

Title: EU Broadband Cost Reduction Directive (2014/61/EU) transposition IA No: DCMS_016 RPC Reference No: RPC-3056(2)-DCMS Lead department or agency: Department for Culture, Media and Sport Other departments or agencies: N/A	Impact Assessment (IA)			
	Date: 24/05/2016			
	Stage: Final			
	Source of intervention: EU			
	Type of measure: Secondary legislation			
Contact for enquiries: Dominic Lague: dominic.lague@culture.gov.uk ; 02072112381				
Summary: Intervention and Options			RPC Opinion: GREEN	

Cost of Preferred (or more likely) Option				
Total Net Present Value	Business Net Present Value	Net cost to business per year (EANDCB in 2014 prices)	One-In, Three-Out	Business Impact Target Status
-£0.13m	-£0.13m	£0.0m	Not in scope	Non qualifying provision

What is the problem under consideration? Why is government intervention necessary?

A large majority (up to 80%) of the cost of rolling out high-speed broadband networks is related to civil engineering works. There is extensive infrastructure across telecoms and a range of utility sectors that may be suitable for sharing to deploy broadband, but no general requirement to provide access. Enhanced coordination of civil works between networks can also reduce costs. Information sharing is needed to enable sharing and coordination while universal provision of basic in-building infrastructure will assist roll-out to end-users. The Directive is an EU requirement and transposition is mandatory.

What are the policy objectives and the intended effects?

The Directive has four pillars. (1) Sharing of existing infrastructure is required by firms operating in a range of sectors, on fair and reasonable terms. (2) Firms using public money to execute civil works must meet reasonable requests to coordinate these to deploy broadband. (3) Relevant firms must share information about existing infrastructure and planned civil works. (4) New buildings must have basic in-building infrastructure (assessed separately) and access to this must be assured. There must also be a dispute resolution system. This will ensure that where suitable infrastructure exists, firms can choose to reduce capital allocated to civil works, potentially enabling greater reach and more rapid deployment.

What policy options have been considered, including any alternatives to regulation? Please justify preferred option (further details in Evidence Base)

The Directive is a mandatory EU requirement, and Government does not have any alternatives to regulation. Transposition is on a minimal basis, following Government transposition guidelines and without any gold-plating. There is therefore very limited scope for variation in how the policy is implemented. We have relied on existing UK legislation in several areas where this meets the Directive requirements, and we have chosen not to implement optional provisions. DCMS has carried out extensive consultation with affected firms to establish likely impacts, develop workable implementation policy, and promote understanding of the Directive requirements.

Will the policy be reviewed? It will be reviewed. If applicable, set review date: 07/2021				
Does implementation go beyond minimum EU requirements?			No	
Are any of these organisations in scope?			Micro Yes	Small Yes
			Medium Yes	Large Yes
What is the CO ₂ equivalent change in greenhouse gas emissions? (Million tonnes CO ₂ equivalent)			Traded:	
			Non-traded:	

I have read the Impact Assessment and I am satisfied that (a) it represents a fair and reasonable view of the expected costs, benefits and impact of the policy, and (b) that the benefits justify the costs.

Signed by the responsible Minister: Ed Vaizey **Date:** 23/06/2016

Summary: Analysis & Evidence

Policy Option 1

Description: Implement the minimum requirements of the Directive with no gold-plating

FULL ECONOMIC ASSESSMENT

Price Base Year 2015	PV Base Year 2016	Time Period Years 10	Net Benefit (Present Value (PV)) (£m)		
			Low: N/A	High: N/A	Best Estimate: -0.13

COSTS (£m)	Total Transition (Constant Price) Years	Average Annual (excl. Transition) (Constant Price)	Total Cost (Present Value)
Low	N/A	N/A	N/A
High	N/A	N/A	N/A
Best Estimate	0.1	0.0	0.1

Description and scale of key monetised costs by 'main affected groups'

Familiarisation costs have been estimated at £3,312 for 20-30 firms who are most likely to be affected by the Directive. A lower cost of £208 has been estimated for a further 230 firms who may fall within scope but are unlikely to be affected. This provides an overall estimated cost of £131,000 occurring in year 1 (2015 prices).

Other key non-monetised costs by 'main affected groups'

Some firms may face costs to provide information about existing infrastructure, meet requests for surveys and provide access to infrastructure. These costs can all be recovered through charging fair and reasonable prices for fulfilling these obligations and many companies already operate systems to process such requests. There may be indirect costs to business should greater sharing between telecoms infrastructure providers lead to lower prices or loss of market share in the medium to long run.

BENEFITS (£m)	Total Transition (Constant Price) Years	Average Annual (excl. Transition) (Constant Price)	Total Benefit (Present Value)
Low	N/A	N/A	N/A
High	N/A	N/A	N/A
Best Estimate	0.0	0.0	0.0

Description and scale of key monetised benefits by 'main affected groups'

N/A

Other key non-monetised benefits by 'main affected groups'

The direct costs of information provision, surveys and providing access can all be recouped through fair and reasonable charges. Greater sharing of infrastructure and coordination of civil works should lead to lower costs of roll-out and enhanced competition in broadband providers. In the medium to long run the increased competition and lower cost of roll-out may lead to consumer benefits through lower prices, greater coverage or higher quality services.

Key assumptions/sensitivities/risks

Discount rate (%) 3.5%

The extent to which the Directive will lead to greater sharing of infrastructure is unknown and it is therefore not possible to quantify various impacts. However, the safeguards in the Directive around objective refusals for requests, and the system of fair and reasonable charges it allows means the impact should be cost neutral in terms of direct ongoing costs whether it leads to a high amount of activity or none at all.

BUSINESS ASSESSMENT (Option 1)

Direct impact on business (Equivalent Annual) £m:			Score for Business Impact Target (qualifying provisions only) £m:
Costs: 0.0	Benefits: 0.0	Net: 0.0	
			N/A

Evidence Base (for summary sheets)

A. Background

1. The benefits of rolling out high-speed electronic communications networks (HSECN) or broadband have been outlined in the Government's *UK Broadband Impact Report* (UKBIR 2013). These can be divided into economic, social and environmental benefits.
 - a. Economic benefits of broadband roll-out: According to the Report, the availability and take-up of faster broadband speeds will add about £17 billion to the UK's annual Gross Value Added (GVA) by 2024. The bulk of this economic impact comes from improved productivity of broadband-using firms, but "there are also significant benefits from safeguarding employment in areas that would be at an unfair disadvantage" (UKBIR pp3). The report estimates that the total net employment increase from faster broadband will be about 56,000 jobs in the UK by 2024.
 - b. Social impacts: UKBIR estimates that wider rollout of super-fast broadband would have a significant impact on reducing the 'digital divide'. The report notes that "*the complex and changing nature of interaction between people and technology mean that many of the social impacts are impossible to forecast*". However, the report estimates that the increase in teleworking by faster broadband will save about 60 million hours of leisure time per annum in the UK by 2024, with reduced commuting saving households £270 million per annum by 2024.
 - c. Environmental impacts: Some of the environmental impacts are likely to result in savings of:
 - 2.3 billion kms of annual commuting and 5.3 billion kms of business travel predominantly by cars
 - 1 billion kWh of electricity usage p.a. through broadband-enabled firms shifting part of their server capacity to more energy efficient public cloud platformsThese are estimated to save about 1.6 million tonnes of CO2 equivalent per annum by 2024.
2. In light of the above benefits, enabling public access to high-speed broadband is a stated policy goal of both the UK and the EU.
3. The UK Government has committed to delivering the following:
 - provide basic broadband (2Mbps) for all by 2015
 - provide superfast broadband coverage to 90% of the UK by 2016
 - provide superfast broadband to 95% of the UK by 2017
 - provide rural Britain with near universal superfast broadband by the end of this Parliament
 - create 22 'SuperConnected Cities' across the UK by 2015
 - provide businesses with a connection voucher of up to £3,000 for faster, better broadband through the Government's Broadband Connection Voucher Scheme active in 50 cities across the UK

- improve mobile coverage in remote areas by 2016¹
4. The EU's *Digital Agenda for Europe* sets targets for delivering basic broadband to all Europeans by 2013, and to ensure that by 2020 all Europeans have access to Internet speeds of above 30 Mbps, and 50% or more of the Union households subscribe to Internet connections above 100 Mbps.

