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Westminster City Council's superfast broadband connection voucher scheme economic appraisal

***Prepared by Adroit Economics, Point Topic and the FifthSector
For and on behalf of***

Westminster City Council

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1. Introduction

1.1 This report sets out the results of an economic appraisal of Westminster City Council's proposed superfast broadband connection voucher scheme.

1.2 The proposals comprise:

- Total cost of the programme: £2,799,595
- Three tiers of vouchers:
 - = A maximum voucher value of £250 per eligible business for pre-registered packages offering 'consumer' connections of 30Mbps and above¹;
 - = Up to £2,499 for 'business grade' services² on the basis of a single quotation;
 - = Up to £5,000 where three commercial quotations for eligible services have been obtained and the level of eligible cost has been assured
- Total voucher pot: £2,500,000
- Target outputs (business with installed connections of 30Mbps+): 1,000

Building on success of the recent national voucher scheme

1.3 The proposed scheme builds on and continues the success of the DCMS-sponsored Connection Voucher Scheme³ which ran in a number of UK cities from December 2013 until October 2015. This fund is now fully committed and the scheme is closed to new applicants. Around 55,000 vouchers for superfast broadband connections were issued to small and medium-sized enterprises (SMEs) during the lifetime of the scheme – 37,000 between April and October 2015 – of which nearly 12,000 were issued in London.

1.4 More than 770 suppliers won voucher business out of 864 registered suppliers. Connection vouchers helped aggregate demand so that (a) new suppliers entered the business market and (b) new superfast supplies were made available in areas that previously had only offered basic broadband connections.

Scope of this economic appraisal

1.5 The assessment focusses on a study area defined by Westminster City Council which comprises all of the London Borough of Westminster and parts of Camden.

1.6 The scope of work presented in this report comprises:

- An assessment of the current (2016) and likely future availability (2020) of consumer broadband services to SMEs in the study area

¹ The term 'consumer' services is used here to refer to retail next generation access services that are widely available from a number of ISPs on the basis of existing commercial infrastructure. These are typically contention services (i.e. with many end users sharing the same fibre connection, and hence no guaranteed levels of service) delivered via a roadside cabinet from which the signal is passed to the premises through a copper or coaxial cable – hence 'fibre to the cabinet', often referred to by the acronym 'FTTC'. These are nearly always 'asymmetrical' services, configured to offer higher download speeds than upload speeds to reflect the needs of domestic households, rather than business users. In some premises that have existing fibre Ethernet connections, standard consumer services may include an option of symmetrical 'fibre to the premises' (FTTP) connections offering bandwidths in excess of 30Mbps.

² 'Business grade' services may include a number of different technologies, including FTTC, FTTP and fixed wireless, but typically come with a 'service level agreement' which guarantees a specified set of performance characteristics and service response times more suited to business needs. In many cases these will be configured as 'symmetrical' services, offering the same upload speed as download to reflect the different ways in which businesses use broadband.

³ Managed by Broadband Delivery UK, a delivery unit within the Department for Culture, Media and Sport

- An estimate of the number of SMEs (and associated employment and GVA⁴) in areas unable to access a minimum 30 Mbps average download speed.⁵ This minimum speed requirement for new connections delivered under the scheme reflects DCLG output indicators definition guidance published in September 2015⁶
- Mapping, showing those post codes most affected in the study area, with a particular focus on the West End Partnership (WEP) area
- Estimate of the potential GVA and employment uplifts that could result if SMEs in areas offering sub 30 Mbps could access higher speeds (superfast speeds) similar to those enabled by the London connection voucher scheme
- Estimated potential gross and net additional GVA and employment uplifts that could result from the current proposed scheme were vouchers to be taken up by 1,000 SMEs⁷
- Calculation of the Economic Return on Investment (ERoI) of the proposed voucher scheme in terms of (a) GVA-leverage (net additional benefits (£ GVA) divided by scheme cost) and (b) cost-per-job (scheme costs divided by net additional jobs)
- Advice on scheme rational (market failure); scheme approach (state aid); scheme operation and management details, drawn from Iain Bennett's experience as project director of the Connection Voucher scheme in eight UK cities (including London); and on findings and recommendations of BRESAT⁸, to the European Commission, regarding voucher schemes

The economic impact calculations draw on a recent evaluation of the Greater London element of the national voucher scheme

- 1.7 Adroit Economics, Point Topic and The Fifth Sector recently evaluated the Connection Voucher scheme delivered across London by the Greater London Authority
- 1.8 The assessment of the London scheme is based on analysis of the results of a comprehensive online survey of voucher recipients. Of 480 responses received, we have to date carried out detailed analysis of 330 returns that provided detailed information about companies in which a new, faster broadband connection had already been installed.
- 1.9 If you require further information, please do not hesitate to contact the author:
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⁴ GVA = Gross value added, the Government's preferred measure of economic wealth creation. GVA is similar to GDP minus taxes and subsidies. Total sales/turnover in a firm (or economy) comprises (i) purchases of goods and services (ii) wages (iii) profits. GVA is a measure of wages and profits, excluding purchases. The proportion of GVA to turnover reflects the overall wealth creation of the firm or industry sector. The proportion of GVA to turnover varies considerably, from less than 20% to 70-80% for high value financial and business service sectors

⁵ Calculated by applying the GVA and employment uplifts that London SMEs benefiting from the original voucher scheme enjoyed – see further on

⁶ (https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/506532/ESIF-GN-1-002_ERDF_Output_Indicators_Definition_Guidance_v1.pdf)

⁷ Calculated by applying the GVA and employment uplifts that London SMEs benefiting from the original voucher scheme enjoyed – see further on

⁸ BRESAT – Adroit Economics was a member of the BRESAT policy team charged with advising the European Commission on best practice, policy options and approaches towards addressing 'the last 5% broadband connectivity gap' of European regions. BRESAT recommended a voucher scheme approach and set out guidance on appraising, setting up and operating a scheme. DG Comp were closely involved in the process and confirmed that voucher schemes did not give rise to notifiable aid (see BRESAT recommendations document).

2. Executive Summary

Summary

Summary

- Half of the Borough's GVA and jobs are created by firms in areas currently offering less than 30 Mbps fixed line broadband average download speeds. The situation is forecast to improve only marginally by 2020 if left to the market
- Evaluation of the successful London voucher scheme shows that SMEs that are able to access faster services generate more GVA and jobs
- The London voucher scheme recently ended. Westminster saw the highest take up, but a number of firms were unable to sign up in time and more have come forward asking for the voucher scheme to be continued
- This project proposes to fund a further 1,000 vouchers at a cost of £2.8m.
- Referring to the London voucher scheme survey findings, we have calculated the potential economic impact of the proposed Westminster 1,000 voucher scheme on the local economy (in terms of net additional GVA and jobs)
- We estimate that the proposed Westminster 1,000 voucher scheme will generate
 - ▬ £192m to £280m net additional GVA in the local economy within a 10-year period representing an ERoI of between £68 and £100, per £1 project cost)
 - ▬ 2,000 to 2,750 gross jobs, of which 484 to 680 will benefit the local economy, at a cost per job figure of £5,787 to £4,116.
- Faster broadband specifically enables firms to transform their businesses through creating new products, services and processes.
- Referring to the London voucher scheme survey findings, we have calculated the potential wider enterprise and innovation impacts of the proposed Westminster 1,000 voucher scheme.
- We estimate that the proposed Westminster 1,000 voucher scheme will enable
 - ▬ 500 firms to transform their businesses within the first 2 to 3 years of connection to a faster service
 - ▬ 220 will do this through creating new products and services

Objectives of the scheme

- 2.1 Westminster's connection voucher scheme will therefore aim to deliver one of the following types of service to a minimum of 1,000 eligible SMEs:

- Access to a 'consumer' service delivered over next generation networks capable of providing at least 30Mbps download speeds
- A 'business grade' solution with a defined service level agreement based on a minimum of 20 Mbps symmetrical connection (or 30/10 uncontended connection) delivered over next generation networks that offer an upgrade path to higher speeds

Project costs

- 2.2 The total project budget will be £2,799,595, of which up to £2,500,000 will be disbursed to eligible SMEs in the form of connection vouchers.

There will be three tiers of vouchers:

- A connection voucher with a maximum value of £250 per eligible business for pre-registered packages offering 'consumer' connections of 30Mbps and above
- Up to £2,499 per SME to cover eligible costs of 'business grade' services on the basis of a single quotation
- Up to £5,000 where three commercial quotations for eligible services have been obtained and the level of incremental cost per individual business connection has been assured

Need

Number and proportion of business premises in sub 30 Mbps areas

- 2.3 Half the borough's firms are in areas offering less than 30 Mbps terrestrial fixed line broadband speeds
- As of today (2016), 23,190 premises (66% of the total number of recorded premises in the study area) are currently in sub 30 Mbps areas. 70% of these are office premises
 - The number of premises is forecast to reduce slightly by 2020 by 1,037, to 22,153 (63% of the total number of recorded premises in the study area)
- 2.4 We estimate that business premises currently in sub 30 Mbps areas account for
- £26bn GVA (52% of the Borough total) and
 - 369,000 jobs (53% of the Borough total)
- 2.5 These figures fall only marginally by 2020.

This represents potential significant lost economic growth opportunities for the local economy

- 2.6 The London voucher scheme survey shows that firms achieve cost savings and sales increases as a result of use of faster broadband. These translate into GVA and employment growth. Firms that cannot access faster/higher grade consumer broadband will miss out on this growth. Applying the findings from the London voucher scheme survey to the number of firms in Westminster in sub 30 Mbps areas, suggests the following lost growth opportunities:
- A lost net additional increase of £831m GVA pa. If reversed this would represent a 2.1% increase of GVA currently generated pa by the commercial business sectors in the borough and a 1.6% increase of total borough GVA (commercial and public sector GVA)
 - A lost 15,772 net additional jobs. If reversed, this would represent a 2.7% increase of employment associated with the commercial business sectors in the borough and a 2.3% increase of total borough employment (commercial and public sector)

Estimated economic impact of the proposed 1,000 voucher scheme in Westminster

GVA benefits of the proposed 1,000 voucher scheme in Westminster

- 2.7 Applying the London voucher scheme evaluation methodology and results, we estimate that the proposed 1,000 voucher scheme in Westminster will generate:
- £26m to £56m net additional GVA in the local economy within the first 2 years (representing an ERoI of between £9 and £20, per £1 project cost)
 - £172m to £234m net additional GVA in the local economy within a 5-year period representing an ERoI of between £61 and £83, per £1 project cost)
 - £192m to £280m net additional GVA in the local economy within a 10-year period representing an ERoI of between £68 and £100, per £1 project cost)

2.8 On this basis, the project represents extremely strong ERol.

Employment benefits of the proposed 1,000 voucher scheme

2.9 The London voucher scheme evaluation survey identified the average number of jobs voucher recipients created within the first 12 and the first 24 months of connection, as a result of use of faster broadband. The gross and net jobs attributable to the London voucher scheme were then calculated using a similar methodology to the GVA methodology.

2.10 Applying the survey findings and the impact methodology to the proposed 1,000 voucher firms suggests that this scheme will generate between 2,000 and 2,750 gross jobs, of which 484 to 680 will benefit the local economy, at a cost per job figure of £5,787 to £4,116.

Enterprise and innovation benefits

2.11 Our evaluation of the London voucher scheme identified a range of enterprise and innovation benefits to firms. On the assumption that a similar range of benefits will be realised by SME beneficiaries of the Westminster scheme, we might expect the following innovation and enterprise benefits to derive:

- Firms reported that they can do things better, faster, or new, with faster broadband - 86% said web searching; 78% said send, receive and joint working with large documents; 72% said storage and back up; 66% said financial/ banking transactions; 64% said managing the company website; 50% said replace licensed software with online pay-as-you-go software
- Firms reported that they can save costs with faster broadband, particularly through increased use of applications such as Skype and video conferencing; storage and back up in the cloud; voice over IP (IP telephony); financial banking; online learning
- Firms reported that they can increase sales with faster broadband, particularly through increased use of Skype and video conferencing; increased used of voice over IP (IP telephony); customer support; and through online learning

2.12 50% of firms reported that they expected that use of faster broadband would transform their businesses within the next 2 to 3 years.

Table 2.1

Innovation and enterprise benefits of faster broadband. Applying the results of the London voucher scheme survey to Westminster's 1,000 voucher scheme		Applying the London survey results to Westminster's 1000 vouchers
50% of firms said faster broadband would transform their business	50%	500
Firms also said how it would transform their business		
■ 22% said through enabling development of new products and services	22%	220
■ 19% said enabling selling to new customers	19%	190
■ 18% said enabling selling to more and/or larger clients/customers	18%	180
■ 3% said it would enable selling overseas for the first time and 6% said export more	3%	30
	6%	60
■ 7% said it would enable them to open up more sites/branches	7%	70

2.13 Firms were asked what would have happened if they had not got the new faster broadband service

Table 2.2

Impact if firms had not got faster broadband		Applying the London survey results to Westminster's 1000 vouchers
<ul style="list-style-type: none"> 70% said they would have lost competitiveness and of these 17% said this would have had a high impact 	70%	700
<ul style="list-style-type: none"> 49% said they would have lost customers and of these 9% said this would have had a high impact 	49%	490
<ul style="list-style-type: none"> 56% said they would have lost sales and of these 8% said this would have had a high impact 	56%	560
<ul style="list-style-type: none"> 47% said they would have lost customers and of these 11% said this would have had a high impact 	47%	470
<ul style="list-style-type: none"> 56% said they would have lost turnover and of these 10% said this would have had a high impact 	56%	560
<ul style="list-style-type: none"> 40% said they would have had to consider moving premises and of these 17% said this would have been of high importance 	40%	400
<ul style="list-style-type: none"> 18% said they may have gone out of business and of these, 2% thought this was very likely. 	18%	180
<ul style="list-style-type: none"> 77% of firms said that faster broadband will make it easier for home and mobile workers to connect to the main office – 68% said it would increase their productivity. 	77%	770

3. Broadband availability gaps in the study area

An assessment of the current availability (2016) and likely future availability (2020) of consumer broadband services to SMEs in the study area – based on Point Topic's latest forecasts

- 3.1 Point Topic has just completed updating its UK consumer broadband service coverage mapping database, showing current and forecast available average download speeds via terrestrial fixed line services by post code⁹.
- 3.2 Tables 3.1 and 3.2 show the number of premises in post codes in the study area that are in areas that offer sub 30 Mbps average download speeds. 30 Mbps is the European Commission's minimum acceptable average download target speed for all by 2020:
- As of today (2016), 23,190 premises (66% of the total number of recorded premises in the study area) are currently in sub 30 Mbps areas. 70% of these are office premises
 - The number of premises is forecast to reduce slightly by 2020 by 1,037, to 22,153 (63% of the total number of recorded premises in the study area)
- 3.3 Given a minimum 30 Mbps average download speed service availability target, this suggests that current provision falls far short of that and moreover, that forecast future provision, based on Point Topic's assessment of future investment in and deployment of services by all broadband providers operating in Westminster, shows only a minor improvement in the situation.
- 3.4 The situation is most acute for office premises (70%, falling to 67% by 2020 will be in areas offering sub 30 Mbps). Today, all types of premises require competitive broadband services, but our evaluation of the national voucher scheme in London for GLA suggests that office premise occupiers tend to have the greatest demand and need for competitive broadband.
- 3.5 These findings suggest clear evidence of market failure in the provision of consumer broadband services to SMEs.

⁹ The analysis is based on Point Topic's mapping of current and likely future commercial provision of consumer broadband services at post code level, overlaid with Valuation Office Agency (VOA) data showing number of premises by type in each area.

Table 3:1

Premises in areas offering less than 30 Mbps average download speed	Retail	Offices	Factories	Warehouse	Other	Total
2016	6,413	16,381	59	277	61	23,190
2020	6,045	15,743	53	256	55	22,153
2016	58%	70%	29%	50%	32%	66%
2020	55%	67%	26%	46%	29%	63%

Premises in areas offering less than 30 Mbps average download speed

Premises Type	2016 (%)	2020 (%)
Retail	58%	55%
Offices	70%	67%
Factories	29%	26%
Warehouse	50%	46%
Other	32%	29%
Total	66%	63%

Table 3.2

2016-2020 change	Retail	Offices	Factories	Warehouse	Other	Total
Reduction of premises in areas offering sub 30 Mbps average download speed 2016 to 2020	368	637	6	21	6	1,037
Proportion of this of the sub 30 Mbps 2016 figure	5.7%	3.9%	10.2%	7.5%	9.4%	4.5%
Proportion of this of total premises	3.3%	2.7%	3.0%	3.7%	3.0%	2.9%

3.6 Tables 3.3 to 3.6 provide further detail of current and future consumer broadband availability by average download speed and type of premises. Points to note are that:

- All post codes in the study area offer a minimum of 5 Mbps average download speed¹⁰.
- 1% of premises are in areas that currently offer sub 10 Mbps
- 35% of premises are in areas that currently offer sub 20 Mbps, and this is anticipated to reduce only marginally (to 33%) by 2020.

