it is difficult to distinguish here between normal commercial processes and regulatory due diligence. To calculate this cost we assume that 10% of service provider contracts would require the updating of due diligence information each year and that the updating would require 30 minutes of staff time for the TCP and the same time from the service provider.

Benefits from reductions in code breaches

The other principal benefit of a central registration service is the potential to reduce the number of code breaches and therefore the level of complaints, ICSTIS investigations, adjudications and consumer harm. We note that a central registration scheme is not justified on administrative cost savings alone and requires some level of reduction in Code breaches if Options B, C, D or E are to be viable.

It is difficult to quantify the relationship between a central registration service and code breaches precisely. Our research indicates that a central registration scheme would not reduce code breaches substantially. It is only one means for enabling more effective due diligence on service providers. However, a central registration scheme could reduce the level of code breaches. It might deter entry by providers intent on breaching the code and it provides, in a more convenient form than now, reputational information which TCPs can use when they are considering a contract with a service provider. We assume a reduction in code breaches of 2% per annum for Options B, C and D but 0% for Option E. See Section 5.7 for further discussion.

We estimate the benefits from a reduction in Code breaches as follows.

- We assume that a 2% reduction in code breaches reduces the level of complaints by 2%. Clearly some code breaches will generate many complaints, while others will generate none or few. In the absence of other information, a proportionate relationship between code breaches and complaints seems the most reasonable. This reduction will reduce costs to ICSTIS from receiving complaints

and to consumers in making complaints. Based on information provided by ICSTIS on the time taken to receive and record complaints and to decide whether further action is required, we assume that:

  - ICSTIS takes 45 minutes per complaint
  - Consumers take 24 minutes per complaint
  - The value of consumer time is £5.00 per hour. This estimate is based on the value of time from transport studies[29]
  - ICSTIS receives 12,000 complaints per year in the counterfactual scenario, based on data for the most recent year.

- Similarly, we assume that a 2% reduction in code breaches reduces the volume of investigations by 2% per annum. ICSTIS currently conducts around 1,200 investigations per year. Based on information received from ICSTIS, we estimate the cost to ICSTIS per investigation is £500 and the cost to other industry participants is £200.
- We also assume that a 2% reduction in code breaches results in a 2% reduction in adjudications. Based on discussion with ICSTIS we estimate that the cost to ICSTIS per adjudication is £1,500 and the cost to industry participants is also £1,500. This includes the cost of the adjudication panel, legal advice and preparation for and any attendance at the panel hearing.
- As discussed in Chapter 5, we estimate the current level of consumer harm at £20m per annum from code breaches. We assume that a central registration service would reduce this level of harm by 2% per annum.
- In addition, we assume that the reduction in code breaches increases consumer confidence in PRS and therefore increase the size of the potential market. This effect is likely to be lagged ie consumer spending on PRS rises N months after a cut in Code breaches. We assume an increase in PRS of £2 for every £1 reduction in consumer harm, 12 months after the reduction in Code breaches. See Section 5.8 for more details.

Incremental costs

Finally we estimate the economic costs of a central registration scheme as follows:

- An experienced IT consultant has provided a budgetary estimate of the costs of developing and establishing the database using the functional specification of Annex B. He estimated the costs at £182,000
- He also estimated the maintenance costs associated with the database to be £60,000 per annum and the costs of leasing appropriate hardware and software at £20,000 per annum.
- We estimate the costs of adding reputational information as the cost of adding summary information on ICSTIS adjudications over the last five years. We assume 1250 adjudications are added and that each takes 30 minutes
- The central registrar is required to undertake initial due diligence on all service providers and/or service promoters. We assume that:
  - the registrar takes 2 hours to undertake the due diligence for each service provider/promoter (review, check and enter information on database)

[29]Department for Transport, Transport Analysis Guidance.
http://www.webtag.org.uk/webdocuments/3_Expert/5_Economy_Objective/3.5.6.htm

  - the service provider/promoter takes 1 hour to provide the information (fill out form, provide authentication and respond to queries).
  - new entrants, which each year represent 5% of the installed base, go through a similar process which takes the same time as for existing participants

- We assume that an annual update process is required for 30% of service providers. This is a larger proportion than in the counterfactual, because the central registrar will have to update registration information for all changes, including address changes, and not just changes which affect regulatory due diligence as when due diligence is undertaken by TCPs. This additional cost reflects the loss of economies of scope which exist when TCPs undertake regulatory and commercial due diligence at the same time.
- Changes to the due diligence arrangements require changes to the ICSTIS code. The extent of changes to the code will depend on the nature of the option. Option E requires extensive changes to the code as it represents a major change in the regulation of the PRS sector. We have costed the changes required on the basis of information supplied by ICSTIS on the 11th Code. This involved a major Code change which cost ICSTIS £150,000, including legal advice and staff time. We assume that:
  - Option E requires significant code changes and involves a similar cost to that generated by the move to the 11th Code
  - The PRS industry will collectively use a similar level of resources in responding to consultations on the change.

  Other options require fewer resources. Options B and C involving limited changes to shift some responsibility for due diligence from TCPs to the central registrar[30]. Option D requires more substantial changes to define service promoters and bring them under the Code. But the changes are less substantial than those required by Option E[31]
- As discussed in Chapter 5, Option E requires increased monitoring by ICSTIS to seek information on potential code breaches. See Section 5.7 for a discussion. We assume that this requires one additional staff member per 1000 service promoters at a cost of £30,000 per staff member per year.

Findings

The CBA of Figure 6.2 suggests that:

- There is substantial economic benefit in moving to the central registration scheme of Option B, C or D
- At first sight there is nothing to choose between Options B and C and both are superior to Option D
- Moving to the central registration scheme of Option E, in which the focus of regulation shifts from the service provider to the service promoter, would generate substantial economic losses

Let us examine these conclusions in more detail.

[30] We assume a cost of £40,000 for ICSTIS and the same for the industry

[31] We assume a cost of £100,000 for ICSTIS and the same for the industry

Option B vs Option C vs Option D

Whether Option B, C or D is worth implementing depends on whether or not it reduces Code breaches. If we assume that there is no reduction in Code breaches then all three options generate economic costs. In other words the avoided costs of duplicated due diligence inherent in a centralised scheme do not offset the cost of establishing the scheme.

It is difficult to believe that a central registration scheme would have no effect in reducing code breaches. Making information on the reputations of service providers and promoters easily available through an on-line registration database enables TCPs, service providers and other market participants to make better judgements about the risks of doing business with a service provider or promoter. It also provides service providers and promoters with stronger incentives to protect their reputations. But the scale of the reduction in Code breaches as a result of these effects is a matter of judgement for policy makers. To help with this judgement we set out in Figure 6.3 the percentage reduction in Code breaches which is required for a central registration scheme to generate net economic benefits. We also provide a summary of the reputational information which is available under each option.

Figure 6.3 The % reduction in Code breaches required to make a central registration scheme worthwhile

Option	% reduction in Code breaches required for a positive NPV	Reputational information available via the database
B	0.42%	On breaches by service providers
C	0.42%	On breaches by service providers and by individuals acting as directors of such companies
D	0.87%	On breaches by service providers and service promoters and by individuals acting as directors of such companies

We conclude that:

- It is very unlikely that a central registration scheme is not worthwhile. The percentage reduction in Code breaches required is very small
- Option C is clearly superior to Option B in that it provides more reputational information for the same costs
- For Option D to be superior to Option C it would need to reduce Code breaches by an additional 0.46%.