¹ (<https://www.gov.uk/broadband-delivery-uk>)

B. Problem under consideration

5. The high-cost of HSECN rollout is the main problem that this Directive aims to address. According to various studies including Analysys Mason (2008, 2012) ENGAGE (2014) and OFCOM (2010), a large majority of these costs (up to 80%) is related to civil engineering works. Limiting some of the cost-intensive civil engineering works would make broadband roll-out more effective.
6. Following their consultation on the issue in April 2012, the European Commission identified the following four main obstacles that lead to additional costs and delays, holding back the roll-out of high speed electronic communications networks:
 - a. **Barriers to using existing physical infrastructures:** Bottlenecks or barriers that prevent the sharing of infrastructure from happening at full potential include: (1) limited transparency as concerns existing physical infrastructure suitable for broadband rollout, (2) inconsistently applied regulation or lack of appropriate legal basis / institutional framework, (3) commercial issues (lack of business interest) or anti-competitive behaviour, and (4) technical unfeasibility².
 - b. **Barriers to cooperation in civil engineering works:** Main barriers to co-deployment are: (1) the lack of transparency concerning planned works, (2) the long and non-matching time horizons involved in planning and executing works, where discrepancies are even higher across sectors; (3) commercial considerations (scepticism to reveal commercial plans or lack of business interest), (4) the lack of an appropriate legal / institutional framework, especially as regards cross sector cooperation, and (5) technical incompatibilities³.
 - c. **Burdensome administrative procedures:** This includes (1) the high number of different, uncoordinated rules and procedures, (2) the lack of transparency of these rules and procedures, (3) the long delays and, in some cases, (4) the unreasonable conditions, including fees, attached to rights of way⁴.
 - d. **Barriers to deploying in-house equipment in existing buildings:** This is caused by: (1) high costs of equipping existing buildings, (2) cumbersome procedures related to working inside buildings and deploying the terminating segment on common grounds (mainly delays and difficulties to obtain owners' consent), (3) inconsistent application or lack of regulation tackling the inefficiencies associated with duplicating in-building infrastructure, and (4) lack of standardisation in this area⁵.

² EU impact assessment p.21, accessible online:
http://ec.europa.eu/information_society/newsroom/cf/dae/document.cfm?doc_id=1907

³ EU impact assessment p.23

⁴ EU impact assessment p.25

⁵ EU impact assessment p.26

How the above factors result in higher costs for the rollout of HSECN is outlined in the diagram below:

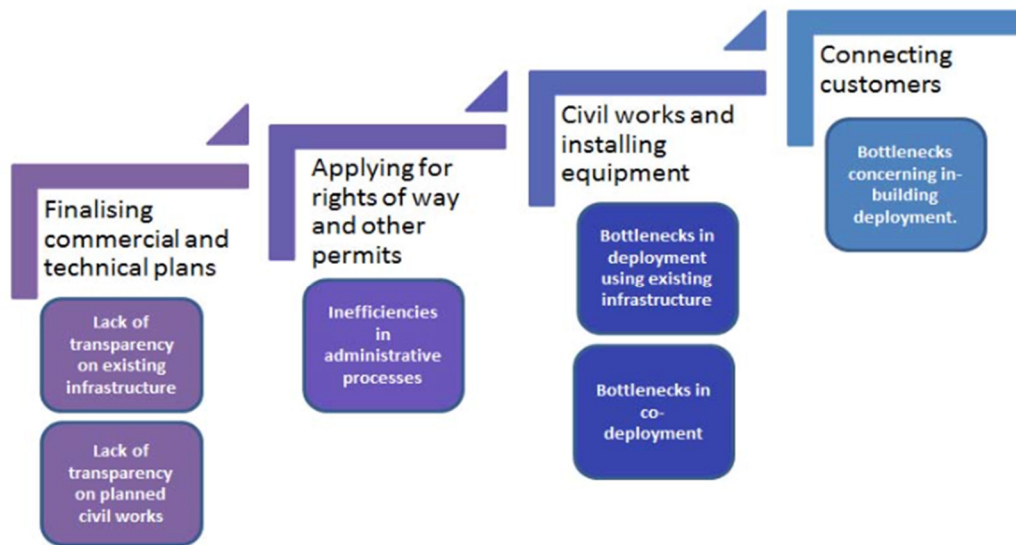


Figure 1 - Inhibiting factors in HSECN roll-out (Source EC Impact Assessment Figure 3 pp 18)

At the planning stage, a lack of transparency about existing infrastructure and civil works undertaken by other networks could limit potential cost-savings that could be achieved from sharing infrastructure and coordination of works. At the application of permits for civil works stage, inefficient administrative or lengthy practices by governments can add further costs. At the implementation stage, there may exist both practical and/or regulatory bottlenecks that once again discourage co-deployment or sharing of infrastructure networks. Finally, limitations at the customer level, particularly in residential/commercial dwelling building specifications, provide the final bottleneck in the rollout of high-speed networks.

7. A consultation carried out in 2014 by the UK Regulators Network (UKRN 2015 (1)) among the major infrastructure networks of the UK provided evidence to suggest these factors outlined at the EU level may also exist at the UK national level. The following table highlights the key findings from the consultation:

Table 1 – Key Findings from UK Regulators Network Consultation

Issue
Clear points of contact: In some cases, respondents noted it was not clear who to contact or who was the relevant responsible person.
Firm timescales: There may be instances of failure to offer, or meet, timescales for provision of information, agreements, on-site works, visits or other steps necessary to deliver the project.
Design specifications and information: The client may often be dependent upon agreeing to, or meeting, design standards set by the in-situ operator with little information available to the client about these standards.
Governance and decision making: Some respondents noted it was difficult to reach binding agreements or a settled position on design, planning or other issues.
Accuracy of asset information: The information about the position and quality of in-situ assets is not always reliable.
Consistent treatment: A number of respondents noted that similar projects may be treated very differently by the same network operator, with different processes, design standards or access agreements.
Costing transparency: Some concern was raised with how costs or charges are determined and levied.
Access agreements and financial terms: A number of cases were cited of access agreements that were perceived as either costly or imbalanced, for example imposing greater liabilities on the client than the in-situ asset owner.
Adoption / learning of best practice: Many respondents considered there were few consistent opportunities to capture and share best practice. Only on some of the very largest projects was this more formalised.
Co-ordination of on-site access: Once assets are installed both parties may need access in the future, usually for maintenance. Some concerns were raised that information or processes were not available to help co-ordinate on-site maintenance.

