Review of Non-Geographic Numbers

DotEcon Response to Consultation 17/70

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An Coimisiún um Rialáil Cumarsáide
Commission for Communications Regulation
1 Lárcheanter na nDugaí, Sráid na nGildeanna, BÁC 1, Éire, D01, E4X0.
One Dockland Central, Guild Street, Dublin 1, Ireland, D01, E4X0.
Teil | Tel +353 1 804 9600 Suíomh | Web www.comreg.ie

Non-Geographic numbers in Ireland

DotEcon Response to Consultation 17/70

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DotEcon Ltd
17 Welbeck Street
London W1G 9XJ
www.dotecon.com

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1 Introduction

DotEcon carried out a strategic review of Non Geographic Numbers (NGNs) as an input to ComReg's consultation document 17/70 published on 16 August 2017.

In the consultation, ComReg put forward the following three questions, to which 19 responses were received:

1. Do you agree with ComReg's proposal to introduce the 'geo-linked' NGN measure (for '1850', '1890', '0818' and '076')?
2. Do you agree with ComReg's proposal to withdraw the '1850', '1890' and '076' NGNs following a 2 – 3 year transitional period?
3. Do you agree with ComReg's proposed NGN transparency measures?

On the geo-linked NGNs, the main concerns raised were in relation to the fact that this would lead to calls to NGNs being included in bundle and bundles are designed (at present) based on the costs of providing geographic calls, not calls to NGNs.

The withdrawal of number ranges and the transitional period was disputed by some service providers (SPs) who had concerns with the costs involved and/or the implications of no longer having access to a specific number range.

In general, there was support for the proposals for improved transparency measures and no respondent explicitly opposed the measures. However, there was demand for further details of how the transparency measures would be implemented.

Whilst ComReg will respond to the comments on the consultation in its own Response to Consultation and Draft Decision document, the purpose of this supplementary report is to address comments from respondents that specifically referenced points made in the DotEcon report.

We consider the points raised by respondents. In particular, some respondents appear to dispute that there is in fact any problems with NGNs at all, arguing that there is no bottleneck control afforded to originating operators (OOs) and that the NGN market is small/in decline and that intervention is not really necessary. We also discuss the issues raised by respondents in regard to introduction of a geo-linked NGN and on the consolidation of NGN ranges.

We do not consider that any of the issues raised fundamentally affect the main conclusions drawn in our report and the proposals of ComReg in relation to retail remedies.

However, we do acknowledge that a number of respondents raised concerns relating to the consideration of the retail market and retail remedies without any consideration of parallel remedies in the wholesale market. Many argued that ComReg should assess the wholesale market first (or at least consider retail and wholesale in parallel).

We recognised this point in our original report. While the original report dealt with evidence of harm to consumers and SPs, which is relevant for both wholesale and retail markets, the development of potential interventions in the original report focused mainly on the retail market and provided limited discussion of regulatory options at a wholesale level.

In this report we take further account some of the specific wholesale concerns raised in response to the consultation and consider the options for intervention at a wholesale level in more detail. We have developed our assessment of the evidence of harm, which leads to a justification for intervention in the wholesale market. We examine the extent to which intervention in the wholesale market is required and set out how this may best be achieved. Whilst we provide high-level recommendations, we expect that ComReg will consider the detail of any proposed action in a further consultation that will specify how any obligations are to be implemented.

We have grouped the issues covered in this report into two main parts:

Part 1 – Retail issues:

- The case for intervention in the retail market (Section 2);
- Retail remedies (Section 3):
    - Introducing a 'geo linked' NGN;
    - Consolidation of NGNs.
- Summary position on retail issues and remedies (Section 4).

Part 2 – Wholesale issues:

- The interaction between retail and wholesale markets (Section 5);
- The case for intervention in the wholesale market (Section 6);
- An assessment of candidate remedies (Section 7).

2 The case for intervention at retail level

Some of the responses to consultation appear to dispute the need to intervene in the market for NGNs at all. These respondents suggest that there was no evidence of consumer detriment in the market, that discussion around the high costs faced by consumers is not supported by the survey evidence, and that the NGN market is in decline.

However, we consider these views are contradicted by the evidence already collected as part of our research. We remain of the view that there are failures in the market that are leading to welfare losses and that intervention is necessary to protect consumers and SPs.

2.1 Consumer detriment

Consultation responses

In Three's response, it argued that no consumer detriment had been identified and that given there are substitutes available for consumers seeking to contact SPs, a lowering of the price for NGNs would not stimulate an increase in calls. Specifically, it argued that:

- *"No actual consumer detriment has been shown from the research or the analysis of same. No measure of the detriment has been calculated and neither has the cost or the benefit of the proposed measure been quantified" and*
- *"In its report, Dotecon [sic] seems to have incorrectly concluded that there is suppression of contact with service providers at present leading to consumer detriment, and also that the proposed solution is to geo-link the price of calls to NGNs which will lead to more calls being made and create a consumer surplus. This theory ignores the fact that NGN calls are substitutes for other calls. It also seems to have missed the fact that most consumers prefer to use geographic numbers and that they would not prefer to use NGNs even if the price was reduced. It is difficult to see how Dotecon's [sic] theory is supported by the facts available."*

DotEcon response:

DotEcon does not agree with Three that there has been no consumer detriment in the NGN market in Ireland. As part of our research we identified a number of problems with NGNs that are currently harming consumers:

- retail prices for calls to these numbers are high (particularly from mobile), especially when viewed in the context of the large number of phone tariffs which include 'free' calls within a bundle allocation;

- there is a lack of user-understanding to the extent that retail tariffs for calls to NGNs are not sufficiently clear to customers to calculate the charge for a call upfront;
- there is also a lack of transparency and customers do not understand how calls to NGNs are charged in relation to their subscription package and they may not understand the different designations for each of the five types of NGN;
- the lack of understanding and high retail and wholesale prices are affecting usage of these numbers which can result in harm through lost consumer surplus.

Each of these points was supported by evidence on actual retail prices for calls to these numbers, findings from the consumer survey and findings from the operator information request.

There is a solid body of evidence to demonstrate consumer detriment

In particular, we presented a solid body of evidence that shows customer behaviour has been adversely affected by high costs, perceptions and lack of understanding. These findings were presented at section 5.4 of our report (17/70a). In particular:

- 25% of customers who - after receiving a bill or checking call costs - stated that they had discovered the cost and were surprised at how expensive calls to these numbers were (slightly higher for mobile customers relative to those typically calling from landline).
- For those callers who were surprised at the cost of calling an NGN, only 17% of landline and 11% of mobile callers stated that their behaviour had not changed as a result. The majority of callers either stopped calling NGNs completely, or reduced the frequency or duration of their contact to only calling NGNs when absolutely necessary.
- Over 68% of those surveyed avoid calling NGNs altogether, from landlines and from mobiles.
- Of those avoiding calling specific NGNs altogether, the reasons provided for doing so include: "*I know how much it costs per minute/per call and I think it's expensive*" and "*A previous telephone bill had an unexpectedly large cost for one of these numbers and because of that I prefer to avoid dialling NGNs*" were reported.
- Of those reporting to avoid calling specific NGNs altogether, the most common rationale provided was "*I don't know how much it costs per minute / per call but I avoid it because I think it's expensive*".
- These responses demonstrate that transparency/awareness issues play a role. This data is consistent with some consumers not ringing NGNs as they perceive them to be expensive and then failing to acquire information about charges as a result of not ringing.
- 61% of those who had ever dialled NGNs typically did so with reservations and indicated, amongst other things, that

> they would make a NGN call only when it was urgent and they could not delay, that they would seek to keep the call as short as possible, and that they would be concerned about the cost of the call.

Consumers are avoiding making calls to NGNs as a result…

As well as the survey evidence that indicates people are avoiding these numbers, this hypothesis is supported by evidence that shows that the volume of calls to these numbers has been falling over time. For example, "*between 2011 and 2015, calls originated to these numbers have fallen from around 300 million calls per annum to around 255 million calls per annum, a reduction of 15%. Over the same period, the total of all other voice calls has fallen by only 3.3%.*"[1]

There are good reasons that overall volumes of voice calls are falling, primarily due to increased use of texting, over-the-top services and social media. Nevertheless, there are potential use cases for NGNs that are unaffected by these trends, such as the need to provide contact points and product support numbers that are accessible to all and freephone numbers where calling costs are paid by the recipient. Therefore, and especially given our evidence of high and unclear pricing of NGN calls, these volume trends cannot be taken as supporting a proposition that the NGN platform is in underlying decline. (We discuss this in more detail in Section 2.3 below.)

…and therefore lose out on accessing potentially valuable services

The above points provide evidence to support that view that that consumers are deliberately avoiding making calls to these numbers because they are (or think they are) expensive. It stands to reason that if callers modify their behaviour as a result of believing or discovering that prices are "*too high*" and, as a result, do not access valuable services then they will lose out.

As noted by Three, we accept that this theory would not hold if geographic numbers were a perfect substitute for NGNs and alternatives were readily available, as consumers could still access the services they require. Furthermore, we acknowledge that that the consumer survey found that 39% would prefer to use a landline number to access services (where available), and 41% considered there to be no difference between an NGN and a landline.[2] In those cases where a geographic equivalent number is provided by the services provider NGNs and GNs are substitutes.

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[1] See page 48 of ComReg document 17/70a.

[2] Question 28 of consumer survey: For each statement please indicate whether you associate this more with calls to landlines, calls to NGNs or whether there is no difference? Base: All aware of NGNs

(footnote continued)

Alternative means of contacting organisations are not always available

However, 66% of those calling NGNs indicated that they had no option but to call the NGN (with only 14% stating that they did have the option of calling an alternative non-NGN).[3] This suggests that in consumers' experience substitutes are not always readily available and even when they are, they may still prefer to use the NGN. We did show that there are a number of customers who do prefer using NGNs to access services (19% of those aware of NGNs[4]). Despite the current issues with the regime, so consumers do still value being able to use NGNs.

Therefore, there is clear evidence to show that there are not suitable alternatives in many instances and NGNs are still an important route for consumers accessing services. These consumers would be better off if the cost of calling these numbers were lower.

Whilst we did not explicitly quantify the detriment, it is clear that for those customers and/or SPs who value using NGNs over alternative forms of contact (or do not have access to alternatives), any suppression of call volumes or provision of services over NGNs will have a negative impact on welfare.

2.2 Consumer perception of cost

Consultation responses

Sky claimed that the wrong conclusions had been drawn from market research, particularly on consumers' perception of cost and that the high costs of calls to NGNs were deterring callers. Specifically, it argued:

> *"In Sky's view there is a contradictory theme throughout the results of the B&A Consumer and Organisation Survey findings. The Consultation argues on the one hand that a significant number of consumers (i) do not know how NGN calls are charged and (ii) do not know, or cannot reasonably estimate, the retail tariff for any NGN call in advance (See paragraphs 4.l(b) and (c) of the Consultation). The Consultation goes on to provide in Paragraph 4.l(d) that relatively high NGN retail prices deter a significant number of consumers from calling NGNs and/or cause a significant number of consumers to call NGNs only when absolutely necessary.*
>
> *We fail to see how a significant number of customers can be unaware of the costs but still have knowledge that those costs are high. ComReg presents a range of evidence from surveys and interviews with consumers that it purports substantiate a*

[3] Question 29 of the consumer survey: Thinking about your call via an NGN did you have a choice of a number apart from the NGN to ring (e.g. Landline 01, 021, etc. number), or not? Base: All ever dialed NGN

[4] Question 28 of consumer survey: For each statement each statement please indicate whether you associate this more with calls to landlines, calls to NGNs or whether there is no difference? Base: All aware of NGNs (919)

significant consumer problem. Our reading of that evidence is different. ***Sky concludes that for most consumers the cost of NGN calls, their cognisance of the price, and the impact of the price to them is of little importance****."*

DotEcon response:

It is true that many consumers could not correctly provide the costs of calls to these numbers. However, despite the fact that the majority of consumers were neither confident in knowing the cost of calls nor have looked up the cost of calls, it is clear that consumers still have a *perception* that making calls to these numbers is costly - 49% of customers thought that calls to NGNs are expensive relative to calls to landlines.[5] Sky is incorrect to assert that there is a contradiction between consumers not knowing prices and having a belief that prices are high. Indeed, this might be an entirely self-consistent set of beliefs for consumers to hold, in that if they expect prices to be high, they do not make NGN calls and do not discover their actual price.