¹⁰ There will be a small number of premises, because of particular connectivity problems, such as Exchange Lines Only

Table 3:3

Mbps 2016	Retail	Offices	Factories	Warehouse	Other	Total
Less than 1000000 Mbps	11,027	23,368	201	556	192	35,344
Less than 5000 Mbps	11,027	23,368	201	556	192	35,344
Less than 2000 Mbps	11,027	23,368	201	556	192	35,344
Less than 1000 Mbps	10,853	23,016	190	538	181	34,778
Less than 500 Mbps	10,853	23,016	190	538	181	34,778
Less than 200 Mbps	10,576	22,368	187	533	179	33,843
Less than 100 Mbps	10,569	22,355	187	533	178	33,822
Less than 90 Mbps	10,564	22,347	187	533	178	33,808
Less than 80 Mbps	10,560	22,339	187	533	178	33,797
Less than 70 Mbps	10,286	21,694	184	516	176	32,857
Less than 60 Mbps	8,531	19,985	114	396	114	29,139
Less than 50 Mbps	8,211	19,495	103	376	105	28,289
Less than 40 Mbps	7,956	19,018	97	363	99	27,533
Less than 30 Mbps	6,413	16,381	59	277	61	23,190
Less than 20 Mbps	3,477	8,675	37	172	37	12,398
Less than 10 Mbps	117	275	3	10	3	408
Less than 5 Mbps	0	1	0	0	0	2
Total	11,027	23,368	201	556	192	35,344

Table 3.4

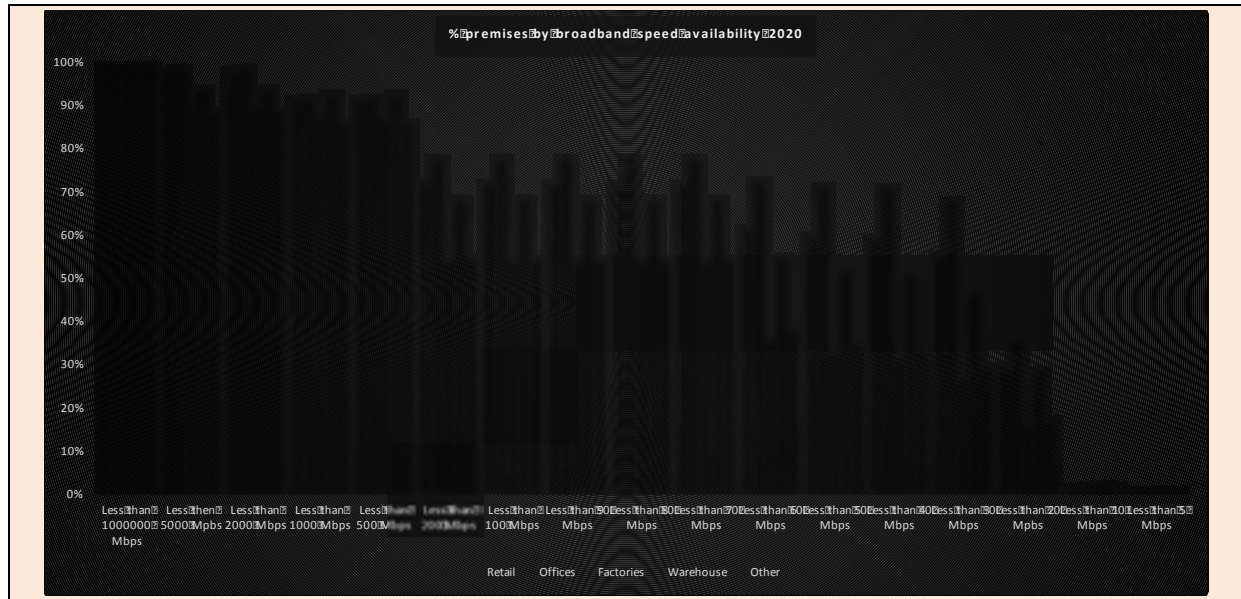
Mbps 2016	Retail	Offices	Factories	Warehouse	Other	Total
Less than 1000000 Mbps	100%	100%	100%	100%	100%	100%
Less than 5000 Mbps	100%	100%	100%	100%	100%	100%
Less than 2000 Mbps	100%	100%	100%	100%	100%	100%
Less than 1000 Mbps	98%	98%	95%	97%	94%	98%
Less than 500 Mbps	98%	98%	95%	97%	94%	98%
Less than 200 Mbps	96%	96%	93%	96%	93%	96%
Less than 100 Mbps	96%	96%	93%	96%	93%	96%
Less than 90 Mbps	96%	96%	93%	96%	93%	96%
Less than 80 Mbps	96%	96%	93%	96%	93%	96%
Less than 70 Mbps	93%	93%	92%	93%	92%	93%
Less than 60 Mbps	77%	86%	57%	71%	60%	82%
Less than 50 Mbps	74%	83%	51%	68%	55%	80%
Less than 40 Mbps	72%	81%	48%	65%	52%	78%
Less than 30 Mbps	58%	70%	29%	50%	32%	66%
Less than 20 Mbps	32%	37%	18%	31%	19%	35%
Less than 10 Mbps	1%	1%	1%	2%	1%	1%
Less than 5 Mbps	0%	0%	0%	0%	0%	0%
Total	100%	100%	100%	100%	100%	100%

Table 3.5

Mbps 2020	Retail	Offices	Factories	Warehouse	Other	Total
Less than 1000000 Mbps	11,027	23,368	201	556	192	35,344
Less than 5000 Mbps	10,745	22,932	178	518	169	34,543
Less than 2000 Mbps	10,745	22,932	178	518	169	34,543
Less than 1000 Mbps	10,046	21,300	173	512	164	32,197
Less than 500 Mbps	10,046	21,300	173	512	164	32,197
Less than 200 Mbps	7,898	18,090	107	377	104	26,575
Less than 100 Mbps	7,891	18,076	107	377	104	26,555
Less than 90 Mbps	7,891	18,076	107	377	104	26,555
Less than 80 Mbps	7,891	18,076	107	377	104	26,555
Less than 70 Mbps	7,891	18,076	107	377	104	26,555
Less than 60 Mbps	6,740	16,854	71	303	72	24,039
Less than 50 Mbps	6,554	16,550	64	287	66	23,521
Less than 40 Mbps	6,486	16,459	62	281	64	23,352
Less than 30 Mbps	6,045	15,743	53	256	55	22,153
Less than 20 Mbps	3,215	8,268	32	156	32	11,703
Less than 10 Mbps	108	268	3	10	3	392
Less than 5 Mbps	0	1	0	0	0	2
Total	11,027	23,368	201	556	192	35,344

Table 3.6

Mbps 2020	Retail	Offices	Factories	Warehouse	Other	Total
Less than 1000000 Mbps	100%	100%	100%	100%	100%	100%
Less than 5000 Mbps	97%	98%	89%	93%	88%	98%
Less than 2000 Mbps	97%	98%	89%	93%	88%	98%
Less than 1000 Mbps	91%	91%	86%	92%	86%	91%
Less than 500 Mbps	91%	91%	86%	92%	86%	91%
Less than 200 Mbps	72%	77%	53%	68%	54%	75%
Less than 100 Mbps	72%	77%	53%	68%	54%	75%
Less than 90 Mbps	72%	77%	53%	68%	54%	75%
Less than 80 Mbps	72%	77%	53%	68%	54%	75%
Less than 70 Mbps	72%	77%	53%	68%	54%	75%
Less than 60 Mbps	61%	72%	35%	54%	37%	68%
Less than 50 Mbps	59%	71%	32%	52%	34%	67%
Less than 40 Mbps	59%	70%	31%	51%	33%	66%
Less than 30 Mbps	55%	67%	26%	46%	29%	63%
Less than 20 Mbps	29%	35%	16%	28%	17%	33%
Less than 10 Mbps	1%	1%	1%	2%	1%	1%
Less than 5 Mbps	0%	0%	0%	0%	0%	0%
Total	100%	100%	100%	100%	100%	100%



4. SME employment and GVA in poor broadband areas

- 4.1 We estimate that business premises currently in sub 30 Mbps areas account for £26bn GVA (52% of the borough total) and 369,000 jobs (53% of the borough total).
- 4.2 The proportion is forecast to fall only marginally (5%) by 2020 if left to the market.

Table 4.1

GVA and employment in areas offering sub 30 Mbps average download speed - 2016 and 2020						
GVA (£m)	Retail	Offices	Factories	Warehouse	Other	Total
2016	6,022	19,306	50	1,050	69	26,498
2020	5,677	18,555	45	971	63	25,312
Reduction	-345	-751	-5	-78	-7	-1,186
% Reduction	-5.7%	-3.9%	-10.2%	-7.5%	-9.4%	-4.5%
Employment	Retail	Offices	Factories	Warehouse	Other	Total
2016	159,417	198,625	348	9,768	865	369,023
2020	150,276	190,899	312	9,038	784	351,310
Reduction	-9,141	-7,726	-35	-729	-81	-17,713
% Reduction	-5.7%	-3.9%	-10.2%	-7.5%	-9.4%	-4.8%

- 4.3 Tables 4.2 to 4.5 provide further detail

Table 4.2

GVA (£m) by download speed area 2016						
£m	Retail	Offices	Factories	Warehouse	Other	Total
Less than 1000000 Mbps	10,355	27,542	171	2,110	218	40,397
Less than 5000 Mbps	10,355	27,542	171	2,110	218	40,397
Less than 2000 Mbps	10,355	27,542	171	2,110	218	40,397
Less than 1000 Mbps	10,192	27,127	162	2,039	206	39,727
Less than 500 Mbps	10,192	27,127	162	2,039	206	39,727
Less than 200 Mbps	9,932	26,364	160	2,023	203	38,681
Less than 100 Mbps	9,925	26,348	160	2,021	203	38,657
Less than 90 Mbps	9,921	26,338	160	2,020	203	38,641
Less than 80 Mbps	9,917	26,329	159	2,020	203	38,629
Less than 70 Mbps	9,660	25,569	158	1,958	200	37,545
Less than 60 Mbps	8,011	23,554	97	1,502	130	33,294
Less than 50 Mbps	7,711	22,977	88	1,426	119	32,321
Less than 40 Mbps	7,472	22,415	83	1,377	113	31,459
Less than 30 Mbps	6,022	19,306	50	1,050	69	26,498
Less than 20 Mbps	3,265	10,224	31	654	42	14,216
Less than 10 Mbps	110	324	2	40	3	479
Less than 5 Mbps	0	1	0	1	0	2
Total	10,355	27,542	171	2,110	218	40,397

Table 4.3

Employment by download speed area 2016						
	Retail	Offices	Factories	Warehouse	Other	Total
Less than 1000000 Mbps	274,118	283,352	1,189	19,639	2,718	581,016
Less than 5000 Mbps	274,118	283,352	1,189	19,639	2,718	581,016
Less than 2000 Mbps	274,118	283,352	1,189	19,639	2,718	581,016
Less than 1000 Mbps	269,802	279,087	1,127	18,979	2,564	571,558
Less than 500 Mbps	269,802	279,087	1,127	18,979	2,564	571,558
Less than 200 Mbps	262,895	271,231	1,108	18,824	2,525	556,584
Less than 100 Mbps	262,721	271,073	1,107	18,808	2,523	556,231
Less than 90 Mbps	262,606	270,966	1,107	18,803	2,522	556,003
Less than 80 Mbps	262,518	270,877	1,106	18,802	2,522	555,825
Less than 70 Mbps	255,697	263,059	1,094	18,223	2,491	540,564
Less than 60 Mbps	212,059	242,328	673	13,978	1,619	470,657
Less than 50 Mbps	204,104	236,391	608	13,274	1,482	455,859
Less than 40 Mbps	197,777	230,602	574	12,816	1,403	443,172
Less than 30 Mbps	159,417	198,625	348	9,768	865	369,023
Less than 20 Mbps	86,434	105,185	218	6,082	526	198,445
Less than 10 Mbps	2,899	3,338	17	369	41	6,664
Less than 5 Mbps	10	15	0	5	0	30
Total	274,118	283,352	1,189	19,639	2,718	581,016

Table 4.4

GVA by download speed area 2020						
£m	Retail	Offices	Factories	Warehouse	Other	Total
Less than 1000000 Mbps	10,355	27,542	171	2,110	218	40,397
Less than 5000 Mbps	10,091	27,029	153	1,965	192	39,429
Less than 2000 Mbps	10,091	27,029	153	1,965	192	39,429
Less than 1000 Mbps	9,435	25,105	148	1,944	187	36,819
Less than 500 Mbps	9,435	25,105	148	1,944	187	36,819
Less than 200 Mbps	7,417	21,321	92	1,430	118	30,377
Less than 100 Mbps	7,410	21,305	91	1,429	118	30,353
Less than 90 Mbps	7,410	21,305	91	1,429	118	30,353
Less than 80 Mbps	7,410	21,305	91	1,429	118	30,353
Less than 70 Mbps	7,410	21,305	91	1,429	118	30,353
Less than 60 Mbps	6,330	19,864	61	1,148	82	27,484
Less than 50 Mbps	6,155	19,506	55	1,090	75	26,880
Less than 40 Mbps	6,091	19,398	53	1,068	73	26,683
Less than 30 Mbps	5,677	18,555	45	971	63	25,312
Less than 20 Mbps	3,019	9,745	27	591	37	13,419
Less than 10 Mbps	102	316	2	39	3	462
Less than 5 Mbps	0	1	0	1	0	2
Total	10,355	27,542	171	2,110	218	40,397

Table 4.5

Employment by download speed area 2020						
	Retail	Offices	Factories	Warehouse	Other	Total
Less than 1000000 Mbps	274,118	283,352	1,189	19,639	2,578	580,876
Less than 5000 Mbps	267,111	278,071	1,058	18,289	2,269	566,797
Less than 2000 Mbps	267,111	278,071	1,058	18,289	2,269	566,797
Less than 1000 Mbps	249,740	258,281	1,028	18,094	2,205	529,347
Less than 500 Mbps	249,740	258,281	1,028	18,094	2,205	529,347
Less than 200 Mbps	196,329	219,347	636	13,305	1,392	431,008
Less than 100 Mbps	196,157	219,187	635	13,298	1,390	430,667
Less than 90 Mbps	196,157	219,187	635	13,298	1,390	430,667
Less than 80 Mbps	196,157	219,187	635	13,298	1,390	430,667
Less than 70 Mbps	196,157	219,187	635	13,298	1,390	430,667
Less than 60 Mbps	167,551	204,360	421	10,682	966	383,980
Less than 50 Mbps	162,923	200,680	379	10,139	885	375,007
Less than 40 Mbps	161,226	199,571	367	9,937	862	371,963
Less than 30 Mbps	150,276	190,899	312	9,038	743	351,269
Less than 20 Mbps	79,928	100,253	188	5,504	434	186,307
Less than 10 Mbps	2,695	3,253	16	363	36	6,363
Less than 5 Mbps	10	15	0	5	0	30
Total	274,118	283,352	1,189	19,639	2,578	580,876

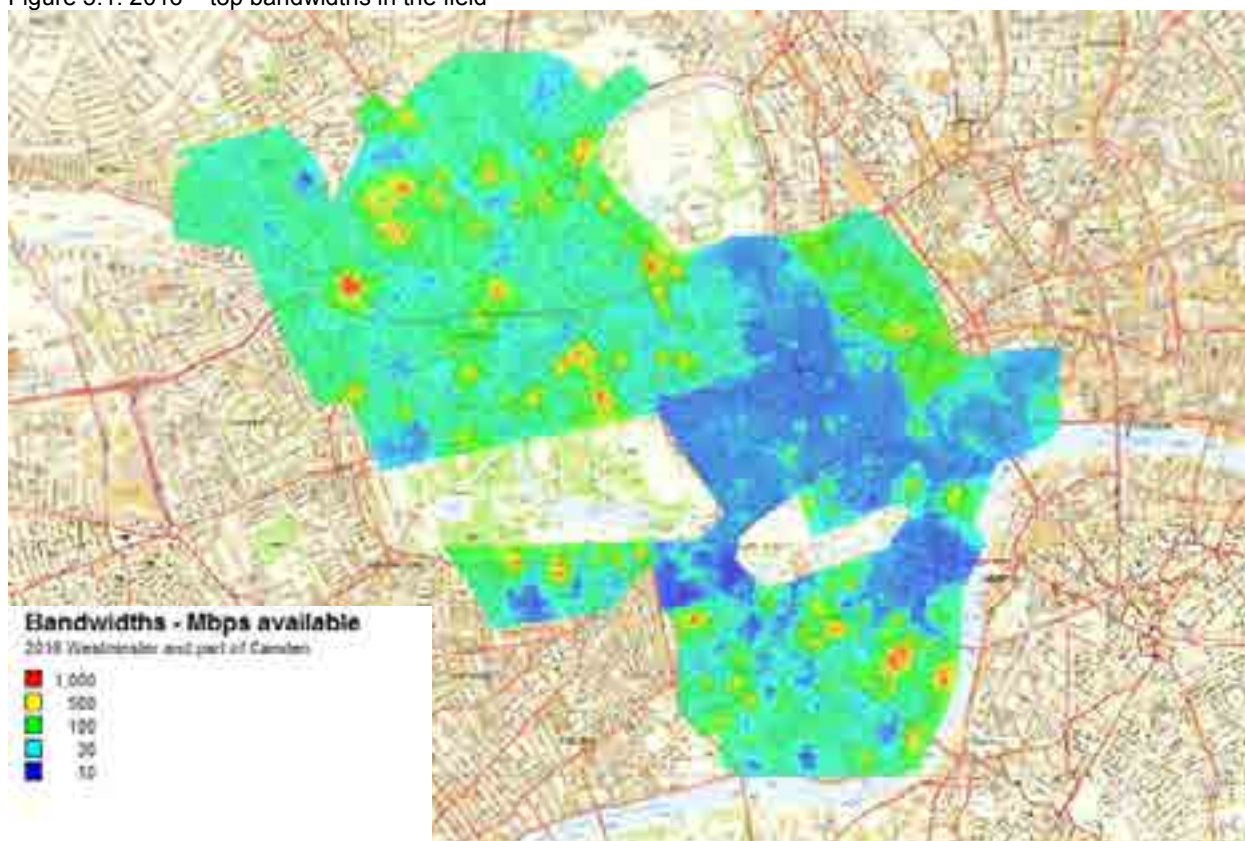
5. Most affected areas

5.1 Some parts of the study area are more affected than others. The following maps, produced by Point Topic, draw this out.

Westminster heat maps with zoom for WEP

12 September 2016

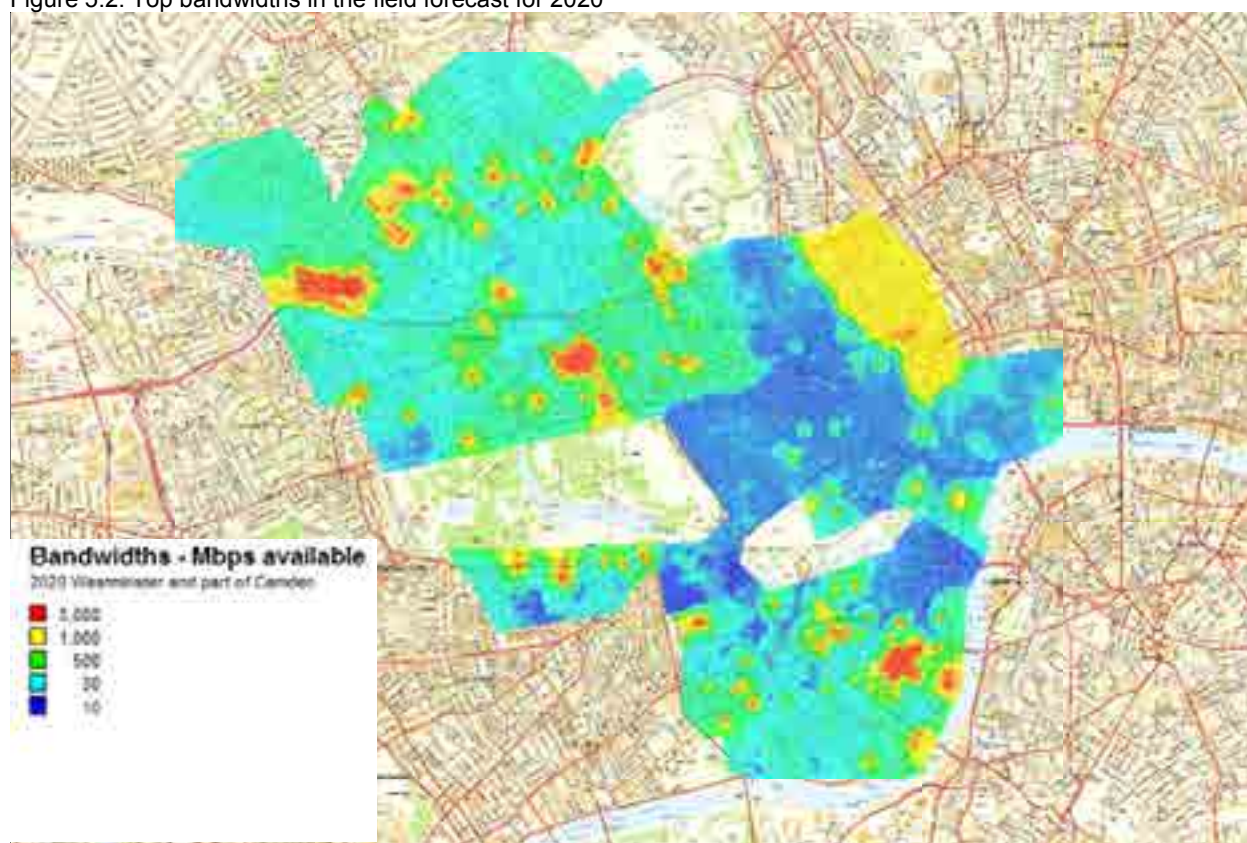
Figure 5.1: 2016 – top bandwidths in the field



5.2 Figure 5.1 shows the bandwidths available across the study area..

- 1000Mbps is available in several areas, generally delivered by FTTB currently.
- Much of the dark blue area still doesn't have an FTTC deployment or has exchange only lines.
- While much of the area fares well against London and the UK overall, this problem of low bandwidths in the centre of urban areas is common in the UK. There are additional expenses and often more in-depth legal issues that make deployment less commercially attractive particularly in areas of low residential density.
- In addition the sale of bitstream products means that areas of higher business density offer very attractive returns on a case by case deployment basis.