Source: UKRN Call for Evidence

8. Encouraging more coordination between different sectors in the UK has also been identified as offering the potential for greater efficiency gains in the rollout of infrastructure networks. In the 2010 Infrastructure Cost Review (UKICR 2010), the Government outlined delivery issues (i.e. effective co-ordination and partnership working) as one of three potential areas where further efficiency savings can be made.
9. The requirement for all new buildings and major renovations to include in-building physical infrastructure will be implemented by CLG by amendment to the Building Regulations. For this purpose CLG have prepared a separate economic assessment that considers the incremental cost to house builders and the construction industry of providing this infrastructure. The CLG assessment estimates that this represents a cost to business of £218,000 (EANCB, 2014 prices)⁶. We have therefore excluded these costs from this impact assessment and the remainder of this assessment will not consider the impacts of in-building physical infrastructure.
10. The potential for a market-based collaboration between Communications Providers (CPs) and infrastructure providers is already present in the UK. A fundamental question with regards the problems outlined above is therefore what market failures necessitate a state level intervention.

C. Rationale for intervention

11. Currently, the economic rationale for state intervention is based on the following potential for market failures to be present. These market failures combined justify government intervening in the market and taking a coordinating role where appropriate.

⁶ http://www.legislation.gov.uk/ukia/2016/99/pdfs/ukia_20160099_en.pdf

- a. There are **externalities**, both positive and negative, associated with communications infrastructure and its roll out. There are positive network externalities as a communications network gains value for all users every time a new user joins. These positive impacts on other users are unlikely to be reflected in an individual's willingness to pay for that service, meaning there is a value in communications network roll out that cannot be fully captured by the provider. There are also negative externalities associated with infrastructure roll out as the private costs do not reflect the full social costs to the public (disruption, delays, environmental impacts, etc.). Sharing infrastructure or coordinating civil works can minimise these costs. It is therefore likely that there is a sub-optimal level of infrastructure sharing and governments can step in to address this externality through further encouraging or regulating the optimal degree of sharing.
- b. **Coordination failures** may emerge when civil works are being undertaken between different types of infrastructure providers. These sectors may have different incentives, knowledge bases, working methodologies, and safety requirements. They may also not have the right incentives or information on which to undertake coordination. As this becomes more organisationally complex, a key central point for all interactions is at the level of government that provides the required permits for these civil works. Governments are therefore uniquely placed to play a facilitator / information provider role. There are however already mechanisms for coordination of some works in the UK, and comprehensive information is generally available regarding required permits and how these should be obtained.
- c. These market failures are compounded by infrastructure providers often having **market power** in their sectors and therefore being able to set prices above the socially optimal level. While they may be regulated at their own sector level, there are currently no set rules that would limit or control their behaviour at a cross-industry level. In addition, firms can have market power within their sector without meeting the threshold for regulatory intervention (e.g. in telecoms it is significant market power that needs to be demonstrated before intervention rather than just market power⁷). Therefore, these providers are likely to have an incentive to over-charge for access and information, to transfer the large proportion of the risk associated with the interaction to the access seeker, or to refuse access outright.

D. Policy objective

12. **The EC impact assessment outlines the policy as having the following specific policy objective:**

“To remove the bottlenecks and reduce the inefficiencies described above (i.e. inefficiencies related to the use of existing physical infrastructure, bottlenecks related to co-deployment, bottlenecks regarding permit granting, and, finally inefficiencies concerning in-building deployment) thereby reducing the costs of rolling out high speed broadband infrastructure”.

13. In line with EC Impact Assessment guidelines, this policy objective is quantified. While acknowledging the difficulty in quantifying the precise targets the policy can achieve, the EC states that the “initiative aims at proposing a coherent and

⁷ The European Commission publish criteria for the assessment of significant market power in the context of telecommunications markets: [http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52002XC0711\(02\)&from=EN](http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52002XC0711(02)&from=EN)

systematic set of measures in order to reduce the costs of rolling out high-speed broadband networks by 25%". The EC notes that this specific objective must be seen within the general objective of stimulating broadband investment and rollout throughout the EU, in line with the Digital Agenda targets. It must be noted that the applicability of the measures will vary across Member States, as some have already introduced measures that correspond to requirements in the Directive.

14. In addition to these specific and general policy objectives, the EC states a number of operational objectives (of which some are quantified):
 - a. Increasing the use of existing physical infrastructure suitable for broadband rollout: for at least 25% of the deployment to take place in pre-existing infrastructure.
 - b. Increasing cooperation in civil engineering projects throughout the EU: for at least 10% of the high-speed networks to be set up in co-deployment.
 - c. Streamlining administrative procedures related to network rollout throughout the EU
 - d. Increasing the provision of buildings with open high-speed broadband-ready infrastructure throughout the EU: for at least 5% of the newly deployed networks to reach multi-unit dwellings that are high-speed broadband ready.
15. The overriding UK policy objective is to ensure compliant transposition of the Directive in a way that is sensitive to UK national conditions and minimises any associated cost to business. The UK's broader policy objectives closely mirror those of the European Commission as regards encouraging rollout of high speed electronic communications networks. We recognise that measures aimed at increasing the use of existing physical infrastructure, increasing cooperation of civil works, as well as putting in place an effective system of dispute resolution, are likely to encourage such roll-outs.

E. Description of options considered (including do nothing);

16. As this is an EU level Directive that the UK is legally required to implement, the 'do-nothing' option is not considered here. There is therefore also very limited scope for variation in how the policy is implemented, as Government policy is to implement the minimum requirements of Directives and avoid 'gold plating'. The mandatory requirements in the Directive can be divided into five pillars:
17. **Pillar 1 - Infrastructure sharing (Articles 3 and 4):** Requires existing network infrastructure owners (communications, gas, electricity, heating, rail, roads, ports, airports, waste water and sewerage) to give CPs access to relevant existing physical infrastructure at a fair and reasonable price. They must also provide information about their infrastructure and grant requests for surveys.
18. Article 3 requires Member States to ensure that every network operator has the "*right to offer to undertakings providing or authorised to provide electronic communications networks access to its physical infrastructure with a view to deploying elements of HSECN*", as well as ensuring that any network operator has "*the obligation to meet all reasonable requests for access to its physical infrastructure under fair and reasonable terms and conditions, including price...*". Any refusal of access must be based on "*objective, transparent and proportionate criteria*".

19. Article 4 provides network operators *“the right to access, upon request, the following minimum information concerning the existing physical infrastructure of any network operator:*
 - (a) *location and route*
 - (b) *type and current use of the infrastructure*
 - (c) *a contact point”*
20. Article 4 allows Member States to require public bodies holding such information to make it available through a single information point (SIP). CPs have a right to request this information where it is not available through a SIP. Furthermore, infrastructure operators must meet reasonable requests for on-site surveys of their physical infrastructure.
21. **Pillar 2 – Coordination of civil works (Articles 5 & 6):** Requires infrastructure operators to provide information about planned civil works and coordinate certain works on request.
22. In particular, all infrastructure operators must have the right to negotiate agreements for coordinating civil works, and must also be required to *“meet any reasonable request to coordinate civil works on transparent and non-discriminatory terms”*.
23. In order to negotiate agreements to coordinate works, infrastructure operators must *“make available upon a specific written request....the following minimum information concerning on-going or planned civil works related to its physical infrastructure...*
 - (a) *the location and type of works*
 - (b) *the network elements involved*
 - (c) *the estimated date for starting the works and their duration*
 - (d) *a contact point”*
24. **Pillar 3 – Efficient Permits Mechanism (Article 7):** This includes ensuring relevant information concerning conditions and procedures applicable for granting of civil works is available via the SIP. It also requires that *“competent authorities grant or refuse permits within four months from the date of the receipt of a complete permit request...”*
25. **Pillar 4 – In-building infrastructure (Article 8 and 9):** This requires new buildings and major building refurbishments to be equipped with high-speed internet-ready in-building infrastructure. All new buildings for which planning applications are made after 31 December 2016 must be *“equipped with high-speed-ready in-building infrastructure, up to the network termination points”, as well as an “access point”* in the case of multi-dwelling buildings.
26. **Pillar 5 – Administration of the Directive (Article 10-12):** This requires a “competent body” to deal with disputes. It requires appointment of *“one or more competent bodies at national regional or local level to perform the functions of the SIP”*.

