



SBCD Campuses project

Previously named "Swansea Bay City Deal Life Science, Well-being and Sport Campuses"

Outline Business Case



Document control

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2	14 th May 2021	C Marshall	Revised draft of Strategic Case, addressing feedback received.
3	21 st May 2021	C Marshall	Updated draft of OBC for review
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9	6 th October 2021	T. Harris	Section 7.4.1: Project manager appointment update Section 7.13: Update on Governance and Gateway review. Appendix A15: Welsh Government Gateway review recommendations and action plan added.

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Introduction

1.1 Ambition

The project harnesses unique capabilities and the thriving Institute of Life Science (ILS) and health (NHS) ecosystem in the Swansea Bay City Region to establish an international centre for innovation in life science, well-being and sport, supporting interventions in healthcare and medicine and driving the growth of a globally significant Sports Tech industry. As part of the South Wales Health and Life Sciences Corridor, the project will contribute complementary and unique capabilities to enhance regional and UK sector-leading presence.

The project builds on the impact and credibility of the Institute of Life Science, and the proven ecosystem fostered by the partners to deliver academic, industry and NHS-led innovation and economic growth. To date, ILS has created 30 companies and 800 jobs, attracting £36 million in inward investment, and delivering a return of £3 for every £1 in public money received.

The project will deliver R&D, trials and testing facilities, enabling co-location of research and industry alongside clinical infrastructure and investment opportunities. An emphasis on digital and data-driven innovation at the intersection of life sciences, health, well-being and sport is a key differentiator for this project within the South Wales health and life sciences innovation corridor described.

1.2 Vision

The vision is to integrate life sciences, med tech, sport and well-being to transform services provided in Swansea to drive economic growth and job creation, and to attract significant inward investment into the region. The project will link into the wider ecosystem of provision for the benefit of the local population, and for the development of regional and national excellence in sports and life sciences. As a result, the Morriston site will become the leading specialist tertiary services, clinical research and trials centre and the Singleton site will focus on the provision of sport and well-being - including prevention of ill-health and rehab provision. The ambition is for the project to create 1,000 – 1,120 jobs, attract significant inward and private sector investment, and contribute an additional £150m - £153m to regional GVA.

1.3 Rationale

The link between sport and population well-being is well documented. The opportunity is to create the conditions that enable technology innovation that supports population health and sporting endeavour, across the life course and inclusive of disadvantaged communities and able/disabled people. The project spans preventative health and public participation in sport through to personalised medicine and elite performance and will lead the growth of the UK Sports Tech sector.

MedTech and Sports Tech are synergistic industries. Devices and sensors developed for use in sport (e.g. for gait analysis) can find application in healthcare (e.g. for physiotherapy). “Smart clothing” (e.g. printed, heated garments) are being developed for elite sport but have application in healthcare settings. Wearables that monitor heart rate, oxygen saturation, cadence, balance and impact from falls/collisions have clear value for both medical and sport/well-being purposes. Technologies developed to help athletes recover after training are relevant to patient rehabilitation, while

innovations in wound care and reablement can help elite athletes monitor healing from injury, enabling them to return to competition sooner.

The project is a partnership between Swansea Council, Swansea Bay University Health Board, and Swansea University alongside Hywel Dda University Health Board and supported by the ARCH (A Regional Collaboration for Health) Partnership. It benefits from the close engagement of three project delivery partners, representing the technology, health and sport sectors.

The project builds on the impact and credibility of the Institute of Life Science, and the proven ecosystem fostered by the partners to deliver academic, industry and NHS-led innovation and economic growth aligned with planned development of the major regional hospital at Morriston. At its core, this project seeks to

1. Expand the current infrastructure to support a widening of the ecosystem into new, targeted areas (including digital innovation in sensors, devices and materials, with applications in health, well-being and sports settings), and
2. Attract private investment into the Swansea Bay City Region from multinational companies and SMEs in the MedTech and Sports Tech sector.

1.4 Approach

The City Deal investment will support:

1. Establishment of ~700sqm ILS space at the Morriston Regional Hospital site, co-locating commercial and academic collaboration alongside clinical research and development, fostering technology development in areas of regional excellence;
2. Planning for new road access from the M4 directly to a 55-acre site already in NHS ownership adjacent to the north of the hospital, unlocking the site's investment potential, and
3. Creating ~2,000sqm of dedicated research & innovation space within the Sketty Lane Sports Park, establishing an environment that supports the development, testing and evaluation of medical, health, well-being, and sport technologies, as well as commercial collaborations.

The investment required to deliver the whole SBCD Campuses project will be £164m. Through direct investment of £15m from SBCD, the SCBD Campuses project is projected to generate an additional investment of c. £149m over the 15 year period to 2032/33. This is delivered through c. £34m from Phase 1 (£11m Public investment and £23m Private investment) and c. £115m from Phase 2 capital inward investment from private sector partners and developers for:

1. Development of a 55-acre Innovation Park, which will include provision for SMEs and larger companies in the Sports Tech and Med Tech sectors to establish a presence and access research, clinical and test bed facilities co-located with further developments of the Region's major hospital and laboratories, and to integrate within the life sciences, well-being and sport innovation ecosystem.
2. A national centre of excellence with performance sport infrastructure, attracting Sports Tech and related companies and establishing Swansea as a sport and well-being innovation test bed that aligns world-class facilities with elite teams, national governing bodies, community sport, and technology and research.

The result is an unique testbed, aligned around a digital axis, that drives innovation and entrepreneurship in MedTech and Sports Tech, and which attracts commercial, intellectual and sporting talent.

2. Executive Summary

This business case should be considered in the context of the Swansea Bay City Deal Portfolio in terms of its objectives and how it will help the City Deal to meet its targets and outcomes, including its ambition to improve the health and well-being of the region's communities. It has been structured in line with the Welsh Government's best practice Five Case Model (Better Business Cases). This section offers a summary of the five cases and will provide a thorough overview of the project.

2.1 Strategic Case

The Strategic Case notes that the SBCD Campuses project has been developed in equal partnership between Swansea Council, Swansea University (also the lead project delivery partner) and Swansea Bay University Health Board alongside Hywel Dda University Health Board and supported by the ARCH (A Regional Collaboration for Health) partnership. The key strengths, track records, roles and responsibilities of each partner are clearly identified. Discussions are ongoing with three project delivery partners – Vodafone, Novo-Nordisk and Sport Wales - who will represent the Technology, Healthcare and Sport sectors and will play a key role in shaping the delivery of the project. Ongoing engagement with other stakeholders and industry bodies and associations will contribute to the wider project environment.

The project seeks to harness innovations in Life Science, MedTech and Sports Tech to enable the population to be fit and active – thereby improving quality of life and mental well-being, contributing to GVA, jobs and economic performance, and reducing the economic burden on the National Health Service. As such, the project's three, primary organisational drivers are:

- Growing the regional economy.
- Improving the nation's health.
- Growing the sport economy in Wales.

The project is demonstrably aligned to the UK, national (Wales) and regional strategic and policy context, particularly:

- The ambition for the UK to be the world's most innovative economy, with emphasis on research-led life sciences, digital innovation and the AI revolution.
- Support to enable a healthier, active and productive population, harnessing digital technology and innovation across the life course, and from general population health to targeted interventions.
- The creation of high quality jobs, skills and training opportunities to strengthen the regional economic base and enhance the competitiveness of the regional economy.
- The need to create opportunities to foster innovation and entrepreneurship in high-value research, development and innovation initiatives.

The project is also a key component in the SBCD portfolio, and the differentiating and synergistic characteristics with the Pentre Awel initiative are described.

The case for change sets out how the project builds on the distinct ecosystem and partners' track record of success to create a unique testbed within the Swansea Bay City Region, driving innovation and entrepreneurship and attracting commercial investment. The project spending objectives are:

- **Employment:** To support the growth of high value employment within the sector by creating in excess of 1000 jobs across the region by 2033.
- **High Growth Facilities:** To expand the specialist facilities and pipeline of new enterprises in the sector through the creation of 12,000m² of mixed laboratory, office and test-bed space within the region over the 15 year period.
- **Regionalisation:** To enhance the regional Innovation ecosystem by expanding the ILS infrastructure to include two further sites by 2025.
- **Ecosystem:** Enhance the region and UK sector profile by capturing major international opportunities through capturing 4 major inward investment opportunities and developing a cluster of 300 firms within the cluster by 2033.
- **Commercialisation:** To expand the pipeline of innovation opportunities to include the supporting in excess of 100 new innovation and commercialisation opportunities during the project period with a £48m co-investment into enterprise partnerships by 2033.

The project responds to unmet need to deliver key outputs across two phases. Supported by the City Deal, the first phase encompasses establishment of ILS activities (~700sqm) at the Morriston Regional Hospital site, design, planning, submission of planning permission, and procurement framework for new road access to unlock the site's investment potential, and creating ~2,000sqm of dedicated research & innovation space within the Sketty Lane Sports Park. The second phase (not funded by the City Deal) will deliver the development of a 55-acre Innovation Park and a national centre of excellence with performance sport infrastructure.

The project targets 1,000 - 1,120 jobs created and a Gross Value Added of £150m - £153m. It will further enable 100+ new commercialisation opportunities, four significant inward investments and the development of a related cluster of 300 enterprises.

The Case shows there is an industry demand for

- **Facilities:** The ILS ecosystem is oversubscribed, with trend lines showing a current shortfall of physical space (~2,800 square metres) and capacity to develop industry collaborations.
- **Scale:** Expanded facilities and a new focus on Sports Tech will ensure that the region's research remains globally competitive to attract further investment and collaborations.
- **Skills:** The need to ensure a sustained pipeline of talent coming into the life sciences, well-being and sport innovation sector at every level, from school leaver through to industry professional.

By addressing these three imperatives, the project will contribute to the City Deal's core objectives to grow GVA and create jobs.

The potential project scope is therefore to establish an ILS footprint at Morriston and to expand the ILS infrastructure at Singleton to create a novel focus on technology/data-led innovation in sport, well-being and life science research and skills, and to harness this regional infrastructure to leverage

investment that supports the development of a larger life science park at Morriston in addition to investment in the Sketty Lane Sports Village.

The project benefits, risks, constraints and dependencies are described and a Benefits Register and Risk Assessment are included in the appendices. The benefits, risks, constraints and dependencies are summarised as follows:

Benefits	Risks
<ul style="list-style-type: none"> • Contribution to GVA growth • Job creation • Inward investment • New RD&I facilities • Growth of 300 strong industry cluster • Establishing a Sports Tech economy in Wales • Improved community health and well-being • Skills development • Attraction and retention of students 	<p>The primary risks are identified for the project's development, implementation and operational phases and relate to:</p> <ul style="list-style-type: none"> • the timescales involved • ongoing engagement with stakeholders, procurement and co-investment • sustainability to deliver long-term benefits. <p>A risk assessment is included.</p>
Constraints	Dependencies
<ul style="list-style-type: none"> • Total funding package: the budget has been based on the portfolio's fixed funding agreement between the region and Welsh and UK Governments • Capital Funding: The budget is predicated on capital investment • Term of the City Deal: The timeframe for the delivery cannot exceed the term of the City Deal set at 15 years • Resources: Resources available to establish and implement the portfolio and associated programmes and projects • State Aid: Growth Deal projects must comply with relevant State Aid rules 	<ul style="list-style-type: none"> • Continued partner and stakeholder commitment and approval • Availability of land/infrastructure • Availability of City Deal investment • Availability of public/private sector match co-investment • Planning and associated permissions • Availability of activity revenue funding streams • Support from wider life science ecosystem • Market demand • Commercialisation of innovation • Adoption of innovation by end users

Table 2.1: Summary of benefits, risks, constraints and dependencies

2.2 Economic Case

The Economic Case sets out how the project has been developed through the appraisal of options considered against the Spending Objectives and the Critical Success Factors:

- Strategic Fit
- Business Needs
- ARCH Integration
- Internet Coast Integration
- Potential Value for Money
- Potential Achievability
- Supply-side Capacity
- Potential Affordability

A long-list Options Filter exercise was undertaken to appraise a number of approaches including focused development of existing site(s), potential longer-term/mixed site fund and combination thereof. These were appraised against standard and project-specific Critical Success Factors to identify the Preferred Dual-site Phased Approach.

The Case identifies the preferred approach, namely the re-development of Management Centre at Morriston and development of new facility at Sketty Lane (Phase 1, funded by the City Deal), followed by 'new land' development at Morriston and wider Sketty Lane/Singleton development (Phase 2) through external investment. The short-list appraisal (including the Baseline Do Minimum and Alternatives) present the following BCR and NPV over the 15-year time horizon (GB standard 10-year horizon included for completeness):

Option	10 Year BCR	15 Year BCR	15 Year NPV
Do Minimum	1.01	1.70	£3.3m
Preferred Approach	2.22	2.33	£18.8m
Alternative Approach (1)	0.85	1.87	£12.3m
Alternative Approach (2)	0.33	0.76	- £3.4m

Table 2.2: Summary of short-list appraisal

Additional benefits are described in terms of the potential value of benefits generated through Quality Adjusted Life Years (QALYs), estimated at £16 million to £32 million over 15 years. The Economic Case also includes a risk analysis and sensitivity analysis.

	Do Minimum	Option 1 (Preferred)	Option 2 (Alternate)
Net Present Social Value	£3.3m	£18.8m	£12.3m
Public Sector Cost*	£4.181m	£14.15m	£14.15m
BCR	1.70	2.33	1.87
Significant non-monetisable** benefits	N/A	5-10,000 QALYs (range of values including in assessment)	5-7,500 QALYs (noting delivery timescales for option against core assessment)
Significant unquantifiable benefits	N/A	Indirect regeneration and transport benefits	Indirect regeneration and transport benefits
Risk costs by type^ and residual optimism bias	Delivery risk - £1.06m 20% OB	Delivery Risk - £2.97m 20% OB	Delivery Risk - £4.47m 20% OB
Switching values		8yr Delay ~37% benefit reduction	
Time horizon and reason	15yr – to align with infrastructure nature of development, and SBCR Economic Strategy. This reflects the nature of the benefits sought and activity for each of the appraised options. Guidance on relevant benefits from DCLG, HMT and other sources (both academic and governmental).		

Table 2.3: Appraisal summary table

*discounted

** captured as part of aligned health economics assessment

^see also sensitivity analysis section

2.3 Commercial Case

This commercial case has been developed to optimise deliverability and value in line with the Preferred Approach and Option. It includes a differentiated strategy for the two sites and sets out the scope for each development. The project aligns to the five Swansea Bay City Deal (SBCD) Procurement Principles (to be innovative, to have an open, fair and legally compliant procurement process, to maximise community benefits from each contract, to use ethical employment practices, and to promote the City Deal).

The Sketty Lane/Singleton development is expected to be procured through the *South West Wales Regional Contractors Framework (SWWRCF)* via a Works commission where the University is the Contracting Authority. The procurement approach for the Morriston development will be to appoint a Supply Chain Contractor and design team from SBUHB's Local Contractor and Consultant Framework. Note that SBUHB's Capital Planning Team will manage the operational/change process and will endeavour to mitigate any risk of disruption to Health Board services and performance.

The strategy has been underpinned by pre-development options and feasibility studies, which further supported the specification for both procurement exercises. Specifically, in addition to an affordability and cost exercise, the brief for the pre-development options study encompassed high level viability of developing a suitable building/s in Singleton and the refurbishment of Management Centre at Morriston Hospital. The functional content for each facility has been developed as follows:

	Sketty Lane	Morriston
Size	~2,000sqm	~700sqm
Skills development space	35%	0%
Innovation/incubation space	50%	50%
Office/development space	10%	20%
General (meeting, collaboration, etc)	5%	30%

Table 2.3: Description of functional content

The proposed contractual arrangements for the development at Sketty Lane/Singleton would include Swansea University appointing a project manager through existing framework agreements, in compliance with the SBCD Procurement principles and alongside the University's estates team.

A design team will be appointed through open market tender or an existing framework in compliance with policy and the SBCD Procurement principles to develop the design to RIBA stage 3 (Developed Design). The client-side consultation team and design team will be appointed on an NEC3 or NEC4 professional services contract, and it is proposed that the University will procure a contractor on a Two Stage NEC4 Design & Build Contract utilising Option A (Priced Contract with Activity Schedule).

For the Morriston development, SBUHB will appoint a supply chain contractor and design team from its Local Contractor and Consultant Framework to deliver refurbishment of existing accommodation. Contractors and consultants will be appointed according to the works value of the scheme either directly on a rotational basis or via a mini-competition, as appropriate ensuring compliance with policy and alignment with the SBCD procurement principles.

Plans are in progress to secure the £115 million investment required for the longer-term developments at Sketty Lane and Morrleston. This strategy will need to emerge and evolve to support market opportunities and the post-Covid renewal. Catalysed by the award of the City Deal funding, the project team work on more specific proposals with private and public sector partners to scope the opportunities and options available for the Phase 2 investment, and to conduct a post-Covid market analysis on the recommended approach. The Swansea Bay University Health Board is already master planning for the Phase 2 development while the University is developing its plan to deliver the Phase 2 development at Sketty Lane, and is preparing to undertake a full feasibility study (including potential joint venture, investment and funding arrangements). Funding is being sought to support this work.

The Project Team is already engaging with the Investment Directorate of the Department for International Trade (DIT) to develop an investment offering that DIT can promote to its global network of investors and venture capitalists.

2.4 Financial Case

The Financial Case sets out the funding requirements for the preferred option and demonstrates overall Programme affordability. It highlights how the overall investment comprises the City Deal investment, public sector investment and private sector investment. The Case identifies the investment summary as follows:

Land allocation	Project Phase	Funding	Gross Internal Area (m2)	Estimated investment costs £m
Sketty Lane	Phase 1	City Deal/Public/Private	2,000	37.33
Sketty Lane Land Value	Phase 1	Public	-	0.03
Morrleston Refurbishment	Phase 1	City Deal/Public/Private	700	10.54
Morrleston Refurbishment Land Value	Phase 1	Public	-	0.11
Road Planning and Design	Phase 1	City Deal/Public	-	1.39
Swansea Bay Sports Park	Phase 2	Private/Public	9,650	65.86
Morrleston Life Science Park	Phase 2	Private/Public	6,000	49.00
			18,350	164.26

Table 2.5: Total capital requirements and associated leverage

The investment comprises

- The **City Deal investment** component consists of the government grants awarded by UK and Welsh government totalling £15m. City Deal Grant is awarded to projects / programmes of the fifteen-year term up to a maximum of the allocated value.
- **Public sector investment** consists of investment from local authorities and other public funded and public service organisations such as health boards. Public sector investment will also consist of specific Welsh Government, UK Government and European funding secured through research grant awards.
- **Private sector investment** includes regional investment from local and national private sector partners as well as local healthcare and sports providers. The project will lever in private

sector funding directly from the supply chain development and indirectly from private research and development partnerships.

The Case sets out the revenue and expenditure assumptions made, provides an expenditure and funding profile, and highlights the project's revenue projections and long-term sustainability.

2.5 Management Case

The Management Case sets out the project's governance and delivery structures within the context of the overarching SBCD governance arrangements and aligning to each of the project partners' organisational structures. The project's governance structure is headed by the Project Board, which will ensure the project is managed effectively, to approved timescales and in line with the governance structures laid out in this Business Case. The Board's responsibilities are set out in the Case.

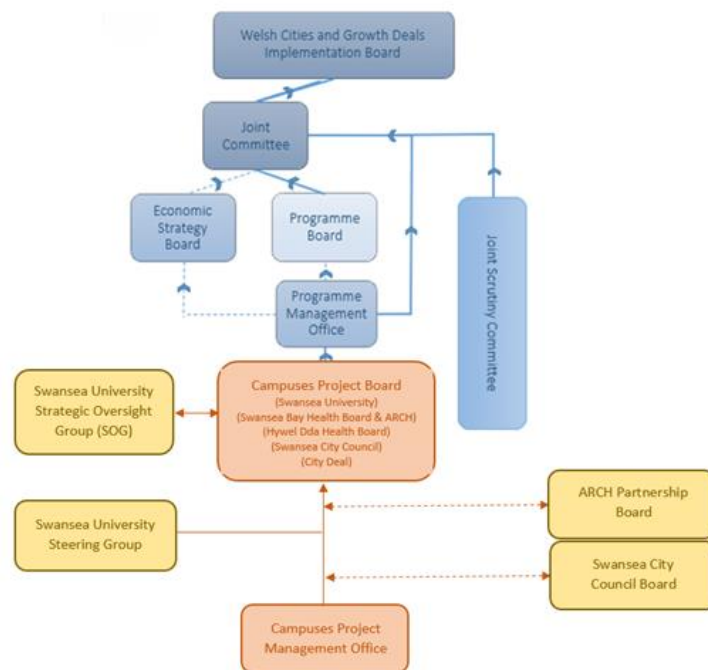


Figure 2.1: Project governance structure

The Project Management Office (PMO) has been established to lead the development and overall delivery of the project on behalf of the region, in liaison with UK Government, Welsh Government, the private sector and all other partners and stakeholders. It is led by Professor Keith Lloyd, Pro-Vice Chancellor and Executive Dean, Faculty of Health and Life Science. Professor Lloyd is also the project's Senior Responsible Owner and chairs the Project Board. The PMO is hosted by Swansea University (the named Project Lead) and is accountable to the Project Board, SBCD Programme Board and SBCD Joint Committee as required. It will work closely with key partners including, but not limited to, Swansea Bay University Health Board, Swansea Council (the lead local authority for this project), and anchor partners. Staffing arrangements are described and a project management plan provided.

Note that the Management Case also details arrangements for Monitoring and Evaluation, Benefits Realisation, Risk and Issues Management, Change Control, and Project Assurance.

Strategic Case

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3. Strategic Case

Part 1: Strategic context

3.1. Organisational overview

3.1.1 Context

The Swansea Bay City Region spans across four local authority areas with a combined population of approximately 698,000 people. The City Region published an economic regeneration strategy in 2013 with a common vision to enhance the long-term prospects of the region's economy, businesses and communities. The strategy will co-ordinate collective action and identify routes and initiatives to respond to the structural challenges that are holding back the SBCR economy. The creation of the SBCR in July 2013 was based on evidence that shows City Regions of more than 500,000 people are in a better combined position than individual local authority areas to stimulate economic growth through attracting investment and generating high-value job opportunities. The population has grown by just over 1.1% (7,651) over the last five years and is expected to grow by a further 1.1% (7,850) over the next five years from 2020.

The SBCD is part of the SBCR strategy and portfolio. It is a partnership of eight regional organisations made up of local authorities, universities and health boards that aims to accelerate economic and social advancement through regional infrastructure and investment funds. The SBCD partners are:

- Carmarthenshire County Council
- City and County of Swansea Council
- Neath Port Talbot Council
- Pembrokeshire County Council
- Swansea University
- University of Wales Trinity Saint David
- Hywel Dda University Health Board
- Swansea Bay University Health Board

Carmarthenshire County Council is the SBCD Accountable Body. Representatives from each of the eight partner organisations are members of the SBCD Joint Committee and Programme (Portfolio) Board, which are the two formal governance groups that report to the regional stakeholders, UKG and WG. Regional advisers from the business community form the basis for the SBCD Economic Strategy Board, with each board and committee supported by the SBCD Portfolio Management Office (PoMO).

SBCD Campuses Project ('The Project') has been developed in equal partnership between Swansea Council, Swansea University and Swansea Bay University Health Board alongside Hywel Dda University Health Board and supported by the ARCH (A Regional Collaboration for Health) partnership. Swansea University will be responsible for the project management and delivery of the project.

The project partner roles and responsibilities are as follows:

Organisation	Key role
Swansea Council	Contracting authority (funding agreement) Planning authority Land owner (Singleton/Phase 2)
Swansea Bay University Health Board	Phase 1 Morryston Delivery Lead and Phase 2 Morryston Site Development Lead Operational lead: Morryston Funding partner
Swansea University	Phase 1 Project Lead, Phase 1 Singleton Delivery Lead and Phase 2 Singleton Site Development Lead Operational lead: Singleton/Sketty Lane Land owner (Singleton, phases 1 and 2) Funding
Hywel Dda University Health Board	Leading the spread and adoption of project outputs and skills opportunities into the HDUHB region.
ARCH Partnership	University Health Board Programme Integration
Vodafone	Technology Delivery Partner
Novo Nordisk	Health Delivery Partner
Sport Wales	Sports Delivery Partner

Table 3.1: Organisation overview

3.1.2 Swansea Council

Swansea Council is the sole and lead local authority in the project partnership. With a population of 247,000 (2019), the City & County of Swansea is the second largest unitary authority in Wales, with a population density of 650 people per square kilometre. Swansea Council has a proven track record in delivering large scale regeneration projects since it was formed in 1996 after local government reorganisation:

- Projects funded and delivered by the Council include construction of the Liberty Stadium for Swansea City Football Club & Ospreys Rugby Club and a £32m Leisure Centre in the city centre.
- Joint ventures have been progressed with Welsh Government (and formerly the Welsh Development Agency) to deliver the Swansea Vale Mixed Use Development and Felindre Strategic Business Park. More than £120m of projects were facilitated during the EU Objective 1 2000-2006 programme, including landmark schemes such as the National Waterfront Museum (£28m total cost).
- During the Convergence 2007-2013 period, large-scale initiatives successfully delivered including the Quadrant Bus Station (£10m) and Waterfront City, which invested circa £30m in a range of improvements to the fabric of the City Centre, including major public realm and property façade improvements.
- The Council is currently delivering a transformational city centre regeneration programme that includes the creation of a new Digital Arena through the Copr Bay phase 1 development (part funded by the City Deal), 100,000 sq ft of office space in the Digital Village development at 71-72 Kingsway (also part funded by City Deal), Copr Bay Phase 2 public sector hub and regeneration of the historic Palace Theatre.

3.1.3 Swansea Bay University Health Board (SBUHB)

SBUHB is the region's largest employer and a major contributor to the foundational economy. The Health Board commissions and provides health care services to meet the needs of the local population across three local authority areas within the Swansea Bay City Region. SBUHB delivers whole health care from prevention and primary care through to tertiary care across this area and provides selected tertiary services across South West Wales region, beyond and in some cases to patients in England.

The Health Board has a successful record of accomplishment of delivering improvement across its remit by working in partnership with communities and organisations. SBUHB also have strong and long-standing relationships with local University partners and have invested in research, innovation, and skills development activities to improve care and continue to develop areas of excellence. Through partnerships such as ARCH and collaborations with Swansea University, SBUHB is committed to modernising the workforce to ensure an appropriate skilled workforce and pipeline is developed fit for future needs.

SBUHB has described an ambition to redevelop both the Singleton and Morriston Hospital sites through transforming clinical service provision, embedding research and innovation activity alongside clinical practice and forward planning a collaborative skills development agenda to provide a prudent health and well-being provision fit for future needs. SBUHB have developed their Clinical Services Plan 2019-2024 which clearly sets out the role of the health system as a whole, from self-care and prevention, through to the roles of each of the hospitals working as part of a network.