Option E

It is clear that Option E should be rejected. There are two main factors which, in combination, mean that Option E generates substantial economic costs:

- Option E greatly weakens the incentives for service providers and TCPs which act as platform providers to monitor the behaviour of their service promoter customers. These platform providers are inherently well informed about such behaviour given their position in the PRS value chain. A central registrar is not well placed and would need to devote substantial additional resources (reflected in the monitoring costs associated with Option E) to substitute effectively for the current monitoring activities of these TCPs and service providers

- TCPs and service providers who act as platform providers can make much better use of the reputational information available from a central registration database than a public registrar. They can use the information to inform contracting decisions and hence reduce Code breaches by refusing to contract with doubtful service promoters. A central registrar cannot. He must follow due process if he wishes to refuse a service provider or promoter registration. This means that the reductions in Code breaches assumed for Options B, C and D are unlikely to occur under Option E.

Sensitivity analysis

We have carried out sensitivity analysis, in which we have varied the following assumptions:

- Extending the life of the registration database from 5 to 10 years
- Changing the current level of consumer harm from £20m pa to £10m pa and £50m pa
- Doubling and halving the time taken for regulatory due diligence
- Increasing and decreasing the number of service providers and promoters by 30%
- Changing the volume of calls handled by the number checker from 85,000 per month to 50,000 and 100,000
- Varying the reduction in Code breaches as a result of a central registration scheme from 2% down to 0% and up to 10%

The results are sensitive only to variations in the assumptions made about the level of reduction in Code breaches as discussed above.

Combining the options

There are economies of scope in implementing (say) Option C and Option A together. But the cost savings generated by developing the expended number checker and a central registration scheme database system together are modest. They are measured in the low tens of thousands of pounds, at best, and do not materially alter the findings of our CBA.

Other Options

There is one other option that Ofcom should consider in the course of its review of PRS. Results of our CBA indicate that:

- The avoided costs of due diligence generated by a central registration scheme are less than the cost of implementing and maintaining the scheme
- The benefit of a central registration scheme arise primarily through providing online access for TCPs and service providers which are platform operators to reputational information on service providers and/or service promoters.

One way to capture these benefits is to develop a stand alone reputational database which provides the same online access and search functions for TCPs and service providers as a central registration database. The costs of developing and maintaining such a database are considerably less than those for a formal central registration scheme. At the same time the reputational database means that the very substantial one-off costs incurred by a central registrar in repeating due diligence on all service providers are avoided. We have not carried out a detailed CBA on this option. But our preliminary calculations suggest that it generates a net present value which is several hundred thousand pounds

higher than Options C or D. It also generates lower risks. The cost incurred by the central registrar, service providers and TCPs are significantly smaller.

7 Conclusions and proposals

7.1 The findings of the CBA

We can summarise the findings of our CBA as follows:

- Extending the number checker generates substantial economic benefits. Sensitivity analysis does not change this conclusion
- The central registration scheme of Option E, in which the focus of regulation moves to the service promoter, generates substantial economic losses under all reasonable assumptions
- The central registration schemes of Options B, C and D cannot be justified in terms of the avoided costs of duplicated due diligence alone
- A central registration scheme is economically justified provided that it leads to a 0.42% reduction in Code breaches
- Option C is superior to Option B
- Whether Option D is superior to Option C depends on the extent to which it generates additional reductions in Code breaches. An additional reduction of 0.44% is required to justify Option D
- Sensitivity analysis does not materially alter these conclusions.

7.2 Funding the costs of a central registration scheme

How should the additional costs, and especially the set up costs of a central registration scheme be funded? Our research suggested two obvious options:

- To charge each service provider/promoter a registration fee with an annual renewal fee to fund ongoing maintenance of the database
- To increase the ICSTIS levy on outpayments to service providers.

It is difficult to choose between the options.

On the one hand a registration fee which is set to recover the costs of running the central registration scheme would make clear to the industry what the scheme is costing and so give ICSTIS incentives to run it efficiently. At the same time a registration fee might deter frivolous registration.

On the other hand an increase in the ICSTIS levy would avoid the significant transaction costs involved in collecting the initial and renewal fees. This approach would also avoid creating a barrier to entry by small (and possibly innovative) service providers/promoters as a fixed registration fee might. Finally the benefit of cost transparency, inherent in the registration fee option, could be replicated to some extent if ICSTIS were to publish the cost of running the central registration scheme each year.

On balance we favour a levy increase over the registration fee.

7.3 The distribution of costs and benefits

Figure 7.1 and 7.2 provide our estimates of how the costs of an expanded number checker and a central registration scheme are distributed amongst the stakeholders. In making our estimates we assume that:

- Option C is adopted for the central registration scheme
- The central registration scheme reduces Code breaches by 2%

- The additional costs of the central registration scheme and the expanded number checker are met through an increased levy which is taken from the revenues of the service providers
- The benefit of expanding the PRS market which comes from increased consumer confidence when code breaches are reduced, is divided 80% to service providers/promoters and 20% to communications providers.

When we examine the figures we can see that:

- The central registration scheme makes everyone better off. There are net benefits for end users, communications providers and service providers/promoters
- Expanding the number checker benefits end users and communications providers, but generates net costs for service providers/promoters
- These net costs are modest, at around 0.03% of service provider revenues, and might reasonably be considered as insignificant.

Figure 7.1 Winners and losers from expanding the number checker[32]

Stakeholder	Costs (£000)	Benefits (£000)	Net benefit (£000)
End users	-	954	954
TCPs/OCPs	144	2500	2356
Service providers/promoters	481	-	(481)

Figure 7.2 Winners and losers from a central registration scheme

Stakeholder	Costs (£000)	Benefits (£000)	Net benefit (£000)
End users	-	2000	2000
TCPs/OCPs	-	1292	1292
Service providers/promoters	1457	2485	1028

7.4 Recommendations

Based on the analysis set out in this report we make the following recommendations:

1. The ICSTIS number checker should be expanded to include as many PRS numbers as possible.

2. ICSTIS should fund the additional costs out of adjustments to its levy.

3. Ofcom should decide, based on the CBA of Chapter 6 and in the light of its comprehensive review of premium rate services in the UK, whether or not to introduce a central registration scheme.

[32] All costs and benefits are undiscounted five year totals

4. ICSTIS should in future publish the names of service promoters involved in all breaches for which an adjudication is made. Such publication provides valuable reputational information to TCPs and service providers when they are deciding with whom to do business.

Assuming that Ofcom decides that a central registration scheme is in the public interest we then make the following additional recommendations:

5. Ofcom should reject Options B and E and choose between Options C and D.

6. In choosing between these two options Ofcom will need to judge whether Option D, which provides reputational information on service promoters as well as service providers, leads to an additional reduction in Code breaches in excess of 0.45%. If so it should choose Option D.

7. Ofcom should also consider an alternative to a central registration scheme in its PRS review. A stand alone reputational database, which provides the same on-line access and search functions for TCPs and service providers as a full central registration scheme, could capture most of the benefits of a central scheme while avoiding a significant proportion of the costs.

7. ICSTIS should run any central registration scheme which is chosen and should fund it out of an increase in the levy.

8. ICSTIS should consider introducing a requirement for service providers/promoters to have an EU bank account before they are eligible for registration.