Figure 5.2: Top bandwidths in the field forecast for 2020



- Without intervention we expect 2020 to show little change in the stubbornly low bandwidth areas. Note however there is some increase in FTTP/B availability and this is where we see 5,000Mbps and above being made available. DOCSIS3.1 will also be in some areas of the project.
- There is little motivation for deployers of mass market solutions to offer more service unless the economics of the area changes.

WEST END PARTNERSHIP AREA

5.3 Figures 5.3 to 5.5 focus in on the West End Partnership area, showing current and forecast provision

Figure 5.3: Boundaries of the West End Partnership (WEP) area

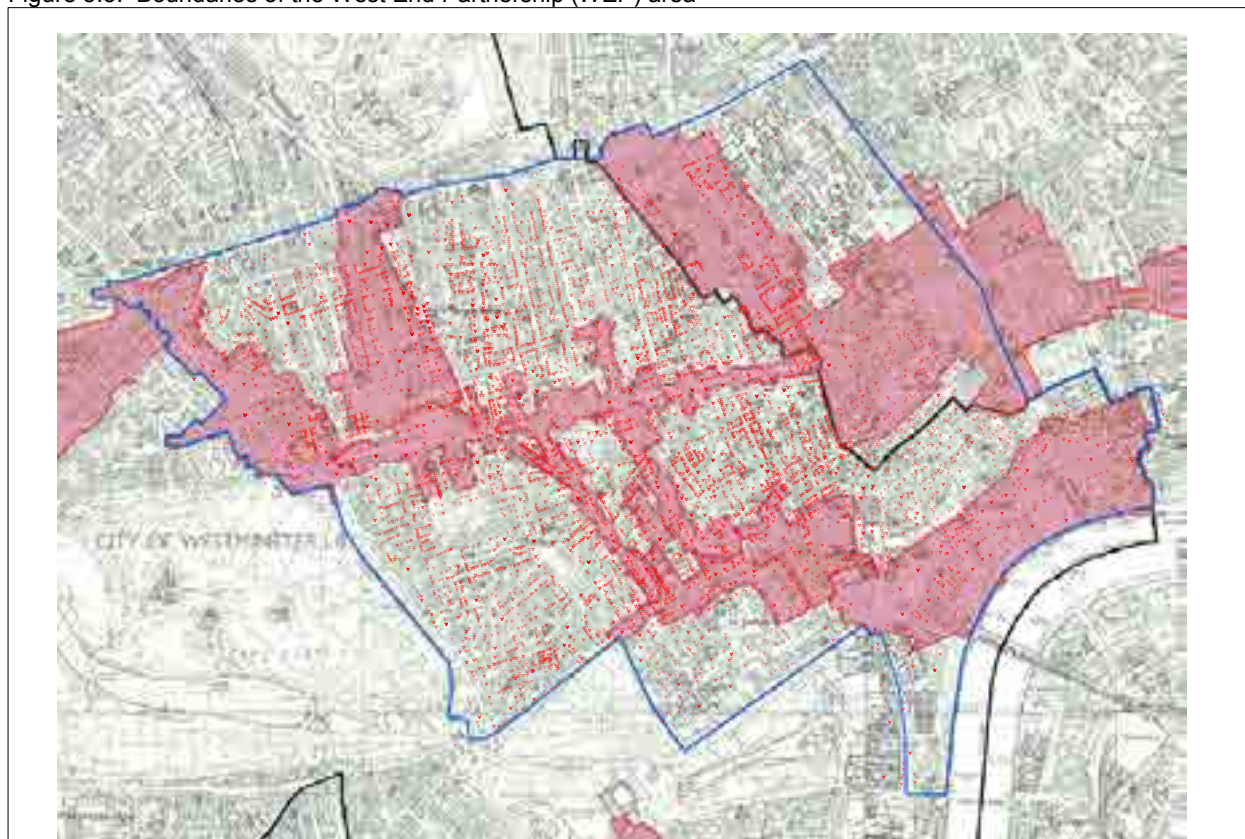
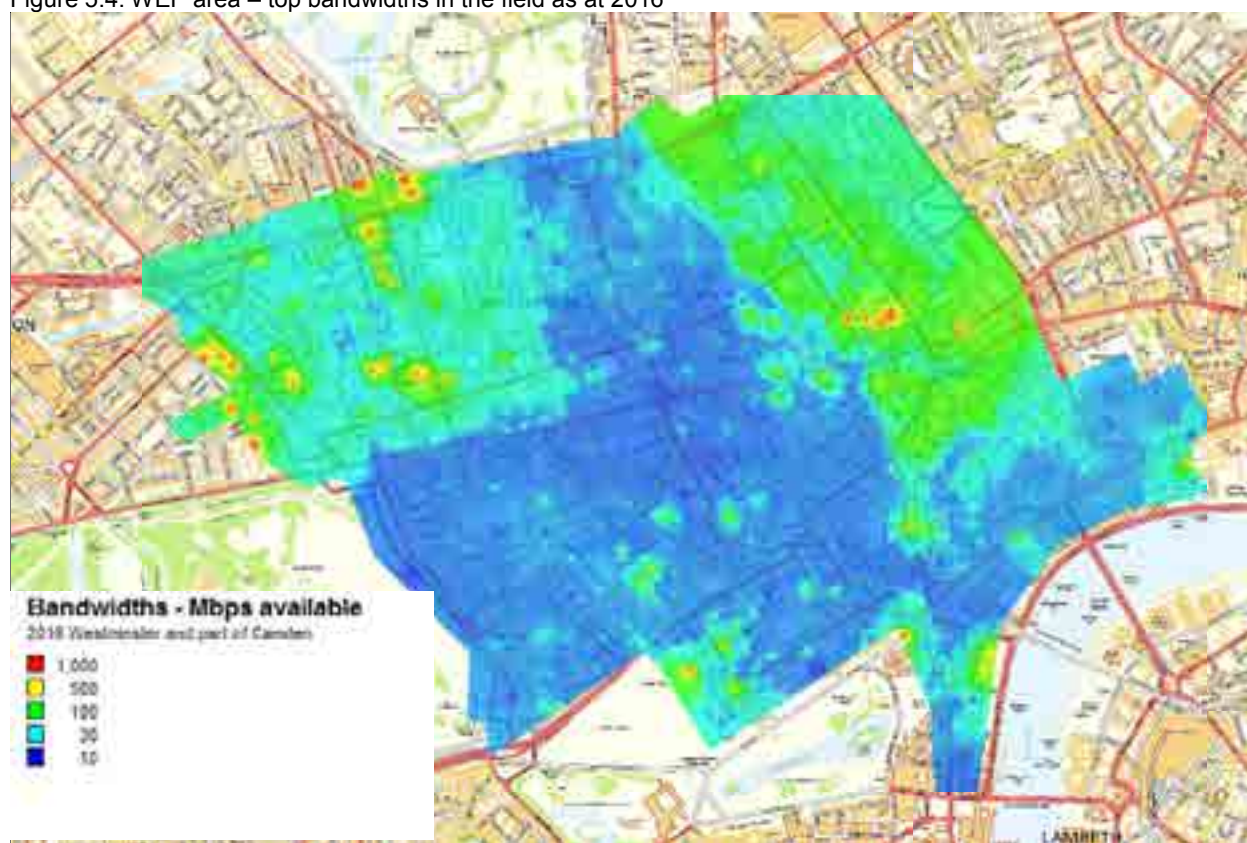
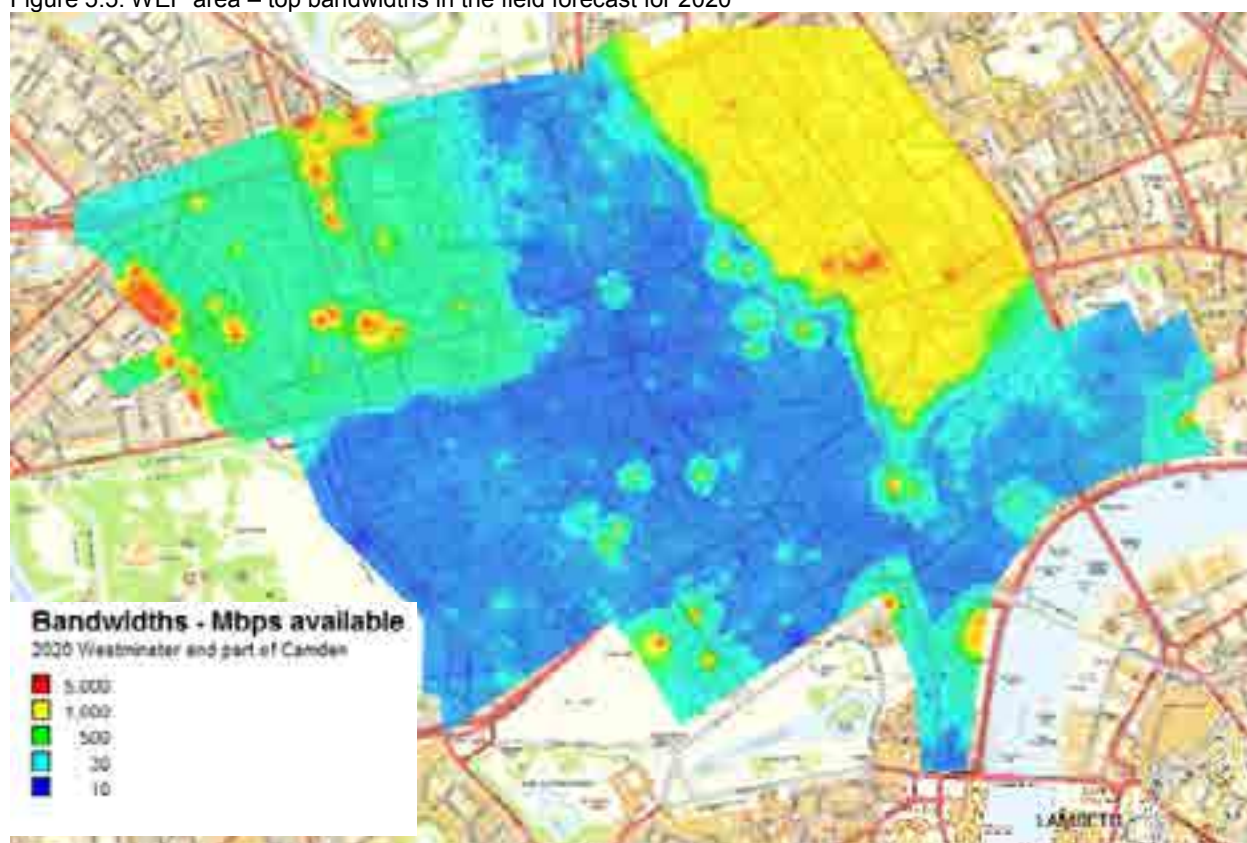


Figure 5.4: WEP area – top bandwidths in the field as at 2016



- The West End Partnership area is particularly prone to low commercial bandwidth offerings.

Figure 5.5: WEP area – top bandwidths in the field forecast for 2020

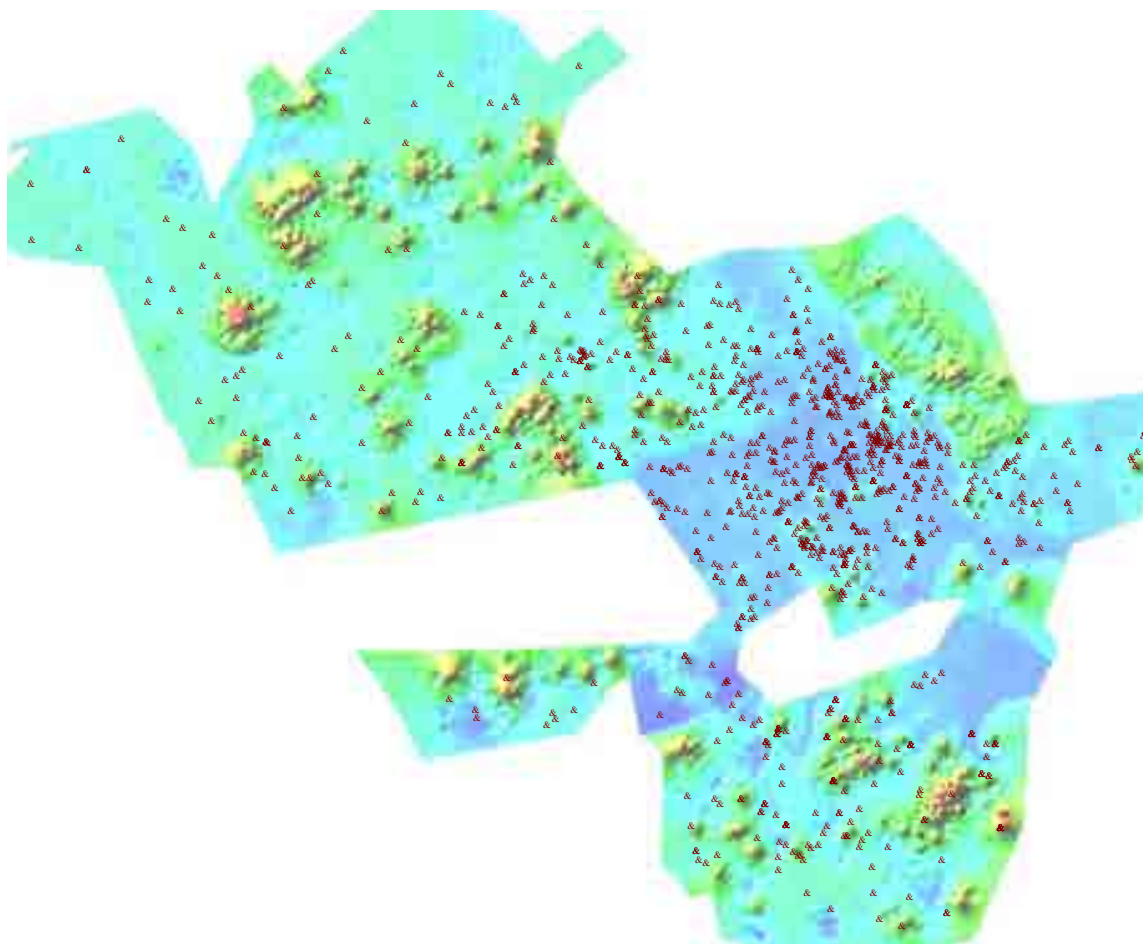


- By 2020 we don't expect to see much change to that.

Location of firms in Westminster taking up vouchers in the original London voucher scheme

- 5.4 At this stage there is no central data source available that maps the deployment of the original London voucher scheme. Figure 5.6 shows the postcodes where voucher applications were successful. As noted applications correlate strongly with low commercial bandwidth deployments.

Figure 5.6: Location of firms in Westminster taking up vouchers under the original London voucher scheme



6. Lost economic potential as a result of the broadband gaps

The London voucher scheme survey shows that firms achieve cost savings and sales increases as a result of use of faster broadband. These translate into GVA and employment growth. Firms that cannot access faster/higher grade consumer broadband will miss out on this growth. Applying the findings from the London voucher scheme survey to the number of firms in Westminster in sub 30 Mbps areas, suggests the following lost growth opportunities:

- A lost net additional increase of £831m GVA pa. If reversed this would represent a 2.1% increase of GVA currently generated pa by the commercial business sectors in the borough and a 1.6% increase of total borough GVA (commercial and public sector GVA)
- A lost 15,772 net additional jobs. If reversed, this would represent a 2.7% increase of employment associated with the commercial business sectors in the borough and a 2.3% increase of total borough employment (commercial and public sector)

6.1 This section quantifies the significance of the sub 30 Mbps areas in the study area in terms of an illustrative measure of hypothetical lost GVA and employment growth opportunities.

6.2 The logic is that firms in sub 30 Mbps areas cannot benefit from faster/higher grade consumer broadband. On the assumption that these firms do not, of their own accord, then invest in lease line services, they therefore lose out on the associated GVA and employment growth that use of faster/higher grade broadband services enables.

Methodology

6.3 We have estimated the scale of this theoretical lost GVA and employment growth potential for firms in sub 30 Mbps areas as follows:

- The London voucher scheme survey shows the extent to which firms achieve cost savings, sales increases and other benefits as a result of being able to access and use faster broadband
- We applied these findings to the number and mix of firms in the sub 30 Mbps areas in the study area
- This provides a theoretical estimate of the total potential GVA and employment growth that may be enabled, if all firms in the sub 30 Mbps were able to upgrade to superfast broadband, similar to the range and mix of services provided under the London voucher scheme
- For further detail of the London voucher scheme evaluation, see Appendix A

Limitations of the assessment

6.4 The results should be treated as illustrative rather than definitive for several reasons:

- The assessment does not allow for the fact that some of the business units in the sub 30 Mbps areas will already be accessing faster/ higher grade services via the previous London voucher scheme and those that independently of the London voucher scheme were already using or have since signed up to a faster/higher grade lease line service
- The assessment assumes that 100% of firms upgrade if faster services were available. This is unlikely. In reality only a proportion will upgrade. The proportion partly depends on the extent to which awareness raising and support programmes, such as the proposed voucher scheme, are implemented

- The assessment does not take account of current business units, GVA and employment in the Camden element of the study area. Instead, all of the calculations are based on stock in Westminster only.

6.5 Notwithstanding these caveats, the results do provide one useful indication of the scale of economic growth which may be lost due to poor consumer broadband availability.

Results

6.6 23,190 business premises (50%) are in areas offering sub 30 Mbps, accounting for £26.5bn GVA (52%) and 369,000 jobs (53%)

Figure 6.1: Business premises, GVA and employment in areas with sub 30 Mbps average download speed

	in areas offering sub 30 Mbps (2016)	% of borough total
business premises	23,190	50%
£m GVA	26,498	52%
jobs	369,023	53%

6.7 If 100% of the business premises in sub 30 Mbps areas were to upgrade to faster/higher grade broadband of a similar type and nature to services provided through the original London voucher scheme, this would enable cost savings and increased sales which translate into GVA and employment growth. Applying the results of the London voucher scheme valuation we have been able to estimate (i) the benefits to the firms and (ii) the economic impact of this at the level of the borough economy.

Benefits to firms

6.8 Applying the results of the London voucher scheme evaluation suggests that after 24 months of connecting to the new faster services, businesses in the sub 30 Mbps areas would:

- Generate 20.6% (£3.4b) additional GVA pa
- Create 17% (64,000) new jobs

Economic impact of this at the level of the borough economy

6.9 The above benefits are termed 'gross' benefits in economic impact methodology. Not all of the gross impacts will benefit the local economy. We need to allow for deadweight, displacement and leakage, in order to assess the net additional benefits to the borough economy.