3.1.4 Swansea University

Swansea University is a UK top 25 University¹ and ranks among the UK's top 10 universities for balancing excellent teaching with excellent research, demonstrated by its Teaching Excellence Framework Gold Award and UK Top 30 performance in REF2014. The University was founded by industry to serve the needs of the regional industrial economy, and its research continues to have economic and societal impact. The University is recognised as one of the UK's leading industry-intensive universities² (HE-BCI 2018) and ranks 8th in the UK's top origin universities by total number of spinout companies created.³ The University has a significant track record of developing and delivering major infrastructure and collaborative research and development projects, including:

- The £250 million Bay Campus, which opened on schedule and on budget in 2015. (Financially supported by Welsh Government, UK Government, European Investment Bank and others).
- Part funded by the Welsh European Funding Office (WEFO), the Institute of Life Science (2008-2012) is a £100+ million investment in infrastructure supporting RD&I in life sciences and health. ILS is Wales' premier, purpose-built medical research and business incubation facility.
- The £32.5 million Computational Foundry (part funded by the Welsh European Funding Office).

¹ Guardian University Guide 2021

² Higher Education – Business Community Interaction survey, 2018

³ Royal Academy of Engineering *Spotlight on Spinouts* report, 2021

The University also partners with Swansea Council in the provision of sports facilities at the Sketty Lane site (including the Wales National Pool), and with Swansea City Football Club, Ospreys Rugby and Scarlets Rugby on shared training facilities, sports science research projects and data science. In particular, the University has worked in collaboration with Swansea City FC to develop its Fairwood site by contributing an £11 million investment since 2012 to create a world-class training facility. The site is shared by the club and the University, with student sports teams training at the grounds on a regular basis. The University worked with Disability Sport Wales in the delivery of the International Paralympic Committee Championships, held in Swansea in 2014.

The University leads the “South Wales Industrial Transition from Carbon Hub” (SWITCH) project within the SBCD Supporting Innovation for Low Carbon Growth (SILCG) Programme, and is collaborating with the Offshore Renewable Energy Catapult on a Marine Energy Engineering Centre of Excellence within the Pembroke Dock Marine initiative.

3.1.5 Hywel Dda University Health Board (HDUHB)

HDUHB are a strategic partner in the West Wales region, providing health services across Carmarthenshire, Ceredigion and Pembrokeshire to over 385,000 people. The Health Board provides Acute, Primary, Community, Mental Health and Learning Disabilities services via General and Community Hospitals, Health Centres, GPs, Dentists, Pharmacists and Optometrists and other sites. HDUHB work closely with SBUHB to provide a range of services on a regional basis to improve patient access to care. A number of regional services are provided at the Morriston site and the planned transformation of this site presents an opportunity to provide improved health service delivery and efficiency for the regional population. In addition to clinical service delivery, the partnership between SBUHB, Swansea University and HDUHB is long established and there are several collaborations within skills development and research and innovation between the partners that support efforts to improve the health, wealth and wellbeing of the population that HDUHB serves.

3.1.6 ARCH Partnership

The ARCH (A Regional Collaboration for Health) partnership operates across the Swansea Bay City region, encompassing the two University health boards and Swansea University. It brings together expertise and experience from across the three partner organisations and wider stakeholders to tackle health and well-being challenges within the region through collaborative project driven approaches to four themes of Skills & Workforce, Research, Enterprise & Innovation (RE&I), Service Transformation and Well-being. ARCH has been instrumental in supporting the partners to collaborate in the development of this business case, and has supported associated engagement events and workshops. This project was identified as an ‘ARCH project’ in the ARCH Portfolio Development Plan that was submitted to and agreed by Welsh Government in 2017.

ARCH has played an instrumental role in the development of health and life science innovation activity across the region including the AgorIP commercialisation initiative harnessing ideas from HNS partners. The vibrant RE&I group is continually developing a pipeline of projects with public and private sector partners. ARCH will continue to act as a vehicle for collaboration and will draw on the partnership’s track record of cooperation and collaboration to enable and strengthen project delivery.

3.1.7 Project delivery partners

The project benefits from the close engagement of three stakeholder partners, representing the technology, health and sport sectors. Letters of support are included as Appendix 12. The project's three delivery partners are:

- **Vodafone**, the multinational technology company that is supporting the roll out of 5G in Swansea, and which is delivering a range of services and technologies to support augmented reality for research, innovation and training. Vodafone have committed to working with the project to provide technologies to deliver world leading capabilities.
- **Novo Nordisk**, a multinational pharmaceutical company committed to defeating diabetes and other chronic diseases through partnerships and collaboration, with a focus on digital health, technology, and population-based impact. Novo Nordisk has committed to working with the project to identify areas of partnership; to connect the team with other technology partners and/or the Team Novo Nordisk elite cycling team, and to work to identify mutual areas of interest in research at the population level.
- **Sport Wales**, the national organisation responsible for developing and promoting sport and physical activity in Wales, from community and grassroots to performance sport. Sport Wales works alongside all sports governing bodies and local authorities in Wales and will help to extend the project's reach.

These project delivery partners will support the shaping of the Project's full business case, planned facilities and engagements, and will help to drive the enabling environment will attract further interest in the project from other multinational companies, investors and the SME community.

3.1.8 Stakeholder engagement

The project team continues to engage with public and private-sector stakeholders across the life science, health, well-being and sport sectors. Stakeholder engagement is ongoing and will continue to inform the development of the Business Case. Activities to date include:

Individual interviews: led by an external consultant, interviews were held with senior representatives from the project's partner organisations with the aim of developing deeper insights into each partner's understanding and expectations of the project. The resulting report has helped to strengthen the partnership and this business case.

Stakeholder workshops: led by an external consultant, these workshops followed on from the individual interviews with the aim of ensuring that the vision for the project is shared and remains valid. The workshop objectives were to generate a discussion about the proposed key strategic aims, benefits, opportunities and challenges for the project over its lifetime, and to fully capture all stakeholder views. We wish to ensure that stakeholder views are fully captured, and the benefits of the Project are understood. The report demonstrated partners' ongoing commitment to the initiative.

The project team has engaged with a range of organisations with reach across the life sciences and sports sectors in Wales. Organisations consulted include: MediWales, the Life Sciences Hub Wales, and Sport Wales. The team is engaging with the Welsh Government Relationship Management Team

and the UK Government Department of International Trade to promote understanding of the project and to highlight the potential inward investment opportunities.

A stakeholder mapping exercise and table.

Stakeholder Interest	High	Keep Informed	Manage Closely
		MediWales ILS Tenants/Affiliates (U) Sports Facilities/National Pool Health & Wellbeing Academy Clinical Academics Priority Research Groups Regional Partnership Boards Sports Park Phase II Board RIIC Hubs AGORIP Patient Groups Third sector orgs Other SBCD projects 4theRegion	PoMO Office (G) Arch Partnership (U) Life Science Hub Wales Vodafone Sport Wales Novo nordisk UK Gov (G) DIT SBUHB Senior Leadership Teams (G)
	Low	Minimal Contact	Keep Satisfied
		Regional/National Media Public SME Community Staff (U) Students National Sports Teams/Champions	Hywel Dda (I) Other SBCD Councils Welsh Gov (G) M4 Innovation Corridor developments (I) Data Science Healthcare Technology Centre Swansea Council Business Wales Development Banc
		Low	High
		Stakeholder influence	

An **industry stakeholder survey** is in development. This will be distributed to businesses across Wales with a view to understanding companies' future requirements in terms of access to incubation, innovation and research development facilities, and to better understand their requirements of such facilities. The findings of this survey will be used to further enhance the project's potential scope and offer. (The survey will be distributed to Wales-wide and UK networks through (e.g.) the Healthcare Technology Centre, ILS, AgorIP, MediWales, Business Wales, Life Sciences Hub Wales, 4theregion and Swansea University's business marketing team. Finally, a formal **stakeholder engagement strategy** is in development to support wider promotional and outreach activities throughout the project development phase as well as during implementation and delivery. This strategy will integrate with and echo the approach of the Portfolio Management Office Engagement Strategy. (See also Appendix A1: Engagement log.)

3.1.9 Associated collaborations

The partnership benefits from several existing collaborations and planned initiatives that will contribute to the ecosystem being developed through the project.

Company	Contribution
Pfizer	The planned establishment of the Pfizer Innovation Hub at Swansea University will bring together skills and expertise from across the sector to improve health outcomes for patients and develop new ways of supporting healthcare provision. Pfizer have so far invested over £650k into the partnership to fund joint appointments and research programmes around value-based healthcare.
Digital Healthcare Technology Centre	Establishing an end-to-end solution in an open innovation environment for the development, pilot testing and validation of digital and digitally enabled technologies. The Centre will provide an integrated platform to support growing enterprise.
Accelerate	A £24m programme supported by European Regional Development Fund (ERDF), Welsh Universities, Welsh NHS, Welsh Government and industry to drive the acceleration of new health and well-being products and services to the marketplace. The programme will realise over 80 collaborative projects with industry, employment increases exceeding 100 new jobs within Welsh enterprise and the leverage of over £1m private sector investment.
AGORIP	Supporting both 'technology-push' and 'spin-in', the AgorIP intellectual property commercialisation platform provides support to new and existing enterprise, including multinationals in developing medical technologies. The activity supported by AGORIP has already supported over 200 opportunities, helping to create jobs, protect intellectual property and commercialise innovations. The project has recently attracted further investment of £7m to enable Pan-Wales operation in addition to the original £13.5m investment by Welsh Government and the ERDF, Swansea University and Industry collaborators.
INSERT	A new initiative at the intersection of Sport and Exercise Sciences, Human and Health Sciences, Medicine and Engineering. INSERT will support innovation in sport, exercise rehabilitation and enablement technologies working across in elite, professional and recreational sporting bodies, the fitness and physical therapies industries.

Table 3.2: Associated collaborations

3.2 Strategic alignment

3.2.1 Organisational strategic drivers

The project responds to three primary strategic drivers:

- **Organisational strategic driver 1:** Growing the regional economy – targeting job creation and increased GVA through establishing RD&I facilities that drive innovation and investment in life sciences, well-being, health and sport.
- **Organisational strategic driver 2:** Improving the nation’s health - harnessing innovations in Life Science, MedTech and Sports Tech to enable the population to be fit and active, and to maintain a healthy weight – thereby improving quality of life and mental well-being, contributing to GVA, jobs and economic performance, and reducing the economic burden on the National Health Service.
- **Organisational strategic driver 3:** Growing the sport economy in Wales - developing an internationally significant Sports Tech sector in South Wales, delivering benefits to population health and well-being in addition to contributing to GVA, jobs and economic performance.

3.2.2 Organisational strategic driver 1: Growing the regional economy

The Swansea Bay City Region is a significant driver of the economy in Wales, supporting circa 20,000 businesses and around 300,000 jobs. However, the region underperforms economically. Gross Added Value (GVA) growth has been “consistently below that of the UK and Wales over the last two decades. In 2010, GVA per employee was 77 percent of the UK average (compared with 90% in 1990). Meanwhile, the region’s productivity has fallen to only 94% of the Welsh level in the same period.⁴ The project responds to the Swansea Bay City Deal ambition to create jobs, increase GVA to the national average and achieve 90% of UK productivity levels by 2033.

3.2.3 Organisational strategic driver 2: Improving the nation’s health

The project responds to the imperative to improve population health in Wales, helping people to be more economically active and communities to become more productive - and reducing the economic burden on the NHS while doing so.

A 2020 Public Health Wales reports showed that, in Wales, life expectancy (an indication of the overall health status of a population) has improved little since 2011.⁵

The report highlights that improvements in circulatory disease mortality rates have slowed, while mortality from dementia and Alzheimer’s disease have increased sharply. The *Case for Action on Obesity in Wales*⁶ estimates that illnesses associated with obesity cost the Welsh NHS more than £73m a year.

The report notes that:

- 1 in 8 children aged four to five is obese (more than 4,000 children)
- c.1 in 4 adults aged 16+ (600,000 people) are obese, with 10,000 adults becoming obese each year.

⁴ [Swansea Bay City Region Economic Regeneration Strategy.pdf](#)

⁵ <https://phw.nhs.wales/services-and-teams/observatory/data-and-analysis/life-expectancy-and-mortality-in-wales-2020/>

⁶ <https://phw.nhs.wales/topics/overweight-and-obesity/the-case-for-action-on-obesity-in-wales/>

- 1 in 5 boys, 1 in 10 girls and 1 in 2 adults does not do the recommended amount of weekly exercise.
- By 2050, the cost of obesity to the Welsh NHS is estimated to be £465 million, and the cost to the Welsh society and economy £2.4 billion.

The report also argues that “there is no other single intervention that can treat and prevent more long term conditions and diseases than physical activity” (p.50), while also noting that Abertawe Bro Morgannwg University Health Board (now SBUHB) has the lowest percentage of 11 to 16 year olds years achieving 7 days of 60 minutes physical activity (p54).

The impact on health is evident:

- Having a higher BMI is the leading risk factor for having a long term illness.
- More than 100,000 case of Type 2 diabetes are estimated to be associated with obesity.
- Obesity is the second biggest preventable cause of cancer in the UK.
- Those who are obese are 1.5 times more likely to have a musculoskeletal illness.

Research estimates that between £1.4 million and £1.65 million was spent *each week* treating diseases resulting from obesity (£25 to £29 per person, equating to between 1.3% and 1.5% of total healthcare expenditure in Wales).⁷

A significant proportion can be attributed to physical inactivity:

Health Board	Diabetes	Cerebrovascular disease	Coronary Heart Disease	Total
Betsi Cadwaladr	3.76	3.65	4.35	11.66
Powys	4.77	6.04	4.41	15.22
Hywel Dda	4.59	3.16	4.01	11.77
Abertawe Bro Morgannwg*	4.27	3.58	3.83	11.68
Cardiff and Vale	3.82	2.52	3.01	9.35
Cym Taf	4.55	3.61	4.28	12.44
Aneurin Bevan	4.08	2.33	3.84	10.26
Wales	4.14	3.25	3.89	11.28

*Now Swansea Bay University Health Board

Table 3.3: Per capita expenditure (£) attributable to physical inactivity for selected health conditions, 2014/15⁸

Finally, Public Health Wales’ *Placing health equity at the heart of the COVID-19 sustainable response and recovery: Building prosperous lives for all in Wales* (2021)⁹ highlights the impact of the Covid-19 pandemic on health services in Wales, including:

- Limited access to prevention, diagnosis, treatment, and rehabilitation for chronic conditions, such as cancer and mental health

⁷ Phillips CJ et al. Assessing the costs to the NHS associated with alcohol and obesity in Wales. Social research. Number 20. Cardiff : Welsh Assembly Government; 2011.

⁸ <https://phw.nhs.wales/topics/overweight-and-obesity/the-case-for-action-on-obesity-in-wales/>

⁹ <https://phw.nhs.wales/publications/publications1/placing-health-equity-at-the-heart-of-the-covid-19-sustainable-response-and-recovery-building-prosperous-lives-for-all-in-wales/>

- Significant reduction in hospital admissions in 2020 by 55% for elective surgery; and by 30% for emergency treatments, compared to 2019
- Reduction in attendances for conditions, such as heart problems and in people seeking help for possible cancer symptoms.

3.2.4 Strategic driver 3: Establishing the Sports Tech economy in Wales

The project responds to the ambition to grow the regional economy and create jobs through its emphasis on driving the establishment of a vibrant Sports Tech sector in South Wales, supporting health, well-being and economic performance. The intersection of health, well-being and sport yields opportunities for life sciences innovation to drive growth in MedTech and Sports Tech, for example:

- Preventing injuries: using data to analyse and monitor patient/player performance and to recommend interventions and strategies.
- Connected fitness and health: developing sensors, devices, clothing and wearables that monitor (e.g.) stress load, physiological data and performance in real time.
- Prevention and protection: smart clothing, headgear, mouthguards, etc.
- Rehabilitation and recover: technologies such as gait analysis, anti-gravity treadmills¹⁰ and exoskeletons can help with orthopaedic recovery, weight loss and neurological conditions.
- Portable assessment tools to assist physical therapists and trainers

The home/connected fitness and well-being market has strengthened during the Covid-19 pandemic with greater visibility of on-demand coaching that include engaging content and immersive experiences. It is also expected that the integration of data intelligence and sports technologies related to recovery, sleep and mental wellness will see the largest growth, with devices such as skin sensors and glucose, hydration and nutrition monitors.¹¹

In 2018, a Sport Wales commissioned a report to better understand the social and economic value of sport in Wales.¹² The social impact of sport considered the value of sport on outcomes related to health (reduced risk of heart disease, stroke, some cancers, Type 2 diabetes, dementia, clinical depression, etc) and subjective well-being. It also considered other social impacts, and revealed that

- For every £1 invested in sport in Wales there is a return of £2.88.
- More than £3.4 billion of benefits was generated for Welsh communities from participating and volunteering in sport in 2016/17. Of this:
 - the **social value of improved health is £295.17 million**, of which £102m and £97m of savings were made in preventing dementia and heart disease respectively.
 - the social value of enhanced social capital was £651.47m; enhanced education was £91.15m; and reduced crime was £2.17m.
 - subjective well-being accounts for 60.6% of the social value generated in Wales.

The report found that the sport industry in Wales was valued at c.£1.2 billion in 2016/17, outperforming the pharmaceuticals, travel, accommodation and textiles industries in Wales. In the

¹⁰ <https://summitphysio.co.uk/7-rehab-technologies-revolutionising-industry/>

¹¹ <https://www.sportspromedia.com/from-the-magazine/sports-tech-investment-business-advice-startups-vr-ai-5g-2021>

¹² <https://www.sport.wales/content-vault/social-return-on-investment-in-sport/>

same year, the sporting economy contributed £1.18 billion in consumer expenditure on sport, and supported 29,700 sport-related jobs. The Global Sports Tech market is worth nearly \$10 billion, with 30% of the market in Europe. Growth is shared between fan-base, stadia developments, wearables, and analytics and online betting. The data indicate a rapidly expanding market for sport and exercise technologies that are not currently captured in medical, biotech and pharmaceutical data from the UK. For example, between 2015 and 2020 there have been 4.6 and 3.75-fold respective increases in Health Apps and Wearables.

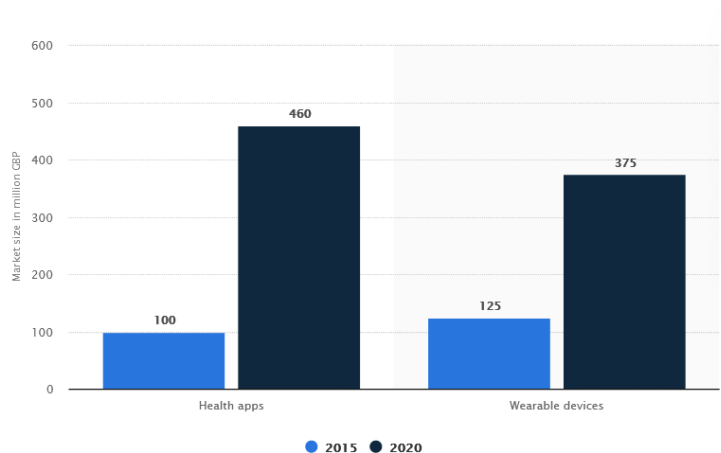


Figure 3.1: Growth in Health Apps and Wearables in the UK (2015-2020), Statista 2016

Unlike other countries and regions the UK does not have a formal Sports Tech Network (though the UK Sport Technology Partnership was developed solely to support GB sport in its pursuit of Olympic and Elite Athletic Success). The only Sports Tech hub supporting start ups in the UK is in London.

3.2.5 Strategy and Policy drivers

The project is demonstrably aligned to the UK, national (Wales) and regional strategic and policy context. Appendix A13 provides a summary of the project's strategic and policy fit. In particular, the project addresses:

- The ambition for the UK to be the world's most innovative economy, with emphasis on life sciences, digital innovation and the AI revolution.
- Support to enable a healthier, active population, harnessing digital technology and innovation across the life course, and from general population health to targeted interventions.
- The creation of high-quality jobs, skills and training opportunities to strengthen the regional economic base and enhance the competitiveness of the regional economy.
- The need to create opportunities to foster innovation and entrepreneurship in high-value research, development and innovation initiatives.

The key UK policies and strategies relevant to the project are:

- The Industrial Strategy, including the Grand Challenge areas of AI and Data, and Ageing Society.

- The UK Digital Strategy.
- Life Sciences Industrial Strategy and Sector Deal
- Artificial Intelligence Sector Deal
- Building Digital UK and the 5G Strategy
- Sporting Future: a new strategy for an active nation

The key Welsh policies and strategies relevant to the project are:

- Well-being of Future Generations (Wales) Act 2015
- Taking Wales Forward (2016-21)
- Parliamentary Review of Health and Social Care in Wales
- A Healthier Wales: Long Term Plan for Health and Social Care
- Prosperity for All
- Economic Action Plan
- Economic resilience and reconstruction mission
- Science Strategy for Wales, Innovation Wales and Smart Specialisation
- South Wales Crucible - Science and Innovation Audit (SIA)
- Digital Strategy for Wales (2021)
- Prudent Healthcare
- National Action Plan - Value in Health
- The Social Services and Well-being (Wales) Act (2014)
- Sport Wales

The key local policies and strategies relevant to the project are:

- Swansea Bay City Region Economic Regeneration Strategy 2013 to 2030
- City & County of Swansea's Corporate Plan 2017/22
- City and County of Swansea Sustainable Development Policy
- City & County of Swansea's Digital Strategy – Aspiring to a Digital Business 2020
- Swansea Bay University Health Board Organisational Strategy, Clinical Services Plan, and three-year plan
- Hywel Dda University Health Board – Healthier Mid and West Wales
- Swansea University: Our Strategic Vision and Purpose
- Swansea University - Sport Swansea:Active University Strategic Framework 2020-2023
- ARCH: A Regional Collaboration for Health
- Regional Learning Skills Partnership
- Swansea Public Services Board Local Well-being Plan – Working Together to Build a Better Future, West Wales and West Glamorgan Regional Partnership Boards.

3.2.7 Swansea Bay City Deal Portfolio

The project is a key component in the Life Science & Well-being theme of the Swansea Bay City Deal portfolio but also contributes to the Digital Infrastructure programme (through its emphasis on using data and technology within the 5G testbed) and the Skills and Talent programme (see 3.6.4 below).

The project adds value to the regional life sciences ecosystem and the Pentre Awel project, contributing a unique focus and specialist infrastructure. While both the project and Pentre Awel focus on slightly different parts of the system, both ultimately aim to improve population health. Both aim to lever the benefits associated with co-locating service delivery alongside educational activity, research, and life science businesses, and both seek to offer sporting facilities and associated leisure opportunities to address the wider determinants of good health and well-being.

Pentre Awel's service delivery is predicated on its Primary and Community Care Focus (keeping people well and avoiding admissions to acute sites), with new, patient facing facilities created as an integral part of the scheme, involving the integration of NHS activities with wider aspects of social care. The scheme also provides for new sports and leisure facilities for local community use and development of partnerships with local sport clubs.

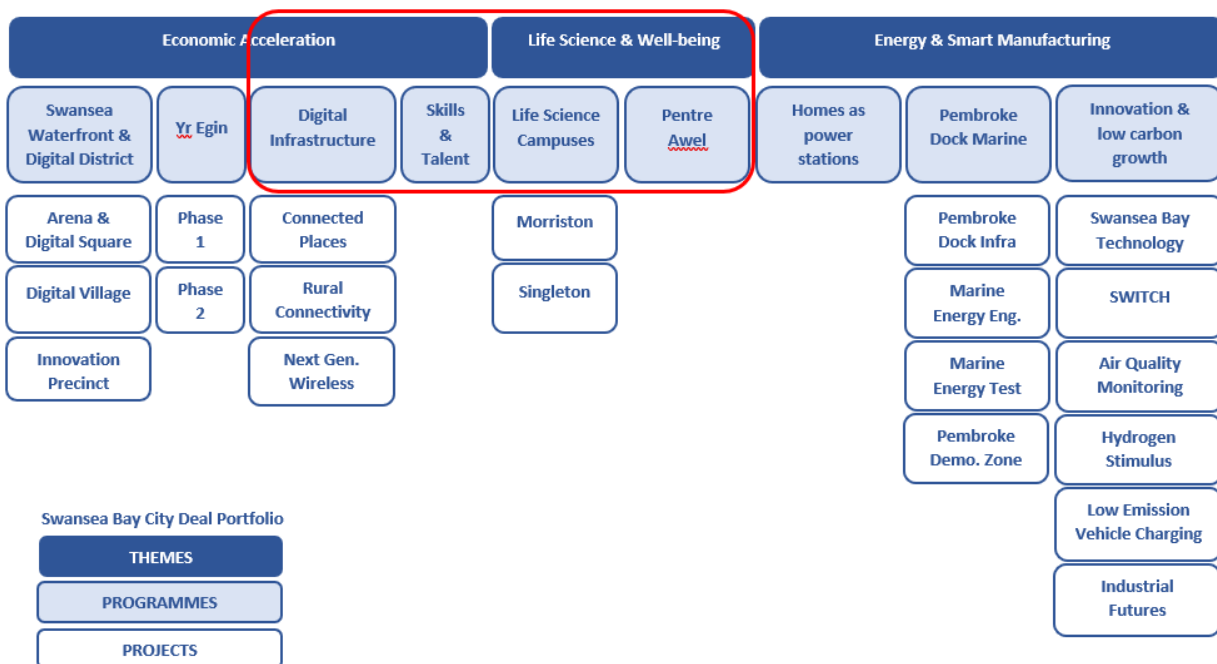


Figure 3.2: Swansea Bay City Deal Portfolio

The Campuses project has a focus on specialist care (though not excluding primary and community care), improving outcomes and getting people home sooner. The scheme will be adjacent to or located at existing secondary care sites, and no new patient facing facilities will be created.

The project will establish new sports research, development and technology innovation facilities (at Singleton), with the potential to establish performance and elite sports facilities in partnership with sports clubs and national governing bodies to complement longer-term delivery.

Appendix A2 sets out the common and differentiating characteristics of each scheme.

Part 2: Case for change

3.3 Spending objectives

The project aligns with complementary projects across the region, contributing to the overall Swansea Bay City Deal investment objective to close the gap between regional and UK average productivity levels, helping recover much of the region's lost GVA over the course of the 15-year programme. The project will contribute significantly to regional, national and UK-wide GVA and further benefits such as indirect economic benefit and growth regionally.

The core project objectives have been developed through a partnership approach and in consultation with key stakeholders. Externally facilitated workshops have helped shape the project. The project's spending objectives are:

3.3.1 SO1 - Employment: To support the growth of high value employment in the sector

Maintaining ILS-supported levels of growth throughout the SBCR programme period, delivering over 1,000 jobs based upon Life Sciences & Well-being innovation across the regional cluster by 2031 (across both R&D and wider industry).

Aligned to the SBCR Internet Coast ambition, the project supports emphasis on high-value (GVA contribution) employment creation. The ILS track-record demonstrates the potential for significant job creation with high levels of additionality, targeting export-led opportunities, including medical devices, Sports devices and eHealth. As presented in the Strategic Case, the global growth of this sector, including SIA-identified smart specialisations, shows this to be a strong area of potential.

This objective requires aligned delivery in skills pipeline (new and existing workforce) in order to support this growth. As noted in the Strategic Case, the alignment with Sports and Exercise Science research, innovation and education adds significant potential in working towards this objective.

It also requires focus upon the role of Swansea University as the region's research-led university wider skills partners, including through the South West and Mid Wales Regional Learning & Skills Partnership.