Annex A Details of the CBAs

This annex provides more details on the CBAs. Figure A1 sets out the CBA for the expanded number checker (Option A) while Figures A2 to A5 the CBAs for the four options for the central registration scheme (Options B to E).

Figure A1 The CBA for Option A

Number checker	0	1	2	3	4	5	
	2007	**2008**	**2009**	**2010**	**2011**	**2012**	**Total 2007-12**
Discount factor	1	0.966	0.934	0.902	0.871	0.842	
Benefits							
Avoided costs for end users		91,800	91,800	91,800	91,800	91,800	**459,000**
Avoided costs for TCPs		459,000	459,000	459,000	459,000	459,000	**2,295,000**
Avoided calls to OCPs		40,000	40,000	40,000	40,000	40,000	**200,000**
Quicker response to reported breaches		100,000	100,000	100,000	100,000	100,000	**500,000**
Total Benefits		690,800	690,800	690,800	690,800	690,800	**3,454,000**
Total Discounted Benefits		**667,440**	**644,869**	**623,062**	**601,992**	**581,635**	**3,118,998**
Costs							
Scoping and analysis	28,400						**28,400**
Architecture/Build/prototype	54,200						**54,200**
Test and enhance	18,200						**18,200**
Release	6,450						**6,450**
Training	4,000						**4,000**
Compliance costs for TCPs	144,000						**144,000**
Up date content and maintenance of number checker		50,000	50,000	50,000	50,000	50,000	**250,000**
Infrastructure costs (hardware, software etc)	20,000	20,000	20,000	20,000	20,000	20,000	**120,000**
Total Costs	275,250	70,000	70,000	70,000	70,000	70,000	**625,250**
Total Discounted Costs	**275,250**	**67,633**	**65,346**	**63,136**	**61,001**	**58,938**	**591,304**
Net Benefits	**-275,250**	**599,807**	**579,523**	**559,926**	**540,991**	**522,697**	**2,527,695**
Discount rate	3.50%						3.50%
Assumptions							
Monthly volume of calls (number)		85,000	85,000	85,000	85,000	85,000	
Annual volume of calls to number checker		1,020,000	1,020,000	1,020,000	1,020,000	1,020,000	
Percentage of calls which provide only TCP contact details		60%	60%	60%	60%	60%	
Percentage of calls who seek further information from TCP		30%	30%	30%	30%	30%	
Time per call (hours)		0.1	0.1	0.1	0.1	0.1	
Cost per hour (£) TCP		25	25	25	25	25	
Cost per hour (£) consumer		5	5	5	5	5	
Volume of PRS enquires to OCP		80,000	80,000	80,000	80,000	80,000	
Percentage reduced by customers going to number checker		20%	20%	20%	20%	20%	
Level of consumer harm (£)		20,000,000	20,000,000	20,000,000	20,000,000	20,000,000	
Proportion of cases where more rapid response assist in reduction of consumer h		10%	10%	10%	10%	10%	
Reduction in consumer harm in rapid response cases		5%	5%	5%	5%	5%	
Number of large TCPs		20	20	20	20	20	
Number of small TCPs		130	130	130	130	130	
Number of days per large TCP to develop interface to provide numbers to ICSTIS		5					
Number of days per small TCP to develop interface to provide numbers to ICSTIS		2					
Cost of develoment per TCP per day (£)		400					

Figure A2 The CBA for Option B

Option B	0	1	2	3	4	5	
	(£)	**(£)**	**(£)**	**(£)**	**(£)**	**(£)**	**(£)**
	2007	**2008**	**2009**	**2010**	**2011**	**2012**	**Total**
Discount Factor	1	0.966	0.934	0.902	0.871	0.842	
Benefits							
Avoided cost of due diligence being undertaken by TCPs - Churn		26,250	26,250	26,250	26,250	26,250	**131,250**
Avoided cost of due diligence being undertaken by TCPs - New entrants		31,500	31,500	31,500	31,500	31,500	**157,500**
Avoided cost of updating due diligence undertaken by TCPs		21,000	21,000	21,000	21,000	21,000	**105,000**
Avoided cost of receiving complaints		4,980	4,980	4,980	4,980	4,980	**24,900**
Avoided cost of investigations for ICSTIS and industry players		16,800	16,800	16,800	16,800	16,800	**84,000**
Avoided cost of adjudications for ICSTIS and industry		15,000	15,000	15,000	15,000	15,000	**75,000**
Reduced consumer harm		400,000	400,000	400,000	400,000	400,000	**2,000,000**
Reduced losses to PRS market		0	800,000	800,000	800,000	800,000	**3,200,000**
Total Benefits	*0*	*515,530*	*1,315,530*	*1,315,530*	*1,315,530*	*1,315,530*	***5,777,650***
Total Discounted Benefits	**0**	**498,097**	**1,228,061**	**1,186,533**	**1,146,408**	**1,107,641**	5,166,740
Costs							
Establishment costs for database							
design and testing		181,980					**181,980**
training							**0**
Add reputational information		15,625					**15,625**
Maintenance of database			60,000	60,000	60,000	60,000	**240,000**
Infrastructure costs (hardware, software etc)		20000	20000	20000	20000	20000	**100,000**
Due diligence process							**0**
Initial		525,000					**525,000**
New entrant due diligence			26,250	26,250	26,250	26,250	**105,000**
Annual update			52,500	52,500	52,500	52,500	**210,000**
Changes to the code -ICSTIS	40,000						**40,000**
Changes to the code -Industry	40,000						**40,000**
Total Costs	*80,000*	*742,605*	*158,750*	*158,750*	*158,750*	*158,750*	***1,457,605***
Total Discounted Costs	**80,000**	**717,493**	**148,195**	**143,183**	**138,341**	**133,663**	1,360,876
Net Benefits	**-80,000**	**-219,396**	**1,079,867**	**1,043,349**	**1,008,067**	**973,978**	3,805,864
Discount Rate	3.50%						
Assumptions -Benefits							
Redcuation in code breaches	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	
Number of service providers	7,000	7,000	7,000	7,000	7,000	7,000	
Rate of new entry of SPs to sector		5%	5%	5%	5%	5%	
Number of service providers who switch TCP on a contractual basis		5%	5%	5%	5%	5%	
Number of contracts per service provider		1.2	1.2	1.2	1.2	1.2	
Time taken by TCP to undertake regulatory due dil on SP (hours)		2	2	2	2	2	
Time taken by SP to respond to due dilegence info request (hours)		1	1	1	1	1	
Time taken by both SP and TCP to update records for regulatory DD purpose (hours)		1.0	1.0	1.0	1.0	1.0	
Proportion of SPs who update records each year (for DD purposes)		10%	10%	10%	10%	10%	
Cost per hour of due diligence per TCP/SP	25	25	25	25	25	25	
Number of complaints	12,000	12,000	12,000	12,000	12,000	12,000	
Number of investigation	1,200	1,200	1,200	1,200	1,200	1,200	
Percentage of code breaches reduced by registration service	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	
Percentage of complaints reduced by registration service	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	
Time per complaint - ICSTIS (hours)	0.75	0.75	0.75	0.75	0.75	0.75	
Time per complaint - consumer (hours)	0.40	0.40	0.40	0.40	0.40	0.40	
Cost per hour - ICSTIS (£)	25	25	25	25	25	25	
Cost per hour - consumer (£)	5	5	5	5	5	5	
Cost per investigation - ICSTIS (£)	500	500	500	500	500	500	
Cost per investigation - TCP/SP/IP (£)	200	200	200	200	200	200	
Number of adjudications	250	250	250	250	250	250	
Cost per adjudication - ICSTIS (£)	1,500	1,500	1,500	1,500	1,500	1,500	
Cost per adjudication - Service provider (£)	1,500	1,500	1,500	1,500	1,500	1,500	
Percentage of reduced code breaches	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	
Consumer harm from code breaches (£)	20,000,000	20,000,000	20,000,000	20,000,000	20,000,000	20,000,000	
Assumptions - costs							
Time required for CRS for initial DD (hours)	2	2	2	2	2	2	
Time required for Service provider for DD (hours)	1	1	1	1	1	1	
Time per update for CRS (hours)	0.5	0.5	0.5	0.5	0.5	0.5	
Time per update for SP (hours)	0.5	0.5	0.5	0.5	0.5	0.5	
Proportion of SPs who need to update records each year		30%	30%	30%	30%	30%	
Historic number of adjudications	1250						
Time per adjudication for data entry (hours)	0.5						
Cost per hour of adding adjudications (£)	25						