6.10 Applying the same net additionality assumptions as those used in the London voucher scheme evaluation, we estimate that the net additional economic benefits for the local economy would be:

- A net additional increase of £831m GVA pa. This represents a 2.1% increase of GVA currently generated pa by the commercial business sectors¹¹ in the borough and a 1.6% increase of total borough GVA (commercial and public sector GVA)

¹¹ The analysis in this report focusses on identifying broadband coverage, gaps and hypothetical upgrades for business premises (hereditaments) at post code level. To do this we have overlain Valuation Office data showing numbers of business units with broadband speed data at post code level. VOA business premises data broadly captures what we might term the commercial segment of the economy, and excludes the non-commercial (or public sector) segment of the economy. There are some overlaps, but in very broadband terms our analysis focusses on assessing the implications of broadband speed availability for the commercial segment of the economy.

- 15,772 net additional jobs. This represents a 2.7% increase of employment associated with the commercial business sectors in the borough and a 2.3% increase of total borough employment (commercial and public sector)

Table 6.2: Theoretical lost GVA and employment growth opportunities, as a result of sub 30 Mbps broadband

	Benefit to firms		Net additional economic benefit to the borough		
	additional GVA (per annum) and employment	increase as a % of the total for those firms benefiting	Net additional GVA per annum uplift and employment to the borough (after allowing for deadweight, displacement and leakage)	Net additional GVA per annum and employment as a % of total GVA and employment in the borough (business sector + public sector)	Net additional GVA per annum and employment as a % of total in the business sectors in the borough
£ GVA uplift pa (after 24 months from first connecting to faster broadband)	3,361	20.6%	831	2.1%	1.6%
Employment increase (after 24 months from first connecting to faster broadband)	63,773	17%	15,772	2.7%	2.3%

7. Economic impact of the proposed voucher scheme

Referring to the London voucher scheme survey findings, we have calculated the potential economic impact of the proposed Westminster 1,000 voucher scheme on the local economy (in terms of net additional GVA and jobs)

We estimate that the proposed Westminster 1,000 voucher scheme will generate:

- £192m to £280m net additional GVA in the local economy within a 10-year period representing an ERoI of between £68 and £100, per £1 project cost)
- 2,000 to 2,750 gross jobs, of which 484 to 680 will benefit the local economy, at a cost per job figure of £5,787 to £4,116.

7.1 We have estimated the net additional economic benefits to the Westminster economy of the proposed 1,000 voucher scheme. Our calculations are based on applying the findings of the evaluation of the original London voucher scheme undertaken by Adroit.

7.2 The London voucher evaluation estimates economic impact using two different indicators (i) £ GVA and (ii) jobs

Estimating the GVA impacts of the 1,000 voucher scheme

7.3 Our calculations are divided into two stages:

- Stage 1 estimates the financial and GVA benefits of faster broadband to the 1,000 voucher recipient firms
- Stage 2 estimates the net additional economic impact of this on the local economy

Stage 1: Estimating financial and GVA benefits to the 1,000 recipient voucher firms

7.4 The evaluation of the original London voucher scheme centred on a survey of voucher firms, identifying the nature and extent to which firms benefited from faster/higher grade broadband, and the functional and financial impacts.

7.5 The survey analysis showed that it took time for the full extent of benefits of faster broadband to be realised. Some benefits were realised within the first 12 months after connection, but further benefits were realised in the next 12 months and the survey identified the likelihood that yet further benefits would derive during the following 3 years:

- Firms achieved cost savings of 4.8% within the first 12 months after connection
- Firms benefitted from sales increases of 5.5% within the first 12 months after connection and 10.5% within the first 24 months after connection
- The survey also found that it was likely that firms would achieve additional productivity benefits in the next three years.

7.6 As shown in table 7.1, the London voucher evaluation therefore calculated benefits and impacts achieved:

- Within the first 12 months after connection
- Within the first 24 months, and
- Within the first 5 years after connection

Table 7.1: Benefits to firms of faster broadband, identified in the London voucher scheme evaluation survey

	Cost savings	Sales increases	Additional productivity benefits	Total
	% change			
Benefits within first year of connection	4.8%	5.5%	0.0%	10.2%
Benefits within first two years after connection	4.8%	10.5%	0.0%	15.3%
Benefits within first five years after connection	4.8%	10.5%	4.1%	19.3%

7.7 Applying these benefits to the proposed 1,000 voucher scheme, suggests that voucher recipients will achieve between £170m to £336m financial benefits pa as a result of use of faster broadband. Table 7.2 provides a breakdown.

Table 7.2: Financial benefits to the 1,000 voucher recipient firms

	Cost savings	Sales increases	Additional productivity benefits	Total
	Totals £			
Benefits within first year of connection	79,450,555	91,034,749	-	170,485,304
Benefits within first two years after connection	79,450,555	174,877,254	-	254,327,809
Benefits within first five years after connection	79,450,555	174,877,254	82,638,247	336,966,057

7.8 Table 7.3 translates the financial benefits into GVA.

Table 7.3: Translating forecast financial benefits to firms into GVA

£ GVA	Cost savings	Sales increases	Additional productivity benefits	Total
Benefits within first year of connection	79,450,555	29,554,935	-	109,005,490
Benefits within first two years after connection	79,450,555	65,463,276	-	144,913,831
Benefits within first five years after connection	79,450,555	65,463,276	82,638,247	227,552,078
	% GVA increase			
Benefits within first year of connection	11.3%	4.2%	0.0%	15.5%
Benefits within first two years after connection	11.3%	9.3%	0.0%	20.6%
Benefits within first five years after connection	11.3%	9.3%	11.7%	32.3%

Stage 2: Calculating net additional economic benefits to the Westminster economy, and the Economic Return on Investment (ERoI) of the proposed 1,000 voucher scheme

7.9 To estimate the net additional economic benefits of this to the Westminster economy and the ERoI, we have applied the same methodology as used in the London voucher scheme evaluation. The calculations comprise the following steps:

- Estimation of net additional GVA to the local economy, allowing for deadweight, displacement and leakage. The net figure is 24.7% of the gross.
- Estimation of the net additional costs to voucher recipients – namely paying increased monthly tariffs
- Calculation of the net GVA benefits (recipient benefits less recipient costs) pa

- Assessment of the net benefits over three different appraisal periods (a 2, 5 and 10-year period) using standard cost benefit analysis methodology, with all figures converted to present values (using the standard NPV function at a 3.5% discounted).
- Calculation of ERol by dividing the NPV of net GVA benefits by project costs.

7.10 On this basis, we estimate that the 1,000 voucher scheme will generate:

- £26m to £56m net additional GVA in the local economy within the first 2 years (representing an ERol of between £9 and £20, per £1 project cost)
- £172m to £234m net additional GVA in the local economy within a 5-year period representing an ERol of between £61 and £83, per £1 project cost)
- £192m to £280m net additional GVA in the local economy within a 10-year period representing an ERol of between £68 and £100, per £1 project cost)

7.11 On this basis, the project represents extremely strong ERol.

Table 7.4: Net additional GVA benefits of the proposed 1,000 voucher scheme to the local economy, and ERol

Net additional economic impact of the 1,000 voucher scheme on the Westminster economy				
2-year snap shot - (benefits only, beneficiary costs excluded)				
	Gross GVA £	Gross to net additionality adjustment	Net additional GVA £	Economic Return on Investment (net benefits divided by project cost)
Benefits within first year of connection	109,005,490	24.73%	26,958,124	9.63
Benefits within first two years after connection	144,913,831	24.73%	35,838,608	12.80
Benefits within first five years after connection	227,552,078	24.73%	56,275,855	20.10
Full cost benefit analysis: 5 year period, 3.5% discount rate				
	Gross GVA £	Net additional GVA £	NPV at 3.5% of cash flow balance end of year 5 (£ GVA)	Economic Return on Investment (net benefits divided by project cost)
Benefits within first year of connection	109,005,490	26,958,124	172,321,092	61.55
Benefits within first two years after connection	144,913,831	35,838,608	205,630,117	73.45
Benefits within first five years after connection	227,552,078	56,275,855	234,664,986	83.82
Full cost benefit analysis: 10 year period, 3.5% discount rate				
	Gross GVA £	Net additional GVA £	NPV at 3.5% of cash flow balance end of year 10 (£ GVA)	Economic Return on Investment (net benefits divided by project cost)
Benefits within first year of connection	109,005,490	26,958,124	192,760,198	68.85
Benefits within first two years after connection	144,913,831	35,838,608	233,637,839	83.45
Benefits within first five years after connection	227,552,078	56,275,855	280,090,864	100.05

Employment benefits of the proposed 1,000 voucher scheme

- 7.12 The London voucher scheme evaluation survey identified the average number of jobs voucher recipients created within the first 12 and the first 24 months of connection, as a result of use of faster broadband. The gross and net jobs attributable to the London voucher scheme were then calculated using a similar methodology to the GVA methodology.
- 7.13 Applying the survey findings and the impact methodology to the proposed 1,000 voucher firms suggests that this scheme will generate 2,000 and 2,750 gross jobs, of which 484 to 680 will benefit the local economy, at a cost per job figure of £5,787 to £4,116.

Table 7.5: Net additional jobs of the proposed 1,000 voucher scheme in the local economy and cost per job

	Additional jobs		
	Jobs created by Westminster's voucher SMEs	Net additional jobs in the Westminster Economy	Cost per job
Jobs created by Westminster voucher SMEs in first 12 months after connection	1,956	484	5,787
Jobs created by Westminster voucher SMEs in first 24 months since connection	2,750	680	4,116

8. Enterprise and Innovation Impacts

Faster broadband specifically enables firms to transform their businesses through creating new products, services and processes.

Referring to the London voucher scheme survey findings, we have calculated the potential wider enterprise and innovation impacts of the proposed Westminster 1,000 voucher scheme.

We estimate that the proposed Westminster 1,000 voucher scheme will enable

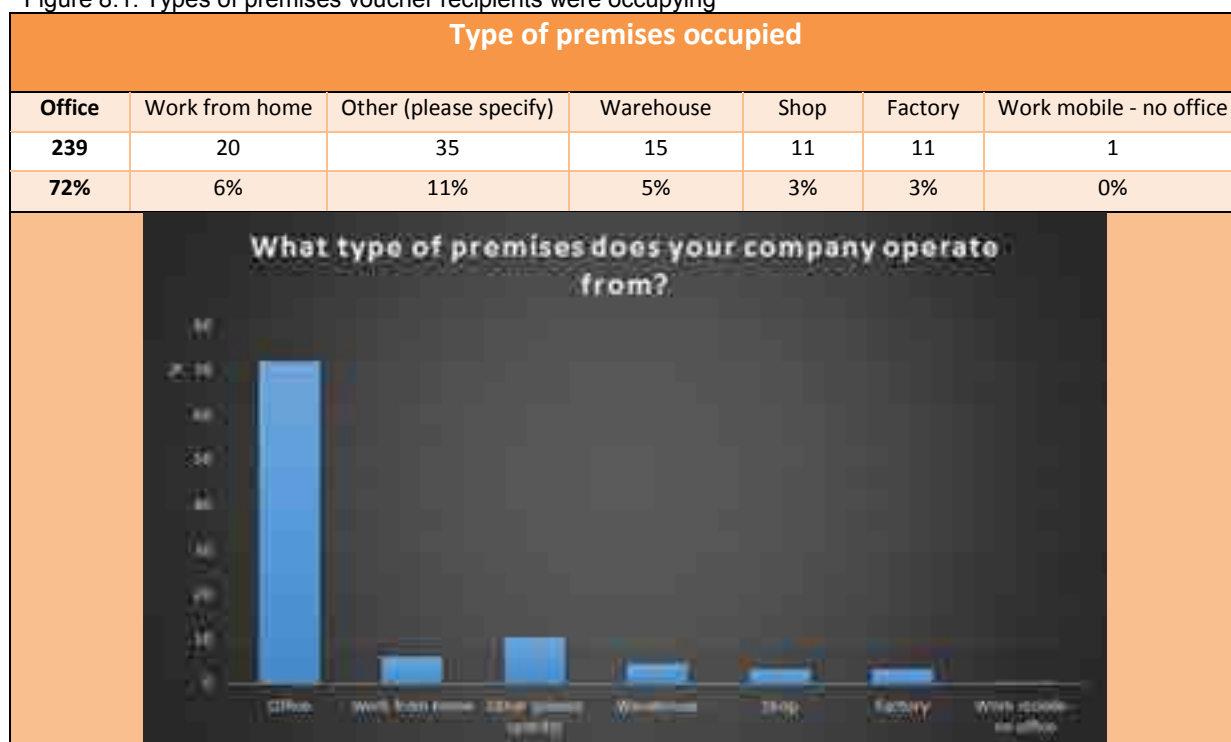
- 500 firms to transform their businesses within the first 2 to 3 years of connection to a faster service
- 220 will do this through creating new products and services

8.1 The London voucher scheme evaluation survey identified a range of what we might term enterprise and innovation benefits to firms. On the assumption that a similar range of benefits will be realized by voucher recipients of this scheme, the following figures show the nature and extent of innovation benefits that might be expected.

Type of premises occupied

- 72% of respondent firms were based in office premises
- 5% in warehouse accommodation
- 3% in shops
- 3% in factories
- 6% worked from home, and
- 1 firm was mobile

Figure 8.1: Types of premises voucher recipients were occupying



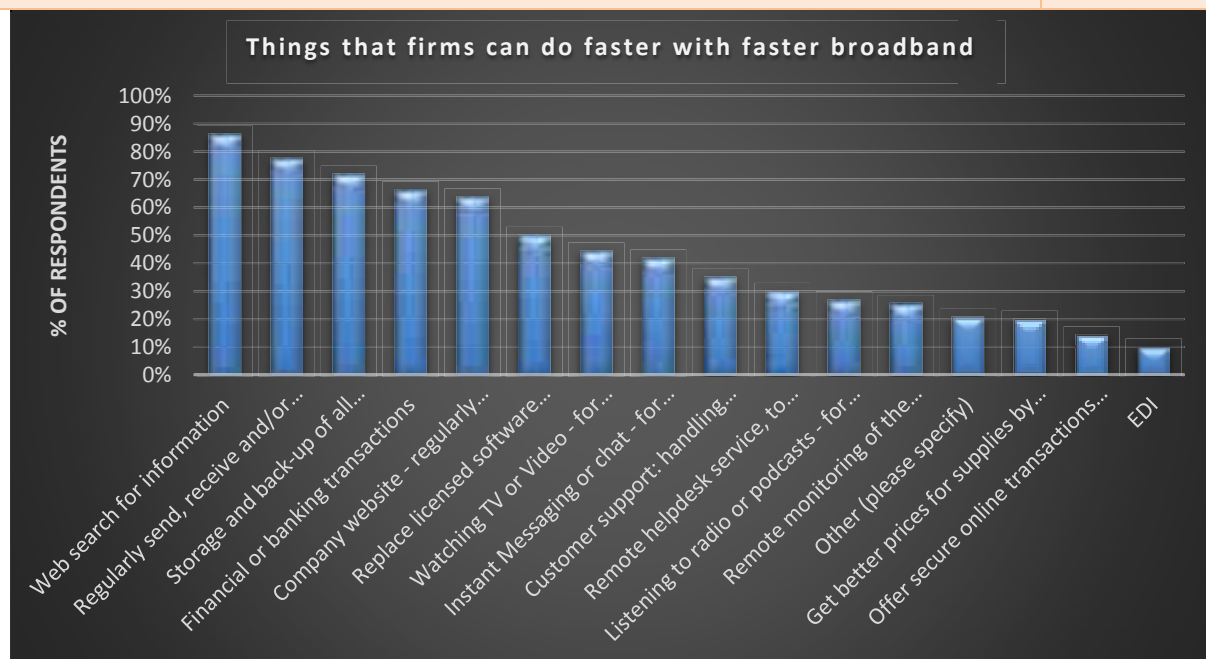
Things that firms can do with faster broadband

8.2 Firms were then asked a series of questions about what they could do better, faster, or new, with faster broadband:

- 86% said web searching
- 78% said send, receive and joint working with large documents
- 72% said storage and back up
- 66% said financial/ banking transactions
- 64% said managing the company website
- 50% said replace licensed software with online pay-as-you-go software

Table 8:2 Things firms can do faster with faster broadband

Things firms can do faster with faster broadband	
	% of respondents
Web search for information	86%
Regularly send, receive and/or share and joint working with large documents on line – e.g. MS Sharepoint, Box, Dropbox	78%
Storage and back-up of all companies documents and data online ('in the Cloud')	72%
Financial or banking transactions	66%
Company website - regularly updating information/ uploading content, including video Use of social media - for business purposes	64%
Replace licensed software products with 'pay as you go' online apps/software (e.g., Office 365)	50%
Watching TV or Video - for business purposes	44%
Instant Messaging or chat - for business purposes	42%
Customer support: handling enquiries from customers or prospects	35%
Remote helpdesk service, to provide end-user support from a helpdesk service provider in another location	30%
Listening to radio or podcasts - for business purposes	27%
Remote monitoring of the workplace (security camera, etc.)	26%
Other (please specify)	21%
Get better prices for supplies by buying online	20%
Offer secure online transactions from your web site	14%
EDI	10%



Ways in which firms might save costs as a result of use of faster broadband

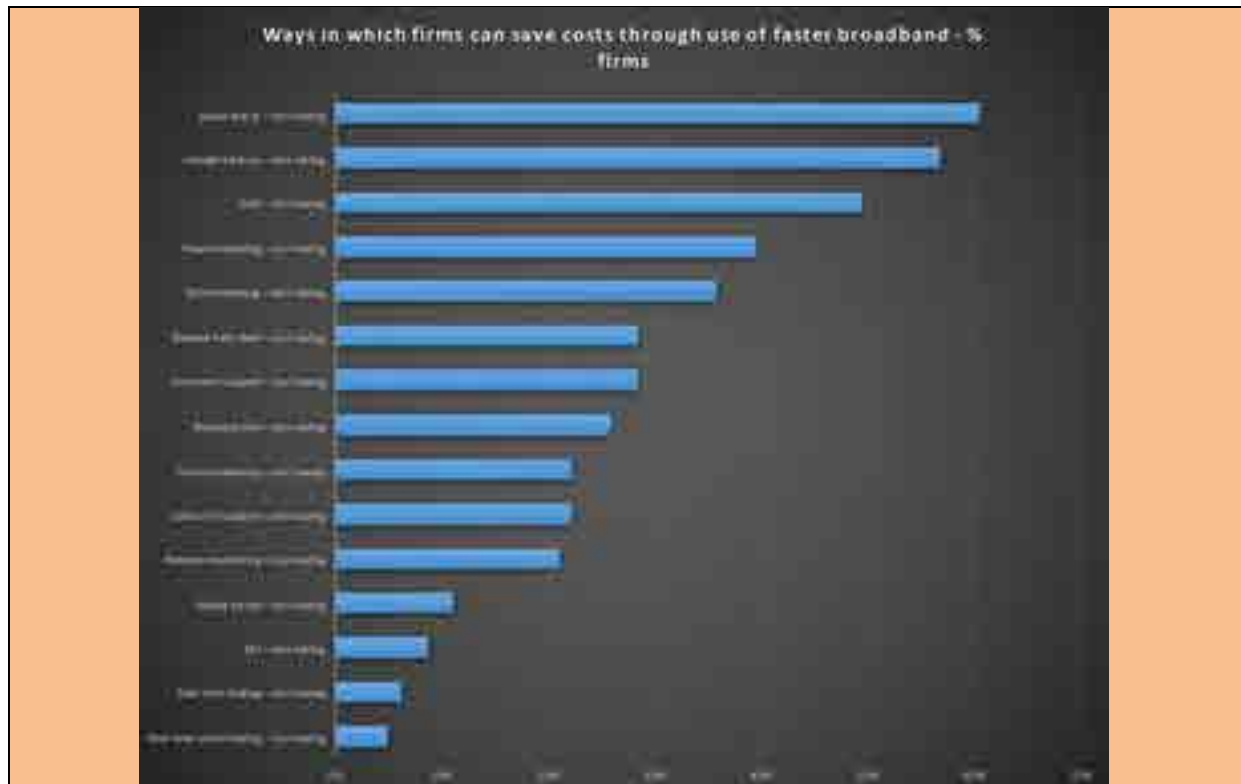
8.3 Firms were asked to what extent faster broadband would enable them to save cost. Table 9.1 lists the various ways in which firms think that faster broadband will enable them to save money.