3.3.2 SO2: High Growth Facilities : To expand the pipeline of new enterprises in the sector

Responding to existing unmet needs of 2,800s.m. infrastructure and projected ~850s.m. p.a. growth over the next 7 years. This requires 12,000s.m. of mixed office, laboratory and testbed (50:20:30) to be realised during the period.

ILS activity to date has developed a mix of indigenous and inward-investing enterprise within the cluster. The baseline and growth trend identified through ongoing research and project development has defined existing to longer-term requirements.

Working closely with partners across Wales/UK has allowed many opportunities to flourish, though pent-up demand remains for facilities proximate to research and clinical strengths, for both start-up

and large-firm partners. This is evidenced through activities such as Accelerate HTC (see brochure included as Appendix A6).

3.3.3 SO3: Regionalisation: To enhance the regional innovation ecosystem through expansion across two further sites by 2025

During the project period, the region will engage with Welsh Government and wider stakeholders to create the SBCR living lab/testbed environment. This will be achieved through ILS and Joint Clinical Research Facility (J-CRF) engagement and activity across the region, expanding the reach of ILS/J-CRF to two further sites by 2025.

Strong engagement across the industry ecosystem and with University Health Boards, Local Authorities and Third sector provides a unique testbed opportunity to progress from initial concept to proof of business. J-CRF and ILS activities have demonstrated that such assets can be effectively orchestrated to support innovation, using levels of co-ordination unavailable in other contexts.

3.3.4 SO4: Ecosystem: To enhance the region and UK sector profile by capturing major international opportunities

During the period, the region will utilise its RD&I assets to attract 4 significant inward investments to support balanced cluster growth and opportunity for wider UK sector. This would also involve realising a network of 300 cluster firms within the project period.

Recent major inward-investments aligned to the Internet Coast demonstrate the potential for developing this innovation approach within SBCR, to benefit the UK as a whole. ILS has shown how major partner initiatives attract and catalyse further innovation. The ambition defined reflects growth (not baseline) achieved during the previous ILS phases^{13 14}.

3.3.5 SO5: Commercialisation: To expand the pipeline of innovation opportunities engaged and realised with SBCR RD&I assets

Expanding technology and knowledge transfer activities between industry, academia and health service. This will involve development in excess of 100 new commercialisation opportunities during the project period, with £48m co-investment and numerous enterprise partnerships.

Initiatives including the Joint-Clinical Research Facility, AgorIP (IP Commercialisation Platform) and Accelerate provide mechanisms to identify, capture and develop opportunities across the region¹⁵.

Extensive review of the sector by the Life Sciences Hub Wales provides comprehensive insight into the regional opportunity. Built upon smart specialisations identified by Welsh Government/EU, and

¹³ A sub-regional innovation ecosystem Life sciences and health in the Swansea Bay City Region. *International Journal of Innovation and Regional Development*, 8(4), 306-321

¹⁴ A Sub-regional Innovation Ecosystem. *Entrepreneurial Learning City Regions* (pp. 267-292). Springer

¹⁵ *Future-proofing the University's relevance through participating in a region's Knowledge Economy*. The University of the Future, 2020, ISBN 978-1912764655

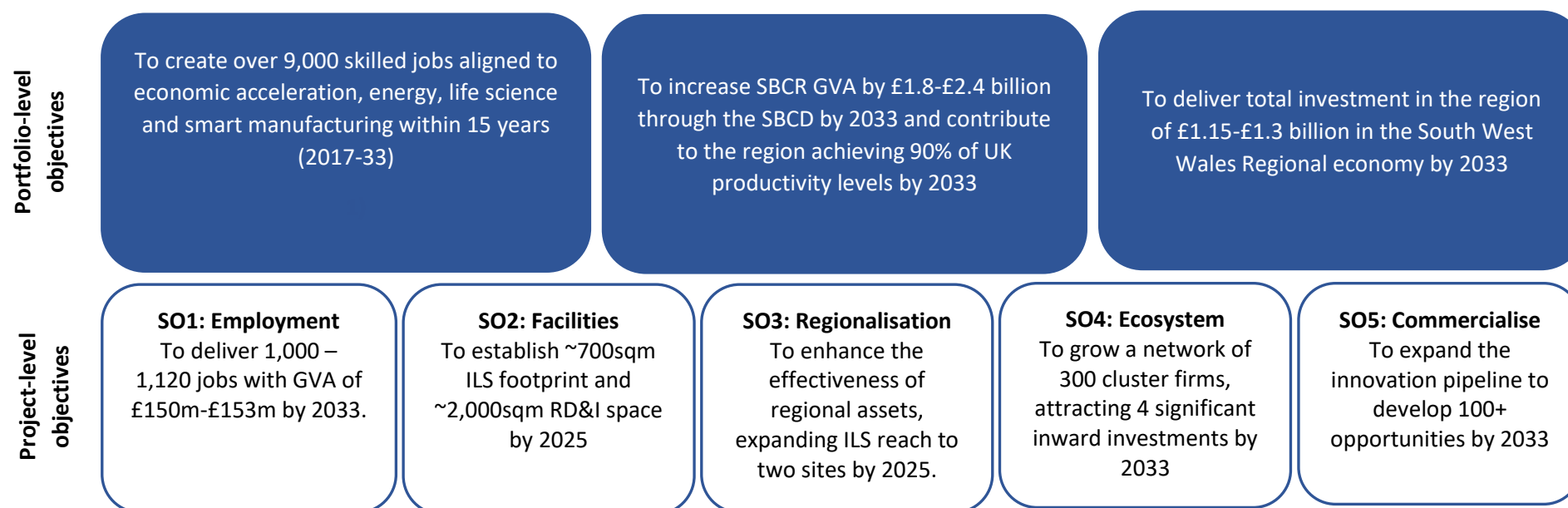
currently incorporated within the South Wales Crucible Science & Innovation Audit¹⁶, this presents strong additionality for the Life Sciences & Health sector.

The Critical Success Factors (CSFs) to support achievement of these objectives included *Strategic Fit, Business Needs, Potential Value for Money, Potential Achievability, Supply-side Capacity* and *Potential Affordability*.

Figure 3.3. below sets out the project-level Spending Objectives against the Swansea Bay City Deal portfolio-level objectives.

¹⁶ <https://www.southwalescrucible.co.uk/>

Figure 3.3: Project links to the SBCD portfolio objectives



The project's outcomes and impacts are summarised below, with SMART measures of success identified.

Table 3.4: Spending objectives, outcomes and impacts

Spending objectives
<ul style="list-style-type: none"> • SO1: Employment: To support the growth of high value employment within the sector by creating in excess of 1000 jobs across the region by 2033. • SO2: High Growth Facilities: To expand the specialist facilities and pipeline of new enterprises in the sector through the creation of 12,000m² of mixed laboratory, office and test-bed space within the region over the 15 year period. • SO3: Regionalisation: To enhance the regional Innovation ecosystem by expanding the ILS infrastructure to include two further sites by 2025. • SO4: Ecosystem: Engage the region and UK sector profile by capturing major international opportunities through capturing 4 major inward investment opportunities and developing a cluster of 300 firms within the region by 2033. • SO5: Commercialisation: To expand the pipeline of innovation opportunities to include the supporting in excess of 100 new innovation and commercialisation opportunities during the project period with a £48m co-investment into enterprise partnerships by 2033.
Outputs
<p>The project responds to unmet need to deliver key outputs across two phases. The project encompasses:</p> <ul style="list-style-type: none"> • Establishment of ILS activities (~700sqm) at the Morriston Regional Hospital site, co-locating commercial and academic collaboration alongside clinical research and development, fostering technology development in areas of regional excellence such as burns and plastic surgery, surgical oncology, pathology, data science, orthopaedics, and cardiac care • Design, planning, submission and procurement framework for new road access from the M4 to a 55-acre site already in NHs ownership adjacent to the north of the hospital, unlocking the site's investment potential, and delivering a major portion of the long-term benefits alongside; • Creating ~2,000sqm of dedicated research & innovation space within the Sketty Lane Sports Park. This will include multifunctional laboratories, teaching/skills space; "The Academy" (providing opportunities for industry in the delivery of health; well-being, and sports services); an Institute for Innovation in Sport Exercise and Rehabilitation Technologies (INSERT) following the ILS/Healthcare Technology Centre model for the development, testing and evaluation of medical, health, well-being, and sport technologies, and an innovation centre to support commercial collaborations. The facility will also nurture links with Data Science for data analytics, forecasting and insights.
Outcomes
<p>The project will create lasting and sustainable economic growth within the region, and significant reputational benefits. By 2033 its outcomes will include:</p> <ul style="list-style-type: none"> • New jobs: over the period, the project will deliver between 1,000 - 1,120 jobs with a Gross Value Added of £150m - £153m. • Retention of skills and staff in the region, in addition to attracting leading professionals and academics, so that South West Wales becomes a destination of choice. • More than 100 new commercialisation opportunities. • Enterprise growth: developing a related cluster of 300 enterprises. • At least four significant inward investment. • Leveraging additional investment in sports facilities and infrastructure (est.£60m).

- A 55-acre site where SMEs and larger companies in the Sports Tech and Med Tech sectors can establish a presence and access research, clinical and test bed facilities co-located with further developments of the Region's major hospital and laboratories, and be integrated within the life sciences, well-being and sport innovation ecosystem.
- A national centre of excellence with performance sport infrastructure, attracting Sports Tech and related companies and establishing Swansea as a sport and well-being innovation test bed that aligns world-class facilities with elite teams, national governing bodies, community sport, and technology and research.

Impacts

The longer-term impacts arising from the project include:

- Expanded infrastructure aligned to regional assets and activities, enabling the region to remain competitive, attract innovative enterprise to the region and avoid the migration of business away from the region.
- Co-location of research excellence alongside clinical specialisms, health service delivery, and sport-related organisations, catalysing the region as an internationally significant environment for innovation in Life Science, Well-being and Sport.
- Infrastructure and an ecosystem that promotes the region as a transformative testbed and as an internationally significant destination for sport, and sports innovation.
- Data science and intelligent systems driving research, innovation and improvements across health, sport and academia.

3.4 Existing arrangements

The challenges and opportunities faced by the South West Wales Region, including the spatial divergence of economic performance and how this related to wider socio-economic context have been well-documented (SQW 2014, OECD 2020). The dual challenges of restructuring the region's economy towards higher GVA sectors and alleviating population health problems converge around the Life Sciences, Health and Well-being sectors, noted as a regional strength (SU 2018).

The project builds on the distinct ecosystem and track record of success delivered by the partners over a fifteen-year period and which has proven its ability to attract investment and talent, grow businesses and nurture start-ups. It therefore benefits from the University/Health Board/industrial collaborations driving life science research and innovation, creating a unique testbed within the Swansea Bay City Region, driving innovation and entrepreneurship and attracting commercial investment.

3.4.1 Life Science ecosystem

The Institute of Life Science (ILS) is the research and innovation arm of Swansea University Medical School, which works with Health Boards and the public and private sectors to deliver innovation in life science research, contributing to economic gain whilst improving patient and citizen quality of life.

ILS has already supported **the creation of over 30 new companies and 800 new jobs**, together with 49 collaborative projects with industry, and **attracted over £36m in further inward investment**. The social and economic impact of the ILS venture, which is now fully sustainable, cannot be overstated, to date delivering more than £3 back to the economy for every £1 in public money received. During the period 2004 to 2013 alone, ILS worked with 279 enterprises active in the Life Sciences, Health & Well-being sectors across the South West Wales region, with 243 enterprises (87%) qualifying as small

and medium sized enterprises (SME). This grouping is comparable in scale with the Scottish cluster at the turn of the century (Cooke 2001) though with a different nature to its 'core'.

ILS is home to a wide range of internationally recognised and celebrated academic research and teaching activities. The Medical School is ranked as the 3rd overall in the UK, behind Oxford and Cambridge and has been ranked 1st in the UK for research environment and 2nd in the UK for research quality (REF2014). Adjacent to the Medical School, the College of Human & Health Sciences has been ranked 2nd in the UK for Nursing training.

As Wales's premier purpose-built medical research facility, ILS houses wet and technical laboratories, clinical research, innovation and delivery facilities, co-located with significant and expansive academic expertise, business support and incubation space to enable commercialisation of research and innovation outputs.

The ILS ecosystem houses the **Joint Clinical Research Facility (JCRF)** with a state-of-the art clinical trial and imaging suite to support both NHS and commercial product and medicines development. JCRF hosts ~50 collaborations, ranging from development of medical devices through to pharmaceutical trials, including projects with companies such as AstraZeneca, Eli Lilly, Novo Nordisk, Merck, and Boehringer.

The **Clinical Imaging Facility** at the Singleton site boasts MRI and CT scanning capabilities to support clinical and non-clinical research studies. JCRF at the Morriston Hospital site links with tertiary services and provides a valuable resource for clinical trial research.

The £22 million **Centre for Nanohealth (CNH)** works across academia and industry to test, develop and evaluate devices, sensors and processes for diagnostics, regenerative medicine and therapies through the application of nanomedicine and has leveraged a further £15m since initial investment. CNH, believed to be the first of its type in Europe, brings together academic expertise from Engineering, Science, Health with the NHS and industry in a 1600sqm purpose-built facility, equipped with state-of-the-art technology and facilities. In addition to attracting £10m+ in inward investment, the Centre has already assisted over 250 enterprises, supporting the creation of over 100 jobs, 14 new businesses and the creation (or improvement) of more than 180 products, processes or services.

The **Healthcare Technology Centre**, as a part of the wider £24m Accelerate programme, is supporting collaborative innovation projects with industry to further the economic development across the region, increasing employment and opportunities for graduates and supporting the development of new products, processes and services to enable the latest technologies to be adopted by the NHS and ultimately to support the health, wealth and well-being of the population of Wales. The Centre has dedicated commercial laboratories and has invested c.£1m in equipment. (Accelerate is a Pan-Wales initiative to drive the acceleration of new health and wellbeing products and services to the marketplace. The programme will realise over 80 collaborative projects with industry, employment increases exceeding 100 new jobs within Welsh enterprise and the leverage of over £1m private sector investment.) See also Appendix A6 for further information and examples of companies supported through the Healthcare Technology Centre and ILS ecosystem.

The **Data Science** facility was funded by the Medical Research Council (MRC), Economic and Social Research Council (ESRC) and Welsh Government and opened in 2015. The facility houses the Secure Anonymised Data Linkage (SAIL) databank enabling collaborative research to unleash the potential for the use of large-scale data and population research to support medical practice, policy design and patient well-being. It is supported by the MRC led Health Data Research UK and the ESRC funded Administrative Data Research Centre Wales.

Alongside the ongoing research to inform well-being policy and practice, the **Health & Well-being Academy** at the College of Human and Health Sciences, offers a range of flexible services which are complementary to those provided by the NHS, allowing people to make informed and positive lifestyle choices to improve their health and well-being. All together, they create a seamless life science innovation ecosystem across industry, health sector and academia. With an aim to support patients to live healthier lives whilst training the next generation of healthcare professionals and engaging with industrial partners, the health and well-being academy was launched in 2017. Since then, the Health and Well-being Academy has been widely praised for reducing waiting lists and pressure on NHS service providers whilst empowering people to take control of their own health; this includes being shortlisted in the 2018 Guardian University Awards in the Social and Community Impact category.

At the **Morrison Hospital** site, the project benefits from regional excellence in wound care, burns and plastic surgery, oncology, trauma and orthopaedics, and cardiac care. There are a number of established and existing fields of research and innovation activity built upon the immediate access to patients and their environment in the tertiary setting. The ARCH vision to transform both hospital sites into integrated Life Science, Well-being & Sport Campuses would see a step-change in innovation demonstrated through the previous investment and outcomes at Singleton.

At the Morrison Hospital site, there are a number of established and existing fields of research and innovation activity built upon the immediate access to patients and their environment in the tertiary setting. The ARCH vision would see the transformation of services to align with the evolution of the Singleton site as a leading site for ambulatory care and the development of regional specialist services at Morrison Hospital.

3.4.2 Sporting infrastructure

The Life Sciences extends into the field of sports and exercise science, where the University's **School of Sport and Exercise Science** undertakes world-leading research and innovation relates to health and well-being, children's physical activity and exercise physiology.

In addition to the grassroots, community sports and leisure centre facilities operated by the local authorities, the regional sports infrastructure includes the Sketty Lane Sports Park, which includes the University's Gym, Athletics and Hockey Centre, the Swansea Tennis and Squash Club, and the Wales National Pool (home to the Swim Wales Elite Performance Centre). Elite sport is also supported at the Liberty Stadium, Swansea (Swansea City FC, Ospreys Rugby), Parc y Scarlets, Llanelli (Scarlets Rugby), and the Fairwood training ground, Swansea, which includes six Premier League quality pitches, cryotherapy, performance analysis and sports medicine facilities following £6 million development by Swansea City Football Club and the University.

The natural environment around the Swansea Bay City Region creates further opportunities for sport, health and well-being pursuits, including watersports, walking, cycling, mountain biking and climbing. The region also hosts popular mass participation events, including marathons, Iron Man Wales, half marathons and 10ks.

3.4.3 Sports and Exercise Science

The University's School of Sports and Exercise Science is ranked in the UK Top 10 for the quality of its research, and 5th for the impact of its research (REF2014). The School has notable strengths in key areas of direct relevance to this business case: elite and performance sport, and exercise medicine and health.

Elite and performance sport encompasses work with professional athletes, including high level performance science support in partnership with all elite teams in Wales. The team has worked with Team Wales athletes in the 2014 and 2018 Commonwealth Games, the English Institute of Sport, (Winter Olympic games in 2014 and 2018), Summer Olympic games (Rio 2016) and Rugby World cups (England 2015, Japan 2019). The School's work is supporting Team GB preparation for the upcoming Olympic Games in Tokyo (2021) and Beijing (2022). Members of the team founded the Welsh Institute for Performance Sport, in collaboration with Sport Wales and industry partners.

Examples of the School's engagement with collaborative partners in the Sports Tech field include the partnership with Sport and Well-being Analytics that led to the development of the PROTECHT intelligent mouthguard system used in concussion prevention research, and a £1.8 million SMARTExpertise grant to produce heated garments for Olympic athletes.

Exercise medicine and health expertise focuses on physical activity and public health, clinical exercise science and engineering, and analytical approaches to quantifying human movement with a particular focus on physical activity and health of children, and exercise and diabetes. In partnership with Sport Wales and Public Health Wales, researchers founded The Welsh Institute of Physical Activity, Health & Sport, a network of academics and stakeholders from community, sport, public health, third sector and industry to develop solutions to physical inactivity.

Key initiatives include diabetes prevention work within the €8.9 million, European Commission PREVIEW consortium and have worked with the pharmaceutical industry for studies related to exercise and Type 1 diabetes, for example to support the Novo-Nordisk professional road cycling team

The School also contributes to the Cystic Fibrosis and Physical Activity Strategic Partnership, the National Centre for Public Health Research Wales, the UK Asthma Research Centre, Centre for Aging and Dementia Research and Diabetes Research Unit-Wales, as well as conducting international work to develop a school physical activity, obesity and health research network.

3.4.4 Sports-related research infrastructure

Swansea University has invested c.£3 million in c.1,000sqm of Applied Sports Technology, Exercise and Medicine (A-STEM) research facilities, including biomechanics, physiology and psychology laboratories with specialist facilities for biochemistry, body composition testing, an environmental chamber, a special populations laboratory, and nutrition preparation areas.

Sports and Exercise Science researchers also have access to other facilities and infrastructure across the University, including a wind tunnel (which has been used in partnership with GB Cycling and GB Bobsleigh), and specialist equipment in the Institute for Structural Materials, Welsh Centre for Printing and Coating, and the Advanced Imaging of Materials facility. Collaboration with Engineering researchers has led to the development of the 'Slamtracker' movement tracker for measuring physical activity, as well as advanced analytical signal processing methods that have been used in collaboration with Sport Wales to publish new insights into physical activity and quality of movement in children and young people.

Researchers also have access to the Clinical Research facilities offered by the School of Medicine and collaborate with the Diabetes Research Unit-Wales to undertake clinical trials and fundamental research into the mechanisms underpinning whole systems physiology in diabetes. Clinical facilities that support exercise related trials for children with cystic fibrosis and asthma are ongoing, while Swansea's Clinical Imaging Facility and midwifery and obstetrics expertise have been used for studies on breast cancer, and exercise and pregnancy. Finally, collaboration with partners in Data Science allows data linkage studies to be developed and studied.

This project will establish new, complementary facilities to enable Sports and Exercise Science research, development and innovation, including:

- Multifunctional laboratories.
- Teaching/skills space.
- An Institute for Innovation in Sport Exercise and Rehabilitation Technologies (INSERT) for the development, testing and evaluation of medical, health, well-being, and sport technologies.
- An innovation centre to support commercial collaborations.
- Opportunities to nurture further links with Data Science for data analytics, forecasting and insights.

It will be apparent that there are significant synergies between the research activities of the Institute of Life Science and the School of Sports and Exercise Science, though these linkages have not been fully exploited. The project therefore represents an opportunity for these disciplines to cohere around the MedTech/Sports Tech axis, and to capitalise on the potential offered at the intersection between sports science and health, well-being and life sciences.

3.4.5 Complementary infrastructure and investments

In addition to ILS infrastructure, clinical facilities and sports infrastructure, the project calls on a range of regional investments and specialist expertise at every stage of the innovation journey, from initial concept and design to manufacture, clinical trials and commercialisation, and from digital/data-driven innovation to semiconductors and printed electronics.

At **Swansea University**, specialist facilities and initiatives include:

- The *Computational Foundry*, a £30 million investment in computational sciences, with strengths in user experience, visualisation, verification, AI and machine-learning. The Foundry houses the £3.8 million CHERISH Digital Economy Centre (which includes a focus on HealthTech) and the

EPSRC Doctoral Training Centre in Enhancing Human Interactions and Collaborations with Data and Intelligence Driven Systems.

- World-leading *engineering research infrastructure*, including for systems and process engineering and analytics materials, advanced imaging, and advanced manufacturing (with links to the Welsh Data Nation Accelerator initiative). The University is also home to the Welsh Centre for Printing and Coating, a centre of excellence for printed plastic electronics.
- The *Centre for Integrative Semiconductor Materials*, a £30 million investment in innovation in semiconductor device manufacture
- *AgorIP*, a £20 million investment in support for Intellectual Property commercialisation, which has to date supported 234 opportunities (more than 50% in the health and well-being sector), created 23 jobs, filed 19 new patents and supported 18 new companies.
- *Legal Innovation Lab Wales*, a £5.6 million investment supporting innovation in LegalTech, with interests including technology regulation and intellectual property.
- *Value-Based Health and Care Academy* and *All Wales innovation Academy for Health and Social Care*. A c.£5.4m investment by Welsh Government as part of its Intensive Learning Academy Programme delivering education, research and consultancy in these critical policy areas.

The project also benefits from access to the expertise of the £4.5 million *Awen Institute for Creative Ageing Industries* (planned to facilitate and develop innovative research partnerships to support individuals and communities to live well as they age) and the Welsh Government-funded (Health and Care Research Wales) *Centre for Ageing and Dementia Research* (CADR), a national, multi-faceted virtual organisation that takes an holistic approach to addressing the opportunities posed by longevity. Other **regional investments** that will benefit the project include the *Assisted Technologies Innovation Centre* at the University of Wales Trinity St David (also part of the Accelerate initiative, with expertise in product design and user experience), the innovation and incubation infrastructure of the planned Digital District on Swansea's Kingsway, and *Pentre Awel life science and well-being village*.

The partners therefore lead a thriving environment of innovation activity (academic, industry and NHS-led) and seek this opportunity to expand the current infrastructure to support growth into targeted new areas, including within sports and well-being technologies.

3.4.6 South Wales health and life sciences innovation corridor

The South Wales Crucible Science and Innovation Audit (SIA, December 2018) highlights health innovation as a key strength along the South Wales corridor. The SIA recognises impressive clinical innovation landscape and acknowledges the “significant growth potential in a data-centric approach to health that interconnects our strengths in health informatics, neuroscience and clinical/medical technology innovation” (p67) alongside industrial capabilities and a highly integrated Welsh NHS system.

The innovation corridor encompasses specific commercial strengths such as wound healing, medical devices, single-use technologies, diagnostics and clinical trials, and is home to multiple Contract Research Organisations and several key anchor companies, including pharmaceutical firms (Norgine, Penn Pharmaceuticals); diagnostics firms (Ortho Clinical Diagnostics, Siemens Healthcare Diagnostics) and medical devices manufacturers (Biomet UK).

Figure 3.4 below shows the key health and life sciences infrastructure in South Wales. Note that the private sector-run innovation site on the former GE Healthcare site has a focus on life science incubation and start ups, while the Welsh Government-owned innovation space at Pencoed has 18 firms on site, of which six are in the life sciences sector. None on the facilities identified below has a focus on Sports Tech, which is a key differentiator for this project.

(A table setting out the project's synergies and differentiators with the Pentre Awel initiative is included as Appendix A2.)

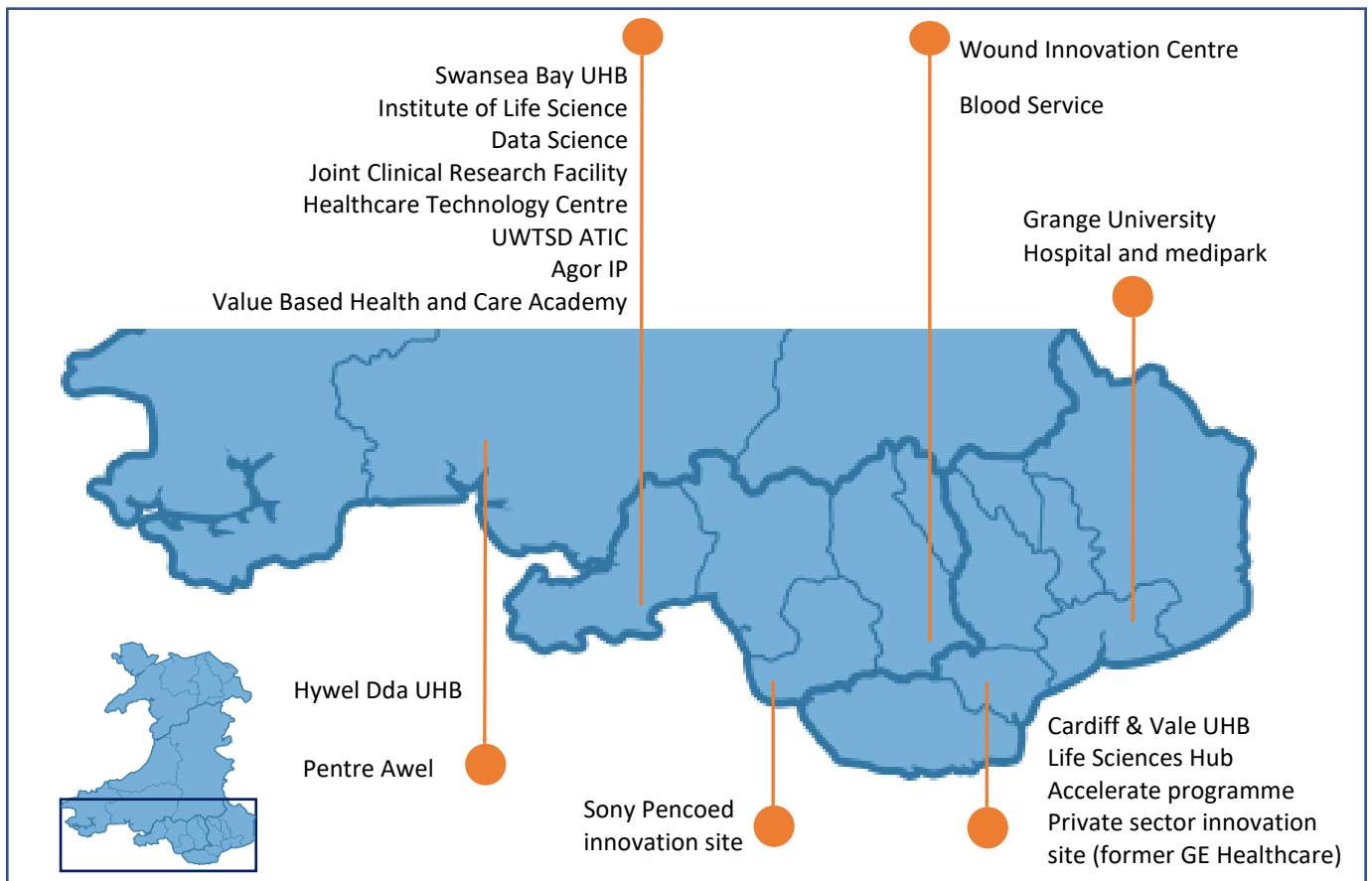


Figure 3.4: South Wales Health and Life Sciences Innovation Corridor

Note that a meeting of organisations from across the innovation corridor was held on 10 June 2021 to discuss individual projects and initiatives, and to scope opportunities for collaboration. This was coordinated by the Life Sciences Hub Wales and included representation from Cardiff and Vale UHB, Swansea University, Welsh Blood Service, Cardiff University, Aneurin Bevan UHB, and Welsh Government. With regard to the strategy for wider innovation and research landscape in the region, the University and the two University Health Boards are in regular dialogue to ensure that the project continues to be supported and aligns strategically with each partner's ambitions for driving Research, Development and Innovation.

