

SBCR Cost-Benefit Analysis: December 2017

Scenario (Base)	10Yr NPV	15Yr NPV
Option 1 Do Minimum	29,524,867	49,113,319
Option 2 Reference Project	181,490,215	407,508,927
Option 3 More Ambitious	222,983,828	530,871,490
Option 4 Less Ambitious	168,490,365	364,633,699

Project Name Digital District

Version 1.7DS

Date 13/12/2017

Sensitivity Analysis	10Yr NPV	15Yr NPV
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20% reduction in Wider Benefit		
Option 1 Do Minimum	29,524,867	49,113,319
Option 2 Reference Project	181,490,215	407,508,927
Option 3 More Ambitious	222,983,828	530,871,490
Option 4 Less Ambitious	168,490,365	364,633,699

1Yr Delay in Benefits		
Option 1 Do Minimum	25,170,780	45,469,694
Option 2 Reference Project	133,952,928	364,816,560
Option 3 More Ambitious	157,852,792	473,317,647
Option 4 Less Ambitious	127,600,001	327,494,252

20% increase in costs		
Option 1 Do Minimum	26,774,790	46,363,242
Option 2 Reference Project	153,815,701	379,834,413
Option 3 More Ambitious	173,387,856	481,275,518
Option 4 Less Ambitious	154,800,763	350,944,097

10Yr NPV	15Yr NPV
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40% reduction in Benefits		
Option 1 Do Minimum	12,214,767	23,967,838
Option 2 Reference Project	53,545,101	189,156,329
Option 3 More Ambitious	34,598,352	219,330,949
Option 4 Less Ambitious	73,715,016	191,401,016

Slow Mobilisation (6month delay)		
Option 1 Do Minimum	27,347,824	47,291,506
Option 2 Reference Project	157,721,571	386,162,744
Option 3 More Ambitious	190,418,310	502,094,569
Option 4 Less Ambitious	148,045,183	346,063,975

1Yr Delay and -20% Wider Benefit		
Option 1 Do Minimum	25,170,780	45,469,694
Option 2 Reference Project	133,952,928	364,816,560
Option 3 More Ambitious	157,852,792	473,317,647
Option 4 Less Ambitious	127,600,001	327,494,252

CBA (Simplified) Option 1 - Do Minimum

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	15 Yr Total	10Yr 2026
	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031		
Costs																	
Public Sector Capital Investment	6,361,500	6,361,500	0	0	0	0	0	0	0	0	0	0	0	0	0	12,723,000	12,723,000
Investment (discounted/bias factored)	6,997,650	6,752,732	-	-	-	-	-	-	-	-	-	-	-	-	-	13,750,382	13,750,382
Cumulative Costs (discounted/bias)	6,997,650	13,750,382	13,750,382	13,750,382	13,750,382	13,750,382	13,750,382	13,750,382	13,750,382	13,750,382	13,750,382	13,750,382	13,750,382	13,750,382	13,750,382	13,750,382	13,750,382
Benefits																	
Cash-releasing benefits																	-
Non-Cash-releasing benefits																	-
Construction Jobs Created	74	74															74
Construction Benefit	3,297,070	3,297,070															6,594,140
Technology Jobs Created																	-
Theme Sector Benefit																	-
Other Jobs Created			47	94	94	94	94	94	94	94	94	94	94	94	94	94	94
Other Jobs Benefit			3,000,000	6,000,000	6,000,000	6,000,000	6,000,000	6,000,000	6,000,000	6,000,000	6,000,000	6,000,000	6,000,000	6,000,000	6,000,000	75,000,000	45,000,000
Induced Wage Benefit (Multiplier)*																	-
Total Benefits	3,297,070	3,297,070	3,000,000	6,000,000	6,000,000	6,000,000	6,000,000	6,000,000	6,000,000	6,000,000	6,000,000	6,000,000	6,000,000	6,000,000	6,000,000	81,594,140	51,594,140
Total Benefits (discounted)	3,297,070	3,181,673	2,793,675	5,391,793	5,203,080	5,020,972	4,845,238	4,675,655	4,512,007	4,354,087	4,201,694	4,054,634	3,912,722	3,775,777	3,643,625	62,863,701	43,275,249
Cumulative Benefits (discounted)	3,297,070	6,478,743	9,272,418	14,664,210	19,867,290	24,888,263	29,733,501	34,409,156	38,921,162	43,275,249	47,476,943	51,531,577	55,444,299	59,220,076	62,863,701	62,863,701	43,275,249
NPV	- 3,700,580	- 7,271,640	- 4,477,965	913,828	6,116,908	11,137,880	15,983,118	20,658,773	25,170,780	29,524,867	33,726,561	37,781,195	41,693,917	45,469,694	49,113,319	49,113,319	29,524,867