F. Identifying the impacts of the Directive

27. This section outlines the main impacts of the Directive. We first look at the number of firms within scope, before considering the potential costs and benefits from the perspective of the key pillars outlined above. Finally, we outline the extent to which the Directive may lead to greater infrastructure sharing beyond what already exists.

28. The Directive includes a number of major infrastructure provision sectors within its scope, as it aims to encourage cross sectoral sharing. Some of these are owned and managed by public sector bodies (for example, local roads that are owned and operated by local authorities) but many are private companies. Given the nature of owning and operating infrastructure networks, there are relatively few firms which do this. We have identified 257 private businesses that could reasonably fall within scope, which breaks down by sector as:

Table 2 – Businesses Identified as Within Scope by Sector

Sector	Number of firms identified
Telecoms operators	123
Electricity distribution	11
Gas distribution	10
Water and sewerage companies	32
Rail	4
Ports	18
Airports	58
Roads	1

29. **Telecoms operators: 123 companies.** This is the number of code power operators (i.e. firms that build networks at scale). There are a multitude of smaller operators (about 500+) but they either don't operate networks (e.g. they run call centres or resell wholesale products) or don't operate at the scale where anyone would reasonably request access from them. In reality, it's mainly the few largest operators with national networks that we expect would receive requests for sharing.
30. **Electricity distribution: 11 companies.** 7 distribution network operators plus 4 independent distribution network operators. There has already been a degree of sharing with the electricity sector and during the 1990s fibre was extensively deployed on high and medium voltage electricity infrastructure. There have also been more recent trials of using electricity infrastructure such as Virgin Media in Wales. However, the DCMS 2010 consultation on infrastructure sharing revealed a number of operational concerns for using the electricity network, including overhead line clearance and access safety issues, structural loading, clutter and physical access, as well as legal issues related to ownership.
31. **Gas distribution: 10 companies.** 6 gas distribution networks plus 4 independent gas transporters. The opportunities for sharing gas infrastructure are likely to be limited by technical and safety reasons and the summary of responses to the 2010 DCMS consultation stated ““Respondents agreed that drinking water and gas infrastructures were not suitable for sharing although abandoned gas pipes might offer some limited scope for sharing””.
32. **Water and sewerage: 32 companies.** A large amount of the infrastructure is likely to be unsuitable for sharing for technical reasons (including size, location within the network and geographical factors). Of the 32 companies 9 are water-only, and may not be in scope given drinking water infrastructure is exempted. There have been some trials using the sewerage network in the UK and the Geo Network Thames Water Fibre project is a small scale example of a successful project.
33. **Rail: 4 companies.** Network Rail, Channel Tunnel Rail Link, Heathrow Express and London Underground. Three of these are publicly owned.

34. **Ports: 18 companies.** 9 privatised ports plus 9 large companies operating 39 major ports (members of the Major Ports Group). We have excluded 31 municipal ports and 42 trust ports, as these are not businesses. Ports are a very unlikely target for infrastructure sharing.
35. **Airports: 58 companies.** 27 in Scotland (counting only those with commercial services, which we understand includes some very small airfields) and 31 in the rest of the UK. Airports are in general a very unlikely target for infrastructure sharing.
36. **Roads: 1 company.** The operator of the M6 Toll. All the other owners or operators of roads are public authorities, not businesses.
37. In reality the majority of these firms will not be affected in any way by the Directive. Some of the sectors are highly unlikely ever to be used for sharing, either because they offer little opportunity for broadband rollout (e.g. ports and airports) or because sharing is less feasible for established safety reasons (e.g. gas networks or large amounts of sewerage infrastructure). In other sectors sharing may technically be feasible but it is already well established and understood that the costs are too high for relatively little benefit (for example, through trials that have failed). We believe that realistically only 20-30 firms are likely to be within scope of the type of sharing activity the Directive envisages, comprising the larger telecoms operators, some energy companies, Network Rail, potentially Heathrow Airport and possibly some water and sewerage companies.

G. Costs

38. **Pillar 1: Infrastructure sharing:** The key direct costs here are on infrastructure operators as a result of the obligations to provide information about existing infrastructure, meet requests for surveys, and provide access to this infrastructure.
39. With respect to the costs incurred in providing information and meeting requests for surveys, infrastructure operators are permitted to recover these costs through a system of proportionate, non-discriminatory and transparent charges to CPs requesting information and surveys. In relation to surveys, even if the infrastructure operator bears a proportion of the costs on the basis that it shares in the benefits, these costs will be offset by the benefits. The Directive also provides the opportunity for infrastructure providers to decline requests for information or surveys in specific circumstances where compliance may otherwise have presented a significant cost to businesses or to society at large. Therefore, the obligations to provide information and meet requests for surveys are expected to be at least cost neutral to businesses overall in terms of on-going direct costs (infrastructure providers can recover their costs, and requesting CPs will only incur costs voluntarily on the basis that the benefits outweigh the costs).
40. With respect to the costs associated with providing access, it is made very clear in the Directive that parties or businesses on which an obligation is imposed are allowed to charge a “fair and reasonable” price for fulfilling this obligation. The Directive envisages that a primarily market-based solution based on negotiations between access seekers and infrastructure operators will emerge, subject to the possibility that the dispute settlement body (Ofcom) will mandate access prices. In the event of a disagreement about the price of access, Ofcom may impose a fair and reasonable price to resolve the dispute. In doing so, Ofcom must ensure

that the infrastructure operator has a fair opportunity to recover its costs of providing access, and must take into account the likely impact of the requested access on the infrastructure operator's business plan and investments. Moreover, in cases where the infrastructure operator is itself a network provider, Ofcom must, where appropriate, take into account the objectives set out in Article 8 of the Framework Directive.

41. Therefore, in cases where the infrastructure operator is not itself a network provider, the obligation to provide access is expected to be at least cost neutral to businesses overall. Infrastructure providers will have a fair opportunity to recover any additional costs incurred as a result of providing access, and CPs will only incur costs voluntarily on the basis that the benefits outweigh the costs.
42. In cases where the infrastructure operator is itself a network provider, it is recognised that providing access may have additional indirect impacts on the infrastructure provider, for example, lower revenues as a result of the access seeker competing with the infrastructure operator downstream. It is conceivable that in some cases, the infrastructure operator may not be fully compensated for these additional impacts on the basis that doing so would not be fair and reasonable. These indirect costs to the infrastructure operator are likely to manifest themselves either through higher revenue / profits for the access seeker (i.e. a transfer between businesses) or through lower costs to consumers as the two CPs compete with each other (i.e. a cost to business overall but at least neutral, and probably beneficial, at a societal level).
43. Therefore, in cases where the infrastructure provider is itself a network provider the measure will be at least cost neutral to business overall in terms of on-going direct costs, but there may be an overall indirect cost to business. The Better Regulation Framework Manual identifies such "second-round or indirect impacts that occur as those businesses and markets adjust to the regulatory change" as out of scope for the purposes of calculating the EANDCB and BIT score⁸. However, in these circumstances, the obligation to provide access would still be at least cost neutral to society as a whole. This is because any impact on the infrastructure provider which is not fully compensated would be offset by the benefits to the CP gaining access and consumers more generally.
44. The Directive also provides the opportunity for these businesses to decline requests for access based on objective reasons. These range from posing a disruption to existing services for which the infrastructure is meant, to safety of staff and the network, or being disruptive to the owner's sufficiently demonstrated future use of the infrastructure. The Directive makes clear that these reasons are non-exhaustive, and businesses would be free to argue such further grounds as they consider they are able to support objectively. These "objective reasons" therefore mitigate a broad range of possible grounds on which the policy may otherwise have presented a significant cost to businesses or to society at large.
45. **Pillar 2: Coordination of civil works:** The Directive specifically states that coordination can only be required from an existing infrastructure operator if it "*will not entail any additional costs, including...delays, for the initially envisaged civil works*" (Article 5 section (a)). Therefore the Directive cannot, by definition, impose any direct costs on business in this area. Furthermore, requests for coordination are to be sent sufficiently in advance so as to minimise possible delays and costs to existing infrastructure.