8.4 The top 5 examples (i.e. those cited by most firms) were:

- Increased use of skype and video conferencing
- Storage and back up in the cloud
- Voice over IP (IP telephony)
- Financial banking
- Online learning

Table 8.13: Ways in which faster broadband enables firms to save costs

Ways in which firms can save costs as a result of faster broadband		
Benefit	No responses	%
skype and vc - cost saving	49	60%
storage back up - cost saving	46	57%
VoIP - cost saving	40	49%
Finance banking - cost saving	32	40%
Online learning - cost saving	29	36%
Customer support - cost saving	23	28%
Remote help desk - cost saving	23	28%
Buying online - cost saving	21	26%
Call out IT support - cost saving	18	22%
Distance learning - cost saving	18	22%
Remote monitoring - cost saving	17	21%
Selling online - cost saving	9	11%
EDI - cost saving	7	9%
Real time trading - cost saving	5	6%
Real time share trading - cost saving	4	5%



Ways in which firms might increase sales as a result of use of faster broadband

8.5 Firms were asked to what extent faster broadband would enable them to increase sales.

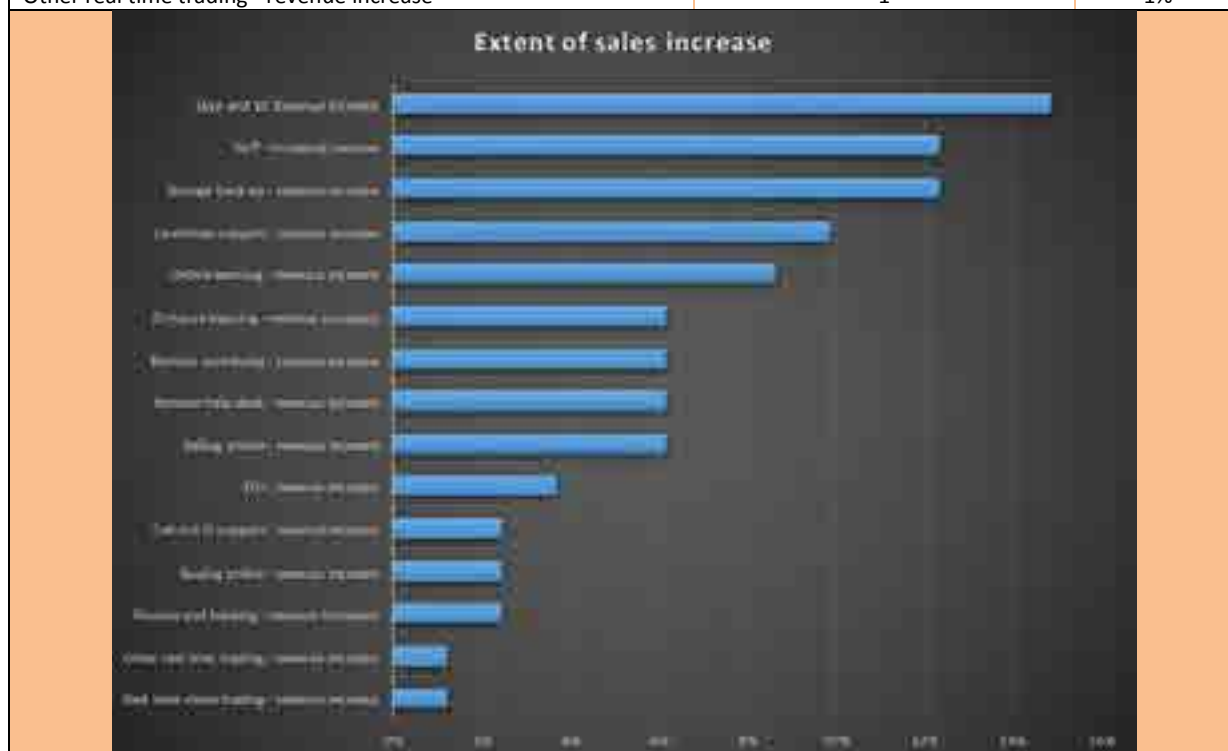
8.6 The top 5 examples (i.e. those cited by most firms) were:

- Increased use of Skype and video conferencing
- Increased use of online storage and back up in the cloud
- Increased use of voice of IP (IP telephony)
- Customer support
- Online learning

Table 8.4: Ways in which use of faster broadband enables firms to increase sales

Ways in which firms might increase sales as a result of use of faster broadband

Benefit	No responses	%
Skye and VC Revenue increase	12	15%
Storage back up - revenue increase	10	12%
VoiP -increased revenue	10	12%
Customer support - revenue increase	8	10%
Online learning - revenue increase	7	9%
Selling online - revenue increase	5	6%
Remote help desk - revenue increase	5	6%
Remote monitoring - revenue increase	5	6%
Distance learning - revenue increase	5	6%
EDI - revenue increase	3	4%
Finance and banking - revenue increase	2	2%
Buying online - revenue increase	2	2%
Call out IT support - revenue increase	2	2%
Real time share trading - revenue increase	1	1%
Other real time trading - revenue increase	1	1%

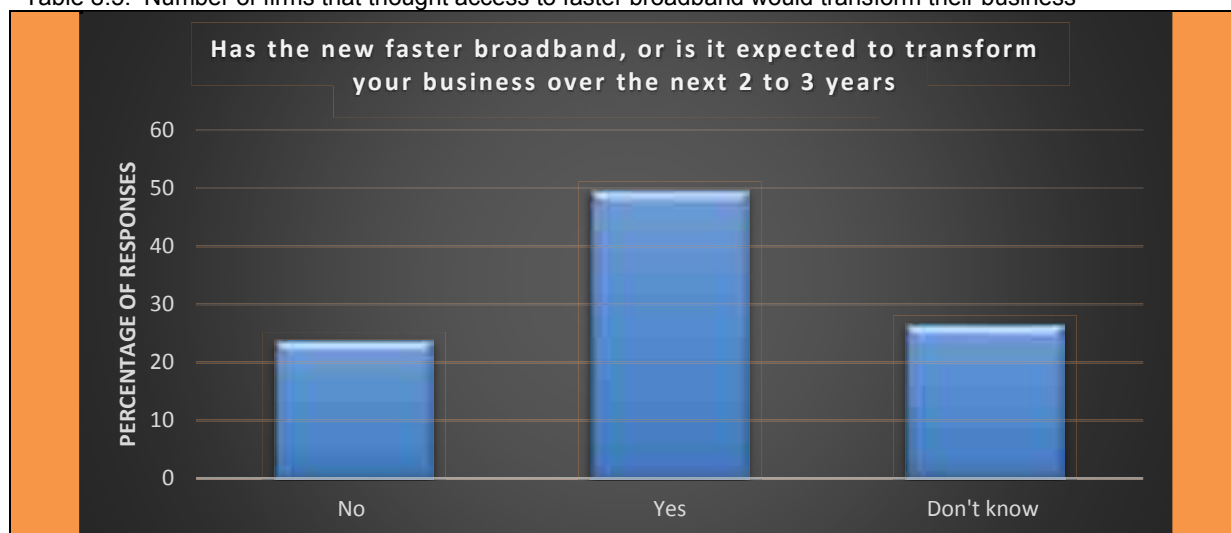


Business transformation

8.7 Firms were asked whether faster broadband would transform their business over the next 2 to 3 years:

- 50% said it would

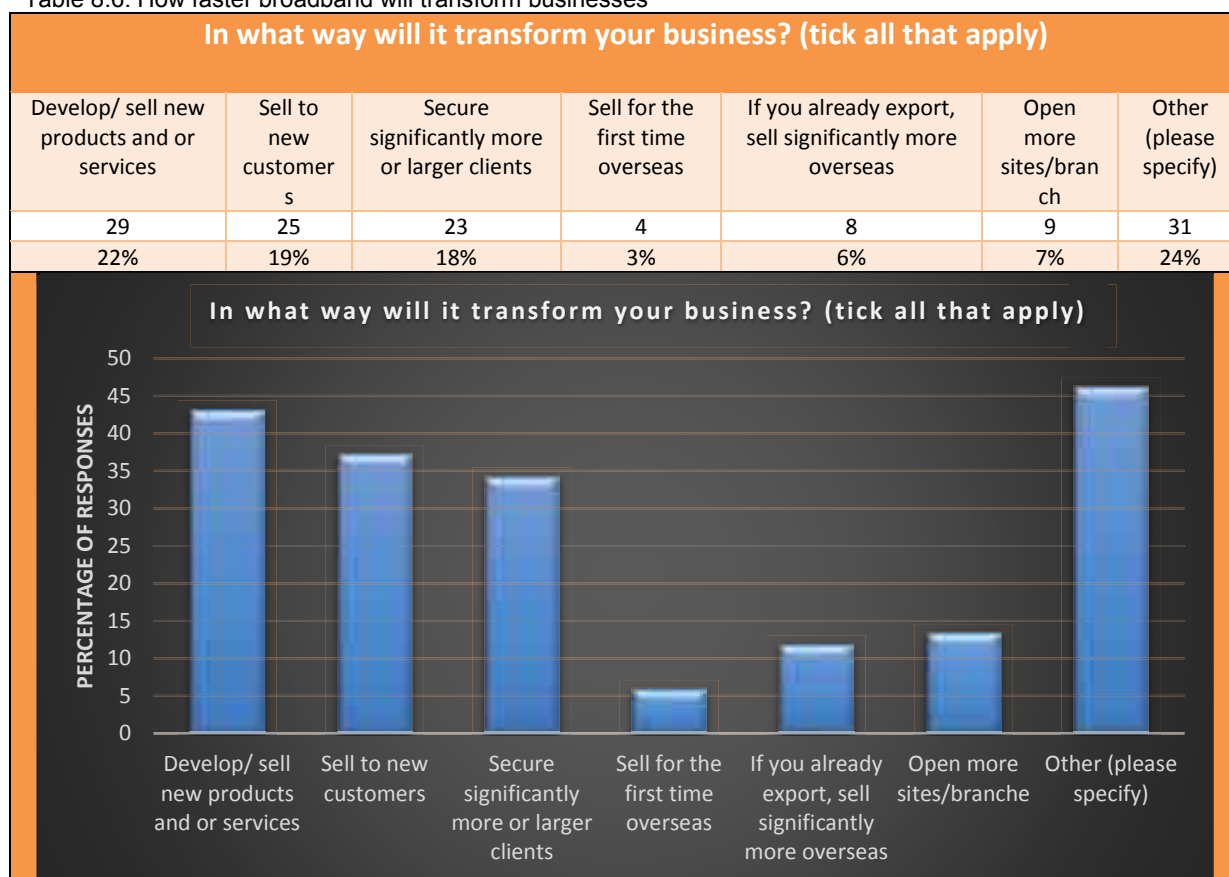
Table 8.5: Number of firms that thought access to faster broadband would transform their business



8.8 Firms were then asked how they anticipated that faster broadband would transform their business:

- 22% said through enabling development of new products and services
- 19% said enabling selling to new customers
- 18% said enabling selling to more and/or larger clients/customers
- 3% said it would enable selling overseas for the first time and 6% said export more
- 7% said it would enable them to open up more sites/branches

Table 8.6: How faster broadband will transform businesses

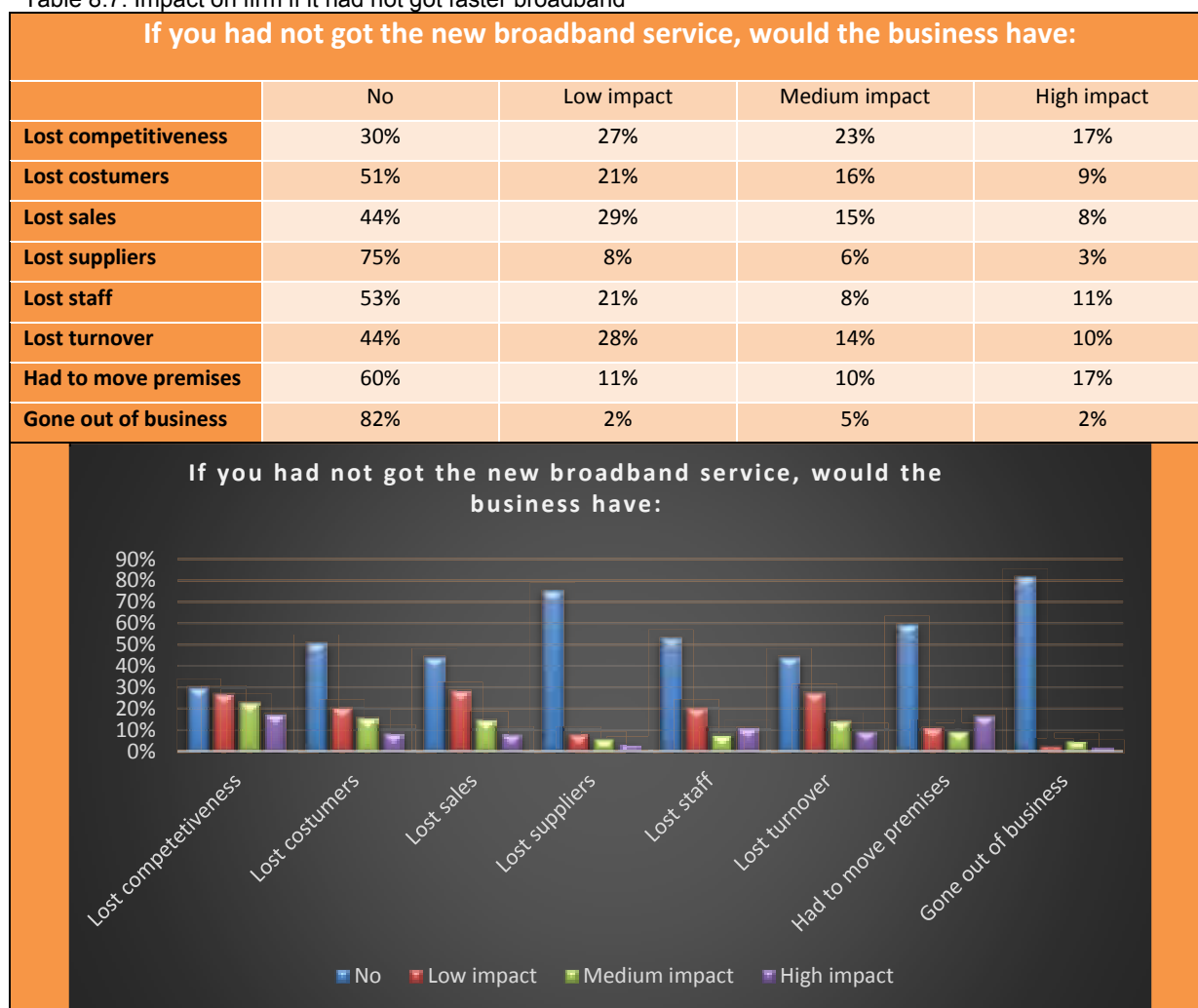


Impact on business if faster broadband was not available

8.9 Firms were asked what would have happened if they had not got the new faster broadband service:

- 70% said they would have lost competitiveness and of these 17% said this would have had a high impact
- 49% said they would have lost customers and of these 9% said this would have had a high impact
- 56% said they would have lost sales and of these 8% said this would have had a high impact
- 47% said they would have lost customers and of these 11% said this would have had a high impact
- 56% said they would have lost turnover and of these 10% said this would have had a high impact
- 40% said they would have had to consider moving premises and of these 17% said this would have been of high importance
- 18% said they may have gone out of business and of these, 2% thought this was very likely.

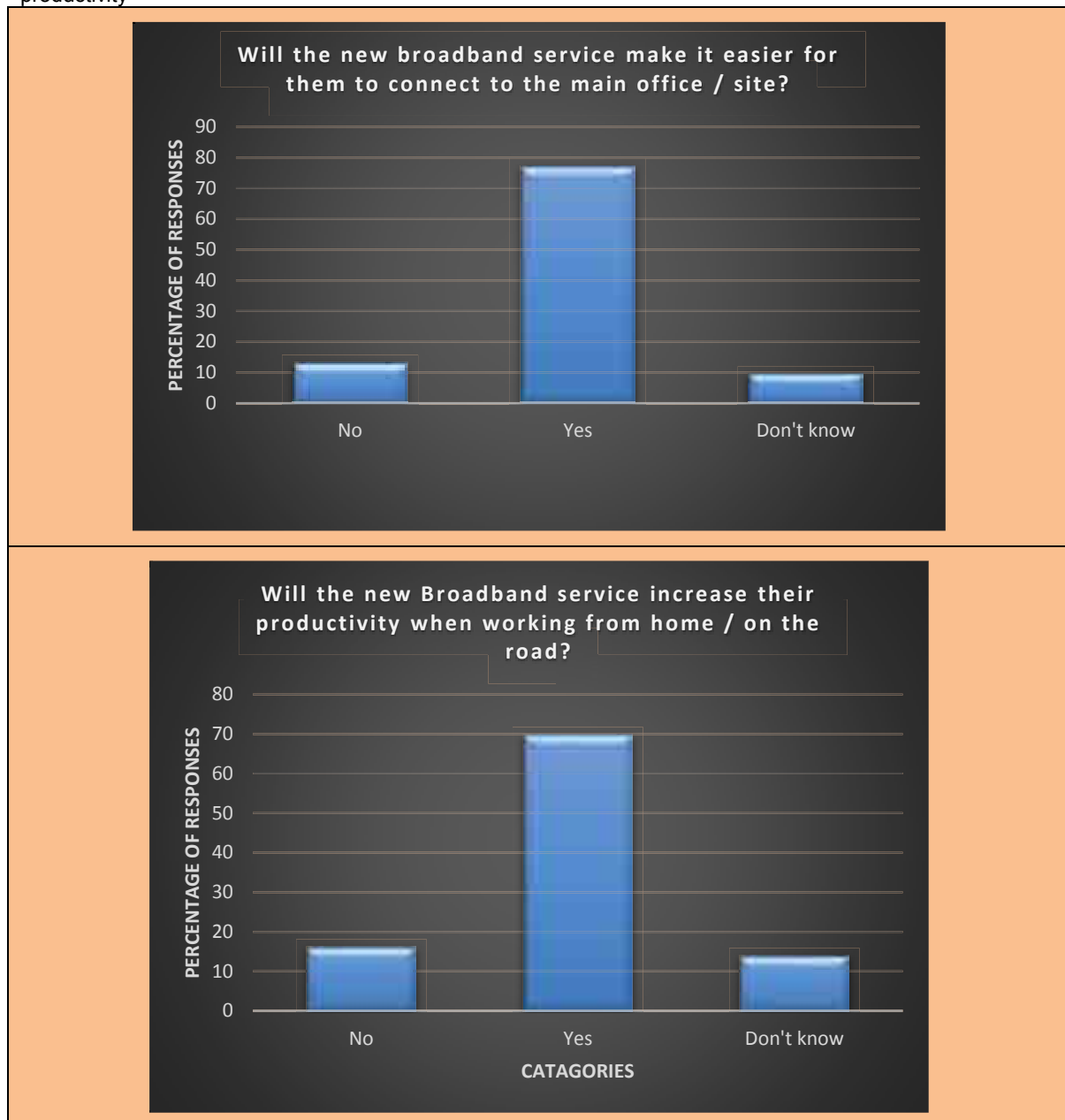
Table 8.7: Impact on firm if it had not got faster broadband



8.10 Firms with regular home or mobile workers were then asked:

- If the new broadband service will make it easier for these workers to connect to the main office / site – 77% of firms said yes
- And whether the new broadband service would increase their productivity when working from home / on the road – 68% said yes

Table 8.8: Extent to which faster broadband will make it easier to work from home or on the move, and impact on productivity



Using the London voucher scheme innovation and enterprise survey findings to estimate the potential innovation and enterprise outputs of the Westminster 1,000 voucher scheme

- 8.11 We have used the London voucher scheme innovation and enterprise survey findings to estimate the potential innovation and enterprise outputs of the Westminster 1,000 voucher scheme.
- 8.12 50% of firms reported that they expected that use of faster broadband would transform their businesses within the next 2 to 3 years.