Actual costs and consumer perceptions of costs are high

It is also clear that many customers recall thinking calls are expensive when reviewing a bill. For example, 25% of customers who - after receiving a bill or checking call costs - stated that they had discovered the cost and were surprised at how expensive calls to these numbers were. Therefore, it is quite possible for consumers to come to a view that prices are high through an experience of bill shock and still at the same time not know the actual price per minute of an NGN call.

Irrespective of consumers' perceptions, we also provided concrete evidence of the actual prices of calls to NGNs showing that they were typically much higher than calls to geographic numbers at the point of use (particularly in the case of mobile).

Customers avoid calling NGNs as a result

Furthermore, and as described above, there are a number of customers that choose to avoid making calls to NGN specifically because they are (or think they are) expensive.[6] This changed behaviour is consistent with consumers holding beliefs that these calls are expensive.

Therefore, it is true that although few were able to give the exact price of the call there is enough evidence for them to consider avoiding calls to NGNs based on their perception of price, which is due, in part, to lack of transparency of the pricing of the NGN

[5] Question 28 of the consumer survey: For each statement please indicate whether you associate this more with calls to landlines, calls to NGNs or whether there is no difference? Base: All aware of NGNs

[6] For example, of those avoiding calling specific NGNs altogether, the reasons provided for doing so include: "I know how much it costs per minute/per call and I think it's expensive" and "A previous telephone bill had an unexpectedly large cost for one of these numbers and because of that I prefer to avoid dialling NGNs" were reported.

regime and in part by the high actual price of calls to these numbers (particularly from mobiles). There is no contradiction here.

We also disagree with Sky's hypothesis that the impact of the price of NGNs is "*of little importance*" to callers. As shown above, a large number of callers have changed their behaviours based on price. What is relevant is the adverse effect on those discouraged from calling NGNs, rather than the number of callers who might still call NGNs and have not changed their behaviour.

We accept that there are a number of customers who admit that they "*don't particularly care about the cost*", however this was only a small number (around 7% of those aware of NGN).[7] It is also true that some customers are "*not at all vigilant*" about the costs of NGNs as part of the overall landline/mobile spending (around 21%),[8] and some customers "*don't pay attention to the cost of calls to NGNs*" (37%)[9].

However, as shown by the evidence and discussed above, there are a number of consumers who *have* changed their behaviour in response to actual (or perceived) costs of calling NGNs. For example, many users did adjust their behaviour after becoming aware of what they were charged for NGN calls, making fewer (or no) NGN call. 83% of those surprised at how expensive the calls to NGNs were changed landline call behaviour and 89% changed mobile call behaviour as a result.[10]

Consumers and SPs lose out as the value of the NGN system is undermined

Even if the number of consumers affected was small and/or NGNs only make up a small share of total calls, this does not mean that harm does not occur where retail prices are excessive or unclear. If, at the point of making a call, customers experience (or perceive) any unnecessary barriers to calling these numbers, there may be a reduction in the number of customers calling NGNs. In turn, the value of NGNs to the SPs is reduced.

There is a loss for consumers who think prices are higher than they really are (as they do not call when they should) and also for consumers who think that prices are lower than they really are (as they call too much and may experience bill shock). Notice that one possibility is that consumers are fearful about high prices, never call

[7] Question 10 of consumer survey: Thinking about [insert NGN aware of from Q3] please indicate which statement you associate most with this number. Base: all aware of specific NGN.

[8] Question 16 of consumer survey: To what extent are you vigilant when it comes to the costs of NGNs as part of your overall landline/mobile spending e.g. do you look at how much you spend on these calls? Base: All adults aged 18+

[9] Question 17 of consumer survey: Which of the following most accurately reflects how you've felt after receiving a bill or on reviewing call costs which included an additional cost related to calls to NGNs? Base: All ever dialed NGNs

[10] Question 18 and 18a of the consumer survey: You mentioned you were surprised at how expensive the calls to non-geographic numbers were, did this affect your landline (mobile) phone call behaviour to these numbers in any way? Base: All surprised at expense of calls to NGNs and have landline (mobile)

as a result and so never find out what prices really are (so incorrect beliefs are never confounded). Therefore, measures to tackle high retail prices and improve the transparency/awareness of the specific pricing structure for these NGN numbers should have a significant impact on the way customers perceive and use these numbers.

2.3 Declining market

Consultation responses

Several respondents made comments relate to the "*decline*" of the NGN market and claimed that NGNs are "*increasingly insignificant*" as SPs look to offer alternative communication channels to customers. Specifically:

- **Three considers that the research shows NGNs are increasingly insignificant -** *"The research reveals that NGNs are not important for most organisations and overall, most organisations would prefer not to use a NGN…It is interesting to note that the majority of organisations would not even consider using NGNs in future if the costs were reduced. This would seem to undermine Dotecon's thesis that there would be an increase in calls if this was the case."*
- **Vodafone commented that the market is in decline** – *"NGN is a declining market. This is clearly identified on ComReg's documentation. The reasons for this decline are not as simple as presented in ComReg's document. Service Providers are choosing to offer alternative communication channels to their customers - these services are typically cheaper to operate than answering voice calls."*

Eir also made a number of comments suggesting that the market was in decline and that the time for intervention has passed:

- *"ComReg and DotEcon appear, however, to be of the view that the proposed remedies will break the cycle of this negative feedback loop and result in more SPs using NGNs and/or improved associated services leading to an increase in the number of callers using NGN services. eir considers that no tangible evidence has been provided in support of this assessment. In fact ComReg's proposals are at odds with the material it presents. The market research suggests that both service providers and consumers have either lost faith with the use of NGNs or consider them to be irrelevant but ComReg proposes a series of disruptive and costly measures which it believes will re-invigorate the use of NGNs. As we have noted already the time for NGNs (with the possible exception of 1800) has passed."*
- *"DotEcon notes that "around 10% of businesses in Ireland are providing services over NGNs. There is a general perception amongst businesses that the costs of using NGNs are high,*

both for the business and for its callers." However, eir also notes that among those survey respondents who are current NGN users, 3 in 4 also provide a landline number and a third provide a mobile number for customers to access the same service as the main NGN."

- *"In addition, "call traffic to NGNs has fallen over the past five years [..] Although the data included in DotEcon's analysis only covers the period from 2011 to 2015, this is a trend that eir has seen continue at an accelerating rate consistent with a natural migration."*
- *"The decline in the total volume of calls to NGNs is likely as a result of both consumer preferences as well as migration by SPs from NGNs to geographical numbers or other platforms, illustrating the feedback effect present in the market."*

DotEcon response:

Calls to NGN have been falling faster than all other voice calls

As we recognised in our report, there is evidence of a decline in the market in terms of reductions in the numbers of calls to these numbers. (In particular that, *"between 2011 and 2015, calls originated to these numbers have fallen from around 300 million calls per annum to around 255 million calls per annum, a reduction of 15%. Over the same period, the total of all other voice calls has fallen by only 3.3%*") and accept the evidence put forward by eir in its response showing the decline has continued (potentially at a faster rate) since 2015.

Whilst accepting that there may be many contributing factors here, as indicated by the survey results the reason for the decline of NGN calls is likely to be exacerbated (if not caused) by the costs and/or lack of understanding about these numbers.

There is clear evidence that consumers and SPs have reduced their use of these numbers as a result of the problems identified

In its response eir points out that "*[t]he decline in the total volume of calls to NGNs is likely as a result of both consumer preferences as well as migration by SPs from NGNs to geographical numbers or other platforms, illustrating the feedback effect present in the market*." We presented evidence to show that consumer preferences and SPs decisions to not use NGNs (or to stop using NGNs) are influenced by the failings of the existing regime. For example, in addition to the results from the consumer survey (reported in the two sub-sections above) there was clear evidence from the organisation survey to show that SPs decisions not to use NGNs are influenced by costs:

- 30% of those organisations who have never used NGNs stated that this was because NGNs are too expensive for the organisation to use;[11]

[11] Question 23 of the organisation survey: Why does your organisation not use any Non-Geographic-Numbers to offer services? Base: all never used NGNs.

(footnote continued)

- 28% of those organisations who have never used NGNs stated that this was because NGNs are too expensive to call for customers; [12]
- Of those that no longer use a specific NGN the expense to customers and the expense to the organisation were given as key reasons why.[13]

However, there are a number of SPs that would use NGNs if the costs were lower:

- 40% of organisations that do not use NGNs because they are too expensive for customers to call would consider using NGNs if customer costs reduced,[14] and
- 44% of organisations that do not use NGNs because they are too expensive for the organisation to use, would consider using NGNs if the costs to organisations were reduced.[15]

Organisations would consider using these numbers more if the costs were reduced

This contradicts the argument put forward by Three that organisations would not start providing NGNs if the costs (for consumers and/or organisations) were to reduce. Whilst acknowledging that the costs to SPs may be influenced by the underlying wholesale pricing regime for NGNs (an issue that is considered in more detail in later sections of this report), we consider that this, together with the evidence on consumer behaviour shows that if more organisations do start using NGNs and consumers are more willing to call these numbers in the face of lower costs, the proposed remedies around lower retail prices and improved education/transparency and simplicity of the overall regime will encourage use of these numbers (particularly where there are no suitable alternatives) re-invigorating the regime, contrary to the arguments of eir.

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[12] Question 23 of the organisation survey: Why does your organisation not use any Non-Geographic-Numbers to offer services? Base: all never used NGNs.

[13] Question 21 of the organisation survey: You said that your organisation previously used (insert NGN as appropriate from Question2a) number. Why does your organisation no longer use this number? Base: all who previously used NGNs (*caution small base size)

[14] Question 24 of the organisation survey: You said that you do not use Non-Geographic-Numbers because they are too expensive for customers to call, would you consider using Non-Geographic-Numbers in the future if the customer costs of calling these numbers reduced? Base: All who think NGNs are too expensive to call for customers

[15] Question 25 of the organisation survey: You said that you do not use Non-Geographic-Numbers because they are too expensive for the organisation to use, would you consider using Non-Geographic-Numbers in the future if the organisation's costs of using these numbers reduced? Base: All who think NGNs are too expensive for the organisation to use.

(footnote continued)

Voice remains the preferred method of contact for consumers and SPs value characteristics of NGNs over geographic alternatives

Whilst Vodafone comments that some SPs would be shifting away from voice calls to cheaper alternatives, we acknowledge that this would be an imperfect outcome for consumers. The results of the consumer survey show that voice-based communications are consumers' preferred method of contacting organisations: 67% of consumers prefer to access services by telephone (landline or mobile) rather than online (19%) or in person (10%),[16] and there are a number of customers who do prefer using NGNs to access services (19% of those aware of NGNs[17]), despite the current issues with the regime. Furthermore, there are still a number of reasons why SPs decide to offer NGNs to customers. For example, the main factors given by SPs for using NGNs were to:

- allow customers to access the organisation's services free of charge (61% of those currently using 1800);
- reduce the costs to customers of calling the SPs (62% of organisations whose main NGN is not 1800);
- provide memorable contact numbers (59% of organisations where main NGN is not 1800);
- offer a single contact number (59% of organisations whose main NGN is not 1800); and
- avoid showing where the organisation is based, or so that the organisation can change address without changing contact number (11% and 41% of organisations whose main NGN is not 1800).