Figure A3 The CBA for Option C

Option C	0	1	2	3	4	5	
	(£)	**(£)**	**(£)**	**(£)**	**(£)**	**(£)**	**(£)**
	2007	**2008**	**2009**	**2010**	**2011**	**2012**	**Total**
Discount factor	1	0.966	0.934	0.902	0.871	0.842	
Benefits							
Avoided cost of due diligence being undertaken by TCPs - Churn		26,250	26,250	26,250	26,250	26,250	**131,250**
Avoided cost of due diligence being undertaken by TCPs - New Entrants		31,500	31,500	31,500	31,500	31,500	**157,500**
Avoided cost of updating due diligence undertaken by TCPs		21,000	21,000	21,000	21,000	21,000	**105,000**
Avoided cost of receiving complaints		4,980	4,980	4,980	4,980	4,980	**24,900**
Avoided cost of investigations for ICSTIS and industry players		16,800	16,800	16,800	16,800	16,800	**84,000**
Avoided cost of adjudications for ICSTIS and industry		15,000	15,000	15,000	15,000	15,000	**75,000**
Reduced consumer harm		400,000	400,000	400,000	400,000	400,000	**2,000,000**
Reduced losses to PRS market	0	0	800,000	800,000	800,000	800,000	**3,200,000**
Total Benefits	*0*	*515,530*	*1,315,530*	*1,315,530*	*1,315,530*	*1,315,530*	***5,777,650***
Total Discounted Benefits	**0**	**498,097**	**1,228,061**	**1,186,533**	**1,146,408**	**1,107,641**	5,166,740
Costs							
Establishment costs for database							
Design and testing		181,980					**181,980**
Training							**0**
Adding historic reputational information		15,625					**15,625**
Maintenance of database			60,000	60,000	60,000	60,000	**240,000**
Infrastructure costs (hardware, software etc)		20,000	20,000	20,000	20,000	20,000	**100,000**
Due diligence process							
Initial		525,000					**525,000**
New entrant due diligence process			26,250	26,250	26,250	26,250	**105,000**
Annual update			52,500	52,500	52,500	52,500	**210,000**
Changes to the code -ICSTIS	40,000						**40,000**
Changes to the code -Industry	40,000						**40,000**
Total Costs	*80,000*	*742,605*	*158,750*	*158,750*	*158,750*	*158,750*	***1,457,605***
Total Discounted Costs	**80,000**	**717,493**	**148,195**	**143,183**	**138,341**	**133,663**	1,360,876
Net Benefits	**-80,000**	**-219,396**	**1,079,867**	**1,043,349**	**1,008,067**	**973,978**	3,805,864
Discount Rate	3.50%						
Assumptions -Benefits							
Redcuction in code beaches	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	
Number of service providers	7,000	7,000	7,000	7,000	7,000	7,000	
Rate of new entry for providers	5%	5%	5%	5%	5%	5%	
Cost per hour of due diligence per TCP/SP (£)	25	25	25	25	25	25	
Number of complaints	12,000	12,000	12,000	12,000	12,000	12,000	
Number of investigation	1,200	1,200	1,200	1,200	1,200	1,200	
Percentage of code breaches reduced by registration service	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	
Percentage of complaints reduced by registration service	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	
Time per complaint - ICSTIS (hours)	0.75	0.75	0.75	0.75	0.75	0.75	
Time per complaint - consumer (hours)	0.40	0.40	0.40	0.40	0.40	0.40	
Cost per hour - ICSTIS (£)	25	25	25	25	25	25	
Cost per hour - consumer (£)	5	5	5	5	5	5	
Cost per investigation - ICSTIS (£)	500	500	500	500	500	500	
Cost per investigation - TCP/SP/IP	100	100	100	100	100	100	
Number of adjudications	250	250	250	250	250	250	
Cost per adjudication - ICSTIS	1,500	1,500	1,500	1,500	1,500	1,500	
Cost per adjudication - Service provider	1,500	1,500	1,500	1,500	1,500	1,500	
Percentage of reduced code breaches	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	
Consumer harm from code breaches	20,000,000	20,000,000	20,000,000	20,000,000	20,000,000	20,000,000	
Assumptions - costs							
Number of hours for CRS for initial DD	2						
Number of hours for Service provider for DD	1	1	1	1	1	1	
Time per update for CRS	0.75	0.75	0.75	0.25	0.25	0.25	
Time per update for SP	0.25	0.25	0.25	0.25	0.25	0.25	
Historic number of adjudications	1250						
Time per adjudication to enter to database	0.5						
Cost per hour of adding adjudications	25						