Table 8.9

Innovation and enterprise benefits of faster broadband. Applying the results of the London voucher scheme survey to Westminster's 1,000 voucher scheme		Applying the London survey results to Westminster's 1000 vouchers
50% of firms said faster broadband would transform their business	50%	500
Firms also said how it would transform their business		
■ 22% said through enabling development of new products and services	22%	220
■ 19% said enabling selling to new customers	19%	190
■ 18% said enabling selling to more and/or larger clients/customers	18%	180
■ 3% said it would enable selling overseas for the first time and 6% said export more	3%	30
	6%	60
■ 7% said it would enable them to open up more sites/branches	7%	70

- 8.13 Firms were asked what would have happened if they had not got the new faster broadband service

Table 8.10

Impact if firms had not got faster broadband		Applying the London survey results to Westminster's 1000 vouchers
■ 70% said they would have lost competitiveness	70%	700
■ and of these 17% said this would have had a high impact		
■ 49% said they would have lost customers	49%	490
■ and of these 9% said this would have had a high impact		
■ 56% said they would have lost sales	56%	560
■ and of these 8% said this would have had a high impact		
■ 47% said they would have lost customers	47%	470
■ and of these 11% said this would have had a high impact		
■ 56% said they would have lost turnover	56%	560
■ and of these 10% said this would have had a high impact		
■ 40% said they would have had to consider moving premises	40%	400
■ and of these 17% said this would have been of high importance		
■ 18% said they may have gone out of business	18%	180
■ and of these, 2% thought this was very likely.		
■ 77% of firms said that faster broadband will make it easier for home	77%	770
■ and mobile workers to connect to the main office – 68% said it would increase their productivity.		

9. Advice on set up and operation of the scheme

Objectives of the scheme

- 9.1 Westminster's scheme will support micro, small and medium sized enterprises to take up broadband services delivered over next generation networks capable of providing at least 30 Mbps download speeds. To do this it will offer connection vouchers that will cover all or part of the upfront cost of one of the following types of service to a minimum of 1,000 eligible SMEs:
- Access to a 'consumer' service delivered over next generation networks capable of providing at least 30Mbps download speed
 - A 'business grade' solution with a defined service level agreement based on a minimum of 20 Mbps symmetrical connection (or 30/10 uncontended connection) delivered over next generation networks that offer an upgrade path to higher speeds
- 9.2 Eligible SMEs already receiving 30Mbps+ services will be entitled to use the voucher to upgrade to a new service where either the download or the upload speed is at least double that of their existing connection, irrespective of whether the new service is a consumer or business grade product.

Eligibility

- 9.3 DCLG output indicators definition guidance published in September 2015 states that:
- "the UK defines "superfast broadband as speeds greater than those available on current generation network infrastructure, and which is delivered over next generation networks capable of providing at least 30 Mbps download speeds"***
- 9.4 However, in determining the eligibility of individual applications,
- "The count is the number of enterprises supported to take up broadband access. This requires that superfast broadband is delivered over next generation networks capable of providing at least 30Mbps download speeds. This means that while the infrastructure has to be capable of delivering such speeds, not every customer will necessarily get 30Mbps."***
- 9.5 Eligible SMEs already receiving 30Mbps+ services will be entitled to use the voucher to upgrade to a new service where either the download or the upload speed is at least double that of their existing connection, irrespective of whether the new service is a consumer or business grade product.

Evidence of meeting need/ addressing market failure

- 9.6 The rationale for the scheme is based on a number of different types of evidence:
- Evidence of unmet demand from the London connection voucher scheme
 - Mapping of supply to highlight areas in which businesses do not have access to next generation broadband networks
 - Modelling of economic outputs to indicate how the fact that two-thirds of business premises in Westminster are in areas without access to superfast broadband will continue to suppress economic performance and employment over the period 2016-2020
 - Information asymmetries between suppliers and SMEs about the respective costs and benefits of available services, both consumer and business grade

9.7 State aid

The team are not qualified lawyers and we are not qualified to provide legal advice on state aid. This is for the Borough's legal advisers to advise on. We are however able to point you towards advice and commentary on state aid aspects of voucher schemes, prepared by others

BDUK voucher scheme – State aid position

- 9.8 By 2013 it had become clear that DG COMP was not prepared to extend the 2012 decision for the National Broadband ('Superfast Britain') scheme to cover UK cities, as this would have been in conflict with the conditions for supply-side intervention in urban broadband infrastructure allowed by the Broadband Guidelines implemented in December 2012¹².
- 9.9 Instead, DG COMP pressed DCMS to seek a State aid notification for its £150m Superconnected Cities programme on the basis of these guidelines – but that depended on getting both BT and Virgin Media to withdraw their respective legal challenges¹³ to the State aid decision granted the UK on the basis of Birmingham City Council's proposal for a supply-side intervention in broadband networks¹⁴.
- 9.10 Neither BT nor Virgin would do that; and UK Government did not want to set a precedent by withdrawing support for a State aid decision that it had initially backed. To break the impasse, DCMS proposed that a demand-led Connection Voucher scheme, funded up to £100m until April 2015, should go ahead as a way to test the UK market. The then-Secretary of State agreed to this on the condition that it should present 'no risk' in terms of State aid. DG COMP agreed that a demand-led scheme, limited in time and resource, could potential present a number of benefits, including:
- Stimulating demand for faster and higher quality services amongst SMEs
 - Testing the market
 - Potentially reducing the 'white NGA' areas – in other words, those with no next generation network access – in UK cities
- 9.11 In order to achieve this without need for a separate State aid decision, DG COMP and BDUK agreed a number of design principles for a 'no aid' scheme:
- The State aid voucher within scheme would be offered under terms of the *de minimis* regulation
 - The scheme would not be selective in terms of sector or geography within the limited number of cities (initially 10, then 22, later 50+) where funding was made available
 - The scheme would be technology neutral (although in practice its terms precluded the use of vouchers to pay for services delivered via satellite technology and mobile telephone networks)
 - A set of technical definitions and constraints would be placed on the scheme to strictly limit the eligible costs that could be reimbursed by a voucher to the actual incremental cost of adding a single new business connection – it would not pay for investment in new next generation network infrastructure, which would remain at the suppliers' risk
 - The voucher could only be used to cover capital costs of a new connection – not monthly subscriptions – and could not be applied retrospectively to existing connections
 - The maximum voucher level would be set at a level that reflected evidence of actual costs for a range of technologies, and would be reviewed from time to time on the basis of evidence from the initial connections to check that it was not market distorting
 - There would need to be evidence of competition from suppliers to mitigate the risk of a single provider claiming the majority of the vouchers; at first this was done by a requirement that businesses provide two competitive quotations (without an obligation to accept the cheapest price) but, when it became clear that a large number of suppliers

¹² http://europa.eu/rapid/press-release_IP-12-1424_en.htm

¹³ <http://www.bbc.co.uk/news/technology-20027439>

¹⁴ http://europa.eu/rapid/press-release_IP-12-596_en.htm?locale=en

were not only registered on the scheme but actively competing for contracts, this requirement was dropped

BRESAT – further development of the State aid position for demand-led schemes

- 9.12 The European Commission's broadband policy advisory group – BRESAT – of which Adroit Economics and Point Topic were members, was charged with advising on policy towards addressing the gap in 'the last 5%' of EU regions. DG Comp was closely involved in the work and help BRESAT arrive at an agreed state aid position on demand-side voucher scheme approaches.
- 9.13 In broad terms, aid was to be treated as de minimis, not selective and technology neutral (although it was acknowledged that in most cases satellite was the only viable delivery mechanism).
- 9.14 However, BRESAT's voucher policy recommendations, which have been accepted by the Commission, went further in that they allowed for a limited period of subsidy of monthly subscription costs. That last measure reflected market factors that do not apply in Westminster – low penetration of broadband of any kind in many of the regions in which the scheme would operate, and an acknowledgement that the high data costs of satellite were a potential barrier to entry for many micro-enterprises in these areas.

Supplier engagement

- 9.15 As suppliers will be responsible for most of the marketing of services to businesses, they need to be consulted on any changes from the BDUK scheme, understand the prioritisation and systems of the Westminster scheme, be comfortable that they can deliver services within the parameters and price points of the vouchers on offer and be willing to work with the project team, businesses and landlords to identify – and sometimes create new and innovative – solutions for business districts without existing next generation network infrastructure.

Voucher value

- 9.16 Whilst the precedent of the London scheme provides important information, there are some specific market conditions in Westminster which demand that the potential impacts on supply and demand of carrying the voucher value be modelled through consultation and soft market testing to determine what levels of funding presents the best balance of value for money and delivery risk to the project, whilst securing the optimal economic return on investment for the Council and the European funding.

Targeting

- 9.17 Whilst the scheme is non-selective, both the Council and suppliers are aware of existing areas of demand (including unmet demand from the London voucher scheme) and need (particularly in those business districts with little or no next generation 'consumer' network infrastructure. The Council's marketing should be designed to help raise awareness of and stimulate demand for the scheme so that suppliers can most effectively target their marketing on those areas of unmet and latent demand in a way that will help ensure both the overall success of the scheme, in terms of targets and budgets, but will also address areas of need and close the remaining gaps in broadband infrastructure.

Risk management

- 9.18 In addition to the external regulatory and market forces identified above, a number of other actors will need to be engaged and consulted with to ensure that the scheme is designed and delivered in a way that minimises the risk of delay, overspend, underperformance, regulatory breach and commercial and legal challenge. These include, but are not limited to:
- Landlords, to help them understand the benefit of the scheme and to ensure that commercial negotiations over wayleaves do not introduce costs and delays that threaten delivery.

- Its own planning and highways teams, to help anticipate any issues around permits to install new infrastructure in the roadway or on buildings in commercial districts with high levels of footfall, some of which present heritage and environmental sensitivities, to mitigate the risks of delay and cost which may threaten delivery.
- The Council will need to satisfy itself and its funders that the scheme conforms to procurement rules and is conducted in a such a way to minimise risk of commercial or legal challenge.
- Neighbouring boroughs, Members of Parliament, private sector business organisations and pan-London agencies should be informed of the scheme and the eligibility requirements that relate to it so that they can effectively advise businesses and reduce the administrative burden on Westminster CC of having to address questions from ineligible businesses.

10. Appendix A: The London Voucher Scheme Evaluation

Copy of the Executive Summary

Headline results

- 10.1 The key findings in terms of economic impact of London's superfast broadband connection voucher scheme are:
- Faster broadband brings £3 billion boost to London SMEs within two years.
 - The use of faster broadband by London's SMEs taking up the Government's Broadband Connection Voucher Scheme will enable them to generate £2bn additional sales within the first two years, 32,000 new jobs and to achieve just under £1bn cost savings, making London's voucher firms considerably more competitive and profitable.
 - The combined sales increases and cost savings represent £1.7bn GVA¹⁵, just over a 20% increase in GVA of London's voucher firms (see notes below explaining GVA).
 - The net benefits of this to the Greater London economy¹⁶ are estimated to be £430m additional GVA and an additional 8,118 jobs.
 - This represents a very positive economic return on investment of public funds into the scheme of 23.7:1 (£23.67 GVA per £1 invested in the scheme)¹⁷ and a cost-per-job of £2,226¹⁸

¹⁵ GVA = Gross value added, the Government's preferred measure of economic wealth creation. GVA is similar to GDP minus taxes and subsidies. Total sales/turnover in a firm (or economy) comprises (i) purchases of goods and services (ii) wages (iii) profits. GVA is a measure of wages and profits, excluding purchases. The proportion of GVA to turnover reflects the overall wealth creation of the firm or industry sector. The proportion of GVA to turnover varies considerably, from less than 20% to 70-80% for high value financial and business service sectors.

¹⁶ Not all of the benefits to firms are benefits to the London economy. For example, a proportion of the additional sales achieved by voucher firms will be at the expense of other London firms' existing turnover. Government economic evaluation guidance sets out the methodology to convert total (gross) benefits to net additional benefits to a local economy, taking account of deadweight (what would have happened anyway), leakage (of benefits outside of the local economy), displacement (of existing turnover from other firms). Taking account of these factors, our calculations suggest that just under 25% of gross benefits are 'net' to the London economy – i.e. just under half a billion GVA.

¹⁷ The London voucher scheme achieved an economic return on investment (ERol) of £23.70 for every £1 invested in the project by Government (the ERol is calculated by dividing the net additional GVA to the London economy by the cost of the project at £18m). This is a significantly positive ERol given around £10 is deemed to be a good economic return on publicly-funded economic development projects.

¹⁸ In terms of job creation, analysis suggests the London voucher scheme will result in an additional 23,350 gross jobs over the first 12 months and 32,824 jobs over the first 24 months following connection of faster broadband service. This translates into 5,775 and 8,118 net additional jobs in the Greater London area and represents a cost per job of between £3,130 and £2,226 – a highly competitive cost per job figure for economic development projects.

GVA impacts

Economic impact of the London superfast broadband connection voucher scheme, which has enabled 11,936 London SMEs to access and use faster broadband, achieving an average speed increase of 8.8 times from an average original download speed of 15.9 Mbps (10 Mbps median) increasing to an average of 86.6 Mbps (85 Mbps median)	Benefits of faster broadband to the 11,936 London SMEs that accessed faster broadband through the London voucher scheme			
	Cost savings	Sales increases	Additional (latent) productivity benefits ¹⁹	Total
	Totals £			
Benefits within first year of connection	948,321,824	1,086,590,762	-	2,034,912,586
Benefits within first two years after connection	948,321,824	2,087,334,909	-	3,035,656,733
Benefits within first five years after connection	948,321,824	2,087,334,909	986,370,119	4,022,026,852
	GVA £			
Benefits within first year of connection	948,321,824	352,767,700	-	1,301,089,524
Benefits within first two years after connection	948,321,824	781,369,665	-	1,729,691,489
Benefits within first five years after connection	948,321,824	781,369,665	986,370,119	2,716,061,608
	% GVA increase			
Benefits within first year of connection	11.3%	4.2%	0.0%	15.5%
Benefits within first two years after connection	11.3%	9.3%	0.0%	20.6%
Benefits within first five years after connection	11.3%	9.3%	11.7%	32.3%
	Impact of this on the Greater London economy			
	1-year snap shot - (benefits only, beneficiary costs excluded)			
	Gross GVA £	Gross to net additionality adjustment	Net additional GVA £	Economic Return on Investment (net benefits divided by project cost)
Benefits within first year of connection	1,301,089,524	24.73%	321,772,167	17.80
Benefits within first two years after connection	1,729,691,489	24.73%	427,769,626	23.67
Benefits within first five years after connection	2,716,061,608	24.73%	671,708,606	37.16
	Full cost benefit analysis: 5-year period, 3.5% discount rate			
	Gross GVA £	Net additional GVA £	NPV at 3.5% of cash flow balance end of year 5 (£ GVA)	Economic Return on Investment (net benefits divided by project cost)
Benefits within first year of connection	1,301,089,524	321,772,167	1,257,685,987	69.59
Benefits within first two years after connection	1,729,691,489	427,769,626	1,655,262,519	91.58
Benefits within first five years after connection	2,716,061,608	671,708,606	2,001,822,710	110.76
	Full cost benefit analysis: 10-year period, 3.5% discount rate			
	Gross GVA £	Net additional GVA £	NPV at 3.5% of cash flow balance end of year 5 (£ GVA)	Economic Return on Investment (net benefits divided by project cost)
Benefits within first year of connection	1,301,089,524	321,772,167	1,501,647,155	83.08
Benefits within first two years after connection	1,729,691,489	427,769,626	1,989,562,681	110.08
Benefits within first five years after connection	2,716,061,608	671,708,606	2,544,025,989	140.76

¹⁹ Actual cost and time savings achieved have been included in the calculation of benefits within the first two years. However, the survey responses suggest other latent productivity gains (e.g., from upskilling) that we have conservatively estimated to amount to 30% of GVA over five years.

Job impacts

	Additional jobs		
	Jobs created by London's voucher SMEs	Net additional jobs in Greater London economy	Cost per job
Jobs created by London's voucher SMEs in first 12 months since connection, as a result of use of faster broadband	23,350	5,775	3,130
Jobs created by London's voucher SMEs in first 24 months since connection, as a result of use of faster broadband	32,824	8,118	2,226

Further detail

- 10.2 This report sets out the results of a high level assessment of the economic impact (EI) and economic return on investment (ERol) of the London superfast broadband connection voucher scheme.
- 10.3 The assessment is based on the results of a detailed online survey of SMEs in London who were in receipt of a voucher of a value of up to £3,000.

Broadband Delivery UK Connection Voucher Scheme

- 10.4 The Connection Voucher Scheme was piloted in 5 UK cities from September 2013, rolled out across 22 cities in early 2014 and ran until October 2015. This fund is now fully committed and the scheme is closed to new applicants. Around 55,000 vouchers for superfast broadband connections were issued to SMEs during the lifetime of the scheme – 37,000 since April 2015, when a further 30 cities and regions were allowed to issue vouchers – of which nearly 12,000 were in London.
- 10.5 More than 770 suppliers won voucher business out of 864 registered suppliers. Connection vouchers helped aggregate demand so that (a) new suppliers entered the business market in response to clear demand signals and (b) new superfast supplies were made available in areas that previously had only offered basic broadband connections.