3.4.7 Investment and internationalisation

The ILS ecosystem has attracted significant and sustained previous investment from sources including Government, Research Councils and the European Union, primarily for RD&I initiatives housed in the

Institute of Life Science at Swansea University but delivered in collaboration with the Health Boards. Each project delivers health, well-being and economic benefits within the region.

Project/investment	Value
ACCELERATE	£24m
AGORIP (and AGORIP expansion)	£20m
ARCH (A Regional Collaboration for Health)	£1.2m
Avenues of Commercialisation for Nano and Micro Technologies	£2.5m
BHF Wales Research Group	£2.3m
Bucanier (biomedical research, public health, population sciences, informatics, and industry)	€2.3m
Celtic Advanced Life Science Innovation Network (CALIN)	€12m
Centre for Administrative Data Research and Evaluation	£5.5
Centre for Ageing and Dementia Research	£1.9m
Centre for Global Burn Injury Policy & Research	£2m
Centre for the Improvement of Population Health through e-Records Research (CIPHER) – The Farr Institute for Health Informatics Research	£13.1m
Cluster for epigenetics and ADC therapeutics	£1.3m
Diabetes Research Unit	£2.6m
ESCR Administrative Data Research and Evaluation (CADRE)	£4.6m
ESF (European Social Funds): ION: West Wales and the Valleys, Leading Business Growth	£2.4m
Health & Well-being Academy	£2m
Health Data Research Hub	£1.1m
Innovation Capacity Development Fund	£1.1m
Institute of Creative Ageing Industries	£2.6m
Institute of Life Science (1 & 2)	£28m
Institute of Life Science Data Science	£10.5m
KESS II: Knowledge Economy Skills Scholarships	£4.6m
MRC Mental Health Pathfinder + MQ Mental Health Data Science Health Research	£1.8m
National Centre for Population Health & Well-being Research	£1.8m
National Mass Spectrometry Facility and Mass Spectrometry Service	£6.6m
PATROLS (Physiologically Anchored Tools for Realistic nanOMaterial hazard aSessment)	€12.7m
Secure Anonymised Information Linkage (SAIL)	£2m
Social Care School	£1.4m
The MRC (Medical Research Council) Consortium for Medical Microbial Bioinformatics	£2.9m
UK Multiple Sclerosis Register	£1.1m
Wales Centre for Primary and Emergency Care Research	£1.3m

Table 3.5: Relevant investment in the regional life sciences ecosystem

The ecosystem also benefits from key international partnerships with organisations who collaborate closely on RD&I initiatives, and who will contribute to the project's success through their continued engagement. Partnerships include:

Country	Partner
Australia	University of Canberra University of Western Australia
Austria	Graz Medical School
Belgium	KU Leuven
Canada	University of Alberta University of Toronto
Czech Republic	Charles University Prague
Denmark	Steno Diabetes Copenhagen Aarhus
France	Universite Grenoble Alpes
Germany	JGU Mainz Bayreuth Düsseldorf
Greece	University of Peloponnese
New Zealand	Auckland University of Technology
Portugal	University of Porto
Spain	UPF Barcelona University of Granada University of Madrid
Switzerland	Bern Inseptial
USA	University of Houston University of Texas at Austin Baylor College of Medicine Houston Methodist Research Institute Rice University University of Texas Health Science Center at Houston University of Texas Medical Branch at Galveston University of North Carolina

Table 3.6: International partnerships

3.5 Business need

The global Life Sciences, Health and Well-being sector is a major driver of UK productivity (Bell, 2017) and is characterised by the challenge and opportunity of disruptive forces, including demographic change and pressures upon public health systems. In parallel, while the value of sales of pharmaceuticals and medical technology are projected to grow strongly, the market structure is evolving with a reduced role for blockbuster drugs and new technological frontiers being crossed through the Internet of Things and Artificial Intelligence (Deloitte, 2018).

Wales's life sciences sector is both fast-growing and innovative, employing nearly 12,000 people in 299 companies with a £2bn annual turnover. Moreover, it has seen on average 5% annual growth in recent years (LSIS). Table 3.11 highlights the companies based within Wales within the life sciences sector. Aligned to the growth of the life science and health market, there is a growing well-being and sport sector. Inherently linked through prevention and rehabilitation, the sport industry has the potential to further support both the health and well-being of the regional population through tackling issues including obesity, lung and cardiac health, mental health, and health inequalities.

In 2001, the UK Department for Trade and Industry (DTI 2001) identified a nascent biotechnology cluster within Wales. Now employing 10,000 people across Wales and annually contributing £2bn to the economy (WAG 2014), the Welsh Life Sciences sector is developing rapidly, particularly in comparison to other sectors which have suffered badly during recent years.

Although the cluster did not appear in the 31 key UK clusters described in the more recent McKinsey (2014) review, it is seen in subsequent analysis by consultants (SQW 2014), and this also applied to many clusters identified in 2001 by DTI, including ones that had grown during the intervening period.

Importantly though, this cluster has become intertwined with Information and Communications Technology (ICT), and Advanced Manufacturing leading to a vision for an Internet of Health & Well-being. This development has built upon sub-regional innovation system strengths in medical technology, well-being and health & bio-informatics, within industry and academia.

Over the past decade the Welsh Assembly Government has targeted development of the sector through its strategy, A Winning Wales (WAG 2004), initially defined as ‘pharmaceuticals/biochemicals’ was identified as important for future economic growth (WAG 2005). This has been reflected in more recent Sectors Delivery Plan (2013), and UK-level Industrial Strategy (BEIS 2017).

Table 3.7: Active enterprises by priority sub-sector – Life Sciences

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	% change: Latest over:		
												2007	2016	
Wales:														
Industrial Biotechnology	35	40	35	30	25	25	20	20	25	25	20	-44.4%	-16.7%	
Medical Biotechnology	105	150	130	120	120	110	110	110	135	140	140	30.9%	0.0%	
Medical Technology	110	110	110	110	95	100	100	115	115	120	120	7.6%	-1.7%	
Others (inc Pharmaceuticals)	25	25	30	30	30	40	45	45	45	45	50	102.4%	10.8%	
Total Life Sciences	275	325	305	285	270	275	275	295	320	330	330	18.5%	-0.3%	
UK:														
Industrial Biotechnology	480	435	400	380	335	330	345	350	350	345	380	-22.3%	3.5%	
Medical Biotechnology	2,690	3,300	3,175	3,090	3,015	2,980	2,955	3,255	3,555	3,880	4,075	51.5%	5.5%	
Medical Technology	2,380	2,180	2,385	2,320	2,300	2,305	2,345	2,570	2,710	2,870	2,855	20.0%	-0.5%	
Others (inc Pharmaceuticals)	550	490	625	675	755	895	1,020	1,100	1,220	1,330	1,485	166.6%	10.0%	
Total Life Sciences	6,080	6,405	6,585	6,450	6,410	6,515	6,665	7,275	7,835	8,410	8,755	44.0%	4.1%	

Source: Welsh Government analysis of Inter-Departmental Business Register, Office for National Statistics

Over 80% of sector employment is within medium/large enterprises. However, the Welsh ‘ecosystem’ also comprises scores of smaller companies and sole traders, many of whom are also globally active. While the South East of England accounts for the largest share of the sector, there are specific strengths across the UK, including within Wales a significant proportion of medical technology activity (Table above). The comparative strength of this sub-sector is highlighted when compared in more detail against other UK regions (Figure 3.4).

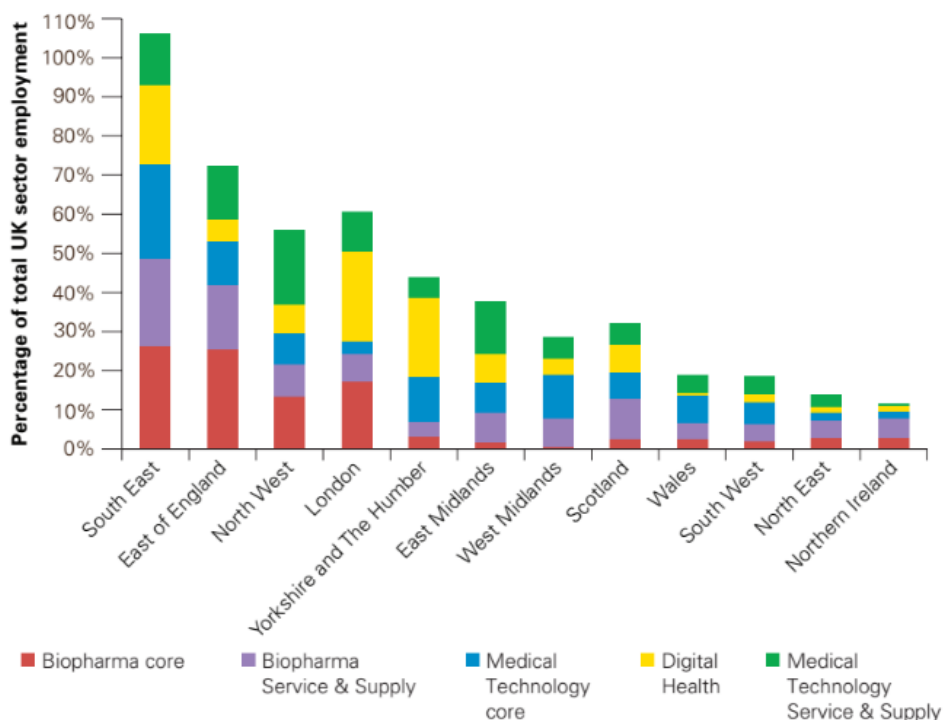


Figure 3.5: Regional employment in the life science sector and digital health segment displayed as a percentage of the total UK life science employment in the sector or segment.

The regional diversity within the sector ranges from global companies manufacturing medical supplies such as Ortho Clinical Diagnostics, through to indigenous enterprises such as Biotec Services International providing specialist clinical trials supplies and support.

The relatively low showing for the pharmaceutical sub-sector in Wales suggested by Figure 4 hides a mass of associated activity in clinical trials, drug discovery and toxicology research which is featured elsewhere. Indeed, the quality of work across Wales in the development of new diagnostics and therapies is world-class. The 'South West and Central Wales' region is home to a diverse Life Sciences enterprise ranging from early-stage academic spin-outs through to major employers producing products for household names. ILS for example works with some 250 enterprises ranging from local specialist consultants through to multinationals. While the regional employment within core Life Science is the smallest amongst Welsh Government Priority Sectors, its high GVA per worker, significant growth potential and crossover with other high-value sectors are important drivers.

As described by NESTA (Hutton and Schneider, 2008), the nature of innovation brings inherent uncertainty and, therefore, imperfect allocation of resources into the unknown. This makes for challenging market conditions where information paucity and asymmetry, and subsequent risk aversion, leads to market failure as investment remains within sectors (or mature segments thereof) and regions providing historic returns.

It is recognised that that the sector, and even individual opportunities, are inherently complex and will involve transfer of resource or opportunity cost, potentially elsewhere within the UK. Conversely, such effects may be positive, enhancing returns elsewhere. With regard to the former, the

accompanying appraisal within the Economic Case aims to accommodate this through consideration of additionality in line with intervention and context-specific factors (Partnerships, 2008).

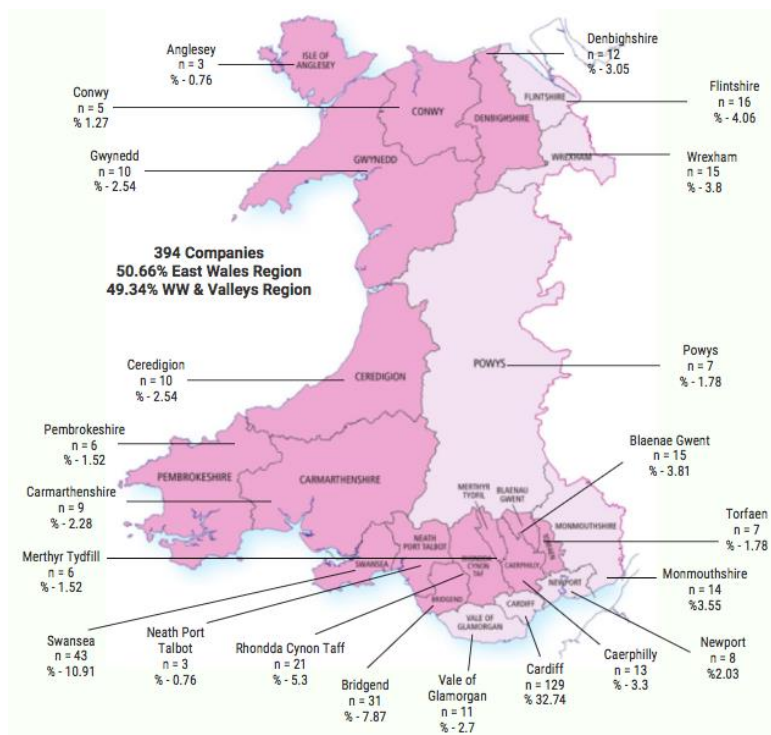


Figure 3.6: Life Science Companies based in Wales

The potential to develop the regional Life Sciences & Health Well-being sector is evidenced since the start of the millennium (DTI, 2001) and more recently in the Life Sciences sector industrial strategy (Bell, 2017). The specific medical technologies focus of the regional cluster is reflected in the ongoing South Wales Crucible Science & Innovation Audit (SU, 2018), along with other research (Davies et al., 2018). This smart specialisation focus (Foray et al., 2009) positions against potential wider displacement while also building upon recognised strengths.

Subsequent investment into the regional sector has supported the development of a cluster focused upon these specialisations, which are reflected in the original Internet Coast proposal (Swansea University, 2017). However, the development of this regional cluster is stymied by a lack of capacity within the regional innovation system as shown in research by the Regional Learning and Skills Partnership (RLSP, 2013). The specific market failure results from a number of factors though predominantly from imperfect information and market power. The provision of infrastructure to support Life Sciences, Health & Well-being innovation, particularly in the challenging translation gaps has gone some way to addressing this, though the Open Innovation dynamics and peripheral region give specific context (Hewitt-Dundas and Roper, 2018).

The pent-up demand for facilities within the region (RLSP, 2013) does not in itself evidence market failure, though coupled with the ongoing lack of market response shows imperfect market treatment of an inherent barrier to entry in the creation/provision of such RD&I infrastructure. Each phase of the

ILS has become rapidly saturated while charging above 'market' rates¹⁷, which has spurred investment into activity though not yet further infrastructure. Some opportunities have migrated elsewhere in the UK, though many are unable to transfer due to inherent requirements for local smart specialisation resources such as ongoing R&D¹⁸. This highlights how intellectual (Maskell, 2001) and geographic proximity of activities such as underpinning research, clinical research and commercial strategy are important factors for development, as witnessed in other life sciences clusters. This is echoed in the regional experience where the Science Centre within the National Botanic Garden of Wales¹⁹, located further from other partners, has taken longer to achieve higher levels of utilisation. This phenomenon is shown within the region, with the nature of the engagement by start-up and mature firms being based predominantly on local scientific or other unique knowledge/resources (Davies et al., 2015).

Elsewhere in the UK, bottlenecks have been identified (MedCity, 2016) which constrict the growth of the sector. Within the 'golden triangle' for example where public and private investment has been historically focused there is a <5% availability of specialist laboratory space (Bidwells, 2018). These mature clusters underscore the market power failure whereby incumbent/historic players and facilities created a market power dynamic of barriers to entry, which has not found effective new balance. For example, taken more broadly, technology-based innovation facilities (like many systems) should operate at ~85% capacity to allow for effective throughput.

In parallel with such infrastructure bottlenecks there is a paucity of patient intelligent capital to support such innovation in the UK (Bell, 2017), which may be part of the lack of market confidence to provide the former. Efforts such as those of the Technology Development Centres through Accelerate, IP commercialisation platform AgorIP and the Development Bank for Wales are examples of aligned efforts to develop co-investment for Life Sciences, Health & Well-being innovation within the region.

These initiatives have achieved high levels of co-investment in opportunities based upon regional smart specialisation. The ability of these initiatives to attract highly competitive co-investment for opportunities demonstrates the effect of information asymmetry. This reflects the fact that it has been demonstrated that national systems can exhibit asymmetries in establishing industry-academic collaboration (Abramo et al., 2011), with proximity playing an important role. While perfectly efficient use of information is challenging enough in the broader economic context (Stiglitz, 2000), it is compounded within peripheral regions with weaker social capital and transport linkages. The emerging successes within the region show the failure for the market to distinguish short and longer-term gains, which is particularly challenging in sectors characterised by inherently long timescales for commercialisation (Bell, 2017). In this respect, the 10-15yr timescale to realise life sciences opportunities is reflected in the efforts since the original DTI (2001) report on the cluster.

The Institute of Life Sciences itself reflects this timescale and has been part of addressing the challenge of cluster management (EU, 2010), and has subsequently been noted by Welsh Government as a key component in its Innovation Policy (WG, 2014). Much of the effort within this initiative and planned

¹⁷ This is undertaken to provide compliance with State Aid regulations, provide sustainability to infrastructure, ensure viability of opportunities, and protect against displacement.

¹⁸ As evidenced from ILS 'graduate' information, provided by centre management.

¹⁹ <https://botanicgarden.wales/garden-areas/canolfan-wyddoniaeth/>

within Campuses is to negate the market power inertia and address the information asymmetries by creating a critical mass of activity linked strongly with UK networks and programmes.²⁰

Developments such as the establishment of the Pfizer²¹ innovation initiative support the argument of information asymmetries being an important market failure. Their development of RD&I activities in the region have come about following engagement with ILS. However, both investments are to an extent made on the basis of anticipated forthcoming infrastructure to deliver a scale of activity in the in the region. Notably, both organisations have a focus on Life Science, Health, Well-being & Sport smart specialisations and are intertwined with existing and planned infrastructure.

The Open Access Open Innovation model adopted by the Internet Coast protects against moral hazard between public and private sectors by embedding co-investment and shared benefit. It builds upon the infrastructure approach of ILS negating market power and information asymmetry, while using the AgorIP open innovation commercialisation model to build mass and engagement overcoming information asymmetry. As projected in the Economic Case, this will create deal flow to address market failures, drawing further investment into opportunities and giving confidence for further private sector capital investment.

3.5.1 Cluster growth – development, attraction and retention

Employment created with ILS assistance during the period 2004-2015 demonstrates demand within the sector. This shows steady development with the growth of research communities at the completion of each ILS facility in 2007 and 2012. Employment growth in the wider sector can be seen as tracking the development of scale in R&D.

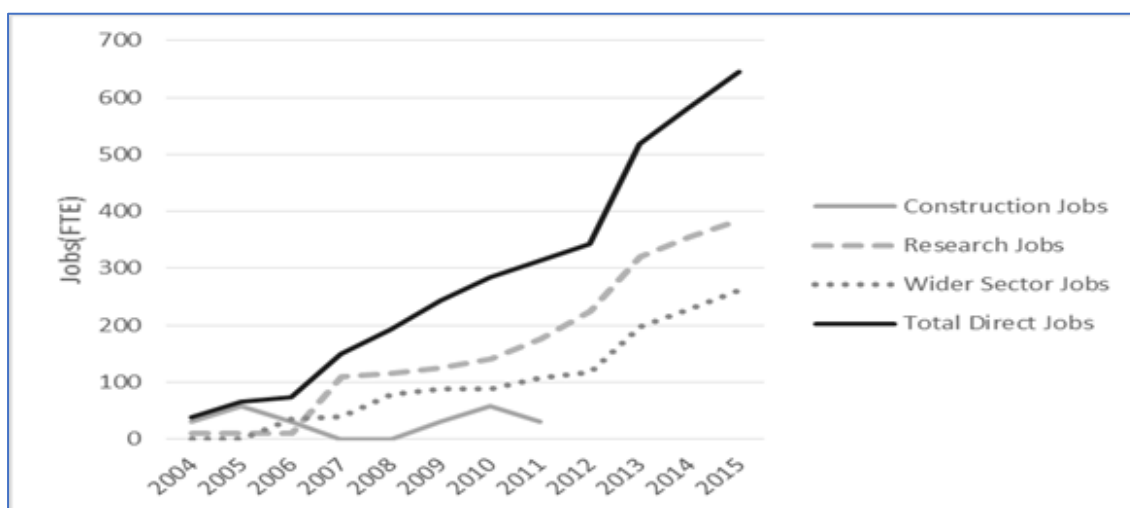


Figure 3.7: Jobs created as a result of ILS assistance between 2004-2015

Using the ILS (Phase 2) job creation and related sector wage data, the combined impact for a range of scenarios (providing sensitivity analysis) was calculated, as shown in Table 9. This includes relevant adjustments for potential deadweight, displacement, and substitution effects, with appropriate

²⁰ <http://www.swansea.ac.uk>

²¹ <http://www.walesonline.co.uk/news/wales-news/pharma-giant-pfizer-set-up-12735075>

discounting of future benefits. For all scenarios, the benefit/cost ratio shows a positive return growing across increasing time horizon which set against the context of weak economic growth in the broader economy is an encouraging position.

Analysis of the 15 years of ILS activity demonstrates high levels of additionality. The targeted technology fields build upon areas of specific expertise and associated industrial capacity in South-West Wales. The intellectual and physical proximity of commercialisation to research and clinical activity is at the core of ILS, and therefore separation across the region or further afield would simply result in loss of opportunities and downstream benefit.

Benefits and Costs £,000	Base		Low		High	
	15yr	20yr	15yr	20yr	15yr	20yr
Direct Employment	91,287	150,431	73,030	120,345	109,544	180,517
Indirect Employment	37,294	61,607	11,934	19,714	53,704	88,714
Combined Employment	128,581	212,038	84,964	140,059	163,248	269,231
Combined (Discounted)	111,472	167,901	73,664	110,917	141,524	213,184
Facility Value	12,000	12,000	10,000	10,000	15,000	15,000
Investment PV	37,900	37,900	37,900	37,900	37,900	37,900
Total	418,534	641,877	291,492	438,935	520,920	804,546
Net Present Value	85,572	142,001	45,764	83,017	118,624	190,284
Benefit/Cost Ratio	3.26	4.75	2.21	3.19	4.13	6.02

Table 3.8: Economic Impact of ILS Phase 2 Project

Many economic development interventions involve purely revenue activities and do not create facilities. Exclusion of facility value from this analysis provides positive returns, resulting in benefit/cost ratios of 1.94, 2.94 and 3.73 by Low, Base and High scenarios at the 15-year time horizon.

The project has been developed to optimise its additionality at regional, Wales and UK levels. Its focus on applying unique specific regional strengths to deliver a unique ecosystem underpins this, by targeting opportunities with an approach, which cannot be achieved elsewhere.

3.5.2 Evidence of demand

We are experiencing increasing demand from growing indigenous and inward-investing companies all aiming to co-locate and draw upon research excellence and clinical expertise. The ILS cluster predominantly around the Singleton site is displayed in Figure 5 and has created a pipeline with space requirements of varying types, though existing facilities are at capacity and the growth trends described above indicate a shortfall in space to accommodate companies in the Life Science innovation space.

The inextricable link between specific research/technology and/or clinical expertise results in opportunities being immobile as they are based upon unique local strengths/specialisations. Following the trend line of growth in ILS at 2017 – based on net annual requirements over 3/5 years - current requirements already represent ~2,800s.m lack of immediate capacity. Since 2017, this demand has

continued to grow as evidenced by the output of the ILS Healthcare Technology Centre and AgorIP opportunities. Both initiatives are realising projects with existing and new companies, attracting significant private sector income (currently running at over projected levels). The ILS experience indicates that a proportion of projects supported at the initial phase will mature in terms of company and employment growth over subsequent years. As the activities require proximity to the relevant research, innovation and/or clinical resources, they risk either being stymied or lost completely.

This assertion is also borne out by SQW's *Commercial Property: Market Analysis and Potential Interventions* report for Welsh Government (March 2020), which identifies the potential net requirement for commercial and industrial floorspace as between 500,000 sq ft and 1.5 million sq ft per year to 2031. The report highlights the demand for innovation centre type space (citing the example of London-based digital/software company establishing a presence at Harbourside, Baglan, in order to access the region's connectivity and Swansea University's graduate pool) and further notes the strong evidence that there is a weak supply of smaller industrial/commercial units relative to demand.

The provision of aligned infrastructure and expanded facilities will enable the region to remain competitive, attract innovative enterprise to the region and avoid the migration of business away from the region. Co-location is the critical element noted in the demand amongst all opportunities. Integration of research, clinical and commercial activities alongside academic and clinical partners is central to the ILS Open Innovation environment and ethos. Start-ups, without the resources to establish their own facilities, and larger collaborators wanting to co-locate with the critical mass of existing research, have oversubscribed the current Singleton capacity. The non-exclusive and shared nature of the facilities promotes collaboration, assists early-stage ventures in accessing facilities, and encourages a range of multinationals to participate.

This approach does though involve a more dynamic use of space, which challenges initial capital investment. Existing facilities have been established with EU Structural Funds and has since become sustainable with rental/licence incomes. However, expanding this income to a scale which supports further growth is a limiting factor, hence the proposal for City Deal support. The track record to date of ILS has demonstrated the potential return through employment and innovation, alongside expanded research capacity.