Therefore, we consider that the evidence shows that alternatives to NGNs, and voice calls in particular, are not yet credible substitutes for callers or called parties and there is still a market for a well-functioning NGN system.

To not intervene at all on the basis that the market is in decline (as some respondents have suggested) would not be appropriate and would be contrary to ComReg statutory objectives. There are a large number of SPs that would have clear requirements for NGNs and choose them over geographic alternatives. Where alternatives are not available consumers would continue to be exposed to high retail charges and consumer harm would continue for those customers who have no choice but to call these numbers. Those customers must be protected from continuation of harm.

[16] Question 2 of the consumer survey: What is your preferred method for contacting businesses or organisations? This may include but is not limited to banks, utilities, charities, government services etc. Base: All adults aged 18+

[17] Question 28 of consumer survey: For each statement each statement please indicate whether you associate this more with calls to landlines, calls to NGNs or whether there is no difference? Base: All aware of NGNs (919)

2.4 Call origination

Consultation responses

Some operators argue that OOs do not hold significant market power or bottleneck control given that there are alternative ways of contacting SPs other than via NGNs and that the review has, therefore, not considered the competitive circumstances in the markets for call origination. Specifically:

- **Three argue that we have not adequately considered call origination** – *"The review carried out in this case has not considered the competitive circumstances in the markets for call origination. No service provider holds significant market power or equivalent in the call origination market. Substitutes and alternatives are available to callers who can choose to use alternative access services or service providers (**fixed/mobile**), and they can also choose NGNs or geographic numbers to contact service providers using voice calls. The transparency measures proposed above would help to ensure that callers always have the choice of whether to use a NGN or geographic number."*
- **Vodafone commented that OOs are not a bottleneck –** *"This is clearly not the case as customers can now use multiple ways to communicate with service providers of which NGN is only one method - and that no bottleneck exists in this communication."*

DotEcon response:

Alternative methods for contacting organisations are not always available and if they are, they are not always perfect substitutes

Whilst there may (in some cases) be alternative ways for the caller to contact the organisation/service, as discussed above the evidence shows that these alternatives are not always perfect substitutes[18], and there is evidence to support continuing use of NGNs as a means of allowing people to contact organisations.[19] Furthermore, in the consultation responses there was support for continuing use of

[18] For example, the results of the consumer survey show that voice-based communications are consumers' preferred method of contacting organisations. Just over two-thirds, or 67%, of consumers prefer to access services by telephone (landline or mobile) rather than online (19%) or in person (10%). question 2 of the consumer survey.

[19] For example, 19% of consumers would prefer to use an NGN when accessing services, despite the issues identified with the current regime (question 28 of the consumer survey)

(footnote continued)

NGNs in responses from SPs. For example, ESB[20] and ITI[21] explain the importance of NGNs to their organisation.

From the called party perspective, it is true that in some cases there may be alternatives available to consumers to avoid high retail charges by particular OOs. For example:

- calling a geographic or mobile number provided for the organisation they wish to contact; or
- choosing to use their landline rather than mobile to make the call (in the case where mobile is more expensive).

However, in terms of seeking an alternative number or method to contact the organisation, we note that 66% of consumers indicated that they had no option but to call the NGN. Therefore, alternatives are not always available to the caller.

In terms of using an alternative phone (landline or mobile) to make a call to NGN we recognise that some users may have a preference for using a particular method for dialling NGNs (e.g. 33% of those dialling an NGN tend to do so from a landline, whilst 60% do so from a mobile[22]), not all users have the option of choosing, especially as more users tend to only make calls from a mobile phone these days (e.g. the survey showed that 41% of those surveyed do not have a landline).

Some callers will have no choice but to call an NGN

Therefore, there will be a number of callers who have no choice but to call an NGN and will not have the option of calling from another phone where, for example, they only own a mobile phone. Therefore, there is a degree of originator power on the retail market (especially for mobile operators).

However, the arguments put forward about OOs' bottleneck control are particularly relevant when considering the costs faced by SPs. For example, we provided evidence in our report that some SPs feel they have no choice but to offer NGNs for people to contact them (especially for Freephone). These SPs and others who continue to provide an NGN for their customers, are still exposed to potentially high prices influenced by the originating operator given that the

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[20] For example, ESB states: "*In spite of advances in alternative customer communications channels, customer contact by telephone remains the preferred method of contacting customer service functions. ESB Group does not anticipate that the primary method of contacting relevant customer service functions will change in the medium or long term. ESB Group is a vertically integrated electricity utility with a large number of customer service 18xx numbers.*"

[21] For example, ITI states: *"Our members are frequent users of 1890 Non-Geographic Numbers (NGN), as the Revenue Commissioners (Revenue) extensively use the 1890 platform to deliver their telephone service. Many of our members call Revenue's phonelines multiple times a day to deal with their clients' tax affairs. In fact, the 1890 Revenue telephone service is now one of the main communication channels with Revenue for tax advisers (and for taxpayers)."*

[22] Question 7 of the consumer survey.

NGNs must be accessible to all callers irrespective of which originating network the caller subscribes to.

Therefore, where we refer to the bottleneck control in this instance, we are referring to the fact that each originating operator has control over access to its customers. If the originating operator were to raise wholesale charges, there is little that SPs (or terminating operators (TOs) receiving calls on behalf of the SPs) can do in response.

It is typically not possible for TOs to exert a significant degree of countervailing power against specific OOs due to the requirement to maintain end-to-end connectivity and the desire of SPs to be reachable by callers on every network. This provides OOs with the potential to raise wholesale prices with little loss of volume.

High prices faced by SPs for receiving calls (driven by the wholesale charges the TO faces) may further reduce their incentives to use NGNs on top of the effects of reduced call volumes (due to high retail prices and lack of retail price transparency for callers). This leads to adverse feedbacks: if few services are provided over these numbers then consumers are less likely to engage with the platform in terms of understanding what the various number classes mean and may call NGNs less often.

To the extent that OOs do have bottleneck control in the wholesale market exacerbating some of the issues identified with the NGN regime in Ireland, this is discussed in more detail in the context of the wholesale market in Section 6 of this report.

3 Retail remedies

Following the evidence and recommendations presented in the DotEcon Report (ComReg 17/70a), ComReg proposed three main remedies:

- to introduce the 'Geo-linked' NGN measure (for '1850', '1890', '0818' and '076')
- to withdraw the '1850', '1890' and '076' NGNs following a 2 – 3 year transitional period
- to introduce a number of transparency measures to improve understanding of the differences between different NGNs

In general, there was support for the proposals for improved transparency measures and no respondent explicitly opposed the measures. However, there was some demand for further elaboration of how the transparency measures would be implemented.

On the 'geo-linked' NGNs, the main concerns related to calls to NGNs being included "in bundle" and that bundles are (at present) designed based on the costs of providing geographic calls, not calls to NGNs.

The withdrawal of number ranges and the transitional period was also disputed by some SPs who had concerns with the costs involved and/or the implications of no longer having access to a specific number range.

3.1 Introducing a geo-linked NGN

Consultation responses

In response to the proposals to impose an "as-geo" price restriction on calls to NGNs such that the price to the caller is no different than the cost of making a call to a geographic number at that point in time, a number of respondents identified this as forcing operators to provide NGN calls "in bundle". They were concerned that this could have competitive impacts given that the construction and pricing of the voice-call element of bundles has typically focussed on geographic calls. Some alternative options for capping prices were put forward. Specifically:

- **Three –** Link with bundling: *"Any intervention to control or regulate the content of bundles restricts the originating operator's freedom to compete in the retail market for call origination."*
- **Sky –** competitive constraints: *"The DotEcon report provides on page 28 that competition cannot be expected to constrain NGN prices to any great extent and, if anything, is likely to incentivise operators to raise these as a soft revenue source.*

> *Whilst there is no evidence to suggest that operators have behaved in this manner we would suggest that any concerns in relation to competition can be achieved by capping prices at GN 'out of bundle' call rates… We would recommend that a cap is introduced that would cap NGN pricing at the equivalent of out of bundle GN number charges which in our view would have the same impact without putting pressure on fixed- line and mobile operators."*

DotEcon response:

Whilst not explicitly an obligation to include NGNs in bundle, a dynamic geo-linked pricing for each of the non-freephone number ranges, whereby the price of a call to the NGN must be no more than the cost of making a (national) geographic call at point of use does mean that some calls to NGN will fall in-bundle for some customers.

This pricing arrangement ensures that NGN calls will cost the same as a geo call at the point of use – this allows callers to NGNs to benefit from the competitive constraints on the pricing of GNs regardless of whether they have a bundle or not.

Recognising that not all callers will have a tariff package with 'bundled minutes' and that some customers may have exhausted their bundled minutes allowance, the NGN call must be charged in such cases at no more than the rate of a geographic call applicable to that customer's tariff. Whilst the survey findings suggest that, by themselves, prices of calls to NGNs are not a significant factor in consumers' choice of provider, defining the price of NGN calls in this (geo-linked) way will mean they should be controlled by competitive constraints on the pricing of geographical calls.

However, given the widespread prevalence of bundles, to cap charges to the "out of bundle" rate alone (as suggested by Sky) might not be sufficient, especially when out of bundle rates might also be quite high and not subject to significant competitive pressure if consumers obtain bundles large enough for their typical needs to fall with them.

Furthermore, in relation to Sky's argument that there is nothing to suggest that operators have been using NGNs as a "soft revenue source", we refer Sky to the estimated margins calculated in our original report. Noting that, particular for mobile operators, origination margins on calls to these numbers are high:

> *"We estimate that for the 18XX ranges, the margins earned by mobile operators are close to 90%. For 0818 for mobile operators' margins are about half that amount (as mobile operators do not set their own origination charges for 0818 but rather adopt the same settlement charges and payment regime as the fixed operators). By comparison, fixed operators make far lower margins – roughly 10%- 20%. The cost of call origination on mobile*

> *networks would have to be 7-8 times that of the regulated mobile termination rate (2.6cpm as of July 2016) in order for mobile margins to be in line with fixed margins. Therefore, retail prices for NGNs on mobile networks are far above incremental cost."*

3.2 Consolidation of NGN ranges

3.2.1 Choice of number range

Consultation responses

The principle of consolidating number ranges was generally supported by SPs and opposed by operators. However, while most SPs supported the principle, several argued that it should not involve the withdrawal of the NGN which they currently use. The reasoning for this included client/customer familiarity with the particular NGN in use, cost of transition to a new number, and in the case of ESB, safety concerns associated with changing the emergency contact number. One SP (Revenue) pointed out that if the price of calls to NGNs was addressed, in its view there was no need to address the consolidation of number ranges.

Opposition from operators was broadly on the basis that consolidating number ranges was disproportionate, particularly in the absence of wholesale remedies.

DotEcon response:

There is no compelling reason for continuing with multiple number ranges once the pricing proposals are implemented

The argument in our report was that, if a geo-linked number was introduced there is no reason for continuing with several number ranges, which would then have similar characteristics and would fulfil similar functions. We argued that, rationally, there was a need for a Freephone number, and a need for a geo-linked number.[23] We argued that, at present, consumer confusion is exacerbated by the presence outside the Freephone range of overlapping number ranges with overlapping characteristics and evidence for this was provided by the survey research. This reasoning still stands, so that if a geo-linked category was created alongside Freephone, there would be no need for more than one prefix in that range. The maintenance of several geo-linked numbers is not a neutral option because it does not address caller confusion.

There is a value in further simplification of the NGN regime

While we agree with the SP that noted the key issue to be addressed is the price of a call to an NGN, we do not agree that this would be sufficient in itself to address the problems identified in the

[23] We note that this is a very similar proposal to that put forward by Three in its response to consultation, suggesting that ComReg have just one freephone NGN and one 'paid for' NGN.

market. Our report identified areas of consumer harm associated with lack of awareness and understanding of the multiple NGN classes.