Base Analysis

Scenario Summary
10Yr NPV 29,524,867
15Yr NPV 49,113,319

Sensitivity Analysis

20% reduction in Wider Benefit
10Yr NPV 29,524,867
15Yr NPV 49,113,319

40% reduction in Benefits
10Yr NPV 12,214,767
15Yr NPV 23,967,838

1Yr Delay in Benefits
10Yr NPV 25,170,780
15Yr NPV 45,469,694

Slow Mobilisation (6month delay)
10Yr NPV 27,347,824
15Yr NPV 47,291,506

20% increase in costs
10Yr NPV 26,774,790
15Yr NPV 46,363,242

1Yr Delay and -20% Wider Benefit
10Yr NPV 25,170,780
15Yr NPV 45,469,694

Optimism Bias

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CBA (Simplified) Option 2 - Reference Project

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	15 Yr Total	
	Project Period				Post-Project												
	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031		
Costs																	
Public Sector Capital Investment	17,486,512	26,144,497	45,355,229	38,068,269	7,647,777	0	0	0	0	0	0	0	0	0	0	134,702,285	
Investment (discounted/bias factored)	19,235,163	27,752,384	46,459,516	37,630,307	7,295,199	-	-	-	-	-	-	-	-	-	-	138,372,569	
Cumulative Costs (discounted/bias)	19,235,163	46,987,547	93,447,063	131,077,370	138,372,569	138,372,569	138,372,569	138,372,569	138,372,569	138,372,569	138,372,569	138,372,569	138,372,569	138,372,569	138,372,569	138,372,569	
Benefits																	
Cash-releasing benefits	-	-	49,000	69,500	458,466	1,027,268	1,135,185	1,131,925	1,187,983	1,185,252	1,182,372	1,179,839	1,176,644	1,173,282	1,169,745	12,126,460	
Non-Cash-releasing benefits	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Construction Jobs Created	84	213	465	467	88	-	-	-	-	-	-	-	-	-	-	467	
Construction Benefit	3,847,440	9,473,176	20,568,857	20,590,965	3,883,880	-	-	-	-	-	-	-	-	-	-	58,364,318	
Technology Jobs Created	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Theme Sector Benefit	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Other Jobs Created	-	-	66	489	687	964	1,065	1,146	1,147	1,249	1,268	1,300	1,324	1,324	1,324	1,324	
Other Jobs Benefit	-	-	4,023,614	16,755,200	29,295,399	46,403,644	52,755,456	57,831,198	57,904,844	64,321,878	65,572,030	67,607,381	69,135,371	69,132,281	69,132,281	669,870,578	
Induced Wage Benefit (Multiplier)*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Total Benefits	3,847,440	9,473,176	24,641,471	37,415,665	33,637,745	47,430,913	53,890,640	58,963,123	59,092,827	65,507,130	66,754,403	68,787,220	70,312,015	70,305,563	70,302,026	740,361,356	
Total Benefits (discounted)	3,847,440	9,141,614	22,946,754	33,622,918	29,169,980	39,691,549	43,518,831	45,948,535	44,437,874	47,537,287	46,746,925	46,484,504	45,851,897	44,243,020	42,692,366	545,881,495	
Cumulative Benefits (discounted)	3,847,440	12,989,054	35,935,808	69,558,727	98,728,706	138,420,255	181,939,086	227,887,622	272,325,496	319,862,783	366,609,708	413,094,213	458,946,109	503,189,129	545,881,495	545,881,495	
NPV	- 15,387,724 -	- 33,998,493 -	- 57,511,255 -	- 61,518,643 -	- 39,643,862	47,687	43,566,518	89,515,053	133,952,928	181,490,215	228,237,140	274,721,644	320,573,541	364,816,560	407,508,927	407,508,927	

10Yr 2026	134,702,285
	138,372,569
	#####
	6,244,579
	-
	467
	58,364,318
	-
	-
	1,249
	#####
	#####
	#####