The current capacity of ILS is saturated, risking the ecosystem's ability to drive innovation, implementation, adoption and commercialisation. Opportunities cannot effectively be redirected in the UK as they seek the unique industry, research and skills attributes offered by the ILS ecosystem. The ILS approach has therefore been developed as a transformative project to expand the ILS capacity and capabilities beyond its current confines delivering longer-term regional benefits.

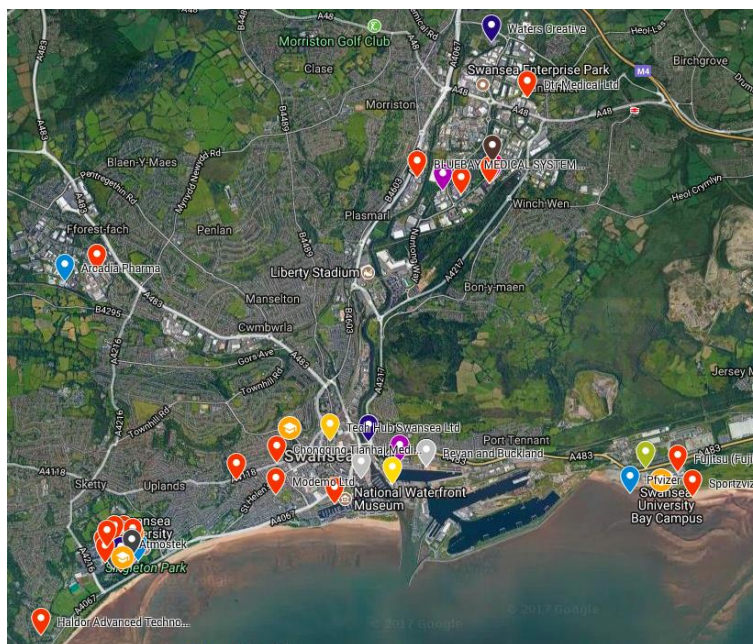


Figure 3.8: Life Science geographical cluster in Swansea

3.5.3 Commercialisation and adoption

Accelerate, the Healthcare Technology Centre and AGORIP are examples of platforms within the existing ecosystem that are driving the development of new products, processes and services, and facilitating commercialisation. Initiatives such as the Bevan Commission Adopt and Spread programme further enhance opportunities for regional and national adoption.

The Research Innovation and Improvement Co-ordination (RIIC) Centres, supported by local health boards, funded by Welsh Government and in partnership with the regional partnership boards, will also look to further the research, innovation and improvement ecosystem across the region, building upon existing strengths and aligning regional assets and activities to maximise impact across Wales through a co-ordinated network.

Through engagement with regional assets and by embedding the open access, open innovation principles embraced by the aforementioned AGORIP and Accelerate, the project will be enabled to further enhance the innovation ecosystem within the region. Emerging initiatives including the establishment of a Centre of Excellence for Innovation for Sport, Exercise Rehabilitation and Enablement Technologies Cymru (INSERT Cymru), which will further advance commercialisation opportunities within the region, with a particular focus on sport and fitness products, innovations, wearables, devices and analytics.

3.5.4 Regulatory issues

The development, implementation and commercialisation of innovations and devices enabled through this project will encounter regulatory challenges, especially for medical technologies.

The Medicines and Healthcare products Regulatory Agency (MHRA) regulates all medical devices – e.g. instruments, appliances, software, or materials designated for diagnostic or therapeutic purposes,

such as for prevention or treatment of injury or disease. Devices that are designated as “SportsTech” are less likely to require MHRA approval, as they are less likely to be invasive or deliver a medical intervention. However, given the intersection of health, medicine and well-being with MedTech and SportsTech, it is recognised that devices developed through this project are likely to be subject to regulatory consideration.

Securing regulatory approval from MHRA can be a complex and time-consuming process, which can therefore slow down product commercialisation. Although this is an industry issue (not an academic issue), the project will take several steps to provide support to help SMEs navigate regulatory requirements, including:

- Provision of workshops, advice and guidance for SMEs;
- Inclusion of a Business Development Manager (regulatory affairs) post within the project team;
- Access to Clinical Trials Facilities and regional test-bed environments to assess and evaluate new products and devices;
- Access to advice and guidance from a major healthcare organisation with experience of helping companies to secure regulatory approval. Discussions are ongoing with a potential delivery partner.

3.5.5 Future workforce and skills

The project aligns with the **SBCD Skills and Talent Programme**, which seeks “to create new and sustainable opportunities that will generate prosperity for individuals and businesses in the Swansea Bay City Deal region”²² and will contribute towards the Programme’s ambitions to support the development of c.14,000 people in the region.

In particular, Skills and Talent will be a cross-cutting theme within the Project, supporting advanced skills, continuing professional development and the creation of sector-specific facilities to support skills development. It will produce new undergraduate and postgraduate programmes and, through the University’s existing widening access and outreach frameworks, will support ambitions to encourage young people to take advantage of education and skills opportunities.

The project also responds to the **Regional Learning Skills Partnership (RLSP) *Regional Employment and Skills Plan (2016)***²³, which includes a focus on the “aspirational economy” and identifies Life Sciences as one of the high value, high growth sectors that will contribute to increase GVA. The report also highlights that “there is a significant need for higher level skills which will increase the pressure and requirements on the skills infrastructure to deliver the required level skills” (p24). Furthermore, the report identifies that there will be greater demand for both graduates and higher skilled (not necessarily graduate) workers.

²² Skills and Talent Business Case - vision,

²³ <http://www.rlp.org.uk/SharedFiles/Download.aspx?pageid=2&mid=13&fileid=4>

The report notes that this growth is driven by factors such as an aging population driving demand for healthcare solutions, the impact of “big data” opportunities, new manufacturing methods, wearable technologies and growth in tailored healthcare.

Specific skills challenges identified for the region include:

- Good laboratory practice
- Regulatory understanding.
- Scientific research.
- Product development.
- Leadership and management.
- Production techniques.
- Quality assurance.
- Computer analysts.

Finally, RLSP highlight that an employer survey identified a number of recruitment issues and skills and aptitude deficiencies, primarily in the area of technical roles and skills. The inherent lead time of affecting major change within a regional skills base is a significant challenge in supporting the development of rapidly developing sectors such as the Life Sciences. This is underlined by the fact that secondary school pupils currently making important subject choices may not enter the labour market for a decade, if they continue through into further and higher education. Furthermore, the complexity of the sector, overlapping into ICT, Advanced Manufacturing and other services requires broad consideration of the skills involved.

As a result of the RLSP’s recommendation to establish a group to support the sector, together with specific actions aimed across further and higher education, schools and other stakeholders, the All Wales Life Sciences Skills Group was founded, with strong regional involvement and engagement with Welsh Government’s departments of Economy, Science & Transport, and Education & Skills.

In seeking to enhance the skills pipeline, Swansea University has also outlined plans for continued growth in student numbers and course provision over the next decade. This is supported by ambitious plans to increase not only the number of students on current courses but also the development of innovative provision to upskill existing workforce and ensure the pipeline of talent available to enter employment locally. This is being achieved through the establishment and growth of continuing professional development (CPD) and executive education offerings for learners from diverse backgrounds, including healthcare professionals and business leaders.

Additionally, planned degree programmes in Sports Tech, therapy and rehabilitation (blending sport and exercise sciences and medical sciences) will create a pipeline of skilled graduates able to drive the growth of the regional sports technology cluster, and an environment where research informed curriculum and employment opportunities and skill development can occur simultaneously. Proposed programmes for development include undergraduate and postgraduate degrees in:

- Sport business management
- Sport therapy and rehabilitation
- Sport and exercise medical sciences

- Sports Technology
- Sports Performance
- Preventative & Sports Medicine

Expansion of employer-led, practice-driven and industry informed curriculum development alongside enhancing experience provision will allow partners to work in collaboration to deliver world-class learning. The co-location with exceptional research and innovation environments will equip learners with the skills, aptitude and experience to become the required regional workforce of the future. Working together with the locally developed cluster and international strategic partners across a range of disciplines, the growth of the ILS ecosystem will enable the significant expansion in course provision as outlined in 'Appendix A3 – Proposed Educational Course Development List' will attract learners to study in a high-quality research and teaching environment and equally attract employers and industry to the emerging talent pool.

Together with regional projects including the Digital Infrastructure and Skills projects, the Campuses project will work together with aligned developments to ensure complementarity and regional enhancement. Established concepts including the Joint Clinical Research Facility which is already operating across the two Campus sites provides a model by which expansion of existing infrastructure can be developed. The Welsh Government investment into research, innovation and improvement co-ordination (RIIC) hubs, together with the establishment of the associated network, the creation of a health board innovation leaders network and the recent development of the regional innovation forum are examples of aligned efforts to ensure regional benefit to localised activities is realised. The growth of the ILS ecosystem will further equip the developing local test-beds to support the creation, development, piloting and evaluation of new innovations and solutions to ultimately establish the region as a living lab.

3.5.6 Summary of need

The ILS ecosystem in the Swansea Bay City Region has demonstrated its capacity to drive sustainable economic change and to support the growth of a vibrant life sciences sector.

While the regional sports infrastructure supports grassroots and elite sport, there is no discernible Sports Tech sector.

Evidence shows that there is a need for

- **Facilities:** The ILS ecosystem is oversubscribed, with trend lines showing a current shortfall of ~2,800 square metres and in capacity to develop and harness industrial collaborations. This creates the risk that the region will be impacted through loss of opportunities aligned to innovation, implementation, adoption and commercialisation. Lack of innovation space also inhibits collaborative interdisciplinary research activity, with associated loss of opportunity for inward investment and staff retention.
- **Scale:** The investment, expansion and consequent improvement of the existing infrastructure will ensure that the region's research remains globally competitive to attract further investment and collaborations from across the public and private sector sources. Expanded

facilities will also allow the development of widened interdisciplinary research strengths at the intersection between sports science, health and well-being research, and the further growth of the regional SME cluster.

- **Skills:** The need to ensure a sustained pipeline of talent coming into the life sciences, well-being and sport innovation sector at every level, from school leaver through to industry professional.

By addressing these three imperatives, the project will contribute to the City Deal's core objectives to grow GVA and create jobs.

3.6 Potential scope

Building upon the success of ILS and the established life science and well-being cluster within the ecosystem, the City Deal investment allows for the continued growth of this cluster and widening of the focus to incorporate aligned innovation activities compatible with the local environment including sports, health and well-being at Singleton, and clinical innovation at Morriston. The potential scope extends to a number of core, desirable and optional elements, which are all assessed within the full options framework described in the Economic Case (section 4.3)

Elements	
Core	<ul style="list-style-type: none"> • Take advantage of the opportunity to co-locate ILS alongside clinical services at Morriston Hospital. • Create new RD&I facilities to expand life science and sport science excellence with the aim of establishing a new, Sports Tech economy in Wales, alongside MedTech. • Seek planning approval to build a new road to unlock the investment potential of the Morriston Hospital site.
Desirable	<ul style="list-style-type: none"> • Provision of facilities for education, training and skills. • Engage with key partners from the health, sport and technology sectors to drive the long-term development of the project and investment opportunities.
Optional	<ul style="list-style-type: none"> • Establish an investment fund to invest in targeted opportunities within the region. • Limited, incremental growth in capacity through refurbishment of existing facilities. • Consider expansion to enable an ILS footprint within the region served by the Hywel Dda University Health Board.

Table 3.9: Core, desirable and optional elements within potential scope

The project will create expanded infrastructure with wider capabilities, allowing more and larger opportunities to be captured, ranging from commercialisation of HE/NHS research through to major inward-investment opportunities. Creating significant new employment within high GVA sectors, the project will further develop the industry cluster centred around ILS. The investment blends complementary foci of technology and clinical innovation supporting development across a broad range of technology readiness levels and diverse industrial sectors/segments.

The vision for the ILS is to advance medical science through multi- and interdisciplinary research and innovation for human health, well-being and fitness, and to link those benefits to the economy by encouraging interaction with other organisations in a spirit of open innovation. This provides a unique environment within which partner organisations benefit from being surrounded by people and resources that can be accessed to help them succeed and grow.

The potential project scope is therefore to establish an ILS footprint at Morriston and to expand the ILS infrastructure at Singleton to create a novel focus on technology/data-led innovation in sport, well-being and life science research and skills, and to harness this regional infrastructure to leverage investment that supports the development of a larger life science park at Morriston in addition to investment in the Sketty Lane Sports Village.

The project and its broader, regional, longer-term initiative are built upon an “Open Access Open Innovation” philosophy, attracting a plurality of investors, technology firms, clinical groups and other stakeholders to engage in multi and interdisciplinary collaborations. This project will create Research, Development & Innovation facilities to harness strengths in clinical research and healthcare and sports technologies created from indigenous opportunities and inward-investing partnerships. Prospective investments from major multinational genomics, pharmaceutical, and ICT companies underscore the transformative opportunity presented by the project.

3.6.1 Investment strategy

Plans for the realisation of the £115m capital investment required for Phase 2 are in progress working towards the longer-term commercial strategy. As the market is evolving significantly with new trading relationships and a post-Covid renewal it is recognised that this strategy will need to emerge and evolve to support market opportunities. The detailed nature of the second phase investment will therefore be defined as impacts of (e.g.) Covid-19 and the emergence of new technologies impact on what may be required to meet industry need.

In response, and catalysed by award of the City Deal funding, the project team will be in a position to work on more specific proposals with private and public sector partners to scope the opportunities and options available for the Phase 2 investment, and to conduct a post-Covid market analysis on the recommended approach. This work will build on activity previously undertaken by an external consultant to understand and scope funding opportunities. The Swansea Bay University Health Board is already master planning for the Phase 2 development while the University is developing its plan to deliver the Phase 2 development at Sketty Lane, and is preparing to undertake a full feasibility study (including potential joint venture, investment and funding arrangements). Funding is being sought to support this work.

The Project Team is already engaging with the Investment Directorate of the Department for International Trade (DIT) to develop an investment offering that DIT can promote to its global network of investors and venture capitalists. This will be refined as the Phase 2 requirements are refined.

Public sector investment encompasses both contributions from local authorities and other public funded and public service organisations, and targeted funding from (e.g.) Welsh Government, UK Government (UKRI, Innovate UK) and European/International grant funding for research, equipment and collaborative programmes with industry.

Private sector investment will include regional investment from local and national private sector partners, local healthcare and sports providers. The project will also leverage private sector investment from large organisations seeking to establish or expand their presence in Wales, and their supply chains. Further investment is expected to be secured from private research and development partners.

The Financial Case sets out the anticipated breakdown of the public and private sector funding expected, and the current funding status of each element.

3.6.2 Potential scope: Morriston

It is anticipated that the project's potential scope at Morriston will be to redevelop existing infrastructure to expand research and innovation activity co-located amongst world-leading clinical delivery and specialisms. Working alongside regional specialist services at Morriston Hospital, the Morriston development will support the creation of research collaboration and industry engagement. World-leading research in health and bio-informatics together with a cluster of SMEs and multinational ICT/Pharma partners provides a strong foundation and UK USP for this high-growth sector. The scope would encompass initial City Deal investment to enable the development of an ILS footprint at Morriston through the refurbishment of existing estate to establish:

- Integrated and flexible innovation and business incubation space, with a focus on technologies that are approaching real-world application (high TRL);
- Enhanced support for strengths at Morriston including regenerative medicine, cardiac research, rehabilitation and clinical engineering to expand existing research and innovation excellence;
- Life science innovation and business support functions including alignment with skills and talent initiatives supported by the Medical Education centre.

3.6.3 Potential scope: Sketty Lane, Singleton

At Singleton, the potential scope extends to the development of a Life Science, Well-being and Sport facility that will complement existing infrastructure, encapsulating and expanding existing research strengths. Ideally, the spaces created will be designed to maximise flexibility and will be multi-functional and available for use by academia, industry, and healthcare professionals and academia for research, training and development needs.

This element of the project will seek to realise the redevelopment of sporting facilities in order to create a world-leading site to encourage sport participation and enable associated health and well-being benefits within the local community and beyond. The facilities should enable the growth of research strengths in sport and exercise sciences, attraction of elite sports and sports performance innovations as well as expand the ILS cluster to incorporate sports enterprise including devices, sensors, wearables, analytics and related third sector and community-based organisations.

3.7 Benefits and risks

3.7.1 Benefits

A full Benefits Register is attached as Appendix A4. The key benefits are planned to be:

- Contribution to GVA growth.
- Job creation.
- Inward investment.
- New RD&I facilities.
- Growth of 300 strong industry cluster.
- Establishing a Sports Tech economy in Wales.
- Improved community health and well-being.
- Skills development.
- Attraction and retention of students.

It is expected that the SBCD Campuses project will create between 1000 - 1,120 jobs during the project timescale, contributing an additional £150m - £153m to regional GVA (2031). The project will also provide a pipeline of healthcare innovations benefitting communities during the development phase (locally) and from commercialisation (UK and further afield). This will provide both local economic uplift through improved health and well-being and subsequent productivity along with wider societal benefit and skills uplift. Figure 3.9 presents an output from a stakeholder engagement workshop to map the benefits created as a result of the Campuses project. The target benefits are described in black whilst the potential dis-benefits are outlined in red and the blue lines define potential linkages.

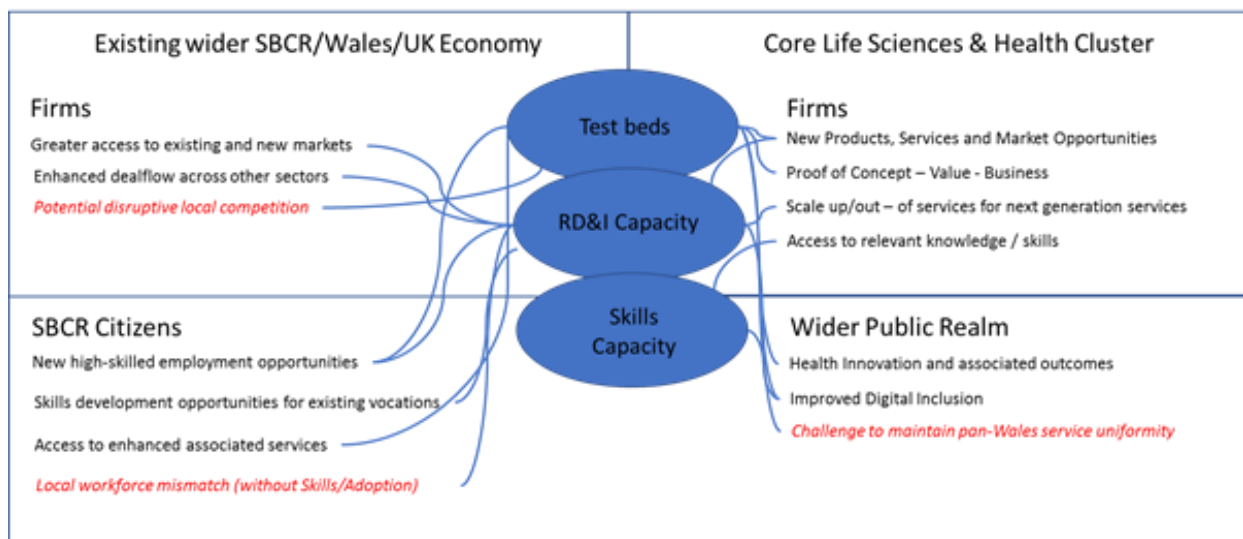


Figure 3.9: Benefits map from Stakeholder Engagement Workshop

3.7.2 Beneficiaries

The key beneficiaries of this project will be:

- The people of the Swansea Bay City Region, who will have access to innovations in life science, well-being and sport/physical activity, benefitting regional population health.
- The Swansea Bay City Region workforce, who will have access to new job opportunities enabled through the realisation of the project's inward investment and cluster-building activities, and to development/training opportunities.
- Swansea Council, who will benefit from increased GVA in the region and from the region's enhanced reputation for innovation and skills.
- Swansea Bay University Health Board, who will benefit from (1) the redevelopment of land at the Morriston Hospital site to establish new life science facilities supporting clinical provision and innovation and (2) the expansion of ILS facilities at Sketty Lane to enable innovation in rehabilitation, activity and pre-abling technologies.
- Swansea University, who will benefit from the new research and innovation facilities proposed, which will enhance the University's reputation, attracting collaborative partners and students to Swansea.

3.7.3 Risks

Risks have been identified and are regularly reviewed across the various partner and stakeholder meetings. Mitigations and actions will continue to be reviewed alongside the business case development and throughout the delivery phases. Primary risks can be categorised within three phases; development phases, implementation and operational phases. A detailed risk assessment has been undertaken and is included within 'Appendix A5 - Risk Assessment'. Risks have been categorised as Business, Service and External along with organisation-specific types (see also 4.7).

Development Phase: The primary risks identified within the development phase related to the timescales of the development and approval of the business case. There are strong relationships between the partners and the delivery teams are working closely with the regional office who are providing feedback and liaison with Welsh and UK governments. Continued communication is prioritised to minimise these risks. Ongoing engagement with stakeholders within the ecosystem will ensure that there is confidence with regards to the need/demand and to secure co-investment.

Implementation Phase: Risks surrounding the effective and timely procurement has the potential to create significant delays and this will be mitigated as the project business case develops from outline to full business case. There are additional risks that may impact on procurement resulting from not realising the anticipated co-investment. The opportunities for continuing co-investment and diversification of co-investment will be further investigated throughout the development of the business case.

Operational Phase: The primary risks relating to the operational phase are the ability to ensure the sustainability of the developments and success in realising the long-term benefits as a result of the phase II developments at both the Singleton and Morriston Campus sites. There are ongoing planning works to progress the planning work for the longer-term transformation projects at both Campus sites to ensure required confidence in the longer-term investment.

3.8 Constraints and Dependencies

3.8.1 Constraints

The constraints identified and considered in relation to the project are largely those that have been identified in the SBCD portfolio:

- Total funding package: the budget has been based on the portfolio's fixed funding agreement between the region and Welsh and UK Governments
- Capital Funding: The budget is predicated on capital investment
- Term of the City Deal: The timeframe for the delivery cannot exceed the term of the City Deal set at 15 years
- Resources: Resources available to establish and implement the portfolio and associated programmes and projects
- State Aid: Growth Deal projects must comply with relevant State Aid rules

3.8.2 Dependencies

In order to achieve the benefits outlined within this business case, a review of dependencies has been conducted. The dependencies are outlined below together with management activities:

Key Dependencies	Management
<i>Continued partner and stakeholder commitment and approval</i>	The established Management Group with full partner representation is meeting regularly and all partners are engaged in the development of the project and business case. Partners are regularly communicating updates and progress through the respective governance arrangements to ensure senior management and executive team engagement and support.
<i>Availability of land/infrastructure assets</i>	A review has been conducted of potential site availability and preferred sites identified. Partners have agreed in principal to release land/ infrastructure for the proposed developments/refurbishments pending ongoing contractual negotiations.
<i>Availability of SBCR City Deal investment</i>	The SBCR City Deal Campuses outline business case has been agreed in principal pending full business case refinement.
<i>Availability of public/private sector match co-investment</i>	The proposed procurement approach will be designed to leverage significant private sector investment. The business case outlines the procurement approach and its intention to leverage financial co-investment. Additionally, partners have conducted modelling in order to establish public sector partner contributions.
<i>Planning and associated permissions</i>	Swansea Council as the local authority lead for this project, is engaged with the development of this project to ensure alignment with Swansea Council's local development plan.
<i>Availability of activity revenue funding streams</i>	£24M ERDF funding has been secured for pan-Wales health and life science innovation activity pan-Wales Accelerate project. £13.5M AGORIP Commercialisation project and €2.9M BUCANIER building clusters and networks in research and innovation projects are already

	operational. Additional modelling has been completed to establish additional public-sector co-investment; procurement of a delivery partnership will realise additional private sector investment.
<i>Support from wider life science ecosystem</i>	Engagement with the wider Life Science and Well-being & Innovation ecosystem is ongoing and the project has been designed to align with the regional and wider UK landscape building on Welsh expertise and complimenting specialisms across the UK and internationally.
<i>Market demand</i>	The success of the Institute of Life Science demonstrates the success of collaborative Life Science and Well-being innovation in the region. It is our intention to undertake targeted business investment analysis and an independent market appraisal of the emerging Med Tech/SportsTech confluence.
<i>Commercialisation of innovation</i>	There are a number of regional and national mechanisms to support the commercialisation of innovation within the sector. Notably and locally within Wales is the AGORIP ERDF funded project which supports and investment into the development of intellectual property to bring products and services to the market place. AGORIP operates across multiple sectors with health and life science as a key target sector. The Campuses project has been designed to provide capacity and capability to supplement existing
<i>Adoption of innovation by end users</i>	Campuses is engaged with regional and national initiatives inclusive of ARCH, Accelerate, Life Science Hub Wales and AGORIP to aid the early adoption of technologies into the marketplace including the into NHS.

Table 3.10: Dependencies and management activities

Economic Case

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4. Economic Case

4.1 Overview

In response to the Case for Change and broader Strategic Case, the project has been developed appraising options against the following Critical Success Factors in pursuit of achieving the Spending Objectives. These are developed as SMART in section 4.2, based upon the aim to achieve a comparable level of benefit/impact over the same time horizon as the original ILS Phases. The Critical Success Factors are:

- Strategic Fit
- Business Needs
- ARCH Integration
- Internet Coast Integration
- Potential Value for Money
- Potential Achievability
- Supply-side Capacity
- Potential Affordability

Long-list options have appraised potential for:

- A - Do Minimum: rely on existing activity/sites.
- B – Dispersed Growth: investment fund for disparate activities.
- C- Intermediate I: incremental modest increase(s) of existing campus (ILS1/2).
- D - Intermediate II: mixed – dual site incremental development and focused major development (**Preferred approach**).
- E - Intermediate III: mixed – dual site incremental development / fund for disparate activities.
- F - Do Maximum: expand existing and establish new campuses.

Note that, in line with the guidance, a Business As Usual option has not been appraised.

Short-list Options were developed through a workshop with key stakeholders, with a focus on Spending Objectives and Critical Success Factors. This identified a Preferred Option along with Alternatives, appraised as follows:

- Do Minimum: reconfiguration of existing facilities at Singleton and Morriston sites.
- **Preferred approach**: re-development of Management Centre at Morriston and development of new facility at Sketty Lane (Phase 1, funded by the City Deal), followed by 'new land' development at Morriston and wider Sketty Lane/Singleton development (Phase 2) through external investment.
- Alternative (1): development of single site with investment fund (potentially managed through SBCR for distributed development (Phase 1), and longer-term development of these and ARCH sites through external investment (Phase 2).
- Alternative (2): distributed development through investment fund, potentially delivered through SBCR (Phase 1) and development of ARCH sites, initially Singleton and Morriston, through external investment (Phase 2).

Details of each Option are included in subsequent sections and appendices. This appraisal has been updated following review and to factor in the update to the Strategic Case (Section 3), expanding upon

the opportunities at the intersection of Life Science and Sport and Exercise Science. Table 4.1 summarises the short-list appraisal, with further detail in section 4.4 below and workings included as Appendix A7. Short-list options have been developed with Cost-Benefit Analysis presenting the following summary UK perspective (regional perspective in later sections) as shown below²⁴.