For those SPs that supported the principle of consolidation but were reluctant for the NGN they used to be withdrawn, concern around the cost of transition is addressed in the section on implementation below. We recognise that, in addition to the cost, changing numbers is inconvenient for SPs and many value their callers' identification with a familiar number. However, this has to be balanced against the many reasons why number ranges sometimes have to be amended or withdrawn - for example, due to number scarcity or to efficient use of the numbering resource or improve consumer welfare as is the case here.

While we maintain the principle that SPs' needs could be met by having a single geo-linked NGN prefix and a Freephone prefix, our report was not wholly definitive regarding which prefix should be kept for the geo-linked classification. We identified advantages and disadvantages associated with all current ranges and suggested that 1850 and 1890 should not be retained. When considering whether 0818 or 076 was most useful, our view was that, on balance, 0818 had more advantages than 076. Our view was that ComReg should introduce geo-linking to all current classes, and then phase a transition to a single geo-linked prefix. We recognise that SPs have responded with reasons why they have chosen the NGN class that they have, and also why they suggest that their class should be retained, but there was no compelling evidence to challenge our view that the choice of a single geo-linked prefix is between 076 and 0818, balanced in favour of 0818 given that it is likely to be more memorable than 076, less likely to be confused with a geographic number (given 076 was previously used in the north west of Ireland) and might be considered more thematically consistent with 1800.

3.2.2 Implementation issues

We have considered comments made on the implementation of the proposed measures in terms of implementation issues for:

- operators; and
- SPs

Implementation issues for operators

Consultation responses

Operators commented on costs associated with introducing a geo-linked number, and costs associated with consolidating number ranges. One respondent (eir) commented on the timescale for introducing geo-linked numbers, and suggested that, rather than being introduced within 6 months, it should follow a similar path to the proposed rationalisation of number ranges and be introduced over a 2-3 year period. The reasons for this were because of the complexity of eir's billing system and because of the need to amend contractual arrangements with customers.

Vodafone expressed a view that interconnect and transit contracts, as well as customer contracts, would need to be reviewed and amended to take account of the introduction of a geo-linked tariff.

Eir, BT and Sky all indicated that the consolidation of number ranges would take at least 2-3 years, with their key concern being the cost to SPs. Vodafone proposed that, in order to minimise disruption and cost for SPs, the transition should be phased over 7 years.

DotEcon response

We recognise that the changes proposed entail costs in time and resources for operators. Our view is that the 2-3 years proposed by eir for introducing a geo-linked number would constitute an unacceptable delay in implementing a measure designed to address harm in the market. We expect that ComReg will engage in further communication with operators regarding their views of the time and costs associated with implementation. From our perspective, it would be unusual for changes to a billing system to take 2-3 years to put in place.

Our understanding is that previous changes to the NGN tariff conditions by ComReg in 2011 were implemented within 3 months[24], and in this context, 6 months seems reasonable. Whilst this may be extended up to 12 months to allow some additional time for operators to make the changes, we consider that any unnecessary delay of implementing the retail remedies beyond this time period would allow significant harm to consumers to continue and should be avoided where possible.

With reference to the points made by operators regarding the cost to SPs of consolidating number ranges, we note that all except Vodafone were broadly in line with a 2-3 year transition period. In our report, we suggested this timescale as representing a balance between achieving the benefits of the proposed measures and ensuring that costs and disruption to SPs was kept as low as possible.

[24] ComReg Document 11/16 – National Numbering Conventions Update to V.7: Response to Consultation – published 09 March 2011.

Implementation issues for SPs

Consultation responses

Four SPs indicated that they believe timescales and costs to implement the proposed changes have been underestimated. The costs to SPs are largely those associated with the transition to a different NGN (or indeed to a geographic or mobile number), so would be borne by SPs moving out of number ranges which were being withdrawn. In addition, some operators commented on their perception of the likely costs which would be faced by SPs, with one claiming that costs would outweigh benefits.

DotEcon response

A balance must be stuck between allowing time for implementation and ensuring that the consumer harm is prevented without undue delay

Our report suggested that ComReg would need to strike a balance between the benefits associated with a fast transition and the disadvantages associated with the impact of a fast transition on SPs and operators. A faster transition allows the advantages of the proposed measures to be realised sooner. However, the faster the transition, the more SPs are adversely affected.

Our review was not intended to include a detailed cost analysis of the potential implementation costs. Our broad description of the types of costs and benefits involved drew on other work carried out for ComReg[25] as well as guidance from other jurisdictions[26]. We expect that ComReg will engage with industry as part of the implementation. None of the respondents to the Consultation provided detail on the costs they anticipated, but rather a general outline of the nature of costs associated with changing a number. We note that only one operator and one SP proposed that a transition period needed to be significantly longer than three years (ESB suggesting 5 years and Vodafone suggesting up to 7 years).

Whilst we consider that the 2-3 year transition period would be appropriate, ComReg might wish to take a conservative approach by choosing a time period in the upper bound of this range. This would allow a little longer for SPs to adapt, which might lower the costs of transition without significantly impeding the benefits to NGN users of a simplified regime.

[25] For example, ComReg 17/70d, 16 August 2017

[26] For example, Ofcom

4 Summary position on retail intervention

We maintain our view that the evidence collected to date is sufficient to demonstrate a number of problems with NGNs that are currently harming consumers:

- retail tariffs for calls to NGNs are not transparent to customers, who are often unable to forecast the likely cost of a call;
- consumers often do not understand the different designations for each of the five types of NGN; and
- retail prices for calls to NGNs can be high, especially from mobile phones where NGNs are frequently not included within call bundles.

Few consumers give NGN calls much priority when choosing a telecoms provider, so competition between originating operators (OOs) does not protect consumers.

We do not consider any of the responses to consultation provide sufficient counter-evidence to lead to any significant changes in recommendations or the remedies prosed by ComReg in the previous consultation document.

As noted above, although there should be no undue delay to the implementation of the retail pricing measures (i.e. the introduction of geo-linked charging), in light of the responses to consultation, ComReg may wish to extent the implementation period from 6 months to 12 months. However, this should not be any longer so as to avoid the unnecessary continuation and/or worsening of the consumer detriment identified.

Furthermore, ComReg may wish to revisit the time period for transition to new number ranges in light of the responses received and consider shifting to the upper end of the suggested 2-3 year time period for transition. However, we advise against extending the implementation period too significantly and a balance should be struck between achieving the benefits of the proposed measures and ensuring that costs and disruption to SPs was kept as low as possible.

5 Interaction between retail and wholesale

The retail remedies proposed in the consultation aim to simplify the NGN regime, and to address the costs faced by callers to all NGN classes. Therefore, the expectation is that the imposition of the recommended remedies would lead to an increase in the number of calls to NGNs.

However, as discussed in our original report, we must also ensure that there are no significant barriers to NGN use remaining, particularly for SPs providing services over NGNs. Even if we have simplified the NGN regime and have met SP needs in terms of the differentiation between the number ranges, we must ensure that costs to SPs are not inflated. Distorted wholesale pricing could lead to SPs not using NGNs, or distorting choice of NGN type. For example, if Freephone remains particularly costly to SPs they might decide to choose an option which means the caller will have to incur a charge, either having a negative impact on consumer surplus of those that continue to call or leading to consumers further reducing call volumes and possibly losing access to important services provided over these numbers, leading to reductions in consumer welfare.

If SP costs are excessive (and our evidence indicates that these costs are stopping many businesses using these numbers), then intervention may be needed to address the underlying issues that lead to the high charges faced by SPs. It is also possible that retail remedies without corresponding wholesale remedies could even worsen the situation for SPs if OOs seek to recover lost retail margins through higher wholesale charges.

Consultation responses raised issues regarding sequencing of wholesale and retail market assessment

All of the main operators responding to the retail consultation (BT; eir; Verizon; Virgin; Vodafone, Three, Colt) raised concerns with the sequencing of wholesale and retail analysis and imposition of retail remedies without sufficient analysis of the wholesale market. Several noted the scope for harm associated with addressing retail before, or instead of, wholesale and the need for the remedies to be considered in parallel.

We are aware of these issues associated with the sequencing, as acknowledged in our original report, where we recommended that measures to intervene in the wholesale market should be considered in parallel with the proposed remedies in the retail market.

Concerns were also raised about some specific issues that may arise if retail remedies are imposed without any change in the wholesale market

We also note that as part of the responses to the retail consultation, a number of respondents supported their concerns about the assessment of retail remedies without wholesale remedies by noting some particular issues that may arise if there are no parallel remedies in the wholesale market.

For example, Vodafone and Virgin suggested that with current wholesale arrangements a retail remedy that significantly reduces the retail revenue per call might mean that OOs may make losses on these calls (given the settlement fees to be paid out to TOs).

Three commented on the need for wholesale tariffs for termination of calls to 0818 to be controlled otherwise the retail remedies would mean TOs would be incentivised to increase the price for termination. Three also made comments on the appropriateness (or otherwise) of cost modelling to determine the appropriate level of wholesale prices.

We will review the evidence of issues in the wholesale market and consider the need for intervention in parallel to the retail remedies proposed

Given the interaction between the retail and wholesale market, in our original report we outlined a number of options available to ComReg to address wholesale issues identified. We noted that the evidence collected was sufficient to justify wholesale intervention, and that indeed it would be desirable to consider wholesale action in parallel to retail intervention. However, given the calls for some further clarity on the need for and form of any intervention in the wholesale market, in this report we revisit some of the issues identified in the wholesale market and assess the options for remedies that might be imposed in the wholesale market to address the issues identified. In doing so, we also take into account some of the specific issues raised by respondents to the consultation in relation to the interaction between retail prices and wholesale rates. However, we understand that the detail of any remedies to be imposed (if any) will be considered in a separate consultation document.

Notwithstanding the need for parallel action at wholesale and retail levels, we believe that choices about the design of retail and wholesale remedies are largely separable provided that each is effective at constraining market power. Similarly, the preliminary assessment of what might happen in the wholesale market should intervention in the retail market be taken, does not rely on the specifics of the retail remedies as set out on a preliminary basis In ComReg's consultation.

6 Case for intervention at wholesale level

In our previous report we put forward evidence to demonstrate instances of economic harm in the market for NGNs and that some of these issues may arise from the wholesale charges set by OOs. While the previous report focused primarily on intervention at the retail level, the evidence collected is equally applicable at the wholesale level. The analysis carried out considered harm in the market as a whole and was not limited to a consideration of retail harm. In this section, we revisit the theory of harm and the evidence collected with a specific focus on the wholesale side of the market,

6.1 Theory of harm

We have already established that in Ireland there have been difficulties with NGNs, with some OOs setting high retail prices for calls to NGNs, leaving consumers confused about what they expect to pay if calling an NGN and, as a result, call volumes to NGNs have fallen. However, OOs can also seek to grab margin from further down the value chain by raising wholesale origination charges, which can have implications for organisations wanting to use the NGN platform for consumers to access their services.

For example, most SPs want to use NGN calls to make themselves accessible to callers regardless of the caller's network. Therefore, if a particular originating network sets a high retail price (so discouraging calls) or a high wholesale origination charge (which the SP pays) then there is little that SPs or TOs can do to avoid this originator. Whilst it is the case that SPs can use other platforms to make themselves available (such a webchat), these are not perfect substitutes for NGNs, especially Freephone numbers, which provide a convenient and universally accessible mechanism.[27]

NGN numbers that are not Freephone (e.g. 1890, 076) serve rather different purposes, in that the SP is not covering the entire cost of the call. Nevertheless, SPs may prefer using an NGN over a geographic number for various reasons, including flexibility on how calls are routed and handled and the use of numbers which do not change if the firm relocates.