⁸ Better Regulation Framework Manual para 3.1.3, 2016 Draft version

- 46. Pillar 3: Permit mechanism:** There will be no costs associated with this because we consider that existing legislation in the UK is already compliant with these requirements. The main requirement is that all relevant permits receive a decision within four months of a completed application being made. Broadly, these permits fall under three regimes: street works notification and permits, permitted developments, and full planning applications. Street works processes are by their nature compliant as permission to carry out works is implicitly granted in the absence of objections. There is also a system of permitted developments for cabinets and other approved above ground equipment (including mobile phone masts below a certain height). While there is a process of submitting plans for certain works to the relevant planning authority for prior approval, failure to refuse permission within 56 days leads to automatic approval. Any network elements that do not fall under these implicit permitting regimes, or where a communications provider does not enjoy access to such regimes, will require a full planning application. There is a statutory period of 8 weeks for these to be determined, or 16 weeks if an environmental impact assessment is required. In both cases these periods comply with the Directive requirements, and we consider that no modification to permitting regimes is necessary.
- 47. Pillar 4: In-building infrastructure:** Not considered under this assessment, as this is the subject of a separate assessment by CLG. The total cost to business of implementing pillar 4 is estimated at £218,000 (EANCB, 2014 prices)⁹. Access to in-building physical infrastructure as required by article 9 does not fundamentally change the system of commercial agreements that currently operates. Currently, access to a subscriber's premises is ensured through the Electronic Communications Code, with a possibility for a court to require that a landowner grants a wayleave to a communications provider. Such a wayleave would normally include access to in-building physical infrastructure where such exists, and the Directive therefore creates no novel requirements.
- 48. Pillar 5: Administration and dispute settlement:** Member States must establish a dispute settlement system to deal with failure to reach collaborative and negotiated outcomes. This has the potential to result in bureaucratic costs, but we estimate that these will be minimal.
- a. First, the Directive sets deadlines for the settlement body to deal with disputes, limiting the potential for these to become lengthy proceedings.
 - b. Second, the Directive leaves sufficient flexibility to Member States to identify the most appropriate means of dealing with disputes. In the UK, Ofcom will resolve disputes. One concern may be the possibility for inconsistencies between the overall approach towards regulation (for example in balancing between the need to promote competition and investment in the sector) between the sector regulator and the dispute settlement body. By entrusting this role to Ofcom, the dispute settlement mechanism of this Directive and the overall regulation of the sector can be consistently applied.
- 49.** The UK dispute settlement mechanism will minimise the cost to all parties concerned, making use of the existing dispute settlement experience of Ofcom, with expert input from other sectoral regulators as required. A single dispute settlement body will ensure a coherent and effective dispute mechanism, and Ofcom has considerable experience and expert knowledge that will be relevant to settling disputes appropriately and cost-effectively.
- 50.** The Directive could theoretically impose some additional one-off administration costs on infrastructure providers if they do not have centralised and organised

⁹ http://www.legislation.gov.uk/ukia/2016/99/pdfs/ukia_20160099_en.pdf

processes or information systems in place. However initial consultations by DCMS in 2015 show this is highly unlikely. Infrastructure networks, especially in the electricity, sewers, gas and other safety critical sectors already have systems that are used for responding to information requests, and record keeping is already required under relevant statutes. Discussions with companies during the public consultation period, as well as responses to our consultation, have confirmed this, and we would expect them to use these systems to meet the requirements of the Directive. Should the demand for information be so great that a more tailored information system was required, companies would be able to invest in such a system and recoup these costs based on the 'fair and reasonable' charging principle.

51. The in-building infrastructure required by Article 8 of the Directive will have a quantifiable cost to the housebuilding and construction sectors. The Department for Communities and Local Government has policy responsibility for transposing this element of the Directive through amendment of the Building Regulations, and has produced a separate economic assessment for this purpose. CLG estimate that the net annual cost to business is £218,000 (EANCB, 2014 prices)¹⁰.
52. In light of the above, it is expected that the initiative would be a cost-neutral measure for businesses in terms of direct on-going costs (excluding consideration of pillar 4 covered separately by the CLG IA). The Directive would not impose any additional direct costs on existing businesses that they cannot recover through a system of fair and reasonable charges. Furthermore, the Directive also has a number of safeguards that allow existing infrastructure providers to 'objectively refuse' any requests that may impose an unreasonable cost on their operational or commercial interests. As set out above, it is possible in certain scenarios that there could be an overall indirect cost to business (with a gain to consumers instead) but as this is an indirect impact and could take many entirely speculative forms it has not been quantified.
53. The transposition of the Directive will require firms to familiarise themselves with the legislation. Government expects to publish guidance on how the Directive should operate, and we expect the dispute resolution system to produce further guidance on how disputes will be managed. This should simplify familiarisation with the Directive. We will involve key businesses likely to have responsibilities under the Directive in formulating this guidance, so they will require minimal further familiarisation.
54. Because any additional familiarisation will be minimal, we estimate that the majority of firms within scope will take four hours of a legal professional and two hours of a senior manager / director to familiarise themselves with the legislation. However, for the 20-30 firms who are more directly affected by the Directive they may choose to dedicate a greater deal of scrutiny to the detailed regulations. Therefore for those firms we have estimated that they will take 80 hours of a legal professional and 20 hours of a senior manager / director to familiarise themselves. Using gross hourly wage costs from the Annual Survey of Hours and Earnings for 2015 and applying an uplift for overheads of 30% this imposes familiarisation costs of £208 for the majority of firms within scope and £3,312 for the firms more clearly in scope as set out below:

¹⁰ http://www.legislation.gov.uk/ukia/2016/99/pdfs/ukia_20160099_en.pdf

Table 3 – Estimated Familiarisation Costs for Different Businesses

	Median hourly gross wage	Hours	Total gross wage cost	Including uplift for overheads
Legal professional	£23.78	4	£95.12	£123.66
Information technology and telecommunications directors	£32.27	2	£64.54	£83.90
Total (majority of firms)				£207.56
Legal professional	£23.78	80	£1,902.4	£2,473.12
Information technology and telecommunications directors	£32.27	20	£645.4	£839.02
Total (firms clearly in scope)				£3,312.14

55. Earlier we identified 257 firms across different sectors which may be in scope of the Directive and 20-30 firms who are likely to more clearly in scope. Applying the £3,312 cost to 25 firms and the £208 cost to the remaining 232 firms provides an estimate of gross familiarisation costs of approximately **£131,000** (2015 prices). Our initial estimate of familiarisation costs was approximately half this value at the consultation stage but has been revised upwards based on comments received from the consultation.

