Swansea Bay City Deal

Swansea Bay City Deal Digital Infrastructure Investment 2021-22

Final Report

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Contents

1. Introduction

1.1 Background

The Swansea Bay City Deal (SBCD) has a number of digital elements within its programme to improve the local economic and social circumstances of the region. As part of the funding of the SBCD, the programme team are required to report on a number of outcomes. This report is concerned specifically with the levels of investment in digital infrastructure, seen as an essential part of improving the social and economic performance of the region.

This report seeks to establish the level of public and private sector investment for both fixed and mobile infrastructure during the financial year 2021-22.

1.2 Document Structure

This report is split into two main sections:

- Approach - this section sets out the approach taken to assess the level of public and private sector investment for both fixed and mobile infrastructure. It details any assumptions required as well as the data sources used to establish the indicated improvement in the level of infrastructure. It is expected that this approach will be replicated in future years as part of the SBCD reporting requirement.
- 2021-22 Analysis - this section applies the data and assumptions captured in the approach to the Financial Year 2021-22. To remain consistent with SBCD reporting requirements and the associated business case, investment is split into three distinct high-level sources:
    - i. SBCD;
    - ii. Public Sector; and
    - iii. Private Sector.

2. Approach

2.1 Digital Connectivity Assessment

The initial stage in assessing the investment in digital infrastructure in the region examines the changes in Digital Connectivity - both fixed and mobile - from a baseline in 2020-21, and then for the assessment year 2021-22. Results for 2020-21 come from Summer (May) 2021 Ofcom Connected Nations Report and refer to May 2021, whilst the results for 2021-22 come from Summer (May) 2022 Ofcom Connected Nations Report and refer to May 2022. This is done for each of the region's four Local Authorities as well as for Wales and the UK for reference.

2.1.1. Fixed Connectivity

Examining fixed connectivity, this assessment focusses on the changes in Superfast (above 30Mbps) and Gigabit coverage (1 Gbps and above). Full Fibre coverage is taken into account as a discreet element to better understand the role of suppliers not limited to BT/Openreach and Virgin Media/O2. For completeness, information is also provided on the number of premises who are unable to get 'decent broadband' as described by Ofcom as premises with a sub 10Mbps download speed.

	Total Number of Premises	Unable to get 'decent' broadband (<10Mbps)		Superfast		Full Fibre		Gigabit	
		Coverage	Premises	Coverage	Premises	Coverage	Premises	Coverage	Premises
Swansea									
2020-21	118,819	0.6%	703	97.5%	115,811	30.6%	36,380	30.6%	36,388
2021-22	118,948	0.5%	577	98.1%	116,738	33.8%	40,207	78.2%	93,009
Change	+129	-0.1	-126	+0.6	+927	+3.2	+3,827	+47.6	+56,621
Carmarthenshire									
2020-21	93,256	6.5%	6,042	86.6%	80,797	24.2%	22,573	24.2%	22,573
2021-22	93,885	5.2%	4,905	89.0%	83,553	42.5%	39,916	42.5%	39,919
Change	+629	-1.3	-1,137	+2.4	+2,756	+18.3	+17,343	+18.3	+17,346
Neath Port Talbot									
2020-21	68,958	0.4%	286	97.0%	66,905	4.2%	2,882	29.7%	20,507
2021-22	69,046	0.4%	286	97.4%	67,236	7.8%	5,374	61.9%	42,722
Change	+88	-	-	+0.4	+331	+3.6	+2,492	+32.2	+22,215
Pembrokeshire									
2020-21	65,855	6.4%	4,243	88.0%	57,953	6.8%	4,490	6.8%	4,495
2021-22	66,278	4.5%	2,974	90.6%	60,064	15.8%	10,505	15.8%	10,505
Change	+423	-1.9	-1,269	+2.6	+2,111	+9.0	+6,015	+9.0	+6,010
SBCD Area Total									
2020-21	346,888	3.3%	11,274	92.7%	321,466	19.1%	66,325	24.2%	83,963
2021-22	348,157	2.5%	8,742	94.1%	327,591	27.6%	96,002	53.5%	186,155
Change	+ 1,269	-0.7	-2,532	+1.4	+6,125	+8.5	+29,677	+29.3	+102,192