Figure A4 The CBA for Option D

Option D	**0**	**1**	**2**	**3**	**4**	**5**	
	(£)	**(£)**	**(£)**	**(£)**	**(£)**	**(£)**	**(£)**
	2007	**2008**	**2009**	**2010**	**2011**	**2012**	**Total**
Discount factor	1.000	0.966	0.934	0.902	0.871	0.842	
Benefits							
Avoided cost of due diligence undertaken by TCPs - churn		26,250	26,250	26,250	26,250	26,250	**131,250**
Avoided cost pf due diligence undertaken by TCPs- new entrants		31,500	31,500	31,500	31,500	31,500	**157,500**
Avoided cost of updating due diligence undertaken by TCPs		21,000	21,000	21,000	21,000	21,000	**105,000**
Avoided cost of receiving complaints		4,980	4,980	4,980	4,980	4,980	**24,900**
Avoided cost of investigations for ICSTIS and industry players		16,800	16,800	16,800	16,800	16,800	**84,000**
Avoided cost of adjudications for ICSTIS and industry		15,000	15,000	15,000	15,000	15,000	**75,000**
Reduced consumer harm		400,000	400,000	400,000	400,000	400,000	**2,000,000**
Reduced losses to PRS market	0	0	800,000	800,000	800,000	800,000	**3,200,000**
Total Benefits		*515,530*	*1,315,530*	*1,315,530*	*1,315,530*	*1,315,530*	***5,777,650***
Total Discounted Benefits	**0**	**498,097**	**1,228,061**	**1,186,533**	**1,146,408**	**1,107,641**	5,166,740
Costs							
Establishment costs for database							
design and testing		181,980					**181,980**
training							**0**
Add reputational information		15,625					**15,625**
Maintenance of database			60,000	60,000	60,000	60,000	**240,000**
Infrastructure costs (hardware, software etc)		20,000	20,000	20,000	20,000	20,000	**100,000**
Due diligence process							
Initial		1,125,000					**1,125,000**
New entrant due diligence			78,750	78,750	78,750	78,750	**315,000**
Annual update			112,500	112,500	112,500	112,500	**450,000**
Changes to the code -ICSTIS	100,000						**100,000**
Changes to the code - Industy	100,000						**100,000**
Total Costs	*200,000*	*1,342,605*	*271,250*	*271,250*	*271,250*	*271,250*	***2,627,605***
Total Discounted Costs	**200,000**	**1,297,203**	**253,215**	**244,652**	**236,379**	**228,385**	2,459,834
Net Benefits	**-200,000**	**-799,106**	**974,847**	**941,881**	**910,030**	**879,256**	2,706,906
Discount Rate	3.50%						
Assumptions -Benefits							
Number of service providers	7000	7000	7000	7000	7000	7000	
Rate of new entry	7%	7%	7%	7%	7%	7%	
Number of service providers and promoters	15,000	15,000	15,000	15,000	15,000	15,000	
Cost per hour of due diligence per TCP/SP	25	25	25	25	25	25	
Number of complaints	12,000	12,000	12,000	12,000	12,000	12,000	
Number of investigation	1,200	1,200	1,200	1,200	1,200	1,200	
Percentage of code breaches reduced by registration service	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	
Percentage of complaints reduced by registration service	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	
Time per complaint - ICSTIS (hours)	0.75	0.75	0.75	0.75	0.75	0.75	
Time per complaint - consumer (hours)	0.40	0.40	0.40	0.40	0.40	0.40	
Cost per hour - ICSTIS (£)	25	25	25	25	25	25	
Cost per hour - consumer (£)	5	5	5	5	5	5	
Cost per investigation - ICSTIS (£)	500	500	500	500	500	500	
Cost per investigation - TCP/SP/IP	200	200	200	200	200	200	
Number of adjudications	250	250	250	250	250	250	
Cost per adjudication - ICSTIS (£)	1,500	1,500	1,500	1,500	1,500	1,500	
Cost per adjudication - Service provider (£)	1,500	1,500	1,500	1,500	1,500	1,500	
Percentage of reduced code breaches	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	
Consumer harm from code breaches (£)	20,000,000	20,000,000	20,000,000	20,000,000	20,000,000	20,000,000	
Assumptions - costs							
Number of hours for CRS for initial DD	2						
Number of hours for Service provider for DD	1	1	1	1	1	1	
Time per update for CRS	0.5	0.5	0.5	0.5	0.5	0.5	
Time per update for SP	0.5	0.5	0.5	0.5	0.5	0.5	
Proportion of SPs who need to update each year		30%	30%	30%	30%	30%	
Historic number of adjudications	1250						
Time per adjudication	0.5						
Cost per hour	25						

Figure A5 The CBA for Option E

Option E	0	1	2	3	4	5	
	(£)	**(£)**	**(£)**	**(£)**	**(£)**	**(£)**	**(£)**
	2007	**2008**	**2009**	**2010**	**2011**	**2012**	**Total**
Discount factor	1.000	0.966	0.934	0.902	0.871	0.842	
Benefits							
Avoided cost of due diligence undertaken by TCPs - Churn		26,250	26,250	26,250	26,250	26,250	**131,250**
Avoided cost of due diligence being undertaken by TCPs - new entrants		31,500	31,500	31,500	31,500	31,500	**157,500**
Avoided cost of updating due diligence undertaken by TCPs		21,000	21,000	21,000	21,000	21,000	**105,000**
Avoided cost of receiving complaints		0	0	0	0	0	**0**
Avoided cost of investigations for ICSTIS and industry players		0	0	0	0	0	**0**
Avoided cost of adjudications for ICSTIS and industry		0	0	0	0	0	**0**
Reduced consumer harm		0	0	0	0	0	**0**
Reduced losses to PRS market	0	0	0	0	0	0	**0**
Total Benefits		*78,750*	*78,750*	*78,750*	*78,750*	*78,750*	***393,750***
Total Discounted Benefits	**0**	**76,087**	**73,514**	**71,028**	**68,626**	**66,305**	**355,560**
Costs							
Establishment costs for database							
design and testing		181,980					**181,980**
training							**0**
Add reputational information		15,625					**15,625**
Maintenance of database			60,000	60,000	60,000	60,000	**240,000**
Infrastructure costs (hardware, software etc)		20,000	20,000	20,000	20,000	20,000	**100,000**
Due diligence process							
Initial		1,110,000					**1,110,000**
New entrant due diligence			77,700	77,700	77,700	77,700	**310,800**
Annual update			111,000	111,000	111,000	111,000	**444,000**
Changes to the code -ICSTIS	150,000						**150,000**
Changes to the code - Industry	150,000						**150,000**
Additional monitoring costs		210,000	210,000	210,000	210,000	210,000	**1,050,000**
Total Costs	*300,000*	*1,537,605*	*478,700*	*478,700*	*478,700*	*478,700*	***3,752,405***
Total Discounted Costs	**300,000**	**1,485,609**	**446,872**	**431,760**	**417,159**	**403,053**	**3,484,452**
Net Benefits	**-300,000**	**-1,409,522**	**-373,358**	**-360,732**	**-348,533**	**-336,747**	**-3,128,892**
Discount Rate	3.50%						
Benefits - assumptions							
Number of service providers	7,000	7,000	7,000	7,000	7,000	7,000	
Number of service promoters	14,800	14,800	14,800	14,800	14,800	14,800	
Rate of entry for service promoters	7%	7%	7%	7%	7%	7%	
Cost per hour of due diligence per TCP/SP	25	25	25	25	25	25	
Number of complaints	12,000	12,000	12,000	12,000	12,000	12,000	
Number of investigation	1,200	1,200	1,200	1,200	1,200	1,200	
Percentage of code breaches reduced by registration service	0%	0%	0%	0%	0%	0%	
Percentage of complaints reduced by registration service	0%	0%	0%	0%	0%	0%	
Time per complaint - ICSTIS	n/a	n/a	n/a	n/a	n/a	n/a	
Time per complaint - consumer	n/a	n/a	n/a	n/a	n/a	n/a	
Cost per hour - ICSTIS	25	25	25	25	25	25	
Cost per hour - consumer	5	5	5	5	5	5	
Cost per investigation - ICSTIS	500	500	500	500	500	500	
Cost per investigation - TCP/SP/IP	200	200	200	200	200	200	
Number of adjudications	250	250	250	250	250	250	
Cost per adjudication - ICSTIS	1,500	1,500	1,500	1,500	1,500	1,500	
Cost per adjudication - Service provider	1,500	1,500	1,500	1,500	1,500	1,500	
Percentage of reduced code breaches	0%	0%	0%	0%	0%	0%	
Consumer harm from code breaches	20,000,000	20,000,000	20,000,000	20,000,000	20,000,000	20,000,000	
Cost assumptions							
Number of hours for CRS for initial DD	2						
Number of hours for Service provider for DD	1	1	1	1	1	1	
Proportion of SPs who need to update each year		30%	30%	30%	30%	30%	
Time per update for CRS	0.5	0.5	0.5	0.5	0.5	0.5	
Time per update for SP	0.5	0.5	0.5	0.5	0.5	0.5	
Historic number of adjudications	1250						
Time per adjudication	0.5						
Cost per hour	25						
FTE investigator/SP ratio	0.001	0.001	0.001	0.001	0.001	0.001	
Cost per FTE	30,000	30,000	30,000	30,000	30,000	30,000	

Annex B Systems implementation costs

B1 Introduction

This annex sets out the assumptions we have used in estimating the system costs of establishing and maintaining the expanded number checker (Option A) and the central registration scheme (Options B to E). There is little difference between the systems development costs for Options B to E and we have worked on the assumption that they are the same.