However, where SPs face high charges for receiving NGN calls, as consequence of wholesale origination charges set by the

[27] Recall, the results of the consumer survey show that voice-based communications are consumers' preferred method of contacting organisations. Just over two-thirds, or 67%, of consumers prefer to access services by telephone (landline or mobile) rather than online (19%) or in person (10%).

originating operator and passed through by TOs, this undermines the utility of the platform to SPs in providing a universally accessible shop-front for their services available to callers across all networks. High charges faced by SPs can discourage provision of services over the platform or reduce incentives to improve current services deployed over NGNs further devaluing the NGN ecosystem. As SPs shift towards other means of making themselves accessible, calling volumes will be further reduced, completing a vicious circle.

This issue is independent of the retail pricing issue. Even if there were greater pressure on retail NGN pricing, either through regulatory action or changes in consumer behaviour leading to more competition, this would not prevent the possibility of harm through excessive wholesale prices for NGN origination. Therefore, we revisit the evidence of harm, with a specific focus on the wholesale side of the market.

6.2 Evidence of harm

The retail NGNs project provided detailed evidence of callers being discouraged from calling NGNs due to lack of understanding of the ranges and/or the cost of calling. From the SP perspective, evidence from the organisation survey showed that the cost of calls (to consumers *and* to the organisation) presented a barrier to use.

Of those organisations not using NGNs:

- 30% said this was because NGNs are too expensive for the *organisation* itself;
- 28% said this was because NGNs are too expensive for *customers* to call;
- 47% said this was because landline/mobile numbers are more cost effective for organisations than NGNs;
- 49% said this was because landline/mobile numbers are more cost effective for consumers than NGNs;
- 40% of those who thought NGNs are too expensive for their *customers* to call would consider using NGNs in future if *retail charges* to NGNs were reduced;
- 44% of those who thought NGNs are too expensive for their *organisation* to call would consider using NGNs in future if *the organisation's* costs of using NGNs were reduced.

Even amongst those using NGNs:

- 48% considered that NGN costs to their organisation was an important factor in choosing NGN provider;
- 53% considered that the retail charges to customers for calling NGNs influenced their choice of NGN.

Therefore, costs to the business are clearly an important factor in the decision to use NGNs or not, and the evidence demonstrates that many SPs consider that the cost to businesses (as well as to callers) is too high, acting as a barrier to use and limiting access to services provided over NGNs.

In addition to the evidence collated from the organisation survey, we conducted a small number of interviews with SPs using NGNs who raised specific issues facing them in terms of the costs of provision, particularly for freephone.[28] For example:

- **[CONFIDENTIAL: ✂]** reported having bills as high as €400,000-600,000 per annum for its 1800 number, but obviously have little choice but to offer a freephone number. They have recently switched to **[CONFIDENTIAL: ✂]** for NGN provision, as they are subsidising **[CONFIDENTIAL: ✂]** for the next 10 years (previously they were with **[CONFIDENTIAL: ✂]**).
- **[CONFIDENTIAL: ✂]** spending €30,000-60,000 per month on phone bills of which around 90% is for its 1800 number. They have limited alternatives but to use this service as alternatives (such as call-back) are not really an option given people are calling from shared mobile phones or payphones.
- **[CONFIDENTIAL: ✂]** also reported that it needed to use 1800 to remain competitive but faces very high costs (e.g. compared to its UK freephone numbers).
- Whilst those parties felt they had no choice but to offer freephone numbers, **[CONFIDENTIAL: ✂]** stated that it was moving away from 1800 (an NGN previously used for those reporting lost or stolen cards) as a part of a cost saving effort as it had been very expensive for them to use this number. A shift away from freephone now means customers will face greater costs of accessing such services, potentially leading to reduced call volumes and/or loss of consumer surplus.

The evidence above from surveys and interviews conducted to support our previous report shows the impact that the high costs faced by SPs has and that, where SPs have the option to use alternatives, it clearly discourages SPs from using NGNs. Therefore, the prices paid by SPs for receiving calls to their NGNs is a barrier to the provision of services over NGNs and therefore access to and use of these services.

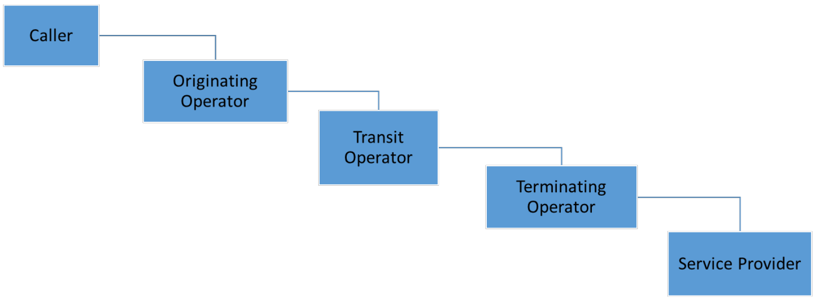
From our understanding of the Irish NGN market, we know that the high costs faced by SPs will be influenced by the fees and settlement rates elsewhere in the value chain.

As noted in our original report, a NGN call may originate and terminate on the same network (i.e, the originator and terminator is

[28] Interestingly, many interviewees reported that when they had raised the issue of high costs for freephone with their supplier and in response they were often told that the rates were outside of their control because they were set by ComReg (which is obviously incorrect). It is the originator who sets the wholesale rates in terms of retention and settlement rates, and other than for eir, these rates are currently unregulated.

the same operator) or may originate and terminate on a different network (as shown in the figure below). In some cases, a NGN call may have to be routed via a third network (neither the network of the originating nor terminating operator) and so involve a transit operator. Figure 1 shows the link between various parties involved in an NGN call.

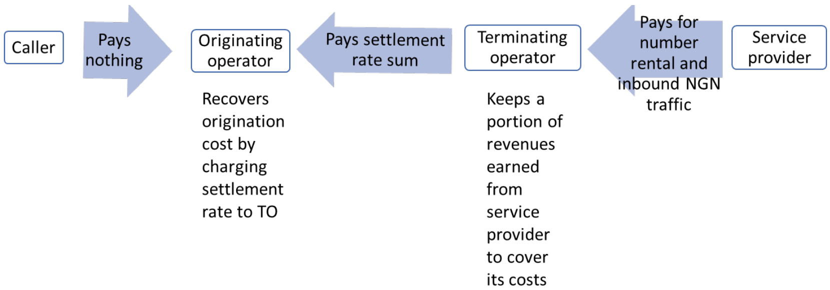
Figure 1: NGN call supply chain with callers and service providers served by operators



The SP typically pays the TO for the cost of the call and there is an exchange of funds between the TO and the OO. However, the direction of this latter flow depends on the NGN and whether the call is made from a fixed line or a mobile phone.

The 1800 range is likely to be particularly relevant in terms any potential wholesale intervention. In that regard, as noted in our original report the 1800 range is free to call for both fixed and mobile callers, with the SP paying for the entire cost of the call. Therefore, the OO does not receive any revenues from callers and has to recover their cost from the TO, in the form of a (negative) settlement rate. This is illustrated below in Figure 2.

Figure 2: Payment flow for calls to 1800



When talking about wholesale rates for NGNs, we use the following terminology:

- **The settlement rate** is the amount passed from the originating operator (OO) to the terminating operator (TO). Note that in some cases this can be negative (as for 1800 for example) in which case the payment flow is from the TO to the OO. We understand that this rate is set by the OO regardless of which direction the payment flows (i.e. positive or negative settlement rate);
- **The retention rate** is the amount 'retained' by the OO to cover the costs of origination. This can be thought of as the average retail price less the settlement rate. (For clarity, if the settlement rate is negative, the OO is receiving revenue from the TO.)

Therefore, the settlement rate determines the distribution of surplus in the NGN value chain between OOs and TOs. The retention rate is essentially the sum of various revenues flowing to the OO and so needs to be compared against costs of the originator (both network costs and retail costs).

Focussing on the wholesale rates in place in Ireland, we consider there are particular problems associated with:

- Asymmetric retention and settlement rates amongst fixed operators and between fixed and mobile;
- Potentially excessive wholesale rates.

Asymmetric origination rates

Although fixed operators used to adhere to a voluntary 'deemed to be regime' under which retention rates were symmetric, mobile operators have typically not adhered to this regime (for the 18XX numbers). The 'deemed to be regime' is beginning to unravel (given the dissatisfaction amongst fixed operators about asymmetric rates of mobile operators) and this is leading to further fragmentation and different (typically high) rates being charged by different operators.

Therefore, we see differences between rates, notably between fixed and mobile operators, but also differences between operators within each of those groups with some setting particularly high rates. This ability of OOs to set prices independently of other OOs, as we see with the range of wholesale prices charged, suggests the absence of any form of constraint from competitors or end users.

Excessive wholesale rates

The primary empirical question is whether there is any evidence of excessive wholesale NGN origination charges being set by OOs. For example, it is apparent that the wholesale charges of mobile operators are high both in absolute terms and relative to those charged by fixed operators, and these differences are unlikely to be justified by cost differences.

In our previous report, we reviewed the wholesale rates imposed by OOs for NGN calls. We do not include the full explanation of retention/settlement for all number ranges here, but provide an example for illustrative purposes.

The 1800 number provides a particularly good example of the issues associated with wholesale charges for NGNs. Because there is no revenue from callers to take into account this example clearly highlights the issue of excessive wholesale pricing. Wholesale rates are particularly concerning for freephone numbers, where the excessive settlement rates set by OOs contribute to the significant costs faced by SPs (who must cover the full cost of the call), resulting in some SPs shifting away from the use of freephone numbers to numbers where the caller must cover the cost of the call. This is potentially a significant source of harm where the services being provided are valuable to vulnerable members of society. In some cases the need to access services over NGNs can be urgent and for some services the services are specifically for those who can least afford the price of calling NGNs (for example, homeless helplines etc), who would be seriously affected if the SP shifted to a non-freephone number. Alternatively, SPs continue to provide freephone numbers at greater cost to them, detracting resources that could otherwise be used for improving services[29].

Comparing the settlement rates set by the different fixed and mobile operators to the regulated settlement rates of eir demonstrates the significantly higher rates levied by mobile operators in particular, with BT and other fixed line operators also increasing prices upon leaving the deemed to be regime. This group of fixed operators is now charging over three times eir's regulated rate, with mobile operators charging as much as forty times the eir rate. The ability to set rates independently of each other is indicative of lack of competitive constraint, and absent any evidence of significant difference in costs of provision, rates set at multiples of eir's regulated rates provides evidence of excessive pricing.

For example, eir's retention rate (which, in the 1800 case is equivalent to the settlement rate that it charges TOs for call

[29] In its response the Citizens Information Board (CIB), which supports financially vulnerable people, submitted its view on how vulnerable people are particularly disadvantaged when accessing NGNs. This demonstrates that access to NGNs and freephone numbers in particular is important for these customers and should be protected. SPs decisions to provide freephone numbers should not be distorted by excessive wholesale pricing.

(footnote continued)

origination) is regulated.[30] Table 1 shows the current settlement rate for eir for calls to 1800.

Table 1: 1800 settlement rate in the deemed to be regime

Euro cents per minute	Peak	Off-Peak	Weekend
Fixed operators (except Airspeed, BT, Smart, Digiweb, Verison and Intellicom (effective from 1 Sept 2015)	0.80	0.40	0.48

Source: Table 301 of STRPL v 151.0. This lists the payment to the Originating operator (less transit fee where appropriate)

At present, no other operators have regulated retention rates and are free to set those rates. With effect from 1st November 2014, BT left the voluntary 'deemed to be' regime and set its own origination charges for 1800, 1850 and 1890 NGNs. Following suit, Smart, Digiweb and Verizon (from 1st June 2015), Airspeed (from 1st August 2014) and most recently Intellicom (from 1st September 2015) also left the deemed to be regime and adopted BT's new settlement rates for 1800.