Wales									
2020-21	1,535,457	3.4%	51,794	93%	1,434,871	23.1%	354,983	29.4%	450,879
2021-22	1,545,321	2.7%	41,432	95%	1,461,121	34.7%	535,901	47.6%	736,151
Change	+9,864	-0.7	-10,362	+1.1	+26,250	+11.6	+180,918	+18.3	+285,272
UK									
2020-21	28,253,406	2.2%	611,035	95.1%	26,858,955	22.5%	6,343,011	38.0%	10,722,676
2021-22	28,559,727	1.7%	482,611	95.8%	27,365,327	36.1%	10,316,598	66.8%	19,074,711
Change	+306,321	-0.5	-128,424	+0.8	+506,372	+13.7	+3,973,587	+28.8	+8,352,035

Table 2-1: Fixed Connectivity Assessment (Source: Ofcom Connected Nations May 2021 and May 2022)

As can be seen from the results in Table 2-1, there has been significant changes in fixed connectivity across the region, and this will be used as a basis for assessing the size of investment in the region.

2.1.2. Mobile Connectivity

For mobile connectivity, the comparison focusses on changes in 4G coverage by at least 1 network, and by all 4 networks. The focus on 4G is in part due to the infancy of 5G roll out within the region, as well as the lack of baseline data for 5G.

	Swansea	Carmarthenshire	Neath Port Talbot	Pembrokeshire	Wales	UK
4G Coverage – At least 1 Network						
2020-21	98%	93%	95%	98%	90%	92%
2021-22	98%	95%	96%	98%	90%	92%
Change	-	+2%pts.	+1%pts.	-	-	-
4G Coverage – All 4 Networks						
2020-21	85%	62%	68%	74%	60%	69%
2021-22	85%	65%	70%	74%	62%	70%
Change	-	+3%pts.	+2%pts.	-	+2%pts.	+1%pts.
4G Notional[1] Not Spots						
2020-21	2%	7%	5%	2%	10%	8%
2021-22	2%	5%	4%	2%	10%	8%
Change	-	-2%pts.	-1%pts	-	-	-
4G Not Spots by geographic coverage (km^2)						
2020-21	8	166	22	32		
2021-22	8	119	18	32		

Table 2-2: Mobile Connectivity Assessment (Source: Ofcom Connected Nations May 2021 and May 2022)

[1] Not Spots are assumed to exist where there is no available 4G signal. This is a result of low to no network availability from at least one mobile network provider. The numbers used here are supplied by Ofcom as a result of reporting directly from mobile providers. A detailed independent survey would assist in the development of future investment requirements to limit the Not Spots across the region represented by the SBCD.

One of the assumptions made at the outset of this assessment project was that any increase in the availability of mobile access infrastructure could be associated with planning requests made to the council. Data from planning thus far would suggest that there has been little-to-no increase in 4G infrastructure. This is supported by the relatively static coverage statistics over the two periods. Some planning requests have been made by suppliers to simply change out old equipment for new, here we assume penetration will improve over time and may have had an impact in some of the incremental improvements year on year. For Neath Port Talbot there is also evidence of further investment in some new infrastructure c.£200,000. As a result of the potential distortion of investment effects between the single and all supplier ratio it is not possible to tell, without some form of survey, whether this investment will have led to direct improvements in coverage and so is excluded from the investment analysis in Section 3.

2.2 Public Sector Funding

To understand the role of public investment in the region, data has been collected by the Digital Infrastructure Programme Team on the various public sector programmes including:

- Swansea Bay City Deal (both capital and revenue investment);
- Connected Places - Local Full Fibre Networks Programme (LFFN) and Rural Gigabit Connectivity Programme (RGC) or connected via other Local Authority funding;
- Access Broadband Cymru Voucher Scheme (ABC);
- Gigabit Vouchers;
- Superfast Cymru;
- Mobile Connectivity Programs (e.g. Emergency Services Network (ESN) and Shared Rural Network (SRN));
- Other public sector digital programmes - e.g. LoRaWAN projects.

To understand the impact of these public sector programmes on the overall connectivity picture in the SBCD region, the number of premises connected as well as the total funding spent will be utilised.

Assumption 1: Vouchers cover the entire cost of their connections: for simplicity it is assumed that there is no additional private sector investment for the cost of connection for voucher premises and that a single voucher connects a single premise with no incremental connections resulting from the use of a voucher. It may be that subsequent reporting from the Department for Digital, Culture, Media, and Sport (DCMS) will change this initial assessment[2].

2.3 Private Sector Funding

Once the premises connected by the public sector are removed from the change in coverage between 2020-21 and 2021-22, a number of premises connected within the year by commercial means will be calculated for each of the four Local Authorities.