H. Benefits

56. The issue of the potential benefits of infrastructure sharing has been investigated in some detail over the last five to ten years. A detailed impact assessment was carried out by the European Commission as part of the Directive, which highlights some of the evidence available at the European level. Evidence at the UK level includes the report by OFCOM on infrastructure sharing (OFCEM/CSMG 2010), a detailed consultation in 2010 by DCMS on infrastructure sharing (which received responses from 55 key stakeholders (2010), the detailed review by Infrastructure UK on the costs of investment in the UK (UKICR 2010 and 2014), and a consultation by the UK Regulators Network (UKRN 2015 (1), UKRN 2015 (2)) that looked at how infrastructure networks are innovating and working together. There has also been dedicated industry level models and case-studies that look at the savings that can be achieved from infrastructure sharing (Analysys Mason 2008, 2012, OFCOM/CSMG 2010, Engage 2012). The general benefits of increased broadband roll-out are considered below at paragraphs 70-71.

Pillars 1 and 2: Infrastructure sharing and coordination of civil works:

57. These two pillars form the key components of the Directive with the potential for most benefit. We examine these impacts at the same time.
58. The two main benefits are lowering the cost of rolling out high speed broadband networks (i.e. where networks would have been rolled out anyway but can now be rolled out at lower cost as a result of infrastructure sharing enabled by the Directive) and encouraging greater roll-out of high speed broadband networks (i.e. where networks would not have been rolled out in the absence of the infrastructure sharing enabled by the Directive).
59. On the first of these benefits, we start with a review of the literature on the potential cost savings that could be achieved through network sharing. We then

outline the extent to which these potential savings can be achieved as a particular result of the Directive (i.e. the marginal / additional impact of the Directive on cost-savings).

60. We then consider the second benefit of encouraging more roll-out of high speed broadband services.

Potential cost savings from infrastructure sharing: A review of the literature

61. In 2008, Analysys Mason conducted research to suggest that there are potentially significant cost savings from the re-use of infrastructure owned by utilities. This can be summarised in the table below:

Table 4 – Potential Cost Savings from Re-Use of Infrastructure Owned by Utilities (Analysys Mason, 2008)

Cost savings (£ millions)	Urban areas – Absolute savings (% savings compared to base case)	Nationwide
FTTC/VDSL	£295m / (16%)	£811m (16%)
FTTP/GPON	£2427m / (25%)	£5654m (23%)
FTTP/PTP	£3014m / (26%)	£7028m (24%)

FTTC – Fibre to the Cabinet; **VDSL** – Very high bit-rate Digital Subscriber Line; **FTTP** – Fibre to the Premise; **GPON** – Gigabit Passive Optical Network; **PTP** – Point to Point

62. The above results suggest that by sharing networks, the deployment costs for FTTC, the cheapest technology, could be reduced by 16% at a cost reduction of over £800m for a potential nationwide deployment. Cost reductions on other technologies were regarded as even more significant.
63. More recent research by Analysys Mason (2012) also looked at the potential for savings. However, the research looked not only at infrastructure sharing, but also new and cheaper excavation techniques. The paper concludes that savings from 29% for relatively densely populated areas using a combination of infrastructure sharing and traditional trenching, to 58% in areas that are located further away from the exchanges (i.e. very sparsely populated areas) and using the cheaper slot-cutting trenching approach.
64. In 2010, OFCOM commissioned CSMG to conduct a detailed analysis of the potential savings for the roll-out of high-speed internet access as part of their investigation into whether competitor access to the passive infrastructure of BT Openreach would be an effective regulatory remedy in the wholesale local access market. By looking at international examples of infrastructure sharing, the report noted that key success factors in encouraging greater sharing included planning restrictions, quality and availability of records, facilitative regulatory regimes, as well as ensuring appropriate pricing / supply-side economics to the existing passive networks.
65. In addition, the report also constructed a stylised model of costs related to both infrastructure sharing and establishing a new network (in both an urban and suburban geographic area (geotype). Some of the key quantitative findings of this model include:

- As outlined above, the high proportion of costs in the New Build scenario that is due to civil works – 87% and 89% in the urban and suburban geotypes respectively. Duct sharing therefore presents a significant opportunity to reduce industry-level costs versus duplicative new build construction.
 - Reuse of existing ducts where possible would further reduce industry costs. Comparing the costs of the “One Overlay Network” (i.e. two operators sharing one network) and New Build scenarios shows the cost that could be avoided through infrastructure reuse. The cost saving would be 57% in the urban geotype, and 67% in the suburban geotype.
 - Viewing the costs on an annualised basis, the cost saving through duct reuse equates to £33 per home passed (48% of New Build) in the urban geotype and £69 (55% of New Build) in suburban areas.
 - The cost per home connected is also estimated. Under base case conditions the cost per connection for New Build is £323 in the urban geotype and £536 in the suburban geotype. For the One Overlay Network scenario the cost per connection is lower at £201 in the urban geotype and £285 in the suburban geotype. (38% and 47% lower respectively).
66. Another study quoted in the EC Impact Assessment is evidence from the partners of the Enhancing Next Generation Access Growth in Europe (ENGAGE) group. According to this group, the initial cost of network deployment in Western Europe using existing ducts ranges from EUR20 to EUR25 per metre, rather than an average of EUR80–100 per metre for deployments that require digging. This illustrates a (best-case) scenario whereby sharing of existing ducts can result in up to 75% savings compared to building/digging new infrastructure.
67. A summary of this evidence on the potential savings to be achieved from infrastructure sharing is provided below:

Table 5 - Summary of Potential Savings from Infrastructure Sharing

Study	% Savings achieved from infrastructure sharing (compared to base-case of no-sharing)
Analysys Mason (2008)	16-24%
Analysys Mason (2012)	29%-58%
OFCOM / CSMG (2010)	38% - 67% (depending on the indicator used)
ENGAGE (2012)	75%

68. In terms of the potential cost savings from coordinating civil works (Pillar 2), since 2010, the UK Government has undertaken a number of initiatives to identify the key drivers of infrastructure costs. In 2010, the Government published the Infrastructure Cost Review (UKICR 2010), which outlined the key drivers of costs in all sectors. The report highlights “the lack of a visible and continuous pipeline of forward work” as one of the six drivers of high costs in the UK from a comparative perspective. A follow-up Infrastructure Cost Review in 2014 noted that explicitly focusing on some of these drivers and, in particular, what they refer to as ‘collaborative behaviour’ in the sector has resulted in over £3.4billion per annum in efficiency savings over all the infrastructure sectors.

69. The key concern with the literature on infrastructure sharing outlined above is that they primarily relate to cost savings between two telecoms networks. The extent to which these savings can be achieved on cross-sector infrastructure networks has not been investigated. This is one of the many problems involved with trying to quantify the specific marginal impact of the Directive on network roll-out costs.