Table 2 shows that for these fixed operators the new settlement rates for 1800 are significantly higher than that in the deemed to be regime and do not vary between peak, off-peak and weekend periods

Table 2: BT 1800 settlement rate after leaving the deemed to be regime

Euro cents per minute	Peak	Off-Peak	Weekend
Originating from Airspeed, BT, Smart, Digiweb, Verizon, Intellicom (effective from 1 Sept 2015)	2.73	2.73	2.73

Source: Table 301(A) of STRPL v 151.0. This lists the payment to the Originating operator (less transit fee where appropriate)

Mobile operators have never been part of the deemed to be regime nor are their origination charges regulated by ComReg; therefore, they set their own, individual, settlement rates for calls to the 1800

[30] We understand that at present, Eir's Fixed Voice Call Origination (FVCO) charge is capped at cost, calculated using a forward looking, top-down, Long Run Average Incremental Cost Plus (LRAIC+) model. The cap is a remedy imposed on the fixed access and call origination (FACO) markets (for all types of calls, including calls to 'Number Translation codes' or NGNs), in which Eir has been designated with SMP.

For NGN call origination, Eir is additionally allowed to recover its unavoidable retail cost related to billing and bad debt incurred as a result of providing NGN telephony services. The sum of the FVCO charge and the uplift for unavoidable retail charges is together known as the "retention rate.

range. Mobile settlement rates for 1800 are an order of magnitude higher than that charged by fixed operators for origination (BT or "deemed to be") (see table below).

Table 3: Mobile operators' 1800 settlement rates

Euro cents minute	Peak	Off-Peak	Weekend
Vodafone	18.41	12.06	9.52
Telefonica	32.50	18.00	15.00
Hutchison[31]	32.50	18.00	15.00
Meteor	34.28	18.73	15.24
Tesco	34.28	18.72	15.23
Virgin/UPC Mobile	34.28	18.72	15.23
Carphone Mobile	34.28	18.73	15.24

Source: Table 303 of STRPL v 151.0. This lists the payment to the Originating Operator

As can be seen from above, all other operators set retention/settlement rates at a level higher than eir's regulated rates. For mobile operators this is significantly higher and is unlikely to be justified by cost differences, as explained below. For example, from our previous work for ComReg, we believe there is considerable evidence of excessive wholesale NGN origination charges being set (in particular by mobile operators).

[31] We note the Telefonica and Hutchison are now a merged entity.

(footnote continued)

In our report 17/70a we estimated origination margins as a percentage of origination revenues[32] and showed that:

- In the case of the 18XX ranges, mobile margins are estimated at close to 90%[33] while that of 0818 for mobile operators is half that (as mobile operators do not set their own origination charges for 0818 but rather adopt the same settlement charges and payment regime as the fixed operators).
- In comparison, fixed operators are making far lower margins – roughly between 10%-20%.
- Mobile origination cost would have to be seven to eight times that of the regulated mobile termination rate (as of July 2016 – 2.6cpm) in order for mobile margins to be in line with fixed margins.

For reasons discussed below, with no restrictions on the wholesale rates (other than a failing voluntary agreement), there may be the potential for individual OOs to raise wholesale prices even further with little loss of volume.

6.3 Sources of market failure

Fundamentally, wholesale problems arise from OOs having bottleneck control over their customers from the perspective of a SP trying to access those customers. This arises because different OOs are complements rather than substitutes for a SP; an SP needs to be contactable regardless of the network choice of the caller.

Therefore, OOs can exert power both on the retail side by setting high prices (as the MNOs have been doing) and also on the wholesale side by setting settlement rates to the disadvantage of TOs – recall that OOs have historically set wholesale terms for NGN calls in Ireland (regardless of the direction of the payment flow arising for any particular class of number).

[32] We estimated gross margins earned from NGN call origination for fixed and mobile operators i.e. the contribution earned over incremental costs. For fixed operators, we estimate the incremental cost using average retention rates published in Eir's Reference Interconnect Offer Price List as a proxy for origination costs. For mobile operators, we estimated the incremental cost using regulated mobile termination rates as of July 2015 (2.6 cpm) as an upper bound for mobile origination costs; mobile origination does not require activities associated with determining the location of a mobile subscriber and dynamically routing a call accordingly, so it is reasonable to expect the costs of origination to be no more than those of termination. Total costs across all operators are then estimated using the origination volumes for fixed and mobile operators. Profits are calculated by netting off estimated costs from net receipts from origination and finally, margins are calculated by taking the ratio of profits over total origination revenues earned.

[33] For example, for 1800 we estimated gross margins of around 9% for fixed operators and around 89% for mobile operators.

Some larger TOs might have a degree of countervailing power against OOs (e.g. through the threat of raising a dispute), but this is weak, and certainly not the case for smaller TOs.

If an originator seeks to take advantage of its bottleneck position – for example by raising wholesale origination charges - there may be little option for SPs and TOs but to accede. It is typically not possible for TOs to exert a significant degree of countervailing bargaining power against specific OOs due to the deeply enshrined regulatory requirement to maintain end-to-end connectivity and the desire of SPs to be reachable by callers on every network; this makes any threat not to accept traffic from a particular originator largely empty.

Furthermore, from the perspective of an SP, if one particular originator raises it wholesale charges, then TOs would typically pass on a blended charge to the SP; this would reflect a weighted average of the wholesale charges of different OOs according to their relative traffic. This pricing behaviour by TOs is a matter of current commercial practice, rather than necessity, but clearly it would require a substantial change in industry organisation and billing arrangements for SPs to face individualised charges according to the source of incoming calls, thereby making wholesale charges transparent to them.

Given this blending, incentives for TOs and SPs to force down OOs charges are weak – even through termination of non-geographic calls should be a competitive activity – as the impact of any single originator raising its wholesale price may be greatly diluted in the traffic mix.

Together, this provides OOs with the potential to raise wholesale prices with little loss of volume. This is particularly the case where the OO demands a payment from the TO. This is the case when the call originates from:

- fixed and mobile to 1800;
- mobile to 1850 and 1890;
- (some instances where BT is the originating operator of calls to 1850 and 1890 – special case)

Of course, in practice some operators are both OOs and TOs of NGNs; they may take into account the problems on the termination side to some extent when they set origination charges. However, we cannot expect this internalisation effect to provide much discipline. When an integrated NGN originator/termination raises its origination charge it can still extract resources from other TOs by raising wholesale origination rates.

As illustrated by the evidence, the high prices faced by SPs for receiving calls (driven by the wholesale charges the terminating operator faces) acts as a barrier to use of NGNs, compounding the effects of reduced call volumes (due to high retail prices and lack of retail price transparency for callers). This leads to adverse feedbacks:

if few services are provided over these numbers then consumers are less likely to engage with the platform in terms of understanding what the various number classes mean and may call NGNs less often.

The issues on the wholesale side of the market are particularly clear in regard to 1800 Freephone numbers…

The issues on the wholesale side of the market are particularly clear in regard to 1800 Freephone numbers, where retail pricing control has been effective for some time, yet (as demonstrated above) wholesale charges by OOs are likely to be far above incremental cost and some operators (primarily mobile operators) are earning very large margins based on our estimates calculated from operator data.

We have shown evidence of charges being raised to over three times that of eir's regulated rate when fixed operators left the 'deemed to be' regime, and that mobile operators are charging rates which are up to 40 times that of eir on the 1800 range. Furthermore, as described above, we have evidence of SPs switching to other ways of delivering services due to the costs to them of using 1800 numbers.

…it is more complex for other number ranges but there is still scope for harm

The situation in other number ranges is somewhat more complex, as high retail prices generate significant margins for OOs (as we have already documented), but there is the possibility that these economic rents might be in part passed through to the terminating side. Nevertheless, there is still harm for both SPs (due to call suppression and reduced usefulness of the NGN platform) and for callers (due to high or unknown prices and suppressed calling); there is evidence from our previous work of all of these effects occurring in practice.

Where settlement rates for some number ranges (e.g. fixed to 1890 and fixed and mobile to 0818), include this 'rent transfer', SPs are essentially receiving a small measure of mitigation against harm through pass-through of rents gained by OOs from the exercise of market power against callers (the SP does not have to support as much, or any, of the costs of the call).

In this case, and with high retail prices, the current situation is not entirely a zero-sum game between TOs and OOs. Some operators are involved on both sides of the market. There is the possibility that if OOs pass through some of the excess returns to TOs through more generous settlement, this might reduce complaints from the terminating side and preserve current arrangements. This also leads to TOs having reduced incentives to change the existing settlement regime. However, where this occurs, we may have a situation where controlling retail prices (along the lines proposed by ComReg) would, at **current settlement rates**, likely lead to negative gross margins for OOs.

This occurs because of the rent transfer implicit in the current settlement rate (i.e. the current 'spoils' from high retail prices being shared). Therefore, eliminating economic rent on the retail side can be expected to lead to less favourable wholesale rates for TOs in the absence of any other constraint. For example, requiring lower retail prices is likely to need corresponding wholesale price adjustments (reduced payments to TOs, or higher charges for TOs to pay OOs), if OOs are not to make a loss.

This point was raised by a number of responses to the consultation, making it clear there is an obvious risk that OOs might respond to loss of retail margins by worsening settlement rates (which OOs set for TOs). If this falls below the costs of termination, then a greater proportion of costs will need to be recovered from the SP, thus further increasing the costs to organisations of providing services over these numbers, further discouraging their use.

Without intervention, regulation at the retail level could cause greater issues on the wholesale side of the market

Therefore, moves to control retail pricing without complementary wholesale remedies could create an analogous situation for other number ranges as currently occurs for 1800, where OOs are very likely to raise wholesale charges further (above cost) and/or significantly reduce the amount passed through to the TO to compensate for the reduced retail margins. Again some respondents to ComReg's consultation have explicitly raised this concern. Without controls on the wholesale pricing, OOs would be able to change their wholesale rates freely and to the detriment of TOs and SPs owing to their bottleneck control over access to its customers.

To the extent that asymmetric wholesale rates and excessive wholesale charges at their present level represent an abuse of market power and is causing harm to other users in the supply chain, and to the extent to that there is a risk of changes to the wholesale charges in response to the proposed retail remedies, these problems need to be anticipated and assessed in detail and, if appropriate, proportionate remedies designed.

In the next section we consider a number of options for an approach to addressing these wholesale issues.

7 Wholesale approach

The evidence presented above and in our previous report demonstrates the harm arising from high wholesale charges imposed by OOs who hold bottleneck control over access to their customers. The issues are particularly noticeable for freephone (1800) numbers, where the excessive settlement rates set by OOs contribute to the significant costs faced by SPs providing services to their customers over these numbers. These excessive charges result in SPs either shifting away from the use of freephone numbers to numbers where the caller must cover the cost of the call, or continuing to provide freephone numbers at great expense, detracting resources that could otherwise be used for improving services. This is a particular issue where the services being provided are valuable to vulnerable members of society who place a high value on these services but are least able to afford the costs of calling these numbers.

We presented evidence of the gap between the regulated cost-oriented rate charged by eir and the charges imposed by other fixed and mobile operators. For example, all operators charge wholesale rates for 18XX NGNs which are higher than Eircom's cost-oriented rate, but that the scale of excess does vary between operators.

The ability to set wholesale rates independently of other OOs, as we have seen with the range of wholesale prices charged, provides further evidence of the absence of any form of constraint from competitors or end users. We provided evidence of the harm that these excessive prices cause in the market, notably the impact on the decision of SPs not to provide services over NGNs and the immense cost of provision for those who have no choice but to offer services over NGNs (for example, charities offering services over freephone numbers).

Therefore, the key problem to be addressed in the wholesale market is the originator market power as evidenced by excessive wholesale charges. A wholesale approach that does not constrain the ability of OOs to set excessive charges would not be appropriate in ensuring the effective functioning of the NGN platform, in which SPs s incentives to choose a NGN range that suits their requirements and those of its customers should not be distorted.