[2] Source: https://www.gov.uk/government/publications/evaluation-of-bduk-gigabit-vouchers-initial-impacts-and-benefits--2

In 2021, Virgin Media began a UK-wide programme to upgrade their network by the end of 2028.[3]

Assumption 2: Given this upgrade is not classified as Full Fibre connectivity, then it is assumed that all Gigabit Connected premises that do not have a Full Fibre connection are connected via Virgin Media.

In essence this upgrade is largely a software-based upgrade and therefore should have a marginal cost close to zero, given Virgin Media's network size. However, some estimates of a per premise upgrade delivery cost range between £50 and £100.

Assumption 3: An investment of £100 per premise is used for the Virgin Media network upgrade to deliver Gigabit speeds.

Subsequently, to understand the level of investment required to connect the remaining premises which have not been connected by a Public Sector Programme or by Virgin Media, these premises have been split by urban and rural based on Census[4] results. Whilst it is recognised that this may not be the case in reality as a larger number of newly connected premises are likely to be rural, given some will be on the periphery or urban centre and other will be further, this approach will lead to a more reasonable average figure for the cost to be obtained.

Assumption 4: To take into account the difference in costs of connecting urban and rural premises, the Urban: Rural split has been applied to the remaining commercially delivered premises.

	Urban: Rural	Population Density (people per Km^2)
Swansea	88: 12	632
Carmarthenshire	60: 40	79
Neath Port Talbot	74: 26	322
Pembrokeshire	20: 80	76
Wales	64: 36	150
UK	84: 16	281

Table 2-3: Urban Rural Split by Local Authority (Source: Census 2021)

Assumption 5: The cost of an urban fixed connection is £196[5], and the cost of a rural fixed connection is in line with the average cost of a Superfast Cymru Programme Gigabit connection of £1,117.

[3] Source: https://www.ispreview.co.uk/index.php/2021/12/virgin-media-o2-name-trial-cities-for-uk-fttp-broadband-upgrade.html

[4] ONS D1 – F2 Source: https://census.gov.uk/census-2021-results

[5] This is based on an average cost of Virgin Media connection, which is almost entirely an urban provider - 23m premises connected for £4.5 bn (source: https://news.virginmediao2.co.uk/new-4-5bn-investment-to-extend-virgin-media-o2s-fibre-footprint-to-80-of-the-uk/)

3. Analysis

3.1 Swansea Bay City Deal Investment

Based on the assumptions and approach set out in Section 2.2, Table 3-1 details the investment from the Swansea Bay City Deal in the Financial Year 2021-22, which is evenly split across the four Local Authorities.

2021-22	Public Sector Partner Contribution	Capital Expenditure	Revenue Expenditure	Total
Swansea	£175,000.00	-	£36,697.70	**£211,697.70**
Carmarthenshire	£175,000.00	-	£36,697.70	**£211,697.70**
Neath Port Talbot	£175,000.00	-	£36,697.70	**£211,697.70**
Pembrokeshire	£175,000.00	-	£36,697.70	**£211,697.70**
SBCD Area Total	**£700,000.00**	**-**	**£146,790.80**	**£846,790.80**

Table 3-1: Swansea Bay City Deal Investment 2021-22 (Source: SBCD)

3.2 Public Investment

Based on the assumptions and approach set out in Section 2.2, Table 3-2 details the number of premises and level of public investment from the wider Public Sector in the Financial Year 2021-22. In this financial year, there was no public sector investment in 4G connectivity in the region.

2021-22	LFFN	RGC	Local Authority	Gigabit Vouchers	ABC Vouchers	Superfast Cymru	Total
Number of Premises Connected							
Swansea	-	1	101	-	25	168	**295**
Carmarthenshire	-	7	-	-	340	1,623	**1,970**
Neath Port Talbot	-	4	-	-	11	559	**574**
Pembrokeshire	68	8	-	112	170	1,406	**1,764**
SBCD Area Total	**68**	**20**	**101**	**112**	**546**	**3,756**	**4,603**
Total public sector investment to connect these premises							
Swansea	-	£11,660.00	-	-	£19,755.00	£187,555.47	**£218,970.47**
Carmarthenshire	-	£81,620.00	-	-	£243,013.00	£1,812,388.35	**£2,137,021.35**
Neath Port Talbot	-	£46,640.00	-	-	£8,262.00	£623,889.18	**£678,791.18**
Pembrokeshire	£1,133,356.00	£93,280.00	-	£361,239.30	£132,752.00	£1,570,412.64	**£3,291,039.94**
SBCD Area Total	**£1,133,356.00**	**£233,200.00**	**-**	**£361,239.30**	**£403,782.00**	**£4,194,245.64**	**£6,325,822.94**

Table 3-2: Public Sector Investment in Fixed Connectivity 2021-22 (Source: SBCD)

There was additional investment in a LoRaWAN Digital Innovation Network in the Financial Year 2021-22, details of which are provided in Table 3-3.