Option	10 Year BCR	15 Year BCR	15 Year NPV
Do Minimum	1.01	1.70	£3.3m
Preferred Approach	2.22	2.33	£18.8m
Alternative Approach (1)	0.85	1.87	£12.3m
Alternative Approach (2)	0.33	0.76	- £3.4m

Table 4.1: Summary of short-list appraisal

The summary of the Preferred Option refers to an implementation as follows;

Scope	Providing a combination of B&D approaches with realisation of the project scope, i.e. ILS-scale facilities at two locations and further smaller developments across the region. ~12,000s.m. of mixed facilities over the period to 2032.
Service Solution	Mixed refurbishment / new-build of facilities, with delivery through existing ILS initiative
Service Delivery	Mixed: public/private partnership. Procured development co-investment partnership
Implementation	5-year project (phase 1) with phase 2 development over following 5-7 years
Funding	City Deal capital plus public/private sectors capital co-investment ~£115m over two phases in the 15-year timeframe.

Table 4.2: Summary of the preferred option implementation

Sensitivity analysis (Section 4.8) has shown the preferred implementation as being most resilient in face of key risks occurring, from both UK and regional perspectives. Risks occurring that result in delayed and/or reduced benefits have the most significant impact on most implementations.

4.2 Critical Success Factors

Together with HM Treasury Green Book guidance, the Internet Coast programme provides the overarching framework for defining Critical Success Factors and Spending Objectives. A series of meetings/workshops was held over the past 24 months to develop and understand the project's Spending Objectives (presented in 3.3. above) and the Critical Success Factors, which are identified as follows:

- **Strategic Fit**

The Project is designed to integrate and build upon the existing Life science ecosystem and form a strategic pillar within the M4 innovation Corridor. The project aligns to the SBCD, Welsh, UK and local Government strategies to boost G.V.A, focus on skills growth, job creation build the U.K. economy to become the World's most innovative economy whilst also contributes to the project partners strategies to improve the quality of Life and wellbeing to local residents

²⁴ Note that Health Benefits are captured separately

- **Business Needs**

The project addresses an identified shortfall of c.2,800 sqm of physical space within the current life science ecosystem within phase one and builds on the ambitions within phase two to create a 55-acre innovation park, The Business needs of each of the delivery partners are individually addressed throughout this document which include commercial opportunities and strategic fit at various levels.
- **ARCH Integration**

Swansea Bay University Health Board, alongside Hywel Dda University Health Board are supported by “ARCH” whom in turn will lead delivery of Phase 1 Morriston and Phase 2 Morriston “55-acre innovation park” Site Developments, Arch Partnership will also ensure Integration with the University Health Board Programme also described in section 4.2.1 below.
- **Internet Coast Integration**

Utilising existing and planned regional assets such as the broader Internet Coast project portfolio is an important factor in delivering the targeted innovation activity in addition to integration with the interlinked Pentre Awel project within the Internet of Health & Wellbeing along with cross-cutting developments of Digital Infrastructure and Skills.
- **Potential Value for Money**

The Project has identified several potential approaches via workshop collaboration with stakeholders, the approaches were documented, and a preferred option selected that demonstrated the best “Value for Money” via Co-investment opportunity to optimise value and scale
- **Potential Achievability**

Based on the time frame set out for both phases and via Stakeholder workshops the Potential achievability was identified and documented, The Success of delivering the outputs is based on the Budget / Cost, and time scale ensuring the benefits are realised and remain achievable.
- **Supply-side Capacity**

Procurement is based around the strategies and principles of all lead delivery stakeholders, Swansea bay city deal, Welsh and local Governments and ensures these principles are met and value for money is achieved to maximise and realise the projects benefits.
- **Potential Affordability**

The Project has identified several potential approaches via workshop collaboration with stakeholders, the approaches were documented, and a preferred option selected that demonstrated “Affordability” elements include the financial case that also confirms affordability from the key delivery partners.

4.2.1 ARCH Integration

The ARCH initiative is already delivering a portfolio of revenue and capital investments to support economic development and health service improvements. The opportunity is to exploit the existing foundations of ILS and alignment with long-term strategic planning for Life Sciences & Well-being innovation across the region. The smart specialisations at the centre of the case for change are

intrinsically linked with the direction and development of health service activity and the ARCH programme.

The targeted benefits require integration with health service activity for clinical innovation and wider health economy benefits, including those accruing from community sport. Approaches which facilitate greatest integration therefore maximise success potential and support risk management in achieving the spending objectives. Options were reviewed against their alignment with the ARCH PDP (Portfolio Development Plan), notably the strategic development of Morriston and Singleton sites, within the context of the emerging Service Transformation. The Research, Enterprise & Innovation working group held workshop and regular update meetings to review evolving options/plans.

4.2.2 Internet Coast Integration

Drawing on the new wave of General-Purpose Technology in AI and the Internet of Things is an important part of the case for change, and critical to achieving the longer-term spending objectives. Using existing and planned regional assets (including the broader Internet Coast project portfolio) is an important factor in delivering the targeted innovation activity. Significantly, this includes integration with the interlinked Pentre Awel project within the Internet of Health & Wellbeing along with cross-cutting developments of Digital Infrastructure and Skills. Ongoing engagement across the region, including through the ARCH Research, Enterprise & Innovation working group has helped appraise options for alignment with SBCR and wider activities, both current and emergent. Both project update and workshop formats were used to support this (see also ARCH Integration above).

4.3 Long-listed options

A long-list of options was developed through a series of workshops, supported by desk-based research and visits to initiatives targeting similar benefits. This process drew upon significant research of the regional cluster and its development potential, with specific focus upon the role of infrastructure and skills developments (see Strategic Case).

Noting the alignment with the broader ARCH programme, development of the options framework draws upon the significant planning undertaken during the prior 24 months of scoping and development. This has assisted in developing a credible and robust Options Framework, co-developed with stakeholders from across the region.

The summary of the long-list options, including summary review, is presented below, together with the Options Framework and identified Preferred Approach. The full Options Framework, including Alternative Approaches (as appraised in short-list CBA) is included as Appendix A7. The baseline of Business as Usual comprises the Do Minimum Option as there is existing activity which requires ongoing support.

Option A	Do Minimum: rely on existing activity/sites
Description	<p>Describes no expansion of the existing ecosystem but reconfiguration of space to maximise efficiency of existing facilities. The current activity is financed through various mechanisms already in place through a variety of internal and external funding models.</p> <p>Optimising configuration/capacity of existing activity/sites to accommodate growth and application of new technologies (e.g. IoT/AI). This would require investment for reconfiguration to support new use cases, though with potential to capture renewal of ARCH and other sites as part of broader programmes. The scope would not contribute to the broader goals of the ARCH PDP or provide connection with the SBCR portfolio. This approach would capitalise on sunk investments though with minimal new expenditure, and could use ARCH facilities as a focus for development.</p>
Review	<p>The approach provides greatest affordability, though weakest additionality. As shown in the case for change, existing facilities are operating at capacity with diminishing returns to improve their efficiency. In this respect the achievability is high, though with minimal impact upon business needs, strategic fit or integration. The approach would not achieve the Spending Objectives, and does not provide the transformation targeted from the ARCH/Internet Coast ambition.</p>

Option B	Dispersed Growth: investment fund for disparate activities
Description	<p>Creating a fund to invest in individual opportunities across the region on a competitive basis as they emerge in a portfolio of disparate activities/facilities. This would create pockets of infrastructure across the region with potential for co-investment from host organisations.</p> <p>The approach could draw upon previous business infrastructure investment models as used by Welsh Government and development agencies. This could potentially be delivered through an open or rolling call, aligned with Internet Coast targeted activities. This is misaligned with the SBCR portfolio approach and potentially fragments efforts for strategic development identified in the ARCH PDP.</p>
Review	<p>The approach would have the benefit of being market-led, attuned to individual opportunities. However, there are significant potential risks in its delivery and value for money is unclear. It would also be challenging to develop a commercial case which would provide potential benefit to a multiplicity of users.</p>

Option C	Intermediate I: incremental modest increase(s) of existing campus (ILS1/2)
Description	<p>A relatively limited investment across 1 or 2 of the sites (Singleton and Morrision) to begin an incremental increase in capacity and capabilities at both development sites in line with the expectations of the SBCR. This could involve redevelopment of facilities made available through reconfiguration of sites within the broader ARCH developments, or creation of new facilities contiguous with existing ILS activity.</p>
Review	<p>Existing arrangements and familiarity with sites/operations gives potential confidence to deliverability while modest investment requirements give strong affordability. As such, the option has some alignment with the ARCH PDP, and potentially with the wider SBCR portfolio, including Pentre Awel, though without the level of transformation sought. Scale of activity provides limited delivery against business needs and impact against Spending Objectives.</p>

Option D	Intermediate II: Mixed – dual site incremental development and focused major development
Description	<p>This option describes a larger (in comparison to C) investment across 2 sites (Singleton and Morriston) to establish increased capacity in response to need demand and establish at Singleton and establish a footprint at Morriston to support regionalisation and further incremental development.</p> <p>These developments could be developed in line with the broader ARCH reconfiguration of these sites, thereby aligning with longer-term growth opportunities. Co-investment through a partnership model, as being developed through other City Deal projects, could utilise existing activity and infrastructure at the site to demonstrate dealflow and commercial viability</p>
Review	<p>The option performs more strongly against critical success factors, including greater integration with the ARCH programme. Achievability of the approach is high, along with supply-side capacity based on experience of previous phases.</p> <p>The requirement for co-financing reduces affordability, though increases potential value for money. This option delivers the scale and nature of transformation required in the ARCH PDP, and offers alignment notably with Digital and Pentre Awel projects within the SBCR portfolio.</p>

Option E	Intermediate III: Mixed – dual site incremental development and fund for disparate activities
Description	<p>This option describes the creation of a fund as described in Option B to invest in small regional opportunities across the region in addition to the expansion of ILS at Singleton and the development of an ILS at Morriston as described in Option D.</p>
Review	<p>The approach combines the benefits of both approaches, however it also brings forwards the same challenges. Furthermore, the dispersed nature of the activity and potentially unaligned delivery of capacity could provide greater challenge in aligning supply-side capacity/co-investment. As noted in other options, the trade-offs required dilute the potential for positive impact upon the SBCR portfolio/ARCH PDP ambitions, though remain aligned with the Spending Objectives.</p>

Option F	Do Maximum: Expand existing and establish new Campuses
Description	<p>This option describes major investment across 3 sites (Singleton, Morriston and potentially Hywel Dda) to realise the ARCH vision to create Campuses at all sites through new build developments.</p> <p>This is the most ambitious option, creating significant capacity across the region. In essence, it presents the entire ARCH economic development infrastructure plan within a single project/programme.</p>
Review	<p>Being the most ambitious option, it aligns with critical success factors and spending objectives. However, affordability and supply-side capacity would be challenged, along with availability of sites and alignment with interdependencies within the broader ARCH delivery. The option provides greatest alignment with the ARCH PDP, though is challenged against the initial delivery timescales of the ABCR portfolio.</p>

Tables 4.3a-f: Overview of long-list options

Table 4.4: Options framework

	A - Do Minimum Rely on existing activity/sites	B – Dispersed Growth Investment fund for disparate activities	C - Intermediate I Incremental increase(s) of existing Ecosystem (ILS1/2) across two sites	D - Intermediate II Mixed – Dual Site combination: Incremental Development and Focused major development	E - Intermediate III Mixed – Dual Site Development and fund for disparate activities	F - Do Maximum Full ARCH Prospectus Expand existing and establish new Campuses
Description	This option describes no expansion of the existing ecosystem small investment into the reconfiguration of existing infrastructure to maximise efficiency of existing facilities.	This option describes the creation of an investment fund to invest in individual opportunities across the region on a competitive basis as they emerge in a portfolio of disparate activities/facilities.	This option describes limited investment across 2 sites (Singleton and Morriston) to begin an incremental increase in capacity and capabilities at both development sites in line with the expectations of the SBCR.	This option describes a larger investment across 2 sites (Singleton and Morriston) to establish increased capacity in response to need demand and establish at Singleton and establish a footprint at Morriston to support regionalisation and further incremental development.	This option describes the creation of a fund with the same intention as Option B to invest in small regional opportunities across the region in addition to the expansion of ILS at Singleton and the development of an ILS at Morriston as described in Option D .	This option describes major investment across 3 sites (Singleton, Morriston and Hywel Dda) to realise the ARCH vision to create Campuses at all sites through new build developments.
Scope	Utilise current ILS facilities to support growth of existing, and capture of new, opportunities. Capital investment limited to enhancing efficiency of existing facilities. ~500s.m. of mixed facilities [^]	Develop specialist capabilities / capacities in locations across SBCR with public and private sector in response to emerging opportunities. This would be market-led opportunities developing a portfolio of projects giving Open Access capabilities	Increase capacity/capability of existing ILS through development of new facilities across 2 sites (i.e. Sketty Lane/ Singleton and at Morriston in response to need demand. ~4,500s.m. of mixed facilities (3,000m ² at Singleton and 1500m ² at Morriston)	Establish significant capacity/capability of existing ILS through development of new facilities in response to need demand, along with initial development at a further site to support regionalisation. ~10,000sqm of mixed facilities over the period to 2032 (2,000sqm at Singleton, 7,700sqm (2 phases) at Morriston)	Providing a combination of B&D approaches with realisation of ARCH Campuses scope; I.e. ILS-scale facilities at two locations and further smaller developments across the region. ~12,000s.m. + 1,000s.m +2000m ² of mixed facilities [^]	Expand existing ILS site and establish full ARCH Morriston and Hywel Dda Campus infrastructures. This would realise the original 2014 ARCH ambition across both UHB regions. ~24-30,000s.m. of mixed facilities [^]
Service Solution	Promotion and reconfiguration of existing SU capabilities to maximise capacity of current operations.	Development of facilities across the region through open competition amongst existing ecosystem	Mixed Refurbishment / New-build of facilities, with delivery through existing ILS initiative	Mixed Refurbishment / New-build of facilities, with delivery through existing ILS initiative	Combination of Implementation Approaches B&D	New-build of major facilities at Singleton, Morriston and Hywel Dda sites.
Service Delivery	Swansea University and partners (inc. Life Sciences Hub Wales)	Diverse (Procured) Ecosystem – portfolio procured/ partnered on individual opportunity basis	Utilisation of existing organisation Frameworks	Mixed: Public/Private Partnership: Procured development co-investment partnership	Mixed: Public/Private Partnership: Procured development co-investment partnership	Mixed: Public/Private Partnership: Procured development co-investment partnership
Implementation	Immediate start as 3/5-year project	3-year project – Competition / procurement of portfolio of investments	5-year project	Phased 3, 5-year project	Phased 5, 8-year project	Immediate start ~7yr project
Funding	~£5m City Deal funding Total : ~£5m	~£15m City Deal Funding with potential to leverage an additional £15m of public/private investment. Total : ~£30m	~£15m City Deal Funding with the potential to leverage an additional £65m of public/private investment Total : ~£80m	£15m City Deal funding with the potential to leverage an additional £115m public/private capital investment Total : ~£130m	£15m City Deal funding with the potential to leverage an additional £125m public/private investment Total : ~£140m	£15m City Deal funding with the potential to leverage an additional £200m public/private investment Total : ~£215m

[^] Balance of facility provision reflects Need/Demand section: See also Report - Life Sciences & Health in south west Wales

Table 4.5: Spending Objectives and Critical Success Factors

	A - Do Minimum Rely on existing activity/sites	B – Dispersed Growth Investment fund for disparate activities	C- Intermediate I Incremental Modest increase(s) of existing Ecosystem (ILS1/2) across two sites	D - Intermediate II Mixed – Dual Site Incremental Development and Focused major development	E - Intermediate III Mixed – Dual Site Development and fund for disparate activities	F - Do Maximum Full ARCH Prospectus Expand existing and establish new Campuses
Description	This option describes no expansion of the existing ecosystem small investment into the reconfiguration of existing infrastructure to maximise efficiency of existing facilities.	This option describes the creation of an investment fund to invest in individual opportunities across the region on a competitive basis as they emerge in a portfolio of disparate activities/facilities.	This option describes limited investment across 2 sites (Singleton and Morriston) to begin an incremental increase in capacity and capabilities at both development sites in line with the expectations of the SBCR.	This option describes a larger investment across 2 sites (Singleton and Morriston) to establish increased capacity in response to need demand and establish at Singleton and establish a footprint at Morriston to support regionalisation and further incremental development.	This option describes the creation of a fund as described with the same intention Option B to invest in small regional opportunities across the region in addition to the expansion of ILS at Singleton and the development of an ILS at Morriston as described in Option D .	This option describes major investment across 3 sites (Singleton, Morriston and Hywel Dda) to realise the ARCH vision to create Campuses at all sites through new build developments.
Spending Objectives:						
New regional employment	Limited additionality	Market-led, potential for distributed if limited growth	Only delivers capacity for existing demand	Aligns with identified market-need/opportunity	Aligns with identified market-need/opportunity	Would maximise capacity to support employment growth
High GVA Sector growth	Limited additionality	Lacks potential agglomeration and other benefits	Limited capacity to support significant growth long-term	Aligns with identified market-need/opportunity	Aligns with identified market-need/opportunity	Would maximise capacity to support activity growth
Regionalisation	Limited beyond existing ecosystem engagement	Wide, though potentially low impact	Limited beyond existing ecosystem engagement	Expands beyond initial ILS to deliver regional activity	Expands beyond initial ILS to deliver regional activity	Greatest ensured regional footprint
Network/ Ecosystem	Limited additionality, though with robust/extensive existing ecosystem	Potential to engage broadly across ecosystem, though challenge for linkages	Effective platform for collaboration/orchestration with Open Access approach	Effective platform for collaboration/orchestration with Open Access approach	Potential to engage broadly across ecosystem and create systematic linkages	Effective platform for collaboration/orchestration with Open Access approach
Expanded Commercialisation	Limited potential to expand commercialisation activity	Market-led though without systematic sector approach	Modest potential to expand commercialisation activity	Strong alignment with ACCELERATE/AgorIP potential	Strong alignment with ACCELERATE/AgorIP potential	Strong alignment with ACCELERATE/AgorIP potential
Critical Success Factors						
Strategic Fit	Limited contribution to ambitions	Weak – due to lack of systematic approach (except variant)	Limited delivery against policy and market drivers	Delivers against policy and market drivers	Delivers against policy and market drivers	Delivers against policy and market drivers
Business Needs	Minimal impact upon needs	Market-led approach gives potential for alignment	Supports only existing requirements	Aligns broadly with identified requirements	Aligns broadly with identified requirements	Potential to be overly in advance of market needs
ARCH Integration	Cornerstone of existing ARCH RE&I programme	Aligns with ACCELERATE / AgorIP elements only	Cornerstone of existing ARCH RE&I programme	Works towards realising ARCH programme ambitions	Works towards realising ARCH programme ambitions	Fulfils ARCH ambitions
Internet Coast Integration	Existing integration, though delivers limited additionality	Initially weak – though with potential for development	Aligns with infrastructure/skills growth sectors approach	Aligns with infrastructure/skills growth sectors approach	Aligns with infrastructure/skills growth sectors approach	Aligns with infrastructure/skills growth sectors approach
Potential Value for Money	Diminishing returns on existing at capacity infrastructure	Relatively unknown/untested	Good value, though without performance step-change	Co-investment opportunity to optimise value and scale	Core robust, though with unknown element	Potential to be overly in advance of market needs
Potential Achievability	Viable	Procurement / management complexities / risks	Proven model – based upon ILS Phases 1 & 2	Proven model – both operational and commercial	Procurement / management complexities / risks	Availability of sites and wider programme challenges
Supply-side Capacity	Viable	Relatively unknown/untested	Proven model – based upon ILS Phases 1 & 2	Co-investment model proven in similar context	Relatively unknown/untested	Availability of sites and wider programme challenges
Potential Affordability	Challenge to sustainably develop revenue, though relatively limited requirement	Relatively unknown/untested, though commitment only with market response	Public partnership potential to realise development	Requires market testing to provide confidence for co-investment opportunity	Dispersed investment(s) nature may lack mass to develop private sector interest	Level of co-investment may be challenging spread across three locations

Table 4.6: Preferred approach

	A - Do Minimum Rely on existing activity/sites	B – Dispersed Growth Investment fund for disparate activities	C - Intermediate I Incremental increase(s) of existing Ecosystem (ILS1/2) across two sites	D - Intermediate II Mixed – Dual Site combination: Incremental Development and Focused major development	E - Intermediate III Mixed – Dual Site Development and fund for disparate activities	F - Do Maximum Full ARCH Prospectus Expand existing and establish new Campuses
Description	This option describes no expansion of the existing ecosystem small investment into the reconfiguration of existing infrastructure to maximise efficiency of existing facilities.	This option describes the creation of an investment fund to invest in individual opportunities across the region on a competitive basis as they emerge in a portfolio of disparate activities/facilities.	This option describes limited investment across 2 sites (Singleton and Morriston) to begin an incremental increase in capacity and capabilities at both development sites in line with the expectations of the SBCR.	This option describes a larger investment across 2 sites (Singleton and Morriston) to establish increased capacity in response to need demand and establish at Singleton and Morriston to support regionalisation and further incremental development.	This option describes the creation of a fund with the same intention Option B to invest in small regional opportunities across the region in addition to the expansion of ILS at Singleton and the development of an ILS at Morriston as described in Option D .	This option describes major investment across 3 sites (Singleton, Morriston and Hywel Dda) to realise the ARCH vision to create Campuses at all sites through new build developments.
Scope	Utilise current ILS facilities to support growth of existing, and capture of new, opportunities. Capital investment limited to enhancing efficiency of existing facilities. ~500s.m. of mixed facilities ^A	Develop specialist capabilities / capacities in locations across SBCR with public and private sector in response to emerging opportunities. This would be market-led opportunities developing a portfolio of projects giving Open Access capabilities	Increase capacity/capability of existing ILS through development of new facilities across 2 sites (i.e. at Sketty Lane/Singleton and at Morriston in response to need demand. ~4,500sqm of mixed facilities (3,000sqm at Singleton and 1500sqm at Morriston)	Establish significant capacity/capability of existing ILS through development of new facilities in response to need demand, along with initial development at a further site to support regionalisation. ~10,000sqm of mixed facilities over the period to 2032 (2,000sqm at Singleton, 7,700sqm (2 phases) at Morrison)	Providing a combination of B&D approaches with realisation of ARCH Campuses scope; i.e. ILS-scale facilities at two locations and further smaller developments across the region. ~12,000s.m. + 1,000s.m. + 2000s.m. of mixed facilities	Expand existing ILS site and establish full ARCH Morriston and Hywel Dda Campus infrastructures. This would realise the original 2014 ARCH ambition across both UHB regions. ~24,000-30,000.m. of mixed facilities
Service Solution	Promotion and reconfiguration of existing SU capabilities to maximise capacity of current operations.	Development of facilities across the region through open competition amongst existing ecosystem	Mixed Refurbishment / New-build of facilities, with delivery through existing ILS initiative	Mixed Refurbishment / New-build of facilities, with delivery through existing ILS initiative	Combination of Implementation Approaches B&D	New-build of major facilities at Singleton, Morriston and Hywel Dda sites.
Service Delivery	Swansea University and partners (inc. Life Sciences Hub Wales)	Diverse (Procured) Ecosystem – portfolio procured/ partnered on individual opportunity basis	Utilisation of existing organisation Frameworks	Mixed: Public/Private Partnership: Procured development co-investment partnership	Mixed: Public/Private Partnership: Procured development co-investment partnership	Mixed: Public/Private Partnership: Procured development co-investment partnership
Implementation	Immediate start as 3/5-year project	3-year project – Competition / procurement of portfolio of investments	5-year project	Phased 3, 5-year project	Phased 5, 8-year project	Immediate start ~7yr project
Funding	~£5m City Deal funding Total : ~£5m	~£15m City Deal Funding with potential to leverage an additional £15m of public/private investment. Total : ~£30m	~£15m City Deal Funding with the potential to leverage an additional £65m of public/private investment Total : ~£80m	£15m City Deal funding with the potential to leverage an additional £115m public/private capital investment Total : ~£130m	£15m City Deal funding with the potential to leverage an additional £125m public/private investment Total : ~£140m	£15m City Deal funding with the potential to leverage an additional £200m public/private investment Total : ~£215m

4.4 Short-listed options

A series of meetings and workshops was used to review the long-list options against the Critical Success Factors and to determine potential performance against the Spending Objectives. The initial risk assessment (Appendix A5) was used to support this exercise together with experience of the stakeholder group. The Options Appraisal was reviewed in Q1 2021, in response to the evolving local and global context. This included refinement of projected benefits to reflect the sector post-Covid, and alignment with delivery timescales for Pentre Awel and other ecosystem projects along the M4 corridor. A workshop was held on 3rd July 2020, with delegates including representatives from all the project partners. A summary of the discussion is included as Appendix A7b.

Table 4.7 presents the short-list options, including the Do-Minimum. Options relating to development of elements of the ARCH programme (i.e. based on Preferred Approach) draw significantly upon prior work undertaken by the ARCH Programme Delivery Office and ILS. This includes masterplans, cost reports and detailed site appraisal, included as Appendix A7. All Options have been reviewed against the refreshed Strategic Case, including the macro-context of challenges and opportunities of a post-Brexit UK, and the evolving Swansea University/Swansea Council vision for the development of strategic sites. The short-listed options, together with review criteria are as follows;

4.4.1 Do minimum/BAU Baseline

This option describes no expansion of the existing ecosystem but the reconfiguration of space to maximise efficiency of existing facilities. Current activity is financed through various mechanisms already in place through internal and external funding models. A number of prior projects (e.g. CHHS Wellbeing Academy) provide cost estimates for such reconfigurations, while potential benefits are considered from SUMS/ILS business planning information. This has been reviewed in the context of emerging regional and local initiatives, including the reconfiguration of Schools within Swansea University and the growing Sports and Exercise Science element of the Life Sciences & Health agenda.

Spending Objectives	
New regional employment	Limited additionality
High GVA Sector growth	Limited additionality
Regionalisation	Limited beyond existing ecosystem engagement
Network/ Ecosystem	Limited additionality, though with robust/extensive existing ecosystem
Expanded Commercialisation	Limited potential to expand commercialisation activity
Critical Success Factors	
Strategic Fit	Limited contribution to ambitions
Business Needs	Minimal impact upon needs
ARCH Integration	Cornerstone of existing ARCH RE&I programme
Internet Coast Integration	Existing integration, though delivers limited additionality
Potential Value for Money	Diminishing returns on existing at capacity infrastructure
Potential Achievability	Viable
Supply-side Capacity	Viable
Potential Affordability	Challenge to sustainably develop revenue, though relatively limited requirement

Table 4.7: Summary of Do Minimum option

4.4.2 Preferred Option

This option describes a greater scope of service/facility being delivered across two sites (Morrison and Sketty Lane/Singleton) to establish increased capacity in response to need demand and establish at Singleton and establish a footprint at Morrison in support of the regionalisation agenda and further incremental development.