7.1 How can we address originator market power?

Originator market power can be exercised in different ways in the wholesale market. It is expressed in excessive wholesale rates, particularly when other operators' rates are compared with eir's regulated cost-oriented rate and through the ability of OOs to set rates independently of other OOs resulting in a range of rates charged.

Therefore, in addressing originator market power, ComReg could consider addressing:

- the absolute level of wholesale charges relative to the cost oriented regulated rate charged by eir,; and/or
- the absence of any competitive constraint as evidenced by the variation in origination charges.

Amongst the full range of potential remedies available to ComReg, not all might be suitable for addressing the specific issues identified. For example, the imposition of conditions of transparency[34] in this case would not be sufficient given that the settlement rates of all operators in the NGN regime is published in eir's STRPL as part of its reference offers, and the publication of prices on its own does not affect the level of the prices. Similarly, a non-discrimination obligation on each originating operator to charge set the same settlement and retention rates regardless of the end-user would also not address the identified issues given that such an approach to pricing appears to already be followed in this market.

However, there are a number of options for intervention available to ComReg that would, to varying degrees, address the issues identified. This may be in the form of ex-ante regulation, or through ex-post competition law assessments.

We discuss the range of options available to ComReg below and then consider each in more detail as part of a proportionality assessment in Section 7.2.

Raise an abuse of dominance competition law finding and fine infringing parties

Many NRAs (including ComReg) have recourse to concurrent competition powers, which allow the investigation of instances of abuse of dominance with a defined relevant market.[35] If a breach is found, the outcome could be prohibition of the abusive behaviour plus fines. An adverse finding under competition law could also open the door to third-party damages claims from those injured by illegal behaviour (e.g. those paying excessive prices).

[34] Regulation 9(1) of the Access Regulations states: *"9(1) The Regulator may in accordance with Regulation 8 impose on an operator obligations to ensure transparency in relation to access or interconnection requiring such operator to make public specified information such as accounting information, technical specifications, network characteristics, prices, and terms and conditions for supply and use, including any conditions limiting access to or use of services and applications where such conditions are permitted by law."*

[35]Competition investigations are ex post and focus on instances of abuse of dominance rather than on potential abuse. Section 5 of the Competition Act and Article 102 TFEU (Treaty for the Functioning of the European Union) concerns abuse of a dominant position in a defined market. Although ComReg and the EC have defined markets for the purpose of applying ex ante regulation, these markets are considered to be without prejudice to any markets that may be defined for the purposes of applying ex post competition law.

Alternatively, intervention under ComReg's regulatory powers could take the form of any of the following broad options:

Address lack of constraint on rate-setting as evidenced by asymmetries between operators

At present, there is little consistency in the wholesale rates charged by different operators. This is more marked for some categories of NGN. Differentiation is greatest between fixed and mobile operators, but there is also variation amongst fixed and mobile operators. Previously, there have been attempts to reduce or remove asymmetries in wholesale charges between operators through the voluntary "deemed-to-be" regime, that looked to harmonise operators' wholesale charges. Encouraging the revitalisation of a similar scheme, through a negotiated settlement for example, involving all OOs (fixes and mobile) and moving towards a harmonised rate could remove the large variations in charges between OOs.

Impose an obligation to have equivalent wholesale rates for NGNs and GNs

Imposing an obligation enforcing operators to set wholesale prices for NGNs on the same terms as for geographic numbers may sound attractive (given that termination rates for geographic calls are regulated). However, this would be difficult to implement in practice, as for NGNs the OOs set both the retention and settlement rates, unlike for geographic calls where the TOs set wholesale rates in the form of termination rates. Therefore, there is no clear mapping between the structure of wholesale rates for geographic and non-geographic calls. For this reason, we do not take this option forward as a viable option.

Remove originator power by imposing a structural change to the market in terms of who sets wholesale rates

The most direct way to address originator market power might be to shift rate-setting responsibilities away from OOs towards TOs. TOs compete with other TOs to provide services to SPs (directly or indirectly through other parties that may be involved in procuring termination and supporting the SP's services). Therefore, there are incentives for TOs to take into account SPs' interests when considering the wholesale rates. There is precedent for this market structure in other countries (including the UK) where TOs influence the prices charged (with TOs typically setting wholesale charges, though subject to the risk of dispute by OOs).

Set expectations and boundaries regarding acceptable price levels by issuing guidance on how issues would be resolved in the case of a dispute-

ComReg could issue guidance on its view of acceptable behaviour in the NGN market, particularly on the level of wholesale rates. Guidance could include an indication of the conditions under which ComReg would launch an investigation (for example, setting a price level above which there is a rebuttable presumptive of excessive pricing), either using its competition powers, or using its powers as set out in Article 5 of the Access Directive (Regulation 6 of the Irish

Access Regulations)[36] and/or Article 28 of the Universal Service Directive (Regulation 23 of the Irish Universal Service Regulations).[37]

Consider resolution of any dispute raised by industry as means of addressing perceived anti-competitive behaviour

ComReg could use its dispute resolution powers to address the specific issues raised between disputing parties. Together with the issuing of guidance (as above), SPs and TOs will be able to consider how best to deal with potentially excessive pricing of origination. For example, if the guidance described above set out the conditions under which a dispute would be considered and indicated the factors that ComReg would take into account, this may encourage TOs and/or SPs to raise disputes on clearly defined issues because the terms would be properly understood.

Directly address the level of the wholesale charges through setting of a price control

The current situation where wholesale charges (except for eir's cost oriented charge) are presumed to be excessive could be directly addressed by a price control applied to the wholesale rates. This could be a cost-orientation obligation based on cost modelling of fixed and mobile origination; or use of proxy to define (ex-ante) what wholesale rates will be deemed excessive.

Table 4 below provides an overview of each of these approaches, including the regulatory basis for each approach. We consider this list to be indicative of the broad range of different approaches ComReg could take to address the issues identified. All of these options are means of addressing originating operator market power, and we have focused on the exercise of that power through

[36] Regulation 6 of the Irish Access Regulations provides that: *"6.(1) The Regulator shall, acting in pursuit of the objectives set out in section 12 of the Act of 2002, encourage and, where appropriate, ensure, in accordance with these Regulations, adequate access, interconnection and interoperability of services in such a way as to —*

(a) promote efficiency,

(b) promote sustainable competition, and (c) give the maximum benefit to end-users. [...]

(5) With regard to access and interconnection, the Regulator may exercise its powers under these Regulations, the Framework Regulations, the Authorisation Regulations and the Universal Service Regulations on its own initiative, where justified, or, in the absence of agreement between undertakings, at the request of either of the parties involved, in order to secure the policy objectives and regulatory principles set out in section 12 of the Act of 2002, in accordance with these Regulations and Regulations 19, 20, 31 and 32 of the Framework Regulations."

[37] Regulation 23 of the Irish Universal Service Regulations provides that: *"23. (1) The Regulator may, where technically and economically feasible and except where a called subscriber has chosen for commercial reasons to limit access by calling parties located in specific geographical areas, specify requirements for compliance by an undertaking operating a public telephone network or providing publicly available telephone services for the purpose of ensuring that end-users are able to—*

(a) access and use services using non-geographic numbers within the European Union, and

(b) access all numbers provided in the European Union, regardless of the technology and devices used by the operator, including those in the national numbering plans of Member States, those from the European Telephony Numbering Space (ETNS) and Universal International Freephone Numbers (UIFN)."

excessive wholesale charges, and through OOs' abilities to charge rates which are not constrained by competitors or end users.

Note that these options are not mutually exclusive and the selection of one option to solve one issue may in practice address another. For example, directly addressing the level of the wholesale charge would also lead to an increasingly harmonised rate between operators. The reverse is not necessarily true – harmonising the rates could conceivably address the lack of a constraint on price setting but could mean that every operator is still charging excessively high rates.

Table 4: Potential approaches

Approach	Ex ante or ex-post intervention?	Targeting what market failure?	Regulatory basis?
Raise an abuse of dominance competition law finding and fine infringing parties	Ex-post	Originator market power Level of wholesale charges	Section 5 of Competition Act and Article 102 TEFU re abuse of dominant position in a defined market
Negotiated settlement to harmonise rates	Ex-ante	Lack of constraint on price-setting	No formal regulatory basis. Would require a voluntary agreement between all operators and ComReg.
Structural change	Ex ante	Originator market power	Unclear, probably by voluntary neogtiation
Issue guidance	Ex-ante	Originator market power Level of wholesale charges	Article 5 of the Access Directive (Regulation 6 of the Irish Access Regulations) and/or Article 28 of the Universal Service Directive (Regulation 23 of the Irish Universal Service Regulations).
Dispute resolution	Ex-post	Depends on the exact terms of the dispute. Would only settle the issues raised in	Regulation 31 of Framework Regs

		the dispute between the parties involved in the dispute.	
Set a price control	Ex-ante	Originator market power Level of wholesale charges lack of constraint on price setting	Definition of a market for call origination to NGNs under Article 7 notification; Or Article 5 of the Access Directive (Regulation 6 of the Irish Access Regulations) and/or Article 28 of the Universal Service Directive (Regulation 23 of the Irish Universal Service Regulations).

7.2 Assessment

The primary question for any assessment of regulatory approaches is which of these options presents the most appropriate approach to address the identified issues?[38]

Table 5 provides a summary of our assessment, comparing the options in terms of the likely impact on addressing the identified issues (and therefore the benefit to the market); the time it would take to implement; and the likelihood of legal challenge. The time to implement is an important consideration given the need to avoid any undue continuation of the harm identified and the need for wholesale intervention to take force alongside the proposed retail remedies, given the interaction between the two. We discuss some of these points further and identify the approach we think would represent the most proportionate response to the issues identified.

[38] When considering remedies for the wholesale market, it is important to ensure that the regime will work regardless of the exact retail arrangements. In particular, we would ideally want an approach for wholesale charges that can work well with reformed retail prices, but also could cope with delays/phasing of those changes that might leave significant surplus within the overall value chain to be shared amongst the various parties.

Table 5: Proportionality assessment

Approach	Benefits in market	Time to implement	Likelihood of legal challenge
Dispute resolution	**	***	***
Raise an abuse of dominance competition law finding and fine infringing parties	***	****	***
Negotiated settlement to harmonise rates	*	*	*
Structural change	***	*****	*****
Issue guidance	*	*	*
Set a price control	*****	***	***

Dispute resolution

Taking an ex-post approach with recourse to dispute resolution (should a dispute be raised) might be appropriate, but such intervention is reactive and would not necessarily address the underlying sources of market failure, only addressing behavioural problems as and when they are reported. Obviously, the approach is also dependent on a dispute being raised. This means that the subject matter of the dispute is outside ComReg's control, and it is not guaranteed that any dispute raised will be related to the specific issues identified to date. The timing is also likely (to some extent) to be outside ComReg's control.

There is also the question of the extent to which any resolution of a particular dispute would be applied more widely (for example, to parties outside of the disputing parties). We understand ComReg's position is that a resolution of a dispute only applies to the parties to the dispute. Therefore, it is possible that dispute resolution would not guarantee the underlying causes of the issues identified in the market as a whole would be addressed in full, potentially only between a sub-set of market players and on a specific issue on which a dispute was raised.

This approach has always been available to ComReg as a potential form of intervention but has not thus far enabled ComReg to address the key issues identified as part of this assessment. Therefore, we consider that this approach would not be effective in addressing the issues identified or do so in a timely manner that would bring an end to the identified harm without undue delay. However, this option does remains open to ComReg and the selection of any other form of intervention does not exclude this option going forward.

Fines following a finding of abuse of dominance

Evidence of harm in the market indicates anti-competitive behaviour which could be assessed using competition powers. An ex-post approach following a competition law investigation by ComReg (based on a theory of harm linked to abuse of dominance) might be used to address specific operator abuse.