Base Analysis

Scenario Summary	
10Yr NPV	#####
15Yr NPV	#####

Sensitivity Analysis

20% reduction in Wider Benefit	
10Yr NPV	181,490,215
15Yr NPV	407,508,927

40% reduction in Benefits	
10Yr NPV	53,545,101
15Yr NPV	189,156,329

1Yr Delay in Benefits	
10Yr NPV	133,952,928
15Yr NPV	364,816,560

Slow Mobilisation (6month delay)	
10Yr NPV	157,721,571
15Yr NPV	386,162,744

20% increase in costs	
10Yr NPV	153,815,701
15Yr NPV	379,834,413

1Yr Delay and -20% Wider Benefit	
10Yr NPV	133,952,928
15Yr NPV	364,816,560

Optimism Bias

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CBA (Simplified) Option 3 - More Ambitious

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	15 Yr Total
	Project Period				Post-Project											15 Yr Total
	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	
Costs																
Public Sector Capital Investment	31,337,880	46,854,003	81,281,888	68,222,801	13,705,712	0	0	0	0	0	0	0	0	0	0	241,402,284
Investment (discounted/bias factored)	34,471,668	49,735,525	83,260,899	67,437,921	13,073,851	-	-	-	-	-	-	-	-	-	-	247,979,863
Cumulative Costs (discounted/bias)	34,471,668	84,207,192	167,468,091	234,906,012	247,979,863	247,979,863	247,979,863	247,979,863	247,979,863	247,979,863	247,979,863	247,979,863	247,979,863	247,979,863	247,979,863	247,979,863
Benefits																
Cash-releasing benefits			49,000	439,500	2,487,866	4,716,176	4,829,711	4,832,182	1,618,085	3,429,716	5,241,318	5,244,987	5,248,119	1,647,610	3,642,316	43,426,584
Non-Cash-releasing benefits																-
Construction Jobs Created	221	366	816	788	156											816
Construction Benefit	9,978,154	16,281,389	36,179,462	34,917,820	6,907,492											104,264,317
Technology Jobs Created																-
Theme Sector Benefit																-
Other Jobs Created	-		66	489	895	1,380	1,481	1,562	1,563	1,665	1,684	1,716	1,740	1,740	1,740	1,665
Other Jobs Benefit	-		4,023,614	16,755,200	40,295,399	68,403,644	74,755,456	79,831,198	79,904,844	86,321,878	87,572,030	89,607,381	91,135,371	91,132,281	91,132,281	900,870,578
Induced Wage Benefit (Multiplier)*																-
Total Benefits	9,978,154	16,281,389	40,252,076	52,112,520	49,690,757	73,119,821	79,585,166	84,663,380	81,522,929	89,751,594	92,813,348	94,852,368	96,383,490	92,779,891	94,774,597	1,048,561,480
Total Benefits (discounted)	9,978,154	15,711,541	37,483,739	46,829,985	43,090,830	61,188,765	64,268,181	65,976,124	61,305,337	65,131,037	64,995,542	64,098,612	62,853,636	58,386,028	57,553,844	778,851,354
Cumulative Benefits (discounted)	9,978,154	25,689,694	63,173,434	110,003,419	153,094,249	214,283,013	278,551,195	344,527,318	405,832,655	470,963,692	535,959,234	600,057,846	662,911,482	721,297,510	778,851,354	778,851,354
NPV	24,493,514	58,517,498	104,294,657	124,902,593	94,885,614	33,696,850	30,571,331	96,547,455	157,852,792	222,983,828	287,979,371	352,077,982	414,931,619	473,317,647	530,871,490	530,871,490

10Yr 2026	241,402,284
	247,979,863
	#####
	22,402,236
	-
	-
	#####
	-
	-
	1,665
	#####
	-
	#####
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	#####

Base Analysis

Scenario Summary	
10Yr NPV	#####
15Yr NPV	#####

Sensitivity Analysis

20% reduction in Wider Benefit	
10Yr NPV	222,983,828
15Yr NPV	530,871,490

40% reduction in Benefits	
10Yr NPV	34,598,352
15Yr NPV	219,330,949

1Yr Delay in Benefits	
10Yr NPV	157,852,792
15Yr NPV	473,317,647

Slow Mobilisation (6month delay)	
10Yr NPV	190,418,310
15Yr NPV	502,094,569

20% increase in costs	
10Yr NPV	173,387,856
15Yr NPV	481,275,518

1Yr Delay and -20% Wider Benefit	
10Yr NPV	157,852,792
15Yr NPV	473,317,647

Optimism Bias

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CBA (Simplified) Option 4 - Less Ambitious