B2 Option A – the number checker database

Functional specification of costing purposes

We assume that the number checker gives information about the service provider rather than the service promoter. The functional specification for costing purposes is as follows:

- There is a single database with two modes of access – IVR on an ICSTIS service number and via the Web
- Each record provides details on a given 09 number or short code. Each record contains the number, the service provider's name and reference number[33], the service provider's contact details and the price of a call from a BT land line.
- The user specifies the number or short code and the number checker provides the name and contact details of the service provider and the price of the call
- The database covers (nearly) all 09 numbers and short codes. We might aim for 99% coverage. 100% coverage is not important – especially if this significantly raises the operating costs for the number checker.
- There is a data entry function which takes in information supplied by the TCPs in standard format on a regular basis, verifies it, and generates records for new and changed numbers on the database

Technical requirements

Figure B1 sets out the technical requirements for building a number checker database (NCD).

[33] To cross reference to the registration database. How do we make sure the reference number is the same in both the number checker and the registration database

Figure B1 Technical requirements for implementation

NCD Description requirement	*Benefits*	*Technical requirements*
~99% of all 09 PRS numbers covered (around 700,000 numbers)	Consumer query satisfied at first query on NCD	Single database with multiple data feeds Accurate entry of information Multiple querying/load considerations User administration and management
The data must be available on IVR platforms The data must be capable of being shared across other systems	Re-use of data Minimal administrative overhead Eliminate need to maintain discrete independent databases	Any of the data provided in the NCD can be ported to an IVR application through a scheduled update however one must consider the nature of the IVR service compared to that of the internet – the IVR service will need to repeat only selected data from the database to keep call durations as short as possible. It is assumed the possibility of TCP's updating the database via IVR is out of scope
Each service provider has a unique reference number to cross-refer to possible Service Provider registration database	Single data reference across 'both' systems if existing as discrete databases	For example a Provider reference generated from the SP Registration database populates a designated reference field within the NCD database. If both databases are in existence as separate systems one of the databases would need to be central to controlling and managing SP reference numbers – it is suggested that the Service Provider registration database would manage the allocation of reference number data for this field – new updates then automatically feed and populate the NCD. Put simply if the process were documented it is envisioned that entries in the number checker follows entries in SP registration process. If a record entry exists in NCD and there is no SP reference for the record then it should be definitive evidence that the SP has not registered. It would be possible for the administrative user to generate a report to pull out non-registered NCD entries for follow-up It would be important to have accurate service provider names would need to be universally the same across the systems OR Alternative to this TCP's instigate a universal numbering system for service providers to be adopted by the system
NCD captures requirements for: 118xxx services 070 numbers 0800 reverse Applicable international services	Maintains current service functionality as a minimum; stakeholders needs continue to be met	Application logic/business rules migrated and enhanced from existing NCD database

NCD Description requirement	*Benefits*	*Technical requirements*
Provide information on cost of call	Consumer obtains full details of cost of a call to the returned service	Database tables for call cost information validated against PRS 'prefix' or number. We could look at the existing ICSTIS complaint database application logic to understand the process of allocating a cost to a given prefix/number. Some 09 call costs operate within upper and lower limits; some prefixes are open-ended costs and short-codes do not have uniform costs allocated to codes. Therefore the manual monitoring and updating of cost information will be important to maintaining accuracy.
Provide information on where the service was promoted	Consumer obtains full details of where the service was promoted, ie, TV programme, SMS promotion, Website etc	Who would provide and maintain this descriptive information? This would be at a cost for both setup and ongoing operation. The issue is to maintain quality with large volume of data, as number ranges get broken down into discrete records by service type and promotional differences. Require a timestamp and 'promotion history' to allow for long-term querying and tracking of promotion history
Ability to query data concerning failed or not found numbers within remit	Administrative function to provide a degree of 'market intelligence' and ensure the data is user-centric	Web reporting functionality to maintain a log of user requests where no record was found
Provide information on service type, ie, competition service	Consumer/TCP can identify the type of service called	Data maintenance for service names; validate the service type offered at time of consumer call/service with date stamp Old service records are maintained as with promotional data
Extend short code offering to include keyword information	Consumer/MO can determine the provider where short codes are shared	Data source for short code/keyword database. Format and logic to be integrated from short code database wherever possible
Provide service provider name	Consumer has the name of the service provider of the service to aid resolution	Provider name lookup has relationship to number range information and if necessary a TCP reference can be built in (can be shared with SP registration record)
Provide service provider contact details	Consumer has the contact details of the service provider of the service to aid resolution	Link Provider Name with Provider contact record and Number range tables
Consumer/TCP can find historic data	Query where calls have been made between specific dates is answered, as above	SP/TCP data to capture 'version history' Ability to pull from archive data. Data is not deleted from the database up to a defined point (ie 3 years)

Figure B2 then sets out the updating requirements for the expanded number checker.

Figure B2 Updating requirements

NCD Description requirement	*Benefits*	*Technical requirements*
TCP's ability to update their service provider information remotely and to do so securely and in timely fashion with minimal training and operational overhead TCP's to have standard format to input data ICSTIS to have administrative rights access to all TCP areas	Use of 'extranet login' Spread administrative overhead Centralised and uniform process for validation of data Low administrative overhead; ease of use; ability to 'bulk import' data Quality Assurance; management of workflow Central administration and quality function	Secure login for TCP's and user management for Standard Data file exported to master database in common format Previous verified data cannot be 'overwritten' within the back-office environment hence the database will maintain a 'version history'. However the latest data is displayed One approach to minimise overhead is for each TCP to upload their entire data-file at regular intervals (bi-monthly) with incremental record updates contained within Validation routine is run on the file prior to upload in a test area. Workflow can be introduced which notifies TCP at what stage their data is at and whether there are issues with the data validation. Centralised administrative model for service, access to all TCP areas, email notification of updates, workflow control feature

When updating the number checker database we assume that validation checks of the following kind would be applied:

- Create table for provider name and a separate table for provider contact detail. Then create table to record number ranges and automate lookup prefix/number and validate against TCP
- Create timestamp/date range to validate against time with provider
- Create table for service name and attach to number range
- Formulate mechanism to validate:
  - number range for TCP 'X' and
  - number range for SP 'Y'.