Benefits of encouraging greater roll-out of high-speed broadband

70. The Government's *UK Broadband Impact Report* quantifies the benefits of increased roll-out of high-speed broadband:
- a. Economic benefits: availability and take-up of faster broadband speeds will add about £17 billion to the UK's annual Gross Value Added (GVA) by 2024. The bulk of this economic impact comes from improved productivity of broadband-using firms, but "there are also significant benefits from safeguarding employment in areas that would be at an unfair disadvantage" (UKBIR p.3). The report notes that total net employment increase from faster broadband is about 56,000 jobs in the UK by 2024.
 - b. Social benefits: increased rollout of super-fast broadband would have a significant impact on reducing the 'digital divide'. The report estimates that the increase in teleworking by faster broadband will save about 60 million hours of leisure time per annum in the UK by 2024, with reduced commuting saving households £270 million per annum by 2024.
 - c. Environmental impacts: Likely environmental impacts include a reduction by 2.3 billion km of annual commuting and 5.3 billion km of business travel, predominantly by cars, and a reduction of 1 billion kWh in electricity usage p.a. through broadband-enabled firms adopting energy efficient cloud services. The combined impact is estimated at 1.6 million tonnes of CO2 equivalent savings per annum by 2024.
71. There are additional benefits referenced by Ofcom in the Digital Communications Review¹¹ (DCR):
- a. Ofcom states that making it easier for competing providers to build their own fibre networks will help create more choice of broadband services for people and businesses (DCR, paragraph 4.17).
 - b. Ofcom also considers that more network based competition (whether that be from CPs building networks from scratch or using ducts and poles owned by others) is the best way to drive investment in high quality, innovative services for consumers (DCR, paragraphs 4.12-4.14, 4.20).
 - c. Ofcom also notes that alternative FTTP networks not only deliver benefits in their own right, but also drive a competitive response from incumbents (DCR, paragraph 4.22). Even if more infrastructure competition doesn't actually emerge, the threat of CPs using infrastructure sharing to deploy high speed broadband networks might incentivise CPs who own the existing physical infrastructure to deploy more quickly

Pillar 3: Efficient planning mechanism

72. This pillar of the Directive will have limited marginal impact in the UK because existing legislation already complies with most of these requirements, most

¹¹ Ofcom document "Making communications work for everyone: Initial conclusions from the Strategic Review of Digital Communications", published 25 February 2016, accessible online: <http://stakeholders.ofcom.org.uk/binaries/telecoms/policy/digital-comms-review/DCR-statement.pdf>

notably the requirement that permit applications be decided within four months of submitting a completed application (see para.46).

73. In 2013, to support the rollout of superfast broadband, the UK Government implemented a significant package of planning relaxations in England by removing the need to seek planning permission for specific telecommunications deployments. As a result, for a period of 5 years, Government removed the prior approval requirement (siting and appearance) for the installation, alteration or replacement of telegraph poles, cabinets or wires for fixed line broadband services on Article 1(5) land – not Sites of Special Scientific Interest. Previously, most cables had to be underground and cabinets were subject to prior approval agreement by the local planning authority.

As outlined above, the 2014 Infrastructure Cost Review did not collect detailed cost benchmark data to measure the impact of these reforms in the telecoms sector. However the report did conclude that *“These changes will enable significant efficiencies in the provision of fixed superfast broadband leading to cost savings for consumers”*.

74. The benefits that the European Commission envisages from this pillar have already been realised in the UK as a result of existing Government policies, and the Directive will not result in any modification to existing permitting processes.

Pillar 4 - In-building infrastructure:

75. The in-building infrastructure required by Article 8 of the Directive has been assessed separately by CLG, who estimate that the net annual cost to business is £218,000 (EANCB, 2014 prices)¹². As set out at paragraph 47 above, it is not clear that article 9 will have any direct quantifiable impacts.

Marginal / additional impact of the Directive

76. Turning to the extent to which the Directive will result in more infrastructure sharing, there is currently nothing in UK legislation that prevents market based infrastructure sharing. Moreover, BT is already under a regulatory obligation to allow communications providers to deploy NGA networks in the physical infrastructure of its access network (i.e. ducts and poles). Notwithstanding this, the instances where infrastructure sharing has taken place in the UK to date are relatively limited.
77. With respect to sharing of telecommunications infrastructure, in February 2016, Ofcom published the interim conclusions of its Strategic Review of Digital Communications. An important focus of Ofcom’s strategy for regulating communications markets over the next decade will be to encourage large-scale deployment of new ultrafast networks (such as fibre to homes or businesses). As part of this, BT will be required to open up its network, allowing easier access for rivals to lay their own fibre cables along BT’s telegraph poles and in its underground cable ‘ducts’. Ofcom intends to take action on several fronts in order to ensure that access to BT’s ducts and poles can be used by competing providers to build new fibre networks (DCR, paragraph 4.30).
78. Given this regulatory context, it is possible that the Directive may result in more sharing of telecommunications infrastructure than has been seen to date if CPs use it – possibly in conjunction with regulated access to BT’s ducts and poles – to deploy new ultrafast broadband networks. Ofcom points to the Directive as

¹² http://www.legislation.gov.uk/ukia/2016/99/pdfs/ukia_20160099_en.pdf

providing an important starting point for implementing its strategy to make new network deployment easier and cheaper (DCR, paragraph 4.31). We also note that the Directive does not place restrictions on usage and also provides an opportunity to access physical infrastructure owned by operators other than BT.

79. Specifically with respect to sharing of alternative (i.e. non-telecommunications) infrastructure, there are a number of reasons why there has been limited sharing to date. At its core, the Directive argues that the lack of infrastructure access is because there is no legal requirement for infrastructure operators to provide access to CPs at a reasonable and fair price. As outlined above, this is based on the EC's consultation with key stakeholders at the EU level, but it is important to note that they are part of a number of inter-related reasons why infrastructure sharing may not have taken place. The literature and consultations outlined above point to additional reasons that may also be prevalent at the UK level. These include:
- a. Technical feasibility of other networks for infrastructure sharing. There are various technical constraints when sharing non-telecoms infrastructure, including safety and maintenance requirements, and the possibility for telecoms equipment to disrupt provision of the main service (e.g. by contributing to blockages in sewers). The Directive recognises, but does not resolve, these issues, leaving them to be agreed between prospective sharers and infrastructure operators.
 - b. Factors outside the direct control of the infrastructure network providers or CP that affect the commerciality of infrastructure sharing, most notably the granting of wayleaves¹³ to permit access to land owned by third parties. These wayleaves are often limited to the type of network being deployed, so an electricity wayleave will not cover deployment of a communications network. The Directive does not address such issues.
80. The existing *telecoms* network may prove comparatively better than an alternative *non-telecoms network* from both an operational and commercial perspective for rolling out HSECN.

Summary of impacts

81. Only pillars 1 and 2 of the Directive, which relate to infrastructure sharing and civil works coordination, will have an impact in the UK (pillar 4 is assessed separately).
82. Given the uncertainties about how and to what extent the Directive might be used to facilitate infrastructure sharing, it has not been possible to quantify the overall impact. However, we believe this to have a cost-neutral impact in terms of on-going direct costs because the Directive allows private businesses and infrastructure owners to charge a fair and reasonable price for providing both information and access to their networks. Furthermore, for many of the scenarios under which this Directive could have potentially unintended consequences there remain a number of 'objective reasons' or grounds on which to deny both information and access. There may be some indirect costs to business in the medium to long run from increased infrastructure sharing should this lead to greater competition and transfer of benefits from business to consumers. However, these indirect costs to business (and benefits to consumers) are outside the scope of EANDCB and BIT calculations and have not been quantified.

¹³ Wayleaves are contractual licences which provide network providers with the right to place apparatus on land in return for rental payments.