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	15 Yr Total
	Project Period				Post-Project											15 Yr Total
	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	
Costs																
Public Sector Capital Investment	14,065,253	12,796,691	15,600,441	16,304,650	7,647,777	0	0	0	0	0	0	0	0	0	0	66,414,812
Investment (discounted/bias factored)	15,471,779	13,583,687	15,980,273	16,117,070	7,295,199	-	-	-	-	-	-	-	-	-	-	68,448,008
Cumulative Costs (discounted/bias)	15,471,779	29,055,466	45,035,739	61,152,809	68,448,008	68,448,008	68,448,008	68,448,008	68,448,008	68,448,008	68,448,008	68,448,008	68,448,008	68,448,008	68,448,008	68,448,008
Benefits																
Cash-releasing benefits	-	-	49,000	49,000	490,716	1,043,932	1,155,432	1,155,432	1,155,432	1,155,432	1,155,432	1,155,432	1,155,432	1,155,432	1,155,432	12,031,536
Non-Cash-releasing benefits	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Construction Jobs Created	41	88	166	178	88	-	-	-	-	-	-	-	-	-	-	178
Construction Benefit	1,801,800	3,883,822	7,319,690	7,883,208	3,883,880	-	-	-	-	-	-	-	-	-	-	24,772,401
Technology Jobs Created	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Theme Sector Benefit	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Other Jobs Created	-	-	66	124	322	599	700	781	782	884	903	935	959	959	959	959
Other Jobs Benefit	-	-	4,023,614	7,625,455	20,165,654	37,273,899	43,625,711	48,701,453	48,775,099	55,192,133	56,442,285	58,477,636	60,005,626	60,002,536	60,002,536	560,313,638
Induced Wage Benefit (Multiplier)*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Benefits	1,801,800	3,883,822	11,392,304	15,557,663	24,540,250	38,317,831	44,781,143	49,856,885	49,930,531	56,347,565	57,597,717	59,633,068	61,161,058	61,157,968	61,157,968	597,117,574
Total Benefits (discounted)	1,801,800	3,747,888	10,608,798	13,980,616	21,280,814	32,065,461	36,162,550	38,852,264	37,547,817	40,890,364	40,334,661	40,298,381	39,884,371	38,486,474	37,139,447	433,081,707
Cumulative Benefits (discounted)	1,801,800	5,549,688	16,158,486	30,139,102	51,419,916	83,485,377	119,647,928	158,500,192	196,048,009	236,938,373	277,273,033	317,571,415	357,455,786	395,942,260	433,081,707	433,081,707
NPV	- 13,669,979	- 23,505,778	- 28,877,252	- 31,013,707	17,028,092	15,037,369	51,199,920	90,052,184	127,600,001	168,490,365	208,825,025	249,123,407	289,007,778	327,494,252	364,633,699	364,633,699

10Yr 2026
66,414,812
68,448,008
68,448,008
-
-
24,772,401
-
-
884
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-
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Base Analysis

Scenario Summary
10Yr NPV #####
15Yr NPV #####

Sensitivity Analysis

20% reduction in Wider Benefit
10Yr NPV 168,490,365
15Yr NPV 364,633,699

40% reduction in Benefits
10Yr NPV 73,715,016
15Yr NPV 191,401,016

1Yr Delay in Benefits
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Slow Mobilisation (6month delay)
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20% increase in costs
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1Yr Delay and -20% Wider Benefit
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15Yr NPV 327,494,252

Optimism Bias

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GVA by Year

Wales

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	Inflation	
Construction																														
Research																														
All Sectors																														
Construction																														
Research																														
All Sectors																														

Notes
 Excluded for Economic Appraisal
 Skilled Trades
 Professional Dcc, Wales
 Average All Sectors - DW Wales

<https://stats.wales.gov.uk/Catalogue/Business-Economy-and-Labour-Market/People-and-Work/Earnings/AverageWeeklyEarnings-by-occupation-uk-country>
<https://stats.wales.gov.uk/Catalogue/Business-Economy-and-Labour-Market/People-and-Work/Earnings/AverageWeeklyEarnings-by-wales-local-area-year>

Multiplier
 Base 0.5 This uses the Base multiplier from the SDCI Internet Coast Economic Impact Assessment
 For sensitivity to this parameter please refer to this document

<https://www.ons.gov.uk/employmentandlabourmarket/occupationalwork/labourproductivity/datasets/subnationalproductivity/hourlyproductivity/hourlyproductivitybyindustryandregion>
 Average Domestic & NWT
 Welsh Government
 Average LS/CT