  A further data maintenance table would need to record how the identified and validated number ranges allocated to 'Y' (via X) break down to type of service provided and where the service is or was promoted. This would be with a date stamp to ensure accurate recording of service/promotion and number history going back ' N' months
- Create a table of promoters (TCP/platform resellers 'client list' for their respective logins)
- SP validation: SP has a public reference number (each record will have its internal URN, or key ID which may or may not be the same number. This depends on the architecture decisions for the database).

Costings

Figures B3 and B4 sets out our estimates of the systems costs of implementing the expanded number checker. The following costs are excluded and are estimated separately in the CBA:

- Preparation of the data sources and preparation for migration

- Data migration costs
- Populating the database with new data

Other costs include:

- Cost of leasing software licences, server software and hardware
- Technical and operational disaster recovery plans
- Client project team setup and management.

Assuming that ICSTIS carries out these functions in house we estimate them at £20,000 per year.

Figure B3 Unit costs of resources required

Resource ID	Redesign project resources	Resource unit cost (£)
R1	Analyst/Reporter	450
R2	Database lead Developer	950
R3	Database developer	750
R4	Web developer (senior)	750
R5	Web developer	550
R6	Project Management	450
R7	Systems administrator	400
R8	Trainer	400

Figure B4 Total costs for the number checker systems development

Rebuild NCD project stages	Time (days)	Resource x Days required	Cost(£)
Scoping and analysis	52	35xR1, 10xR2, 7xR6	28400
Architecture/Build/prototype	76	15xR2, 25xR3, 10xR4, 20xR5, 6xR6	54200
Test and enhance	28	2xR2,10xR3, 2xR4, 10xR5, 4xR6	18200
Release	11	4xR3, 4xR5,1xR6,2xR7	6450
Training	10	10xR8	4000
TOTALS	**177**		**111250**

Finally we estimate the costs to the registrar in maintaining the database at £50,000 per year. This cost has two main components:

- An annual software maintenance cost of £22,000 pa (20% of £110,000)
- The cost of employing one FTE database administrator at £28,000 pa.

B3 The central registration scheme (Options B to E)

Functional specification of costing purposes

In summary the service will be designed to meet the following needs:

- Provide end-users (TCP's) with the capability to derive sufficient information in order to make decisions on whether to undertake a contract with the service providers
- Provide a centralised application and registration service for service providers, allowing them secure login provision to apply, manage and update their information in relation to the Code of Practice requirements on due diligence
- Provide the Registrar with a fair and transparent records management system and a means of applying due diligence criteria fairly across all service providers.

The user front-end will operate via publicly available browser-based interface accessible over the internet

Users will be able to perform searches that returns information on the history of individuals within service provider concerns as well as being able to determine the overall regulatory reputation of service providers

The service will provide information on all service providers

Service providers will be able to use the system to register as a service provider and obtain a unique reference number that can be used as universal identification within this system and any related systems such as the NCD.

The Registrar will need to ensure the requirements of due diligence as laid out in the Code of Practice are met. 'Fit and proper' due diligence on service providers should be carried out by the terminating network provider, but only after the central Registrar has issued a certificate to that provider on the basis that due diligence in relation to identity of the SP has been provided.

If the service provider does not have a registration certificate, the TCP should not contract with that provider and the SP should register first.

Technical requirements

TCP/regulatory requirements

In order to operate PRS on their networks, network operators must ensure they hold information that allows effective identification of and communication and with their service providers.

If the system is to work for TCP's and providers then to satisfy the relevant sections of 2.3.1 we must capture the following details:

- To satisfy 2.3.1(a) requirements:
  - Service provider location address; Service provider contact address (if different from location address) & phone, fax number and email address
  - Legal status: company, partnership/parent or company group status*
  - Company registration number (if applicable); Director(s) name (for each director)
  - Director home address (for each director)
  - Registered offices address*
  - Name of Director responsible primarily for PRS; his/her individual phone and fax number and email address
  - SP's member of staff's name (responsible for day-day operation of each SP's PRS) and phone, fax number and email address
- To satisfy 2.3.1(c) requirements:
  - Capture evidence of identity verification in respect of the director with primary responsibility for PRS, and the person responsible for day-to-day service provider PRS operations.
- To satisfy 2.3.1(d) requirements:
  - Record and track the following: All correspondence in relation to identity verification between the network operator and service provider

- An (electronic) copy of the actual evidence provided by the service provider to the network.
- A method of recording that the evidence provided meets the requirements of the network and the Code of Practice
- A method of enabling the evidence required under the Code to be made available to the regulator.

Establishing the regulatory reputation of the service provider

The database will need to be able to either refer or hold the following in relation to a queried provider:

- The number of breaches upheld against the registered service provider
- The type of Code breaches upheld against the service provider
- When the breaches were upheld against the service provider
- (Possibly, the nature of complaint against which the breaches were upheld and the number of public complaints)
- The fines attributed to the service provider
- The sanctions against the service provider
- Directorship history for each director of the service provider responsible for PRS.

To maintain a record of individuals associated with service providers, a key design element would be to match the queried service provider director (by name/surname etc) to a service provider company. This needs to be recorded over a particular period of time. One way of doing this is to create a maintenance table within the database called *Directorship history*. This would contain details of all the directors for all known service provider companies. For a given individual there would need to be an associated current 'service provider' and also several previous service providers, according to the individual's directorship career within the PRS industry. The relationship is established with Provider maintained in a Provider table for Service Providers (use drop-down of standard service provider list). The initial input of this information is outside the scope of the specification however the registrar would be able to maintain the period of service and complete directorship history for that individual. A null date in 'end date' for the last 'service provider' listed could, for example, signify this provider as current and therefore one with which the individual is currently serving a directorship.

There may be more than one directorship being served simultaneously; this would need to be captured within the history record. This would also need to be maintained, ie change in directorships for service providers will need to be verified by the Registrar and input by either the service provider's administrator or TCP.

The end result of this is that users can search for breach histories of service providers *and* establish the director individuals responsible at the time the breaches were upheld.

Once the user has returned the correct individual, or service provider company, breaches of the Code need to be linked to sanctions and fine information. This information is already held by ICSTIS and is key to its operational remit and function. Therefore this data could be sourced for the 'reputational' element of the SP registration database.

An alternative and more complex way of gauging SP reputation is to use a 'weighting' system to calculate the overall reputation rating of the service provider. This could be done by taking into account the number and type of breaches against the service provider company or individual; the fine level (amount of fine), the context of the breach, ie consumer public harm level, length of time the

service provider has been in the industry and the sanctions. This would also need to be linked to individual directorship history of each director responsible for PRS in relation to previous PRS industry involvement with other companies. Use this formula to provide the overall rating of the service provider in terms of regulatory compliance on a scale of say 0 to 5. Users can then go back and search each individual's history and thereby track their performance in previous service provider undertakings. This suggestion serves only as an illustration and does not form part of the costings given below.

Each provider will have a unique reference number within the registration system

As stated in the draft working paper, the individual TCP's methods for 'satisfying themselves' as to the accuracy of the identification of the directors is variable. This would need to be uniform across all TCP's with the employ of a central registrar to enable transparency and a level playing field for providers. Possible verification of identity: UK/EU passport, UK/EU Drivers Licence for the necessary individuals, national insurance number/verification from financial institution. It may also be feasible to accept a 'reference' from an established institution or individual such as a bank or registered accountant. For UK companies, a cross check with Companies House.