Size and cost of London's voucher scheme

- 10.6 Over the two-year period of the London voucher scheme, a total of 11,936 firms took up vouchers at a total cost of £18.1m, with an average cost per voucher of £1,514.

Table 10.1: Total number of vouchers

Total (online applications + pre-registered vouchers)		
Year of scheme	Vouchers	Value
14/15	7,422	11,670,754
15/16	4,514	6,403,224
Total	11,936	18,073,979

Source: GLA

Assessing the economic impact of the voucher scheme on London's economy

- 10.7 Two methods have been used to assess the scheme's economic impact:
- **Method 1** – is based on identification of the extent of bottom-up functional benefits derived from use of faster broadband by firms, such as staff time saving, business cost saving, increased sales, increased productivity of home and mobile workers and improved skill levels/ proficiency of staff derived from easier access to, and greater use of, informal online learning content (e.g. YouTube instructional videos et al). The survey results allow us to estimate the extent of each of these benefits to firms, expressed as a percentage of current turnover, and then to translate these into financial benefits for firms (a combination of increased sales and reduced costs which added together equal

increased GVA). The results for the survey sample are then scaled up to the level of the London voucher scheme as a whole, adjusted to estimate net additional GVA at the level of the Greater London Economy²⁰. This figure is then used to estimate the ERol of the scheme, expressed in terms of net additional GVA²¹ generated per £1 Government money invested in the scheme.

- **Method 2** – is based on calculation of the number of new jobs that firms anticipate they will create as a result of access to and use of faster broadband. The answers to the survey questions allow us to estimate this. As for method 1 above, the employment survey results are then scaled up to the level of the London voucher scheme as a whole, adjusted to estimate net additional jobs at the level of the Greater London economy and are then used to provide an alternative measure of ERol, namely cost per job.

The survey of voucher firms

- 10.8 To implement the survey, GLA agreed to email the link to the online questionnaire developed for the pan-European regional survey programme, to a proportion of the recipients of the London voucher scheme. This provided a robust test-bed/ pilot for the survey process. In return, the survey team agreed to undertake high level analysis of the results and provide a high level assessment of the economic impact and economic return on investment of London's voucher programme²².

²⁰ Net additionality is the term used to reflect the economic impact that is solely attributable to the London voucher scheme.

²¹ GVA = gross value added, which is the Government's preferred measure of economic wealth creation. It accounts for additional wages and profits. It is a similar measure to GDP, less taxes and subsidies

²² The survey is still open and gaining responses. At the time of finalising this report, circa 480 had responded. Some of the analysis in this report is based on an earlier response level of 330; and some on the current 480. Although the statistical significance of the analysis, given an overall population of circa 20,000 is inevitably limited, we have sought to err on the side of caution in each stage of the analysis. Details of the assumptions made and the sensitivity analysis undertaken are available in the main report.

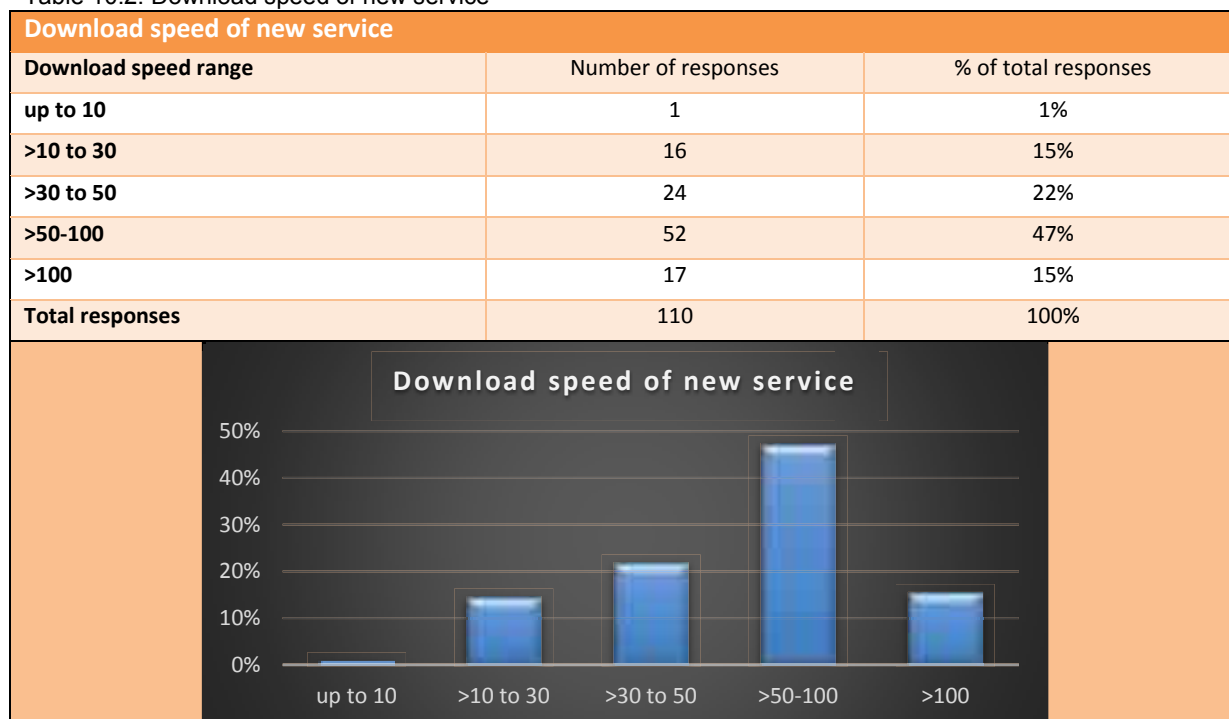
Key survey findings

Download speed of new service

10.9 The survey asked firms the average download speed of their new connection:

- Just under half had a new download speed of >50-100 Mbps
- 15% had greater than 100 Mbps
- 15% had >10-30 Mbps.
-

Table 10.2: Download speed of new service

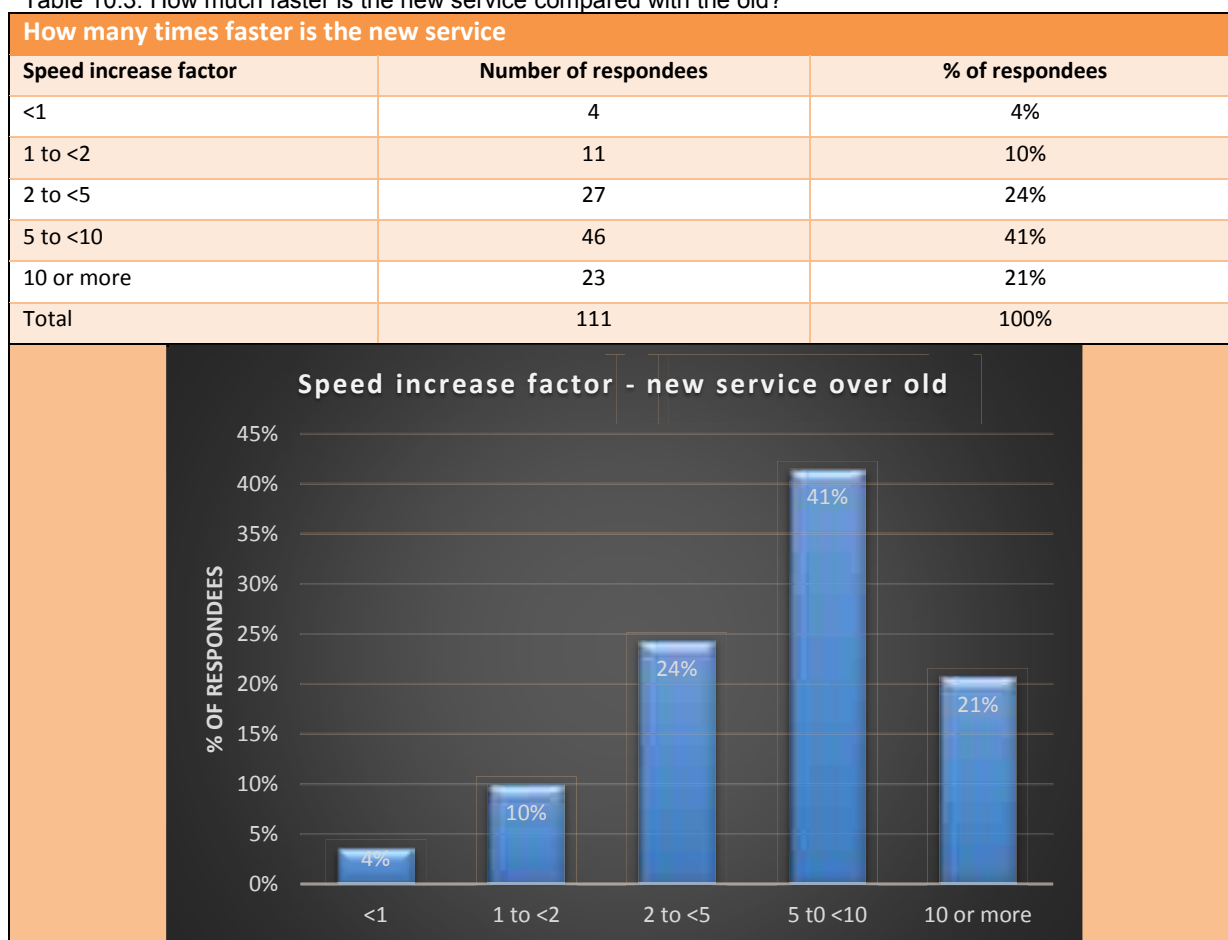


Speed increase

10.10 London's voucher SMEs achieved an average speed increase of 5.4 times from an average original download speed of 15.9 Mbps (10 Mbps median) increasing to an average of 86.6 Mbps (85 Mbps median):

- 41% of respondents benefited from a 5 to 10 times speed increase
- 24% from a 2 to 5 times speed increase
- 21% from a 10 or more times speed increase
- And 10% from a 1 to 2 times speed increase.
-

Table 10.3: How much faster is the new service compared with the old?



Business benefits

- 10.11 The survey identified that firms achieved notable cost savings coupled with increased sales as a result of the use of faster broadband:
- Cost savings – equivalent to 4.8% of current turnover
 - Sales increase – first 12 months after connection – 5.5%
 - Sales increase – first 24 months after connection – 10.5%.
- 10.12 Underlying this, firms reported a number of productivity benefits, most notably:
- Staff time savings – 6.12%
 - Increased efficiency of home and mobile workers – 11.13%
- 10.13 Some of these underpin the above cost savings and sales increase benefits, but some represent latent productivity benefits to be realised over the next few years by firms. Our assumptions are based on a number of factors including the high numbers of businesses indicating that improved connections led to a greatly increased level of access to online training for their staff.
- 10.14 On the basis that actual cost savings and sales increases are recorded for the first 24 months, we have assumed approximately a third of these productivity benefits are to be realised over the next five years.

Business benefits over time

- 10.15 The above findings and analysis suggests the following business benefits of faster broadband to firms over time.

Table 10.4: Benefits to London's voucher SMEs over time – a 1, 2 and 5-year period

	Cost savings	Sales increases	Additional (latent) productivity benefits	Total
	% change			
Benefits within first year of connection	4.8%	5.5%	0.0%	10.2%
Benefits within first two years after connection	4.8%	10.5%	0.0%	15.3%
Benefits within first five years after connection	4.8%	10.5%	4.1%	19.3%

Translating business benefits into final benefits

10.16 By applying these percentage benefits to the totals for the nearly 12,000 London voucher firms, we have calculated the following total benefits attributable to use of faster broadband:

- In year 1, £2bn cost savings and sales increases
- By the end of year 2, £3bn
- And over a five-year period, if latent productivity benefits are realised, £4bn.
-

Table 10.5: Monetised benefits to London's voucher SMEs over time – a 1, 2 and 5-year period

	Cost savings	Sales increases	Additional (latent) productivity benefits	Total
	Totals £			
Benefits within first year of connection	948,321,824	1,086,590,762	-	2,034,912,586
Benefits within first two years after connection	948,321,824	2,087,334,909	-	3,035,656,733
Benefits within first five years after connection	948,321,824	2,087,334,909	986,370,119	4,022,026,852

Converting the financial benefits into GVA

10.17 The Government's preferred measure of wealth creation is that of GVA (gross value added).

We have converted the above benefits into the following GVA figures. The analysis suggests that use of faster broadband has/will enable London's voucher SMEs to increase GVA by 15% in the first year of connection, by 20% in the first two years after connection and, potentially by 32% over five years (if latent productivity benefits are realised).

Table 10.6: Converting gross monetised benefits to GVA

	Cost savings	Sales increases	Additional (latent) productivity benefits	Total
	GVA £			
Benefits within first year of connection	948,321,824	352,767,700	-	1,301,089,524
Benefits within first two years after connection	948,321,824	781,369,665	-	1,729,691,489
Benefits within first five years after connection	948,321,824	781,369,665	986,370,119	2,716,061,608
	% GVA increase			
Benefits within first year of connection	11.3%	4.2%	0.0%	15.5%
Benefits within first two years after connection	11.3%	9.3%	0.0%	20.6%
Benefits within first five years after connection	11.3%	9.3%	11.7%	32.3%

Calculating the impact of the voucher scheme on the Greater London economy

10.18 We have used two methods to calculate the economic impact of the voucher scheme on Greater London's economy:

- Method 1: which focuses on calculating net additional £ GVA
- Method 2: which focuses on calculating net additional jobs.

Method 1: which focuses on calculating net additional £ GVA

10.19 Calculating the net additional economic impact of the scheme on London's economy and the ERoI involves three steps:

- Step 1: Converting gross benefits to net additional benefits
- Step 2: Calculating the flow of net additional benefits over time
- Step 3: Dividing the result by the cost of the project.

Step 1: Converting gross benefits to net additional benefits

10.20 Not all of the gross benefits to firms (table 3.7, column a) are benefits to the London economy. For example, a proportion of the additional sales achieved by voucher firms will be at the expense of other London firms' existing turnover.

10.21 Government economic evaluation guidance sets out the methodology to convert total (gross) benefits to net additional benefits to a local economy, taking account of:

- **Deadweight** (what would have happened anyway) – analysis of the survey suggests that deadweight was 48% (i.e. 48% of firms said they would have signed up to faster broadband anyway, without the voucher scheme)²³

²³ Deadweight is calculated on a conservative basis: we have not taken account of the possibility that the voucher encouraged owners to take up a more expensive connection with higher levels of service, nor of the impact of

- **Leakage** (of benefits outside of the local economy) – we have assumed 5% leakage²⁴
- **Displacement** (of existing turnover from other firms) – other research suggests that displacement of existing business is likely to be high – we have assumed 50%.

10.22 Taking account of these factors, our calculations suggest that just under 25% of gross benefits are 'net' to the London economy (table 3.7 column b).

Step 2: Calculating the flow of net additional benefits over time

10.23 Cost savings and sales increases having occurred, all else being equal, continue year-on-year.

10.24 Economic impact assessment guidance provides a number of methods for quantifying the overall year-on-year benefits.

10.25 We have used two methods in this study:

- The first, often termed 'the snap-shot' method, provides a simplified overview, taking account only of the benefits that occur in the initial period i.e. the initial uplift, but ignoring year-on-year continuation.
- The second method we have used is more comprehensive and is based on a standard cost benefit analysis (CBA) methodology. In this method, annual benefits (and annual costs to firms i.e. the additional tariff cost of a faster service) are set out over time (we have calculated a 5-year period and a 10-year period). The annual values are discounted at an appropriate discount rate to convert them to present values, using the Net Present Value (NPV) function and summed to give total benefits, at present values, over the appraisal period.

10.26 The results are shown in column c of table 3.7.

Step 3: Dividing the result by the cost of the project

10.27 The third step in calculating the ERoI of the project is to divide the net discounted benefits by the project cost. The results are shown in column d of table 3.7.

- The results show a high ERoI for the snap-shot method of calculating the benefits – of £17.80 GVA to £37.16 net additional GVA per £1 of project cost
- And a very high ERoI for the full CBA method – of £70 GVA to £140 net additional GVA per £1 of project cost.

10.28 A 10:1 GVA ERoI is typically regarded as good for local economic development projects.

demand aggregation on bringing superfast provision to areas (e.g. business parks) that were previously only able to access basic broadband.

²⁴ Again, this is a conservative approach: as eligibility was determined by postcode, there is very little likelihood that any leakage took place.

Table 10.7: Calculating the net additional GVA generated in the Greater London economy by the voucher scheme

2-year snap shot - (benefits only, beneficiary costs excluded)				
	(a)	(b)	(c)	(d)
	Gross GVA £	Gross to net additionality adjustment	Net additional GVA £	Economic Return on Investment (net benefits divided by project cost)
Benefits within first year of connection	1,301,089,524	24.73%	321,772,167	17.80
Benefits within first two years after connection	1,729,691,489	24.73%	427,769,626	23.67
Benefits within first five years after connection	2,716,061,608	24.73%	671,708,606	37.16
Full cost benefit analysis: 5 year period, 3.5% discount rate				
	Gross GVA £	Net additional GVA £	NPV at 3.5% of cash flow balance end of year 5 (£ GVA)	Economic Return on Investment (net benefits divided by project cost)
Benefits within first year of connection	1,301,089,524	321,772,167	1,257,685,987	69.59
Benefits within first two years after connection	1,729,691,489	427,769,626	1,655,262,519	91.58
Benefits within first five years after connection	2,716,061,608	671,708,606	2,001,822,710	110.76
Full cost benefit analysis: 10 year period, 3.5% discount rate				
	Gross GVA £	Net additional GVA £	NPV at 3.5% of cash flow balance end of year 5 (£ GVA)	Economic Return on Investment (net benefits divided by project cost)
Benefits within first year of connection	1,301,089,524	321,772,167	1,501,647,155	83.08
Benefits within first two years after connection	1,729,691,489	427,769,626	1,989,562,681	110.08
Benefits within first five years after connection	2,716,061,608	671,708,606	2,544,025,989	140.76

Method 2: which focuses on calculating net additional jobs

- 10.29 An alternative measure of the financial and economic benefits of the voucher scheme is that of new jobs created. Firms were asked how many additional jobs they had/will create in the first 24 months since connection of the faster service that were attributable to use of faster broadband.
- 10.30 Analysis of the survey suggests that firms will create 11.6% new jobs within the first 12 months after connection, as a result of the use of faster broadband, rising to 16.3% new jobs within the first 24 months after connection:
- A fifth of firms responding to the question will employ between 1 and 2 new employees in the first 12 months
 - Just under half (44%) will employ between 2 to 4
 - 13% will employ between 6 to 8

- And 10% of firms expect to employ more than 22.
- 10.31 In table 3.8 we show that scaling these findings up to the whole London voucher firm population suggests that 23,000 new jobs will be created as a result of using faster broadband within the first year of connection, rising to 32,800 within the first two years of connection.
- 10.32 Applying a similar net additionality conversion factor used in the GVA impact analysis (of circa 25%) allows us to estimate the number of these jobs that will be net additional to the Greater London economy.
- 10.33 Dividing the project cost by the net additional jobs figure allows us to calculate cost-per job:
- Table 3.6 suggests a cost per job of just over £3,000 if we limit the analysis to jobs created in the first year after connection
 - This reduces to £2,200 if we take into account jobs created during the first two years after connection.
 -

Table 10.8: New and net additional jobs created as a result of the use of faster broadband

New and net additional jobs			
	Jobs created by London's voucher SMEs	Net additional jobs in Greater London economy	Cost per job
Jobs created by London's voucher SMEs in first 12 months since connection	23,350	5,775	3,130
Jobs created by London's voucher SMEs in first 24 months since connection	32,824	8,118	2,226

11. Appendix B: Scenario planning and options assessment

Nature of take up in Westminster of original London voucher scheme

- Some 2,000 new connections funded by the London connection voucher scheme in Westminster split almost exactly 1:1 between pre-registered packages (PRP) offering FTTC and 'bespoke' applications
- Almost without exception, the bespoke applications came in at the full £3,000 allowed; by end of the scheme BDUK had imposed a £400 cap on PRP vouchers

Exchange only lines (E/O)

- Mapping of the areas you have highlighted as a priority (e.g. North of Oxford Street) shows that these contain very few cabinets and high percentage of E/O. SMEs in these will not be able to access FTTC without separate (non-eligible) investment in new cabinet infrastructure; the only parties likely to do this are Openreach or Virgin Media.
- The relatively low number of residential properties in these areas makes it unlikely that Virgin could satisfy its own business case for new investment in these areas.
- Investing in cabinet infrastructure would undermine OR's business case for supply of higher value leased lines in those areas – lines which come at a premium price and normally with conditions (e.g., 3-year minimum term) that put them out of reach of SMEs. We have to be careful about describing this as a 'market failure', as Ofcom sees two separate markets (for 'consumer' and 'business' connections); but it's clear that there is a 'path dependency' here in which commercial investment in affordable consumer-type connections on terms that microbusinesses are likely to take up is unlikely to be forthcoming in areas where leased lines are the only available solution.
- There may be an opportunity to press BT Openreach to use the vouchers to trial its experimental use of 'FTTdp' (fibre to the distribution point – smaller DSLAMs mounted on poles or in underground cabinets). However, this would require both strenuous lobbying of Openreach and close attention to the eligible costs involved.