Under this approach, there would also be potential for SPs to claim third party damages off the back of any finding of abuse of dominance. For example, an adverse competition finding could provoke third-party damages claims for historical excessive wholesale pricing. This would seem a real possibility for SPs, who may be large and well-resourced businesses. (Recent claims by retailers against credit card schemes following rules on interchange fees provide a similar scenario). Such a possibility could mean that even the threat of competition action might provide an incentive for OOs to modify their behaviour to avoid such a formal finding.

However, the timescales required for a full competition assessment and penalties imposed under a competition law approach are resource intensive for operators and regulators and generally long, particularly as they eventually depend on external bodies (the courts in the case of a competition investigation). This means that it is likely to be some time before remedial action is taken. Moreover, the final decision would be in hands of the court, not ComReg.

The risk of taking an ex-post approach is that there is scope for continued harm in the short-run and during the interim period of the investigation and decision through the courts. There is scope for the costs to SPs and consumers to be significant throughout this period potentially leading to irreversible damage of the NGN system. Therefore, in waiting only for a dispute to be brought, or following ex-post competition law proceedings, ComReg would need to balance the benefits achieved in the market against the length of time this approach would take to develop and implement and the potential for harm in the interim period.

Furthermore, an ex-post approach would only be successful if OOs considered the risk of potential action being brought against them was sufficiently high that they were incentivised to reduce charges. Given that ex-post competition law powers have always been available to ComReg and yet there is clear evidence of excessive charges shows that the incentives for keeping wholesale charges at a level to cover costs but no more are not sufficient at present.

An ex-post approach seeks to punish behaviour after the event rather than preventing abuse and stimulating competition ex-ante. The analysis which has been carried out indicates that there are structural problems in the market, not just behavioural problems that might be the subject of an ex-post intervention, so an ex ante approach may be warranted to ensure the sources of market failure are addressed directly. By addressing the source of the issues ex-ante will also provide some certainty and security to users of NGNs and those investing in services provided over NGNs. Therefore, whilst ex-ante competition law is would remain available to ComReg, there are compelling arguments for intervention ex-ante.

As discussed above, given the market failures identified, ComReg could consider several different approaches.

A negotiated settlement to address asymmetries

Facilitating a negotiated settlement or voluntary agreement between all operators to harmonise rates across operators to reduce the significant differentiation of rates across operators would address the current absence of a constraint on pricing and could remove the large variations in charges. In theory, it might also be relatively easy to implement. However, a focus on harmonisation of rates without considering the actual levels of wholesale rates risks settling on a harmonised rate which may still be excessive. Therefore, there would need to be an implied 'acceptable' price level, for example seeking to peg rates to eir's regulated rates.

However, it is difficult to determine what powers ComReg would have to enforce any such an agreement, and if its stability relies on a voluntary commitment from operators, the regulatory outcome is uncertain, as operators will have an incentive to deviate. Furthermore, if a negotiated settlement could not be agreed in a timely manner, then there is a risk that there would be an undue delay to addressing the issues identified.

The disintegration of the previous, voluntary deemed-to-be regime demonstrates the instability of such a regime and highlights the disadvantage of an option which is voluntary on the part of the operator – it is inherently fragile, and by its nature unenforceable. Therefore, this option on its own is unlikely to be successful in addressing the underlying issues and resolving the market failures identified and is therefore not an effective solution to the issues identified. We do not propose therefore to consider this option in any further detail.

Structural change

The appeal of shifting rate-setting responsibilities to the TO (as is the case in other jurisdictions such as the UK) is the direct resolution of originating operator market power, and the fact that such a regime operates elsewhere means it should be considered. However, we are unclear about how a transition to a different rate-setting regime would be effected in practice, and also what basis ComReg would have to bring about such a transition, although this may be possible through imposition of an access obligation on the terminating operator requiring them to provide access to originators on fair and reasonable terms.

In any case, a structural reorganisation of this nature would impose a significant implementation burden on all operators and its implementation is likely to be costly and time-consuming, because operators would need to change billing systems to reflect the new arrangement. Furthermore, there may be further delays to implementation given the high likelihood of legal challenge as a result of the significance of the change. We consider that, on balance, the magnitude of this change would be disproportionate given the other options available to ComReg to address the issues identified and that there are other options available to ComReg that would address the issues identified effectively and do so in a timelier manner in line with the proposed introduction of the retail market remedies. Therefore, we do not consider this option further.

Issuing guidance

Issuing guidance would be relatively easy to implement and would provide a statement of intent on how ComReg would proceed with any further action to be taken in the wholesale market. Issuing guidance does not preclude ComReg from adopting any of the other options discussed, and in that sense, it is not a mutually exclusive alternative. Therefore, on its own, it may not be sufficient in directly addressing the issues identified, especially as guidance is not legally binding and operators may continue to set wholesale charges at their current level meaning the issues identified would not be address effectively. However, whilst not an appropriate form of intervention on its own, it could be a short-term solution providing a mechanism for establishing the situations in which ComReg could take action. For example, it might be an appropriate interim measure indicating the consequences of any continuing excessive pricing, whilst the exact details of any further regulation in the wholesale market is consulted upon.

Price control

Beyond the issuing of guidance, ComReg could impose specific controls on the wholesale charges set by OOs, directly addressing the issue of excessive wholesale charges. This would ensure that price distortions that might affect service providers' choice between different NGN number ranges and between NGNs and geo-numbers should be avoided whilst also ensuring that both originators and terminators would be able cover their costs on an incremental basis, so are no worse off from providing NGN services. By directly addressing the level of charges and therefore lowering the costs to SPs of using such numbers (especially for freephone) this form of intervention has potential to bring the greatest benefits. ComReg has two broad means of assessing the cost of providing wholesale origination to NGNs:

- On the basis of modelling costs of origination for various classes of operator (fixed/mobile);
- Using a proxy as a level beyond which the wholesale non-geo origination rate would be considered excessive.

7.3 Recommended approach

Form of intervention

We have considered the advantages and disadvantages of a range of different approaches which ComReg could take to addressing excessive wholesale origination rates. Our assessment has included an evaluation of the benefits which could be achieved by each approach set against the time and effort needed to implement a solution, and we recognise that ComReg needs to find an approach which is proportionate as well as effective.

On balance, our view is that ComReg should directly address excessive wholesale origination charges by means of a price control on wholesale rates for NGNs.

This would be justified given the evidence presented in this report and in ComReg 17/70a to show that the current wholesale rates are giving rise to harm in the market for NGNs and are caused as a result of each originating operator in effect having market power, given that it is not avoidable by a SP who needs to be accessible to all callers regardless of which network they might subscribe to.

The formulation of a price control would need to consider any basis for price differences being accounted for by differences in the cost of supply, but our initial analysis indicates that the magnitude of the differences in wholesale charges (especially for 1800) is unlikely to be explained by different supply costs. However, we recognise that further work may be required to establish whether or not the variation in charges can be accounted for by differences in the cost base of different operators and whilst our initial assessment is that this is unlikely to explain the variation, this view should be confirmed.

Implementation considerations

ComReg has different routes available to implement a price control, and eventually the decision as to which power to use is a matter for ComReg. We understand that ComReg is minded to consider whether it should impose SMP obligations on non-SMP operators by virtue of regulation 8(3) of the Access Regulations in conjunction with regulation 6(1) or (2) of the Access Regulations and regulation 23(1) of the Universal Service Regulations..

Whilst not advising on the legal framework under which intervention is taken, the purpose of this report is to highlight the factors which should be taken into account.

Maintain focus

The work so far has already demonstrated harm and identified that the key competition problem to be addressed is excessive pricing. If there is an option to directly target excessive pricing, this would be preferable to starting again with an analysis of the market, and repeating the work which has already been done, particularly as the conclusion is likely to be the same.

Minimise on-going harm in wholesale market

When considering the form of any remedy for excessive pricing of wholesale origination, the time taken to get to the point of implementation is an important factor, as delays mean a continuation of the harm that has been identified.

Minimise delay in implementation of retail remedies

Furthermore, any delays to the implementation of wholesale remedies has potential to undermine the proposed changes in the retail market as well.

As noted by several respondents to the consultation and in our original report, the implementation of retail remedies without wholesale measures opens the potential for a worse outcome for operators, SPs and consumers. For example, in eir's response to consultation it stated, "*High prices faced by SPs for receiving calls may further reduce their incentives to use NGNs further contributing to reduced call volumes. This leads to adverse feedbacks i.e. if fewer services continue to be provided over these numbers then regardless of retail pricing, consumers are less likely to engage with the platform in terms of understanding what the various number classes mean and may call NGNs less often*" and BT stated, "*the wholesale issues are causing significant harm to the retail sector and ComReg's objectives in the retail sector cannot be achieved without resolving the wholesale issues, in particular the wholesale originating pricing bottleneck*".

We suggested above that ComReg should not be obliged to repeat work that has already been done, and the approach taken should be efficient in its use of the existing analysis. ComReg could also consider proportionality in terms of what intervention is actually required.

The work conducted by ComReg and DotEcon to date has identified a clear and specific problem that should be addressed to prevent further harm resulting from the current excessive wholesale and retail pricing of NGNs.

The evidence presented over the course of this review clearly shows that certain consumers are unable to access and use services using NGNs. It is necessary to take steps to ensure that end-users are free to access services using NGNs by addressing directly the excessively high wholesale charges that are currently preventing SPs from providing access to services over the NGN platform. This is particularly important where vulnerable users are concerned, for example where valuable services are not provided over Freephone due to the large costs of provision faced by the SP.

The approach taken by ComReg must ensure that there is no alternative option that would likely achieve the same ends in a more timely manner. This is important so as to avoid any unnecessary continuation of harm, which would best be achieved by ensuring the wholesale remedies are implemented in line with the retail market proposals, given the interaction between the wholesale and retail sides of the market and the risk of any subsequent worsening of the current position should only retail remedies be imposed.

Form of the price control

Should ComReg take forward the possibility of imposing a price control it could consider doing so on the basis of modelling costs of origination for various classes of operator (fixed/mobile) or using a proxy as a level beyond which the wholesale non-geo origination rate would be considered excessive. Furthermore, given that the issues identified seem to be particularly pronounced for the 1800 numbers and the relative simplicity of the wholesale regime for these numbers relative to some of the other NGNs, the exact nature of the price control may differ slightly for the 1800 range and other ranges. Therefore, ComReg ought to consider the specifics in more detail and the exact nature of the price control should be subject to further assessment and consultation.

Annex A Glossary

Call	means a connection established by means of a publicly available electronic communications service allowing two-way voice communication.
Call origination	means the source of the call is from the originating operator's network
Call termination	means the call was terminated on the terminating operator's network
Called party	means any party in a call other than the caller
Caller	means the party that initiates the call establishment
ComReg	means the Commission for Communications Regulation in Ireland
Geographic number	means a number from the National Numbering Scheme where part of its digit structure contains geographic significance used for routing calls to the physical location of the network termination point (NTP)
Geographic call	means a call that originates and terminates on Geographic Numbers within the state.
Non-geographic number	means a number from the National Numbering Scheme that is not a Geographic Number in that its geographic network termination point (NTP) is not identifiable from its digit structure.
Operator	means an undertaking providing or authorised to provide a public communications network or associated facility
Originating operator	means the fixed or mobile operator in whose telephone network the traffic is originated
Retention rate	the amount 'retained' by the OO to cover the costs of origination. This can be thought of as the average retail price less the settlement rate.
Service Provider	means any party providing a product or service through the use of a non-geographic number

Settlement rate	means the sum per minute or per call that is passed between originating and terminating operator, sometimes via a transit operator, to compensate for the cost of connecting an NGN call. (For clarity, if the settlement rate is negative, the OO is receiving revenue from the TO.)
Termination rate	means the per minute rate (typically in Euro Cent) charged by a terminating operator for terminating a call on its network
Terminating operator	means the operator in whose telephone network the traffic is terminated