One possible solution to the service provider registration process is to grant each service provider access to the registration portal, via secure portion of the site called a 'workspace' Example of the registration process together with how the system could work to facilitate that process. For a new service provider:

- Provider navigates to secure website (eg https://portal.registrarservice.com)
- Provider clicks link 'Register with the PRS Provider Portal'
- When provider clicks link it opens the registration form
- Provider is required to fill in the registration application form with a number of mandatory fields. This can be an Adobe Smart Form, ie, certain fields are populated directly from the Registrars database. This could be useful where there are potential for errors such as address and postcode data – this helps with speeding up registrar time taken to perform identity due diligence.

Service provider will be able to upload electronic copies/ of required identity verification such as passport scan/reference letters/drivers licence. Alternatively the service provider can upload electronic documents and enter, for example, a valid passport number. (The Registrar would need to cross check the provided information. This would most likely be a manual operation)

When service provider has completed the mandatory field and is at the stage of completing the form s/he can click a button which instigates a 'generate reference number' engine on the web/database server. This will generate a unique application reference number which will be emailed to the applicants email address supplied earlier in the form. This process can happen 'live' (the applicant will have the option to save the form and complete later but would need to generate a new reference number). When the applicant receives the reference number s/he will need to cut and paste it into the designated reference number field within the form.

Once the above is complete the service provider submits the form, having agreed to the registrar's terms and conditions and accepted the privacy and data protection statements.

This provides the Registrar and applicant with a valid application reference number that helps the applicant track the status of the application.

A unique service provider reference number is generated and allocated to the service provider once the Registrar has completed its due diligence and the application is approved. In order for the service

provider to manage its due diligence information updates and registrar-related administration itself, a secure 'portal workspace' is allocated to the service provider company upon successful application and the granting of a Service Provider Number.

Registrar can issue a registration number electronically by email to the applicants email address. In addition the new service provider applicant would also require an authentication code which will allow the service provider to login to their portal workspace. As an additional measure of security the authentication code could be sent by post to the service providers registered address.

The service provider now has secure administrative access to its workspace. The provider workspace automatically calculates the time between successful application (and therefore creation) of the portal workspace and time for requesting confirmation that the information is up-to-date or renewal. The system will use this to automatically send reminder emails at set intervals (to be determined by the Registrar) to the workspace administrators email address seeking confirmation that the details are up-to-date. At a given date, if the service provider has not either confirmed details are up to date or changed details then the service provider registration number is revoked.

At the front-end, if a user where to look up a service provider who has a certain 'time to live' for the registration number, the front interface will show on such a query return that the service provider in question has been asked to confirm its details and will count the number of days left for registration. Essentially this will give the user the service providers' registration status.

End-user functions

As the service will be fronted by a web interface that queries a database of information, users (envisaged in the main to be TCP's) will be able to perform a number of queries across the data.

The purpose of the service is for the user to quickly perform a search on the service provider company name, or by Service provider number (registration number or SPN), search for provider details by postcode, region (UK) or country.

In terms of individual directors, users will be able to enter full name, first name or surname for the system to return a possible list of matches

If the query is successful the user will be able to query the provider that individual currently is a director for, and can then query for upheld breaches against the service provider, together with the adjudication summary and sanctions. Optionally a link could be provided to the details of the complaint and the context within which the breach occurred.

The service could return all breaches against the provider (going back to a maximum of 5 years). If there was a change of Director history this would need to be associated with the result.

Users would be able to search on the history of a Director, by using surname, finding a match then by performing a directorship history lookup, all of the associated service provider companies could be matched against the individual name. The end-user could then search against those service providers for the breaches upheld during the term of the individual's directorship at the company.

End users could register for information updates (via email address) for any or particular updates of interest against a service provider registration record: they could therefore be notified of any change to that service providers details.

Search results can be saved locally by the user or printed off. Other searches could include 'wildcard' search on all service providers with particular breaches upheld against them, service providers with fines >£x and so on.

Administrative functions

There would need to be a host of administrative features available to the Registrar in order to maintain and update the database, this includes manually updating any of the given fields within a service provider record; to be able to perform data validation against breach histories, to ensure directorship details are maintained and to run reports on new applications and those Registrants that need to renew/confirm their registered status.

It will be imperative that the system does not lose historic data. Therefore the setup will need to be robust as effectively the data that the system retains is not merely internal data for the Registrar, but is effectively a form of records management system with regulatory implications for those who form the subject of the data. This includes directorship changes, company name changes, change of address, change of staff and administratively responsible personnel, dissolution and winding up of a company or partnership etc. In this respect the database must maintain a 'version history' of the service provider and directors registered within the service. Snapshots of data at a particular time period must be readily available and verifiable and not be data that is subject vulnerabilities of data and record loss.

It would be important for the system to maintain start and end dates for all of the key data held on the system. Service providers should be able to log into their workspace and update their details securely at any time. At the administrative level the system will then email or report on changes to back-office Registrar staff who would be required to verify the change and approve it. The status of the service provider record is then changed to reflect the validation process undertaken by the registrar.

A number of tables would need to be created to record items such as all of the Code of Practice breach code paragraphs, fine bands and all available sanctions. These would then need to be associated with service provider name and provider registration number (an administrative function that could be manually updated or fed from ICSTIS adjudications data. It would be important to ensure data integrity here.

The registrar would maintain applicant workspaces with all correspondence. It may be possible for the applicant to visit the portal and track the status of their application through the use of maintained statuses which the Registrar would use to update the status of the application. Post successful registration, any subsequent update would need to be recorded at the end-user so that for example, a TCP would know that a director has just left (and that is awaiting approval by the Registrar).

Costings

Figures B5 and B6 set out our estimates of the systems costs of implementing a central registration scheme. These costs exclude the following:

- Administrative cost of initial registration
- Populating the database with breach history/fine history/sanction and adjudications history and 'associated individual' data migration prior to day one of the service going live.

These costs are estimated separately in the CBA.

Other costs include:

- Any IT related setup costs (Cost of purchase of software licences, server software or hardware)
- Ongoing technical support for the service
- Technical and operational disaster recovery plans
- Standards compliance for usability and accessibility of the site.

Assuming that ICSTIS carries out these functions in house we estimate them at £20,000 per year.

Figure B5 Unit costs of resources required

Resource ID	Redesign project resources	Resource unit cost (£)
R1	Senior analyst/Reporter	750
R2	Database lead Developer	950
R3	Database developer	750
R4	Web developer (senior)	750
R5	Web developer	550
R6	Project Management	450
R7	Systems administrator	400
R8	Trainer	400

Figure B6 Total system costs for the central registration database development

Costings for SP registration Build	Time (days)	Resource x Days required	Cost(£)
Scoping and analysis	70	40xR1, 20xR2, 10XR6	42650
Architecture/Build/prototype	117	40xR2, 25xR3, 20xR4, 20xR5, 12XR6	88150
Beta pilot test	43	10xR2,10xR3,10xR4, 10xR5, 3xR6	31800
Enhance and release	17	4xR2, 4xR3, 2xR4 4xR5,1xR6,2xR7	12200
Training	15	15xR8	6000
TOTALS	**262**		**180800**

Finally we estimate the costs to the registrar in maintaining the database at £60,000 per year. This cost has two main components:

- An annual software maintenance cost of £36,000 pa (20% of £180,000)
- The cost of employing 0.8 FTE database administrator at £28,000 pa.