FTTC represents deadweight and poor value for money

- In context of business need, further investment in vouchers for PRP FTTC is essentially deadweight – where these products are already available, they are already priced to be attractive to residential, SOHO and small business users. Giving a voucher doesn't really encourage new investment by the ISPs, nor (at this scale) is it likely to induce incumbents to extend supply into unserved areas by providing new cabinet infrastructure. (Adding a cabinet in an already supplied area, which BT has suggested as one possible outcome, is much less costly and doesn't extend network coverage in the same way.) In this scenario, PRP vouchers subsidise the marketing budgets of incumbents, who typically focus on 'upselling' existing ADSL customers, getting the benefit of higher monthly rentals in the process.

The maximum voucher value may be too low

- The typically high value of vouchers for bespoke solutions observed in Westminster reflects real costs. BDUK had rigorous assurance in place to guard against 'gaming' of voucher value by suppliers. Initial exploratory discussions with independent providers confirm that their pricing relates to real costs: for fixed line connections, of skilled labour, wayleaves, licences to carry out road works (all of which also introduce risk of significant delays); in the case of fixed wireless, the cost of the consumer equipment. Even at a maximum voucher value of £3,000, most were taking a commercial risk on renewal or covering themselves by amortising costs over a 3-year minimum contract term. A ceiling of £2,499 may make the business case unworkable.

- In Westminster, all these cost factors are inflated, and exacerbated by competition for roofspace with mobile network operators.
- The inflexible nature of code powers makes it hard to get building owners – including the Council – to agree to put new infrastructure in buildings, particularly on rooftops – it's worth a serious review of the City of London's recently issued standardised wayleave proposals, and engagement with landlords and suppliers, to see if this could help 'shift' that situation
- Holding the maximum voucher value at a level below that of actual installation costs has two undesirable effects from the point of view of the SME end user:
 - = It forces suppliers to amortise that element of ECCs unmet by the voucher across the contract term, driving up the monthly rental charge;
 - = The level of actual costs means that suppliers are then typically forced to insist on a three-year contract term in order to keep the monthly charge at a level competitive with other leased line offers
- It also does little to improve provision of new and reusable infrastructure in areas that currently have no provision of 'next generation access' – e.g. those with no cabinets and high levels of 'exchange only' lines. In this case, the voucher does very little other than provide operators with a stimulus to market leased line services that are already available on the open market at slightly reduced prices. It does nothing to improve connectivity for the sensitive businesses that are the subject of other policy initiatives – e.g. retention of small creative businesses already threatened by higher rents – and who typically express need for better connectivity
- Finally, it reduces the stimulus for new entrants to come into the market to provide competition for incumbent leased line providers – which is an important factor in keeping monthly charges to an affordable level.

BDUK scheme encouraged altnets

- 11.1 However, there is good evidence that the BDUK voucher scheme *did* encourage altnets and independents to come up with imaginative new solutions, particularly where they were able to aggregate demand and deploy a mixture of fixed line and fixed wireless access. In the example I gave you of Vaioni in Merton, they were able to come up with a mix of service levels and price points (see below), on 12 month minimum contracts, which were then bundled up into one bespoke pre-registered application for each location for 12 and 26 businesses respectively. The commercial investment in new infrastructure to the new 'cabinet' (a fibre termination point, typically housed in a basement or on a rooftop) was carried out by the ISP at risk; their return will come when businesses are satisfied with the provision and renew at the end of the first year. In the meantime, the voucher scheme has then had the effect of extending infrastructure provision so that new businesses can access it – this also takes account of the mobility of early stage and micro businesses.

- Example of Vaioni pricing (all 12 month initial contracts) of fixed wireless:
 - = • £60 pcm for 30Mbps contended (guaranteed 15Mbps at 'most busy hour')
 - = • £90 pcm for 20Mbps symmetrical dedicated line
 - = • £250 pcm for a 100Mbps symmetrical dedicated line

Dedicated lines – FTTP or fixed wireless -come with SLAs equivalent to a leased line

Options assessment

- Offer a limited number of lower value FTTC PRP connections – say up to £250, to really test the will of those suppliers.

- Procurement rules state that vouchers up to £2,499 require only one quotation – this gives suppliers the opportunity to aggressively market business grade connections to businesses, subject to assurance of eligible costs.
- Vouchers valued at £2,500 and above require three quotations. This provides the opportunity to make it clear to businesses and suppliers that you will look at costed business cases for higher maximum value (e.g., up to £5k per voucher) for 'hard cases' where the real costs of providing new connections are higher (e.g., in areas with no next generation network coverage, or in premises that present challenges because of planning, heritage or wayleave considerations).

Risk assessment (in same order as above)

- No suppliers engage with the lower value PRP. Although this has the benefit of reducing effective 'deadweight' in the scheme (there is no real barrier to access to 'consumer' products, even for micro-enterprises, in areas with next generation networks) it may put pressure on budgets, slow down delivery (increasing risk of not hitting output targets) and increase complexity of administering and assuring up to 1,000 'bespoke' applications.
- As the value of 'bespoke' vouchers disbursed in Westminster during the London scheme was typically the maximum £3,000 allowed, this suggests that your delivery may be at risk if suppliers all demonstrated that the real cost of 'bespoke' solutions is higher than the maximum voucher value allowed for a single quotation, and sought to charge the SME for the difference. In addition, some or all of the excess construction costs that ISPs are unable to recover through the voucher be amortised and passed on to SMEs in the form of higher monthly subscriptions and longer, less flexible contract terms. Either – or both - of those outcomes may present significant barriers to micro-enterprises.
- The original requirement in the BDUK scheme for two competitive quotations was strongly resisted by suppliers, which argued that they could not make a business case for marketing spend when it may result in conversion for a rival ISP. That situation would be exacerbated by a requirement for three quotations; and, may result in reduced levels of supplier registrations and therefore less competition which in turn risks a ratcheting up of costs for end users.
- Together with evidence that actual costs in Westminster are higher than the London or UK average, this may mean that the Westminster scheme will be able to close very few of the remaining gaps in next generation network provision, leaving the underlying problem untouched.
- The combined impact of one or more of these risks could result in Westminster not meeting output targets and having funding 'clawed back.'

12. Appendix C: The Authors of this report

Dr Steve Sheppard: CEO, Adroit Economics Ltd

- 12.1 Adroit Economics Ltd specialises in the fields of local, regional and national economic development and regeneration.
- 12.2 Adroit was established by Dr Steve Sheppard in 2006 to work for central and local government, universities and other research organisations, developers, investors and industry.
- 12.3 Steve has a PhD from the University of Cambridge in the fields of economic development and regeneration. He has worked in industry, academia and consultancy establishing a wealth of experience and knowledge in these fields over the last 25 years. His professional background comprises a hybrid mix of economics, technology, real-estate development, land use planning, social policy and politics – enabling him to see a problem from several different perspectives.

Our mission

- 12.4 Our mission is to provide high quality research and analysis to enable our clients to make informed choices....and where required, to help our clients make difficult choices through providing innovative and creative advice.

Adroit offers expertise across the life-cycles of strategies, programmes and projects:

- Conceptualisation and strategy formulation
- Market, economic and social research
- Business case making, including options appraisal, economic impact, cost-benefit analysis and financial appraisal
- Project and programme monitoring, interim and final evaluation

Since Adroit's inception in 2005, we have worked on some 150 assignments across a wide spectrum of fields, including:

- **Regional, city region and local economies** – profiling economies, benchmarking performance, identifying key industry and business sectors, formulating growth strategies
- **Industry and business sectors** – mapping strengths and weaknesses, benchmarking, company surveys, identification of growth barriers, formulating of growth strategies
- **Sites and premises** – employment land, business parks, science parks, technology innovation centres – feasibility studies, market demand assessments, financial and economic appraisal, options analysis, funding strategies
- **Science and technology transfer and commercialisation** – internationalisation strategies for key university research teams, regional innovation system policy and evaluation, appraisal and evaluation of specialist research and commercialisation support infrastructure and centres of excellence
- **Inward investment, export and marketing** – industry sector positioning, benchmarking and export/ inward investment marketing strategies and programmes, city and city region promotion and marketing programmes and evaluation
- **Smart and city infrastructure** – for example broadband, new and renewable energy, electric vehicle charging infrastructure

- **Social policy and programmes** – formulation of strategies, options appraisal, interim and final evaluation – of a wide range of social and community programmes regarding, employment, health, security, quality of life and wellbeing
- **European funding** – advice on the economic aspects of state aid and competition policy, preparation of funding submissions, interim and final evaluations – ERDF, ESF, Convergence
- **Regulatory economics** – economic impact, cost-benefit analysis of proposed changes/additions to regulation, across a variety of policy spectrums.

Examples of recent relevant experience – broadband policy

- Dr Sheppard and colleagues are setting up and undertaking a series of web-based surveys of SMEs, across EU28 regions, designed to explore the real benefits and economic impacts of use of faster broadband. The survey is at pilot stage. It is expected to run for 3 years. The pilot regions include Greater London (hosted by GLA); Greater Manchester (hosted by the Chamber of Commerce); Cyprus (hosted by the Cypriot Government), Andalusia (Hosted by the regional government) and Bulgaria (hosted by the Bulgarian Government). The first results will be available for Greater London by early Feb 2016
- Dr Sheppard is part of an EU policy working group (BRESAT), helping develop EU policy towards satellite broadband. About 5% of households and SMEs and 80% of farms will be in areas that have no terrestrial broadband service by 2020 across the EU28. BRESAT's task is to develop a recommended strategy, approach and implementation tool kit for interested regions across the EU28, to promote satellite as a viable broadband option in these unserved areas. Dr Sheppard's role is to develop a cost-benefit approach and template for regions to use when preparing business cases.
- One of the spin-offs of Dr Sheppard's work with BRESAT was creation of a model that estimates the potential economic impact of satellite broadband in each EU28 country. Adroit worked closely with Point Topic to develop the model. Point Topic mapped coverage and opportunities for satellite broadband and Adroit estimated the potential economic impact of using satellite broadband. The results of the model are published on the BRESAT website. This model can also be used at the regional and local levels to assist in local policy development and in preparing funding bids. The model has been trialled at the regional level using Andalucía as a test case and the outputs have been used to help prepared a satellite broadband strategy funding bid by Andalucía's regional government.
- Building on the BRESAT satellite economic impact model, Adroit and Point Topic went on to develop a model designed to estimate the economic impact of rollout and take up of all types of broadband, in each EU28 country. Again, this model can also be used at the regional and local levels to assist in local policy development and in preparing funding bids
- Adroit, in association with e-skills UK (now the Tech Partnership) developed the content for a website for DCMS designed to communicate to small firms the advantages of using very fast broadband. The website was one of a number of tools DCMS made available to the UK's 2 cities involved in promoting the Super Connected Cities programme that provided connection vouchers to SMEs to cover connection costs to very fast broadband (100 Mbps or more)
- Dr Sheppard lectures each year in a specialist telecoms master class run by InterConnect Communications, a subsidiary of Ericson's. The class is attended by personnel from the major telecoms companies and national regulators from across the globe. Dr Sheppard's lectures cover all aspects of government intervention in the telecoms and broadband market

- Adroit was appointed by the Department for Communities and Local Government to provide technical support to CLG's ERDF appraisal team in the Northwest of England, regarding appraisal of superfast broadband funding bids from Cumbria, Lancashire, Cheshire & Warrington and Greater Manchester
- Adroit helped Liverpool City Council secure funding for ultra-fast broadband as part of a round 3 Regional Growth Fund bid
- Adroit was part of a team led by Grant Thornton charged with re-procuring public sector digital connectivity for the Highland's local authorities. Adroit's role included modelling the social and economic benefits of public sector digital connectivity, serving all council sites, libraries and schools
- Adroit modelled the social and economic impacts of super-fast broadband deployment for the Thames Valley Partnership
- Adroit was part of a team with FarrPoint advising Stirlingshire County Council on options for funding deployment of super-fast broadband. Adroit's role was to model the social and economic impacts of a range of alternative deployment options
- Adroit modelled the social and economic impacts of deployment of super-fast broadband in Leicestershire for Leicestershire County Council
- We worked closely with Greater Manchester to identify the scope and approach to maximising private sector investment in super-fast broadband across the city region
- We benchmarked current provision of digital connectivity, identifying demand and gaps and advising on intervention options for Derby and Derbyshire
- Dr Sheppard helped develop superfast broadband intervention models and options across the Southeast of England for SEEDA
- We helped formulate a city region broadband plan for Liverpool and helped prepare an Ultrafast Broadband funding bid
- Dr Sheppard advised BDUK and Treasury on the costs, investment potential, barriers and risks of FttP deployment
- Dr Sheppard modelled the social and economic impacts of ICTs and of broadband in the UK, its regions and city regions, for e-skills UK (the IT sector skills council). The results of our 2010/11 work were published by BIS, in an unusual and novel way – see the inset below. The head line result of our work is in the mauve bubble in the centre of BIS's front window

Oliver Johnson: MD, Point Topic Ltd

- 12.5 Oliver has gathered, analysed and published broadband information data sets since 1998, used across industry and beyond as the foundation for reporting, planning and strategy. It provides insight, context, sourcing and transparent reporting so customers can follow data inputs through to information outputs with confidence.

Point Topic's UK Broadband Map Layers

- 12.6 Information is mined from many different sources to produce the UK Broadband Mapping data. We start with a location map of the UK's 1.7m unit postcodes and combine it with data from the Office of National Statistics, the Valuation Office Agency, Ofcom, telephone exchange location data from BT, Virgin Media footprint estimates, take-up numbers from the broadband operators, speed test data and bespoke research on more than 140 regional NGA projects. All of this information is combined with additional research and data modelling from Point Topic's analysts who have been mapping UK broadband since 2004.
- 12.7 For our forecasts the outputs are primarily a commercial model with minimal additional central subsidy factored in. With FTTP and DOCSIS 3 available now to lesser and greater extents and G.fast starting commercial deployment in Q2 or 3 2017 and some insight into the strategies of the major players we can offer a well-founded opinion.
- 12.8 We have reviewed the inputs and developed a series of methodologies to address the requirements for forecasting. We need to know who is involved, what (broadly) they intend to do, when and how. We combine those data layers with geographic demography and then are able to establish what we believe will happen to broadband in the UK up to 2025.

For more on our mapping see below, more detail on forecasts available on application

<http://point-topic.com/wp-content/uploads/2013/02/UKBM-methodology.pdf>

- 12.9 Point Topic exists to provide the best broadband market intelligence for our customers to make the best decisions possible.
- 12.10 We believe that broadband for all (broadband everywhere) is one of the greatest contributions our generation can make to the world. When businesses, people and governments can access the internet and interact at broadband bandwidths it is to everyone's benefit. Point Topic is proud of our small but important contribution to the current and future spread of broadband across the globe.
- 12.11 Since 1998 we have gathered, analysed and published information sets that are used across the industry and beyond as the foundation of reporting, planning and strategy. We strive to provide insight, context, sourcing and transparent reporting so our users can follow the data inputs through to the information outputs with confidence.
- 12.12 The best strategies are based on the best information. Point Topic provides the foundation for intelligent decision making worldwide.

Iain Bennett: CEO, The Fifth Sector

- 12.13 Iain offers businesses, universities, cultural and public sector organisations expert advice and help on strategic business cases, investor development, project management, research and feasibility studies focused on the Creative Economy, the impact of digitisation and developing human capital.

Examples of relevant experience

- Sector Leader for Digital & Creative Industries at NWDA (2006-11) – where I wrote the Regional Broadband Strategy for deployment of fibre broadband. This was never deployed due to the change of Government and closure of the RDAs, but it did serve to influence the thinking of the five sub-regions (Cheshire & Warrington, Cumbria, Lancashire, Manchester and Merseyside) in their subsequent deployments. I also sponsored a number of successful ERDF applications for both capital and revenue projects relating to the development of MediaCityUK and establishing a regional sector strategy for the North West's Digital & Creative sector.
- Technical support (working with Steve Sheppard of Adroit) to DCLG ERDF team in appraisal of submissions from Cheshire & Warrington, Cumbria, Lancashire and Merseyside for roll out of superfast broadband (2011/12)
- Project Director of Superconnected Cities Programme for Broadband Delivery UK (2012-14) – I was project manager for London and seven other cities (Birmingham, Brighton & Hove, Bristol, Cardiff, Edinburgh, Manchester and Salford), arriving at BDUK just at the point when it became apparent that any attempt to 'build' infrastructure in major cities would meet with implacable legal resistance from BT and Virgin. I was part of the team that conceived the idea of the connection voucher as a 'non-aid' measure and worked through successive rounds of supplier engagement, project assurance, scheme design, demand stimulation and aggregation, project implementation and delivery (with the City councils) until we arrived at the final mix of 'bespoke' and pre-approved vouchers that were taken up by 55,000+ businesses.
- LB Merton contracted Adroit and myself in 2014 to come up with a broadband strategy to address the voucher scheme and its aftermath, to address the same issues of unmet and latent demand you are looking at in this scheme. I successfully managed demand stimulation and aggregation with suppliers on a number of Merton's priority industrial areas to ensure supply and take up of superfast and some ultrafast connections through a mix of FTTP, FTTC and fixed wireless.
- Work with Adroit and Point Topic to co-design the survey successfully deployed by GLA and Manchester Chamber of Commerce
- Member of the previous Mayor's Connectivity Advisory Board, whose work led to the issue of the standard wayleave agreement by City of London and the appointment of WiredScore to manage a Connectivity Rating scheme for commercial properties.