83. In terms of the benefits, we also believe that while the potential positive impacts from infrastructure sharing are well-documented, there are three broad categories of reasons why actual cross-sector infrastructure sharing may fail to materialise (technical obstacles, factors that affect commerciality, and the existence of a regulated telecoms infrastructure with wide-scale access). In fact, these reasons may have been key to why such sharing has not taken place to date, despite a number of trials by CPs. They include issues related to safety or technical viability, additional payments especially in terms of wayleaves and other property rights, as well as the widespread availability of an existing telecoms network, which is currently at 83%¹⁴ of all premises and expected to reach 95% of premises by 2017.
84. Despite this, there may emerge situations where this policy could potentially benefit consumers. For example, there may be existing infrastructure (such as an unused sewerage pipe system) that a small rural CP could potentially use to provide a localised high speed internet solution. Alternatively, there may be electricity poles that could potentially be used to 'fly' fibre, and a CP may be able to get access to this at a better price as a result of this Directive. Equally, a CP could obtain access to purpose-built telecoms infrastructure in order to provide services in an area where they otherwise would not provide a service.
85. We have identified some familiarisation costs associated with implementing the Directive. However, because of the relatively low number of firms which are impacted these are fairly small over at only £131,000 (2015 prices) occurring just in the first year of the Directive coming into force

I. Rationale and evidence that justify the level of analysis used in the IA (proportionality approach);

86. As an EU directive being implemented with no gold-plating, we have not carried out an analysis of alternative policy options and instead focused purely on the costs and benefits of the minimum requirements. The EC produced a comprehensive impact assessment which we have drawn on in the analysis, applying their EU wide findings to the UK where appropriate, and setting out its limitations. To supplement this analysis, we have analysed other UK studies of the potential benefits and barriers to infrastructure sharing. To understand the explicit impact of the Directive on UK firms, we carried out a pre-consultation, sending a series of questions to infrastructure owners, network operators and regulators across all of the sectors which may be impacted. The department also employed a specialist telecoms economist to assess the potential impact and construct an initial triage assessment which identified this as a low cost measure.
87. Since producing our initial triage assessment, DCMS has held a public consultation on measures to implement the Directive. This considered the evidence from the triage assessment and questions on the potential economic impacts of the Directive. Respondents argued that familiarisation costs had been significantly underestimated, both in terms of the number of hours required and the hourly costs. We have revised upwards our estimates by doubling the number of hours required for familiarisation but have retained the same assessment of hourly costs, which is based on average occupational wage data provided by the Office for National Statistics (the established source for this

¹⁴ <http://stakeholders.ofcom.org.uk/market-data-research/market-data/communications-market-reports/cmr15/>

data). Respondents said request and dispute volumes were difficult to anticipate and that business connectivity may prove a substantially attractive use of the Directive but that this would be difficult to assess.

88. Based on all the information collated we understand that the measure will not impose any additional costs on infrastructure providers that cannot be recovered, largely because they will be able to charge a fair and reasonable price for information and access, which some of them do already anyway. As an EU measure being implemented with minimum requirements that has a cost-neutral impact on firms in terms of on-going direct costs we believe this approach to be proportionate.

J. Risks and assumptions;

89. One of the risks associated with this Directive is the extent to which it could be used to 'force' access to existing telecommunications networks in a manner that could result in additional costs to the telecoms network. However, we believe that there are adequate provisions within the Directive that allows these risks to be mitigated.
 - i. First and foremost, for an incumbent telecoms network provider already subject to access remedies (e.g. in areas where they enjoy significant market power), Article 3(2)(f) notes that access can be refused for the "availability of viable alternative means of wholesale physical network infrastructure access provided by the network operator and suitable for the provision of high-speed electronic communications network, provided that such access is offered under fair and reasonable terms and conditions". As Ofcom must determine the terms and conditions that are "fair and reasonable" in the event of a dispute, we expect that they would issue decisions as part of the dispute settlement mechanism that are coherent with the existing regulated conditions of access.
 - ii. In the case of a telecoms provider not subject to existing access remedies, the terms on which this Directive could be used to require access would also be decided by Ofcom. In any event, those terms and conditions must be fair and reasonable, and recital (19) of the Directive explicitly states that in making their decisions, "the dispute settlement body should also take into account the impact of the requested access on the business of the access provider, in particular investments made in the physical infrastructure to which access is requested".
90. We believe that both the overall objective of the Directive (primarily about promoting further investment in rolling-out HSECNs), as well as the choice of the existing telecoms regulator as the dispute settlement body for this type of access dispute, will result in a thorough and expert consideration of the substantive issues surrounding access, and provide an appropriate level of protection to existing investments made in the telecoms sector.

K. Direct costs and benefits to business calculations (following OI3O and BIT methodology);

91. As this measure is implementing an EU Directive with minimum requirements and no gold-plating, it is out of scope of One-in, Three-out and is classified as a Non-Qualifying Regulatory Provision as defined in the prescribed exclusions of

the Better Regulation Framework Manual¹⁵. The costs and benefits therefore do not score against either OI3O or the BIT but have been estimated at £131,000 in the first year of the Directive being implemented based on familiarisation costs associated with the legislation. This gives an estimated total 10-year net present value and 10-year business net present value of -£0.13m (2015 prices, 2016 present value base year) and an EANDCB of £0.0m (2014 prices) due to rounding.

L. Wider impacts

- Table 6 below provides a summary of the wider impacts of the Directive

Table 6 - Summary of Wider Impacts

Wider economic impacts	The expected impacts of the policy relate to the wider economic benefits associated with the rollout of broadband internet. These include the economic, social and environmental benefits as outlined in paragraph 1 above.
Competition impacts	<p>The desired impact of the policy is to encourage deployment of HSECNs where the up-front costs of civil engineering works may otherwise present a barrier to providing services. This may include areas where the presence of existing telecoms networks may disfavour investment in end-to-end network duplication, or discourage provision of more technologically advanced services. For example, the case study from Portugal outlined in the EC impact assessment noted how CPs having access to alternative infrastructure networks and ducts resulted in the incumbent Portugal Telecom strengthening their competitive offer to existing CPs and rolling out their own fibre network faster. However in the case of the UK, whether these competitive effects would emerge in the short-run would depend on the extent to which infrastructure sharing would take-off in a wider manner than currently exists.</p> <p>It must also be noted that greater provision of high-speed internet is generally regarded as a pro-competitive measure for the overall economy. It opens up both labour and product markets. It could also mitigate some of the economic limitations from private ownership of infrastructure.</p>
Legal costs (on courts)	The Directive sets up its own dispute settlement mechanism to deal with legal disputes that emerge as a result this Directive. As a result, the extent to which this could result in legal costs on the court system would be limited, as appeal is to the Competition Appeal Tribunal and only thereafter to a court. Legal costs will depend on the extent to which the Directive is used by companies, and whether they choose to appeal decisions by Ofcom.

¹⁵ Better Regulation Framework Manual para 1.1.10, 2016 Draft version

Social impacts	As outlined in the section on the social impacts of wider high-speed internet, (paragraph 1b), faster roll out would result in the digital divide between rural and urban areas being closed faster. This has subsequent positive impacts on the availability of additional services, including for education, health services as well as other direct government service provision. Greater provision of broadband to businesses will also have a positive social impact on communities and will encourage growth of broadband-reliant commerce in areas where this would otherwise not be possible. There may also be positive impacts for provision of mobile broadband services, but these are uncertain and would be difficult to isolate from more general benefits derived from increased provision of mobile broadband in line with planned roll-outs.
Environmental impacts	<p>The environmental impacts of greater broadband roll-out are outlined above in paragraph 1c.</p> <p>In addition, greater coordination of civil works could have substantial environmental benefits as this results in less disruption to the natural environment. Using existing infrastructure would also have less of an impact on the physical appearance of the environment. It would also be more efficient, resulting in less congestion on the roads.</p>

M. Summary and preferred option with description of implementation plan.

92. We are using the power provided under section 2(2) of the European Communities Act 1972 to transpose the Directive requirements. This power permits a Secretary of State to enact a European requirement, including any explicit amendment to primary legislation, through a statutory instrument under the negative process. The Secretary of State for Communities and Local Government has separately amended Building regulations (using the power provided in section 1(1) of the Building Act 1984).
93. The Directive requires that all provisions – except those for in-building physical infrastructure – come in force by 1 July 2016. The in-building physical infrastructure requirement must apply to any new buildings or major renovations for which permit applications are submitted from 1 January 2017.

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