2021-22	WG LoRaWAN	WLGA LoRaWAN	Total
Swansea	£100,000.00	£7,125.00	**£107,125.00**
Carmarthenshire	£100,000.00	£7,125.00	**£107,125.00**
Neath Port Talbot	£100,000.00	£7,125.00	**£107,125.00**
Pembrokeshire	£100,000.00	£7,125.00	**£107,125.00**
SBCD Area Total	**£400,000.00**	**£28,500.00**	**£428,500.00**

Table 3-3: Other Public Sector Investment in Digital infrastructure in 2021-22 (Source: SBCD)

3.3 Private Investment

Based on the assumptions and approach set out in Section 2.3, Table 3-4 details the number of premises and level of Private Investment from the Private Sector in the Financial Year 2021-22.

2021-22	Virgin Media	Other (non-Virgin Media) Infrastructure Suppliers			Total
		Total	Urban	Rural	
Number of Premises Connected					
Swansea	52,794	3,532	3,108	424	**56,326**
Carmarthenshire	3	15,373	9,224	6,149	**15,376**
Neath Port Talbot	19,723	1,918	1,420	499	**21,641**
Pembrokeshire	-	4,251	850	3,401	**4,251**
SBCD Area Total	**72,520**	**25,075**	**14,602**	**10,473**	**97,595**
Total investment to connect these premises					
Swansea	£5,279,400.00	£1,081,575.10	£608,133.76	£473,441.34	**£6,360,975.10**
Carmarthenshire	£300.00	£8,673,566.81	£1,804,709.35	£6,868,857.46	**£8,673,866.81**
Neath Port Talbot	£1,972,300.00	£834,918.80	£277,759.64	£557,159.15	**£2,807,218.80**
Pembrokeshire	-	£3,965,111.70	£166,346.61	£3,798,765.09	**£3,965,111.70**
SBCD Area Total	**£7,252,000.00**	**£14,555,172.40**	**£2,856,949.36**	**£11,698,223.04**	**£21,807,172.40**

Table 3-4: Private Sector Investment in Digital infrastructure in 2021-22 (Source: FarrPoint)

3.4 Summary of Investment

In summary, Table 3-5 gives an overview of the SBCD, Public Sector and Private Sector investment in each of the four Local Authorities, as well as in the SBCD area.

2021-22	SBCD	Public Sector	Private Sector	Total
Swansea	£211,697.70	£326,095.47	£6,360,975.10	**£6,898,768.27**
Carmarthenshire	£211,697.70	£2,244,146.35	£8,673,866.81	**£11,129,710.86**
Neath Port Talbot	£211,697.70	£785,916.18	£2,807,218.80	**£3,804,832.68**
Pembrokeshire	£211,697.70	£3,398,164.94	£3,965,111.70	**£7,574,974.34**
SBCD Area Total	**£846,790.80**	**£6,754,322.94**	**£21,807,172.40**	**£29,408,286.14**

Table 3-5: Summary of Total Investment in Digital infrastructure in 2021-22 (Source: FarrPoint)

Table 3-6 is from the Swansea Bay City Deal Digital Infrastructure Programme Business Case (March 2022). When comparing this to the outturn data (Table 3-5), it can be seen that there has been both considerably more Public and Private Sector investment in the region than expected. This has yielded substantial improvements in the digital connectivity within the Swansea Bay region.

	2021-22	2022-23	2023-24	2024-25	2025/26	2026-27	Total
SBCD	£532,070	£8,402,392	£8,402,392	£6,402,392	£902,392	£358,364	***£25,000,000***
Public Sector	£2,350,000	£2,700,000	£2,700,000	£2,700,000	£2,700,000	£350,000	***£13,500,000***
Private Sector	-	£6,500,000	£4,500,000	£4,500,000	£1,000,000	-	***£16,500,000***
Total	**£2,882,070**	**£17,602,392**	**£15,602,392**	**£13,602,392**	**£4,602,392**	**£708,364**	***£55,000,000***

Table 3-6: Digital Infrastructure Programme Investment Overview (Source: SBCD Digital Infrastructure Programme Business Case, March 2022)

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