Spending Objectives	
New regional employment	Aligns with identified market-need/opportunity
High GVA Sector growth	Aligns with identified market-need/opportunity
Regionalisation	Expands beyond initial ILS to deliver regional activity
Network/ Ecosystem	Effective platform for collaboration/orchestration with Open Access approach
Expanded Commercialisation	Strong alignment with ACCELERATE/AgorIP potential
Critical Success Factors	
Strategic Fit	Delivers against policy and market drivers
Business Needs	Aligns broadly with identified requirements
ARCH Integration	Works towards realising ARCH programme ambitions
Internet Coast Integration	Aligns with infrastructure/skills growth sectors approach
Potential Value for Money	Co-investment opportunity to optimise value and scale
Potential Achievability	Proven model – both operational and commercial
Supply-side Capacity	Co-investment model proven in similar context
Potential Affordability	Requires market testing to provide confidence for co-investment opportunity

Table 4.8: Summary of Preferred Option

The Preferred Option utilises the Preferred Approach together with the ARCH programme planning to provide a developed implementation. This uses site masterplans, costings and wider planning from project partners resulting in an implementation as follows which optimises the preferred option against the Critical Success Factors and maximises potential delivery against Spending Objectives.

Scope	Providing a combination of B&D approaches with realisation of ARCH Campuses scope; i.e. ILS-scale facilities at two locations and further smaller developments across the region. ~10,000s.m. of mixed facilities
Service Solution	Mixed Refurbishment / New-build of facilities, with delivery through existing ILS initiative
Service Delivery	Mixed: Public/Private Partnership: Procured development co-investment partnership
Implementation	Phased 5, 8-year project
Funding	£15m City Deal funding with the potential to leverage an additional £115m public/private capital investment, Total : ~£125m

Table 4.9: Optimisation of preferred option against Critical Success Factors

4.4.2 Alternative options

- **Alternative 1** describes the creation of an investment fund to invest in individual opportunities across the region on a competitive basis as they emerge in a portfolio of disparate activities/facilities, alongside the development of a dual Campuses activity. Consideration of critical success factors and performance against spending objectives reads across the Preferred Option, and Alternative 2, though with a slower ramp-up of activity.
- **Alternative 2** describes the creation of an investment fund to invest in individual opportunities across the region on a competitive basis as they emerge in a portfolio of disparate activities/facilities.

Spending Objectives	
New regional employment	Market-led, potential for distributed if limited growth
High GVA Sector growth	Lacks potential agglomeration and other benefits
Regionalisation	Wide, though potentially low impact
Network/ Ecosystem	Potential to engage broadly across ecosystem, though challenge for linkages
Expanded Commercialisation	Market-led though without systematic sector approach
Critical Success Factors	
Strategic Fit	Weak – lack of systematic approach (except variant)
Business Needs	Market-led approach gives potential for alignment
ARCH Integration	Aligns with ACCELERATE / AgorIP elements only
Internet Coast Integration	Initially weak – though with potential for development
Potential Value for Money	Relatively unknown/untested (except variant)
Potential Achievability	Potential procurement / management complexities
Supply-side Capacity	Relatively unknown/untested
Potential Affordability	Relatively unknown/untested, though commitment only with market response

Table 4.10: Summary of Alternative Options

The short-listed options were subject to Cost-Benefit Analysis, against the Do Nothing counterfactual as presented in the following section.

4.5 Cost Benefit Analysis

The following section presents updated Economic Case material for the project Business Case, developed in response to new Green Book guidance (Treasury, 2018), with appraisal focused on targeted productivity effects (wage premium). The analysis sits alongside that already undertaken and presented in the 2017 *Internet Coast Proposal Impact Appraisal*, based on job creation both within the development itself and as a wider result of the initiative.

Supported by the City Deal, the first phase of the project aims to contribute to the regional and wider UK economy by enabling and supporting growth of high GVA activity in Life Sciences, Sport and Well-being. Focus upon ICT-enabled health and fitness applications, advanced practice in health and care, and medical devices innovation also relates to associated sectors including ICT and Advanced Manufacturing. This is reflected in the broader cluster²⁵ context noted in analysis of the region by SQW (2016), and specifically as driven by the Life Sciences, Health & Wellbeing sectors (RLP, 2013, Davies et al., 2018). These strengths, and the interplay of high productivity sectors within the cluster also underpins the current *South Wales Crucible* Science and Innovation Audit (SIA).

4.5.1 Summary Appraisal

The following table presents a summary of the short-listed Options appraised against the Business as Usual/Do Minimum baseline, and applying the parameters presented in later sections of this document. Note that the anticipated UK impact is higher as there will be industries from outside the Swansea Bay City Deal region that will engage with the initiative. All benefits captured at the UK level therefore include and reflect the benefits captured at regional level.

UK

Option	10 Year BCR	15 Year BCR	15 Year NPV
Do Minimum	1.01	1.70	£3.3m
Preferred Approach	2.22	2.33	£18.8m
Alternative Approach (1)	0.85	1.87	£12.3m
Alternative Approach (2)	0.33	0.76	- £3.4m

Table 4.11: Short-listed options appraised against business as usual baseline - UK

Regional

Option	10 Year BCR	15 Year BCR	15 Year NPV
Do Minimum	1.07	1.80	£3.8m
Preferred Approach	2.03	2.16	£17.6m
Alternative Approach (1)	0.91	1.99	£14.0m
Alternative Approach (2)	0.43	0.92	-£1.2m

Table 4.12: Short-listed options appraised against business as usual baseline - Regional

	Do Minimum	Option 1 (Preferred)	Option 2 (Alternate)
Net Present Social Value	£3.3m	£18.8m	£12.3m
Public Sector Cost*	£4.181m	£14.15m	£14.15m
BCR	1.70	2.33	1.87
Significant non-monetisable** benefits	N/A	5-10,000 QALYs (range of values including in assessment)	5-7,500 QALYs (noting delivery timescales for option against core assessment)

²⁵ The role of economic activity in the sector beyond that captured by core SIC codes has been recently echoed in the UK Life Sciences Sector Report for the House of Commons Committee on Exiting the European Union.

Significant unquantifiable benefits	N/A	Indirect regeneration and transport benefits	Indirect regeneration and transport benefits
Risk costs by type[^] and residual optimism bias	Delivery risk - £1.06m 20% OB	Delivery Risk - £2.97m 20% OB	Delivery Risk - £4.47m 20% OB
Switching values		8yr Delay ~37% benefit reduction	
Time horizon and reason	15yr – to align with infrastructure nature of development, and SBCR Economic Strategy. This reflects the nature of the benefits sought and activity for each of the appraised options. Guidance on relevant benefits from DCLG, HMT and other sources (both academic and governmental).		

Table 4.13: Appraisal summary table

*discounted

** captured as part of aligned health economics assessment

[^]see also sensitivity analysis section

4.5.2 Options and Counterfactual

This appraisal is undertaken against the baseline ‘Do-Nothing’ case, alongside ‘Do Minimum’, and ‘Alternative’ Options as summarised in 4.4.2. The Do-Nothing baseline is developed from analysis of the SBCR economy presented in the SQW analysis, along with sector-specific insight from RLSP and other publications, along with further data drawn from ONS. Projected performance of each option is based upon regional and sector insight for need and demand drawn from industry, government, and academic sources, as noted throughout this document and referenced throughout the Business Case.

Do-Nothing involves the relative plateauing of related ‘Priority’ sectors within the region, as projected by Cambridge Econometrics for the RLP (2013) report (notably Chemicals, Pharmaceuticals, Electronics and Professional Services sectors). This implies continued regional reliance on the challenged industrial sectors, identified by SQW and therefore potential continued divergence from UK and Wales levels of productivity. It is recognised that this sector perspective, derived from SIC coding of activities, is limited in respect to the broader cluster noted in Davies et al. (2018). However, it does provide a baseline for regional knowledge-based economic activity to support consideration of Options.

Continuing divergence from Wales and UK average GVA per capita performance implies the Do-Nothing baseline may be a negative trend. However, for the purpose of this appraisal the current regional average is utilised and therefore the current GVA per capita of targeted sectors is also used for future years (i.e. without inflation/growth, though with STPR²⁶ discounting).

4.5.3 Productivity Uplift (Wage Premium/GVA per worker)

SBCR is part of the West Wales & Valleys region, which has suffered a long-standing productivity gap with the rest of Wales, UK and EU, in turn resulting in its qualification for three rounds of EU Structural Funds support. This hides a sectoral disparity though, which underpins a renewed strategy to pursue

²⁶ For the Time Horizons applied, this utilises the 3.5% Green Book STPR figure

more productive activities in 'Priority' sectors, including those involved in the Internet Coast programme.

GVA per hour worked within Life Sciences in Wales during the period 2006-2014 showed strong upward trajectory, surpassing by 2014 the UK average, while manufacturing outperformed at ~110%²⁷. This was set within the wider economy which performed at ~75% of UK average. This must be viewed within the regional sector context, with the Medical Devices noted as being broadly in line with the UK average²⁸. SQW (2016) presented a £11,900 deficit between mean regional and UK GVA per capita (£34,300 compared to £46,200), i.e. a difference of 34.7%. Other recent data²⁹ aligns with these values. In this respect, the regional relationship between Life Sciences & Well-being with other Priority sectors (Davies et al., 2018), namely ICT (eHealth) and Advanced Manufacturing is of note, with these sectors performing in line with broader UK. The added potential of Sports & Exercise Science, including development of digital technologies presents, further intersectoral potential aligned with the identified SIA strengths. The SQW report also notes that Health, and the associated sectors present some of the strongest potential for employment growth and overall GVA impact.

However, it should be noted that that wider benefit is provided through health and wellbeing improvements. While these do not relate directly to the Spending Objectives they are captured in this appraisal as a separate section to ensure consistency with Green Book guidance.

It is recognised that the options appraised may result in a range of skills and economic activity, though all with a focus on Priority Sectors. Therefore, each option involves comparison between contribution to such sectors compared to the regional average.

The current, and anticipated impact of Covid both in the near and longer-term serve to reinforce the importance and growth of sectors supported by the Spending Objectives. This is noted in the updated Risk Assessment.

4.5.4 Additionality and National / Regional Contexts

As the development and application of skills in Life Sciences & Well-being could be at the expense of potential for another sector this appraisal focuses on the potential improved GVA provided compared to alternative use. This relates solely to the above noted differential between targeted sectors and the wider regional economy. The options development, and analysis thereof supports the 'levelling-up' agenda to achieve more balanced growth, though with focus on additionality rather than displacement. On this basis the analysis delivers against the principles of 'Place-based Analysis' presented in the Green Book (2020). It retains however the original model used in the 2017 version rather than the CIA Model of the business case to allow continued tracking against this baseline.

Clearly, some benefit realised by the initiative would be otherwise achieved, while the proposed activity will also to an extent substitute or displace other activity(ies). Indeed, some skills would have been otherwise developed (i.e. elsewhere) or for application in other sectors. The intervention tackles growing and unsatisfied demand for STEM skills within the life science sector noted by Prof Sir John Bell (2017), which will be further pressured by Brexit uncertainty. This in itself supports additionality of the initiative, together with evidence of such demand at the regional level (RLP, 2013). To address

²⁷ Priority sector statistics 2016 – New GVA Data, Statistics & Research, Welsh Government, <http://gov.wales/statistics-and-research/priority-sector-statistics/?tab=previous&lang=en>

²⁸ Taken from their inclusion in Sector: Computer, electrical and optical, cited from Life Sciences Industrial Strategy, Report to Government, Sir John Bell, 2017

²⁹ Regional GVA NUTS2, Office for National Statistics, <https://www.ons.gov.uk/economy/grossvalueaddedgva/datasets/regionalgvanuts2>

consideration of additionality, the appraisal draws upon guidance including that of UK Government (BIS, 2009, Treasury, 2018) and other sources (Partnerships, 2008, EU, 2013) to consider additionality with regard to both spatial and activity contexts. From a south west Wales regional perspective, evaluations of prior ERDF activities give some context to potential levels of additionality (Oldbell3, 2012).

The main analysis presents the case for UK-level benefit of the Campuses initiative, however there is strong regeneration theme and ambition to restructure the SBCR economy within the Internet Coast City Deal giving emphasis to benefit to the region. As presented in Annex 3 of the Green Book, distributional analysis allows for appraisal at both levels and is here treated as follows with key parameters;

	UK	SBCR
Additionality	30%	15%
Multiplier	Excluded ³⁰	1.4

Table 4.14: Distributional analysis – key parameters

Mean/Median additionality of benefits derived from development educational infrastructure has been shown to be of the order of 46% and 53% respectively (BIS, 2009)³¹. Noting the potential for leakage, as some skills will leak beyond the UK this is factored as 30%³² remaining additionality at the UK level.

From Destinations of Leavers from Higher Education (DELHE) data, it can be projected that leakage beyond the region will be ~50% of this group, and therefore SBCR additionality is factored as 15%. However, as multiplier effects can be factored at the regional level these are included as ~1.4, which is relatively conservative for knowledge-based activity. Recruitment data for Swansea University presents ~50% local input and targets the majority Home/EU. On the output side, data drawn from DELHE show strong existing retention within the region and UK. The nature of the proposed activity also overlaps into the broader health economy with skills supply and innovation activity relating to health and social care. Major regional (and national) challenges in recruitment and retention of health service staff suggest that additional supply would be. This is supported by data presenting that health professionals trained at Swansea University (through SUMS and CHHS) exhibit greater preponderance to continue training and practice within the region³³.

4.5.5 Time horizon

The Swansea Bay City Region has developed Internet Coast within its 15-year economic strategy through to 2031. The long-term capital investment infrastructure nature of the proposed initiative lends itself to appraisal over a longer-period, of 20-30 years, in line with guidance of organisations such as that proposed specifically for science parks (EU, 2002, EU, 2014). Indeed, the City Deal-funded phase of the project is presented as part of a longer-term ambition to transform Life Sciences, Sport & Well-being Research & Innovation capabilities; Clinical Services; and Education/Skills capacity, in partnership between Health Service, academia and private sector (ARCH, 2017). For example, certain options relate to early phase activities opening up further development sites (e.g. road infrastructure

³⁰ As required by Green Book guidance, though retained for SBCR where below full employment and wider regeneration opportunity support inclusion of multiplier effects

³¹ Though as this is based on a relatively low number of observations a conservative approach has been adopted.

³² For the 'Base' Case, with a range of parameters used in Optimistic and Pessimistic Cases

³³ ## SUMS/CHHS data

planning), which would involve activity towards the end of the 15-year period, with significant impact sometime thereafter. Benefits arising from development's subsequent phase are factored separately with associated risks (including for benefits realisation and timescales) considered within the sensitivity analysis.

To align with the Internet Coast programme and generic Green Book time horizon, both 10 and 15-year horizons are used to support the appraisal. It should be noted though, that the project plans that describe intention for both the activity and a significant portion of its benefits to be realised beyond this period.

4.5.6 Residual values

The project's infrastructure will clearly be of value beyond the 10 and 15-yr time horizons. Therefore, to incorporate residual value and opportunity cost an anticipated market value of the ILS/Education facilities at these points has been incorporated. While depreciation along with facility maintenance is incorporated separately³⁴ in the Financial Case, it has in the absence of market projections been used with a standard linear 30-year depreciation cycle³⁵ to present a relatively conservative market value.

4.5.7 Wider benefits

The targeted benefits (as presented previously) relate predominantly to employment and productivity, though also to broader regeneration and health outcomes. This includes enhancement of the built environment, which along with enhance employment prospects would result in improved land values. This is of particular note for some options which target longer-term impact potential by opening up major development sites (e.g. Morriston ARCH development land). In parallel, improved health outcomes would result in cash-releasing benefits to Health service and other organisations as well as benefits to individuals. Such benefits include the long-term health benefits described below.

4.5.8 Long-term health and wellbeing benefits

The project will create expanded infrastructure with wider capabilities allowing a greater focus on academic and clinical quality and value improvement initiatives to deliver safer and better healthcare, physical fitness and rehabilitation, and well-being. The proposal relates exclusively to the innovation and economic development ambitions of the City Deal. By the nature of the sector, its innovation inherently aims to improve health outcomes, while clinical collaboration results in improved services. This potential is strengthened by the breadth of innovation ranging from medical devices benefitting patients with specific conditions through to sports and exercise technologies supporting both broader population and elite athletes. Therefore, the project will provide a pipeline of healthcare innovations, which will provide both local economic uplift through improved health and wellbeing and subsequent productivity along with wider societal benefit.

The metric that is widely used to demonstrate improvements in improved health and wellbeing is that of the quality adjusted life year (QALY). One QALY equates to one year of perfect health and is a fundamental requirement of health technology assessments in UK settings, with widespread application across other healthcare systems.

³⁴ As noted in 6.13 of the Green Book

³⁵ Of note, this aligns with the Project Sponsor accounting practice, RICS Red Book and EU CBA Guidance for developments of this nature EU 2002. Guide to cost-benefit analysis of investment projects. *In: EVALUATION UNIT, D. R. P., EUROPEAN COMMISSION (ed.). Web, EU 2014. Guide to Cost-Benefit Analysis of Investment Projects, Economic appraisal tool for Cohesion Policy 2014-2020. In: POLICY, D.-G. F. R. A. U. (ed.). Web.*

The table below presents a series of scenarios that highlight the potential value added as a result of QALY gains arising from the Swansea City Deal campus developments. The current value attached to one QALY equates to £20,000, although this key variable is a matter of debate. For the purpose of this appraisal, the NICE figure of 20,000 is used as an upper bound, with lower values providing alternative scenarios.

The scenarios have been developed to take account of potential QALY gains, the time taken to generate such gains and the value placed on a QALY. The first row therefore depicts the position whereby 2%, 3% and 4% of the Swansea population (roughly 250,000) – although the City Deal catchment area would be more extensive – and each ‘receive’ an additional one year of perfect health, which is valued at £15,000 and £20,000, over 5, 10 and 15 year time periods.

No. of residents who will benefit from one additional year of perfect health	Value (£)	Potential health value added (£)		
		5 years	10 years	15 years
5,000	15,000	338,629	623,746	863,805
5,000	20,000	451,505	831,661	1,151,740
7,500	15,000	507,943	935,619	1,295,708
7,500	20,000	677,258	1,247,492	1,727,610
10,000	15,000	677,258	1,247,492	1,727,610
10,000	20,000	903,010	1,663,322	2,303,480

Table 4.15: Potential value of benefits from Quality Adjusted Life Years

Initial analysis indicated that on the basis of a greater proportion of residents were to benefit to the extent of one additional year of perfect health – say 10%, the value attached to that was £20,000 (as per NICE threshold) and these were generated within a 15-year timescale the potential health value added would equate to £5.8 million.

As the business case development has progressed, and consideration is given to longer-term impact of these health benefits it can be determined that this benefit could be in the range £16m - £32m, depending upon the QALY value applied during a generational perspective. This time-horizon would be appropriate in the context of the Wellbeing of Future Generations (Wales) Act 2015 which gives statutory requirement to such appraisal.

No. of residents who will benefit from one additional year of perfect health	Value attached to one year of perfect health (£)	Potential value added (£)		
		5 years	10 years	15 years
100	10,000	4,515,052	8,316,605	16,481,515
100	15,000	6,772,579	12,474,908	24,722,272
100	20,000	9,030,105	16,633,211	32,963,029

Table 4.16: Potential longer-term value of health benefits

Further, there are likely to be additional gains arising from improvements in life expectancy and years of healthy life expectancy, given the number of areas classed as being in the most deprived communities in the Swansea City Bay areas, and the differential between rich and poor communities in terms of health life expectancy approaching 20 years for males and 18 years for females within SBUHB region. It has been estimated that reducing overall mortality from circulatory disease to levels seen in the least deprived areas of Wales would increase life expectancy in the most deprived areas by 1.5 years in males and 1.3 years in females, while similar gains would be made if cancer mortality rates were reduced (1.3 years in males, 1.2 in females). Further, reducing excess deaths from external

causes (e.g. accidents, suicide) would have a particularly large effect on males living in the most deprived areas, potentially adding nearly a year to their life expectancy.

These results would be predicated on the assumption that the preferred approach (or alternatives) would be adopted, as the 'do minimum' option would not generate the additional improvement in health and wellbeing. This baseline scenario has become further challenged since the initial appraisal due to the Covid crisis, suggesting greater potential additionality from the proposed intervention.

4.5.9 Longer-term benefits (beyond City Deal-funded phase)

The project will provide further health benefits as part of its phase 2 with the development of 55 acres of land at Morriston Hospital, in addition to the broader development of Sketty Lane identified from the Strategic Case. Through this development, a new Institute of Life Science will be established on the site alongside the development of an elective treatment centre (orthopaedics), a new thoracic surgery service, and the development of a cardiac centre. This will allow the project to evolve to become the regional centre for specialist treatments for South West Wales, working across the regional Life Sciences, Sport & Health network.

4.6 Optimism bias

This section of the appraisal also notes the relatively conventional nature of the construction, though with a potentially diverse range of occupants, and therefore the higher end of the range³⁶, 20%, is used to factor for Optimism bias. The proposed activity, across Preferred Approach and Alternative 1 also draw upon organisations with experience in delivery of similar infrastructure projects to time and budget, which suggests this value is relatively conservative (TECC, 2015).

Potential impact upon benefits realisation has been comprehensively considered through the risk analysis, presented in section 4.7 below. This assessment has been undertaken through review of relevant literature and prior projects, and workshop activity with Project Managers/Directors engaged in recent similar initiatives, both within the region/sector and further afield. These risks have been synthesised into parameters used in the sensitivity analysis presented in Section 4.8.

³⁶ As noted in Annexe 5 of the Green Book, 2018

4.7 Risk analysis

Through the series of meetings/workshops undertaken to support scoping and development of the long and short-lists, a comprehensive risk register has been developed. This draws upon experience of prior initiatives, both revenue and capital, together with understanding of sector and wider challenges. These have been categorised as follows, using the organisation-specific risk types used by the Project Sponsor. The initial risk assessment has been workshopped to identify appropriate mitigations which relate to all options. This has resulted in the following key residual risks and mitigations. Note that a risk register setting out the risk by type (Business/Service/External) is included as Appendix A5.

Table 4.17: Initial risk analysis

Number	Title	Risk Type	Description	Benefit(s) Affected	Likelihood	Impact	Combined Factor	Mitigation/Transfer	Anticipated Effectiveness	Residual Risk Factor	Owner
Design/Development Phase											
D0003	Project Initiation / Approvals	Business	Difficulty in agreeing scope/delivery arrangements with local and/or government sponsors	Skills; Innovation; Economy; Sustainability	30	70	21	Strong engagement with SBCR, WG, UK Gov and wider stakeholders; Research-informed approach	65%	7.35	SBCR
D0004	Delay/Limits of Initial Funding	Funding	Delayed/frustrated/reduced approval(s) leading to dis-alignment with wider cluster and stakeholders	Skills; Innovation; Economy; Sustainability	20	50	10	Strong engagement with SBCR, WG, UK Gov and wider stakeholders; Research-informed approach	70%	3	SBCR
D000x					0	0	0		100%	0	
Implementation Phase											
I0001	SBCR/IoHWP Partnerships	Operational	Difficulties in timely SBCR/IoHWP agreement of effective Implementation arrangements	Skills; Innovation; Economy; Sustainability	25	80	20	Strong engagement with SBCR Partners and Internet Coast Projects; research-informed approach	70%	6	SBCR
I0003	Procurement Failure (market)	Procurement	Lack of attractiveness to market - due to competition with other opportunities, level of co-investment etc.	Skills; Innovation; Economy; Sustainability	10	70	7	Research-informed approach; Effective market engagement	30%	4.9	SRO
I0004	Lack of co-investment	Funding	Campuses opportunity fails to attract targeted level(s) of private sector co-investment	Skills; Innovation; Economy	30	30	9	Research-informed approach; Effective market engagement	60%	3.6	SBCR
I0009	Economic downturn (local/national)	Economic	Downturn in economic opportunities such as inward-investment/growth due to factors such as Brexit disruption	Innovation; Economy	40	40	16	Diversified and longer-term targeted economic and skills benefits, beyond economic cycles/shocks; research-informed approach	40%	9.6	SBCR
I000x					0	0	0		100%	0	
Termination (Mainstreaming) Phase											
T0004	Infrastructure Renewal	Sustainability	Failure to plan/deliver renewal of infrastructure leading to lack of financial sustainability	Sustainability	30	40	12	Transfer - Partner	60%	4.8	Operator
T0005	Lack of long-term co-investment	Funding	Failure to attract further stages of co-investment to expand/enhance activity beyond Internet Coast phase	Innovation; Economy	30	30	9	Strong engagement with Partners, SBCR, WG, UK Gov and wider stakeholders; Research-informed approach	50%	4.5	SBCR
T000x							0			0	
							0			0	

4.8 Sensitivity analysis

The risk assessment presented in the previous section presents key residual risks, which could potentially result in delayed or reduced benefits realisation, cost increase or combination thereof. Sensitivity analysis, for both Regional and UK level appraisal has therefore reviewed short-listed options with parameters ranging up to 1-year delay, 40% reduction in benefits and 20% cost increase (in addition to factored Optimism Bias).

Sensitivity analysis of the Preferred and Alternative Options shows switching values of 66% reduction in benefits or 305% increase in cost for Preferred Option before Do Minimum becomes next Option. Alternative 3, involving a distributed fund could also potentially switch if Benefits of the Preferred Option were delayed, though this would be beyond the initial project phase and subject to other risks. The following tables present a further perspective of the Options appraised at UK and Regional Level.

4.8.1 UK perspective

SBCR Cost-Benefit Analysis: April 2021 UK Perspective

Scenario (Base)	10Yr NPV	15Yr NPV
A - Preferred Implementation	11,202,821	18,782,103
B - Alternative 1	- 1,436,857	12,310,026
C - Alternative 2	- 6,318,993	- 3,364,775
D - Alternative 3	5,271,441	9,525,264
E - Do Minimum	32,869	3,328,349

Project Name Campuses
Version 3.0
Date 05/04/2021

Sensitivity Analysis

	10Yr NPV	15Yr NPV
20% reduction in Wider Benefit		
A - Preferred Implementation	-	-
B - Alternative 1		
C - Alternative 2		
D - Alternative 3		
E - Do Minimum		

	10Yr NPV	15Yr NPV
40% reduction in Benefits		
A - Preferred Implementation	2,934,669	5,608,492
B - Alternative 1	- 4,649,139	1,725,245
C - Alternative 2	- 7,578,420	- 7,679,635
D - Alternative 3	- 624,160	54,388
E - Do Minimum	- 1,323,881	73,437

	10Yr NPV	15Yr NPV
1Yr Delay in Benefits		
A - Preferred Implementation	9,576,021	4,630,178
B - Alternative 1	- 3,810,440	- 1,841,899
C - Alternative 2	- 7,251,638	- 3,364,775
D - Alternative 3	3,885,820	7,402,036
E - Do Minimum	- 718,429	- 1,480,581

	10Yr NPV	15Yr NPV
Slow Mobilisation (6month delay)		
A - Preferred Implementation	10,389,421	17,298,599
B - Alternative 1	- 2,623,649	10,074,971
C - Alternative 2	- 6,785,315	- 4,318,676
D - Alternative 3	5,081,025	8,463,650
E - Do Minimum	- 342,780	2,797,199

	10Yr NPV	15Yr NPV
20% increase in costs		
A - Preferred Implementation	9,309,309	15,951,718
B - Alternative 1	- 3,330,369	9,479,641
C - Alternative 2	- 8,212,505	- 6,195,160
D - Alternative 3	3,377,929	6,694,879
E - Do Minimum	- 638,932	- 6,195,160

	10Yr NPV	15Yr NPV
1Yr Delay and -20% Wider Benefit		
A - Preferred Implementation	-	-
B - Alternative 1		
C - Alternative 2		
D - Alternative 3		
E - Do Minimum		

4.8.1 Regional perspective

SBCR Cost-Benefit Analysis: April 2021 Regional Perspective

Project Name **Campuses**

Version **3.0**

Date **03/04/2021**

Scenario (Base)	10Yr NPV	15Yr NPV
A - Preferred Implementation	9,772,373	16,420,107
B - Alternative 1	- 893,395	13,998,178
C - Alternative 2	- 5,368,934	- 1,158,657
D - Alternative 3	6,560,343	17,029,211
E - Do Minimum	240,942	3,827,526

Sensitivity Analysis

	10Yr NPV	15Yr NPV
20% reduction in Wider Benefit		
A - Preferred Implementation	8,568,427	12,457,153
B - Alternative 1	- 1,805,158	11,014,353
C - Alternative 2	- 5,819,897	- 2,624,690
D - Alternative 3	6,092,844	14,174,884
E - Do Minimum	- 139,860	2,913,963

	10Yr NPV	15Yr NPV
40% reduction in Benefits		
A - Preferred Implementation	2,076,400	4,191,294
B - Alternative 1	- 4,323,061	2,738,137
C - Alternative 2	- 7,008,384	- 6,355,964
D - Alternative 3	1,084,179	10,265,410
E - Do Minimum	- 1,199,037	372,944

	10Yr NPV	15Yr NPV
1Yr Delay in Benefits		
A - Preferred Implementation	8,290,604	2,268,182
B - Alternative 1	- 3,427,126	- 153,747
C - Alternative 2	- 6,466,032	- 15,310,582
D - Alternative 3	4,282,433	2,877,286
E - Do Minimum	- 556,444	- 981,403

	10Yr NPV	15Yr NPV
Slow Mobilisation (6month delay)		
A - Preferred Implementation	9,031,489	15,043,371
B - Alternative 1	- 2,160,261	11,626,015
C - Alternative 2	- 5,917,483	- 2,263,322
D - Alternative 3	4,252,641	2,351,771
E - Do Minimum	- 157,751	3,263,794

	10Yr NPV	15Yr NPV
20% increase in costs		
A - Preferred Implementation	7,878,861	13,589,722
B - Alternative 1	- 2,786,907	11,167,793
C - Alternative 2	- 7,262,446	- 3,989,042
D - Alternative 3	2,329,337	14,198,826
E - Do Minimum	- 430,859	2,865,740

	10Yr NPV	15Yr NPV
1Yr Delay and -20% Wider Benefit		
A - Preferred Implementation	7,441,964	10,372,821
B - Alternative 1	- 4,069,501	6,771,880
C - Alternative 2	- 6,790,840	- 4,582,934
D - Alternative 3	5,475,847	11,089,206
E - Do Minimum	- 852,898	1,905,761

The sensitivity analysis has shown the preferred implementation as being most resilient in face of key risks occurring, from both UK and regional perspectives. Risks occurring that result in delayed and/or reduced benefits have the most significant impact on most implementations, while cost overruns would have greatest negative affect on Alternative 2 (already most expensive option). Switching value analysis suggests that as the same risks affect Alternatives, then Do Minimum would become the next Option in the event of 66% reduction in benefits realised or 305% increase in costs.

Regional NPV is generally higher than the UK perspective for all options/scenarios reflecting the localised wider benefits to the regional economy through multiplier effects, offsetting the reduced additionality due to leakage.

Commercial Case

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5. Commercial Case

5.1 Introduction

This commercial case has been developed to optimise deliverability and value as per the Preferred Approach and Option presented in earlier sections. It draws upon the capabilities of the project partners and their successful track records with the approaches presented. This proposal will include:

- Differentiated Singleton and Morriston strategy, held together by the project programme arrangements set out within the Management section.
- Scope of the Singleton build, and mixed-use potential associated with the site.
- Scope of the Morriston development, stage one of a wider development, with enabling works (planning for road access) for the latter.

NB: please see Appendix A8 for detailed masterplans, site appraisals and cost plans.

5.2 Procurement strategy and route

The procurement strategy has been designed to maximise the impact of Singleton and Morriston developments and differs between the two sites to capitalise on distinct opportunities, their scale, and intended impact. The ~2000sqm Sketty Lane design and build has an estimated value of £12.75 million, while the ~700sqm Morriston redevelopment has an estimated value of £1.25 million. There is an estimated value of £1 million allocated as a contribution to the road planning.

While the Project Board provides oversight of the overall strategy, Swansea University will execute the commercial approach for Singleton and SBUHB will execute the approach for Morriston. The Singleton development will take place on land within, or near, the University's Singleton campus and the Morriston development will take place on Health Board land.

There are two parts to the Morriston proposal, with an initial small investment in the creation of a Management Centre alongside infrastructure planning for the development of a new road that will unlock the wider development of the site for economic, health and social purposes.

Throughout the following sections the approach for Singleton is differentiated from that for Morriston as the commercial strategy differs. The two aspects of the Morriston approach are also made clear. The Project Board is, however, ensuring they are advanced as part of a coherent Well-being and Life Science strategy for the region, to ensure the deliver the stated level of commitment contained within the Swansea Bay City Region Strategic Outline Case. All procurement strategies and plans will be undertaken and implemented in line with the co-developed SBCD Procurement Principles.

5.3 SBCD procurement principles

The Swansea Bay City Deal (SBCD) Procurement Principles have been put in place for project teams that are developing and delivering projects as part of the Swansea Bay City Deal.

The Principles set out how the SBCD expects project teams to take a fresh look at the way works, goods and services are specified and procured so that the maximum economic, social and environmental benefit to the region can be achieved from the process. The Principles look beyond the initial construction phase and also apply to the operational service of the assets when built. The five Procurement Principles have been addressed as follows:

5.3.1 Be innovative

The project will seek to encourage innovation in operational procurement, using innovative tools within an end-to-end procurement process where possible. It will also seek to encourage innovation on the part of suppliers and contractors, encouraging innovative approaches in the supply of goods and services that can offer better value for money and community benefits.

5.3.2 Have an open, fair and legally compliant procurement process.

Procurement policies adopted by both Swansea University (i.e. for the Sketty Lane development) and SBUHB (for the Morrision development) are designed to ensure value for money, to be open, fair and transparent, and are fully compliant with public procurement law.

5.3.3 Maximise Community Benefits from each contract

All procurement will emphasise. Community Benefits are those activities, opportunities, schemes and promotions that contribute positively to those communities affected by the project. The procurement process will emphasise the need to adhere to community benefits standards and to maximise community benefits through, e.g.:

- targeted recruitment & training
- creation of new training opportunities, placements, apprenticeships and work experience
- equality and diversity
- supply-chain initiatives
- community engagement, promoting community cohesion and reducing crime and the fear of crime
- Considerate Constructor' schemes
- contributions to education and raising educational standards
- promotion of physical activity through community outreach work as a diversion from antisocial behaviour
- the promotion of social enterprises
- resourcing community initiatives and enhancements, and
- improving sustainability.

Through the delivery of Community Benefits the Development Partner will support the placements of work experience students and apprenticeships across all facilities. Contractors will be required to monitor the Community Benefits achieved and to report outcomes using the Welsh Government's Community Benefits Measurement Tool.

5.3.4 Use ethical employment practices

The project partners will adhere to their established approaches to employment, taking account of all employment legislation, and with attention given to equality and diversity.

5.3.5 Promote the City Deal

All tender documentation and associated publicity and promotional material will promote the City Deal. The project team will work with the Portfolio Management Office to ensure the City Deal is appropriately recognised and described.

5.3.6 Future investment

As noted in section 3.6.1 above, plans for the realisation of the £115m capital investment required for Phase 2 are in progress, working towards the longer-term commercial strategy informed by the evolving market, Covid-recovery planning, and the emergence of new technologies. The project team will work on more specific proposals with private and public sector partners to scope the opportunities and options available for the Phase 2 investment, and to conduct a post-Covid market analysis on the recommended approach.

The Swansea Bay University Health Board is already master planning for the Phase 2 development while the University is developing its plan (with a Memorandum of Collaboration with Swansea Council) to scope and deliver the Phase 2 development at Sketty Lane, and is preparing to undertake a full feasibility study (including potential joint venture, investment and funding arrangements). Funding is being sought to support this work.

Engagements with the Investment Directorate of the Department for International Trade (DIT) are underway to develop an investment offering that DIT can promote to its global network of investors and venture capitalists. Public sector investment will encompass contributions from local authorities and other public funded and public service organisations, and targeted grant funding for research, equipment and collaborative programmes with industry. Private sector investment will include regional investment from local and national private sector partners, local healthcare and sports providers. The project will also leverage private sector investment from large organisations seeking to establish or expand their presence in Wales, and their supply chains.

5.4 Sketty Lane/Singleton procurement strategy (City Deal-funded phase)

The Project Board has determined that the most effective and impactful procurement strategy for the project is to explore the application of the *South West Wales Regional Contractors Framework (SWWRCF)* for a Works commission where the University is the Contracting Authority. The Framework is a collaborative arrangement led by Carmarthenshire County Council on behalf of the South West Wales Regional Local Authorities and other regional public sector bodies.

The SWWRCF 2020 commenced on 1st February 2020 and will run until 31st January 2024. The Framework has been established in accordance with the requirements of the Public Contracts Regulations 2015 and is for the provision of Construction related activities in relation to but not limited to 21st Century schools projects, public buildings, housing, leisure, commercial, industrial and other related premises within participants' remits in the South West region.

The Framework is lotted and was designed in order to facilitate the award of contracts which support the local economy. It allows for direct award up to OJEU threshold call-offs, and mini-competition for both sub-OJEU threshold and above-threshold contracts. The Framework also includes monitoring of

Targeted Recruitment & Training, Supply Chain Initiatives, Contribution to Education and Social Community Initiatives.

The preferred site at Singleton is owned by Swansea University and the wider site comprises of land parcels owned by either Swansea University or Swansea Council. Swansea University would lead procurement for the City Deal-funded investment.

Stage	Activity	Target Completion
0	Start Up	Q2 2022
1	Concept Design	Q4 2022
2	Scheme Design	Q2 2023
3	Tender and Contract	Q3 2023
4	Construction, Commissioning and Handover	Q1 2025
5	Operational	Q2 2025

Table 5.1: Procurement timeline, Sketty Lane/Singleton development

5.5 Morriston procurement strategy (City Deal-funded phase)

The Project Board has determined that the most cost effective and impactful procurement strategy for the first phase of the Morriston development, which will involve the refurbishment of existing NHS estate, will be to utilise the Health Board's existing framework contracts.

Introducing new parties to develop on a hospital site would be onerous and time consuming, with delays to the development risking potential investments from medical technology and biopharmaceutical companies. The procurement approach will therefore be to appoint a Supply Chain Contractor and design team from SBUHB's Local Contractor and Consultant Framework to deliver refurbishment of existing accommodation on the Morriston Hospital site to provide an ILS facility in the existing Management Centre.

This Local Framework has been in operation since 2008 with periodic renewals of the participants. This procurement approach supports collaborative and non-adversarial contractual relationships and shared goals for projects with a threshold not exceeding £2 million Works (excluding reclaimable VAT) to undertake Discretionary and Welsh Government funded works for a variety of schemes.

Application of SBUHB's Local Framework has realised significant benefits in terms of: value for money; timely delivery of business objectives; promotion of partnership working between the Health Board, Contractors and Consultants; improved quality and reduced programme times; maximisation of efficiencies, and an OJEU-compliant process. Contractors and Consultants are appointed according to the Works value of the scheme, either directly on a rotational basis or via a mini-competition. The Contractor currently employed on the Local Framework include the following key principles:

- Building Contractors (3)
- Mechanical Contractors (3)
- Electrical Contractors (3)

- Design Disciplines: Architect, Principal Designer, Mechanical & Electrical Design Engineer, Quantity Surveyor, Structural & Civil Engineer, Project Manager, Cost Advisors, NEC Supervisor (1 per Discipline)

The preferred site at Morriston forms part of the hospital’s current estate. The timeline associated with the Morriston development procurement strategy is as follows:

Key Stage	Target Completion
Design phase	Q1 2022
Procurement phase	Q2 2022
Construction phase	Q2 2023
Handover of new facility to University	Q2 2023

Table 5.2: Procurement timeline, Morriston development

When complete, the refurbished building will be leased from the Health Board to Swansea University (terms under development), who will utilise it to provide a state-of-the-art, open innovation environment that facilitates research collaboration and industry engagement.

The refurbished building will also:

- Support technological innovations and investment from national and international health care providers.
- Promote benefits in terms of improved specialist healthcare services.
- Facilitate access to modern technology and techniques.
- Enhance the patient experience.
- Develop stronger ties with training organisations to promote a more suitable and resilient regional workforce.

Building on the success of the Institute of Life Science, the Morriston ILS and Well-being Campus will enable the transformation of skills development and research and innovation capacity, to the collective benefit of the healthcare, academic and industrial community (subject to ongoing review to ensure optimised use for benefits realisation). The project therefore builds on strengths including regenerative medicine, cardiology, advanced technologies, quality assurance and service improvement, and burns and plastics research and innovation.

Note that, as part of this initial, City Deal funded investment, Swansea Bay University Health Board will engage the services of an Agent to inform the development of the new road connecting with the M4 and its associated infrastructure activities.

5.5.1 Access road – current position

The proposed expansion of the Morriston Hospital site has been driven by the ARCH Partnership and the University Health Board’s Clinical Strategy. The Masterplan (Appendix A8) was drafted (and will be refined), and the Local Development Plan considered the likely traffic implications arising from the scheme. The LDP concluded that a new access road was required.

An external agency (WSP) was commissioned to identify and cost route options for the access road. The preferred route off the M4 Junction 46 has been identified, minimising the land referencing that will need to be run through and opening up further potential for the campus development. Ecological studies are in the process of being completed. It is anticipated that, although the development of the road is up to five years away, expansion of life science facilities on the Phase 2 site can still continue, though any new facilities could not be occupied until the road is in place.

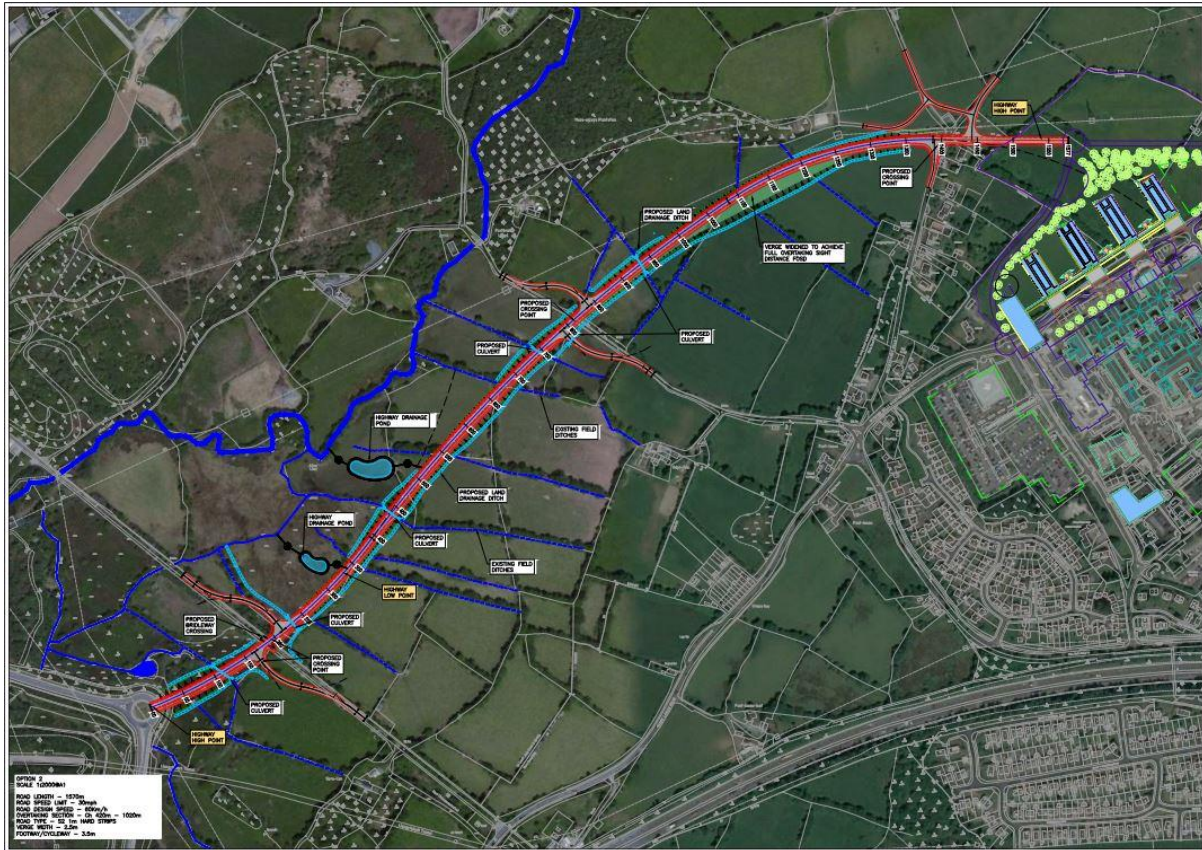


Figure 5.1: Preferred option for access road

Although Welsh Government have announced a pause on building new roads, to review their value and impact. However, Welsh Government have also indicated that new schemes intended to enable access to industrial or housing developments would continue to be supported. The Health Board have received assurances that local Senedd Members are supportive of the proposed development.

The project supports the planning of the road development in terms of:

- Additional highway design i.e. taking the highway design of roads within the OPA area to the same level of detail as the main access road within the FPA.
- Ground investigation costs
- Potential revisions to the original master plan scope and content.
- Although the ecological surveys undertaken last year provide coverage of the EIA area agreed with CCS the masterplan has expanded slightly. Therefore some additional ecological survey work, in agreement with the Council
- Legal costs associated with negotiations / licences with land owners to undertake the ground investigations

- Planning application costs and supporting consultation events / supporting material (visual boards etc.).
- Costs associated with the tendering process required to select a contractor for the road construction.

5.6 Future phase infrastructure and procurement strategy (non-City Deal funded)

5.6.1 Sketty Lane/Singleton

The long-term plan for the transformation of the Singleton site, incorporating provision for community, elite and performance sport, is under development and discussions with Swansea Council and other stakeholders continue to establish a single management model. Options for operational and delivery models are currently being assessed. The procurement strategy for the longer-term developments at Singleton will be established to encourage and foster partnership opportunities and co-investment.

5.6.2 Morriston Health and Life Science Campus

The more significant opportunity for Morriston relates to facilitating the wider development of the site, including formulating plans to finance major infrastructure investments, which would see the development of recently acquired new land for healthcare, life science, education, and related innovation opportunities. Through ARCH, regional partners have already invested in excess of £50K in development plans for Morriston, which will accelerate early planning.

As this scheme progresses through detailed design and delivery stages, a Supply Chain Constructor and Design Team will be appointed from the Welsh Government's Designed for Life National Framework (3/4) to deliver the key deliverables of this scheme.

This procurement route supports construction projects with a Works value of between £4 million and £10 million (including reclaimable VAT), and enables the appointment of the Supply Chain Constructor and Design Team via a mini-competition process.

The key benefits of utilising this national framework include realising significant benefits in terms of Contractor's specialist knowledge and experience of delivering similar major road and infrastructure projects; value for money; improved quality and delivery; saving time on full procurement; maximisation of efficiencies, and ensuring an OJEU-compliant process.

5.7 Feasibility and pre-development studies

The strategy has been underpinned by pre-development options and feasibility studies, which further supported the specification for both procurement exercises. Specifically, the brief for the pre-development options study encompassed:

- High level viability of developing a suitable building/s in Singleton and the refurbishment of Management Centre at Morriston Hospital.
- Functional content and use cases.

- Produce indicative area schedule and space planning.
- Develop design for preferred option(s).
- Affordability and Cost Exercise

Masterplans and site appraisals included as Appendix A8.

5.8 Service requirements and outputs

5.8.1 Sketty Lane/Singleton (City Deal-funded phase)

- **Development:** establishment of a ~2,000sqm development to house integrated research, innovation and associated skills development activity aligned to the transformation of the identified site into a Life Science, Wellbeing and Sports Campus.
- **Design:** detailed design and planning to support the realisation of the development including feasibility and pre-development studies and surveys
- **Construction and Operation**

The functional content of the Singleton Phase I development comprises the following:

Activity	Proportion of overall space within Phase I development (2,000sqm) allocated to activities
Skills development	35%
Specific examples: <ul style="list-style-type: none"> • Expansion of the Health and Wellbeing Academy model, providing a clinical service delivery environment and patient flow, supporting patient recruitment and clinical studies. • Growth space for new course where there is a regional healthcare and life science industry skills requirement (e.g. sports physiotherapy, occupational therapy, allied health professional qualifications). • Growth space for skills development initiatives being encouraged by industry. • Expansion of the Continued Professional Development opportunities aligning with improving skills of the regional workforce. 	
Industry innovation and incubation space	50%
Specific examples: <ul style="list-style-type: none"> • Collaborative innovation space for new industry collaborations. • Growth space for emergent MedTech and Sports Tech companies within the region, including (include companies within ILS that have a strong prospect of growth) • Accommodating the high demand for incubation space from new and growing SMEs from within the region, currently on a waiting list for premises in South West Wales. • Accommodating growing demand for clinical digital space from businesses developing new digital applications and systems. • Accommodation for national commercial support initiatives, e.g. AgorIP and ACCELERATE. • Increased accessibility to state-of-the-art infrastructure and capabilities to support the growth of research and innovation particularly commercially relevant and viable activities. 	
Innovation office and development space	10%

Specific examples:	
<ul style="list-style-type: none"> • Back office space for the skills and industry incubation and commercialisation space described in previous sections. • Digital and data research and innovation space with appropriate software capabilities. • Growth space for the expansion of regional commercial activities and the capacity to attract the relocation of business to within the region. • Increased flexible options for industry to co-locate within industry including affiliation opportunities to encourage co-development and coproduction. 	
General (meeting, collaborative, storage)	5%
<ul style="list-style-type: none"> • Flexible spaces within the infrastructure for the interaction between stakeholders for truly integrated vision and cross-disciplinary innovation. • Increased meeting room spaces with digital capabilities to provide easily accessible video conferencing and digital links for collaboration; replicated at sites across the region • Aligning with the expertise surrounding workplace environments to ensure space is utilised to create the best environments to drive collaboration, dialogue and innovation. 	

Table 5.3: Sketty Lane/Singleton – indicative functional content

5.8.2 Morriston (City Deal-funded phase)

- **Development:** establishment of a ~700sqm development to house integrated research, innovation and associated skills development activity aligned to the transformation of the identified site into a Life Science, Wellbeing and Sports Campus.
- **Design:** detailed design and planning to support the realisation of the development including feasibility and pre-development studies and surveys
- **Construction and Operation**

Activity	Proportion of overall space within Phase I development (700sqm) allocated to activities
Skills development	0%
This refurbishment will not directly provide space for skills development activity although there is close alignment with existing and neighbouring facilities housed within the Morriston Education Centre which includes the clinical skills suite.	
Industry innovation and incubation space	50%
Specific examples: <ul style="list-style-type: none"> • Mirroring and complementing activity associated with existing ILS developments at Singleton, the development of a cluster of enterprise that will benefit from co-location with clinical service delivery and input from clinical specialists or patient cohorts. • Growth space for emergent medical technology companies with strong prospect of growth that will also perpetuate cluster development to support the longer-term ambitions. • Accommodating demand for incubation space from new/growing SMEs from the region. • Accommodating growing demand for clinical digital space from businesses developing new digital applications and systems . • Accommodation for national commercial support initiatives, including AgorIP and ACCELERATE, opportunity to co-locate with end-users, innovators, and enterprise to foster collaboration and open innovation. • Increased availability and access to capacity, expertise, and capabilities to support the growth of research and innovation particularly commercially relevant and viable activities. 	

Innovation office and development space	20%
Specific examples: <ul style="list-style-type: none"> • Back office space for the skills and industry incubation and commercialisation space described in previous sections; • Growth space for the expansion of regional commercial activities and the capacity to attract the relocation of business to within the region with associated inward investment • Increased flexible options for industry to co-locate within industry including affiliation opportunities to encourage co-development and coproduction. 	
General (meeting, collaborative, storage)	30%
<ul style="list-style-type: none"> • Capitalising on the proximity of patients, clinical specialists and healthcare professionals, there will be an increase in flexible spaces within the infrastructure for the interaction between stakeholders for truly integrated vision and cross-disciplinary innovation. • Increased meeting spaces with digital capabilities to provide easily accessible video conferencing and digital links for collaboration; replicated services across the multiple sites. • Aligning with the expertise surrounding workplace environments to ensure space is utilised to create the best environments to drive collaboration, dialogue, and innovation. 	

Table 5.4: Morriston – indicative functional content

5.9 Project lifetime general service requirements and outputs

The key requirements and outputs of the project over its lifetime are:

- Engagement and Business Development, and specifically the development of partnerships with collaborators, growth of networks and affiliations
- Investment, to secure private sector/other public sector leverage and raising finance to support longer term ambitions
- Research and Innovation, developing and growing in research and innovation to support commercialisation, enterprise, and entrepreneurship regionally. This will capitalise on existing resourcing, securing revenue funding to support new initiatives and alignment of national R&I mechanisms including national programmes such as ACCELERATE and AGORIP
- Internationalisation, expanding international networks and relationships focussed around identified and shared priorities to foster excellence in research, innovation, service delivery and attract inward investment and cluster growth and reach.

5.10 Charging mechanism

The payment mechanisms will be confirmed through a business planning process for each individual element of the project and will be aligned to the University and Health Board’s processes. Contractual controls will be used with the private sector finance partners and project partners to ensure delivery of the critical success factors, performance, risk management and effective use of resources. These contractual controls will set out the operational objectives and pathways to maintain the overarching Vision. Due diligence will be applied to demonstrate value for money and the profile to recoup capital costs. Contractual agreements will be sought to satisfy the Authority’s requirements in respect of:

- The guaranteed level of Authority exposure

- How, given all the constraints of service and benefits to the community they will consistently make a profit
- Caveats and assurances that guards against the risk of institutional funders not having the level of empathy with the aims and objectives of the project, as developed through agreement between the Authority and Partners

5.11 Risk transfer

A full risk register outlining risks associated by type and owner is included in 'Appendix A5 - Risk Assessment'.

5.11.1 Sketty Lane/Singleton development

The risk register will be maintained by the Cost Advisor/Project Manager during the works phase of the project, through to hand over and commissioning. It is planned to review the risk register regularly and update accordingly to maintain tight financial cost control relative to the risks noted in the register.

Risks will be managed comprehensively and regularly with a comprehensive risk register to be updated frequently. Risk transfer will be appropriately considered as procurement progresses and concluded. The following allocation of risk at this stage is considered acceptable:

Risk Category	Potential Allocation	
	Public	Private
1. Design Risk	✓	
2. Services, Construction & Development Risk	✓	✓
3. Transition & Implementation Risk	✓	
4. Availability and Performance Risk	✓	✓
5. Operating risk	✓	
6. Variability of Revenue Risks	✓	
7. Termination Risks	✓	
8. Technology & Obsolescence Risks	✓	
9. Control Risks	✓	
10. Residual Value Risks	✓	
11. Financing Risks	✓	
12. Legislative Risks	✓	
13. Other Project Risks	✓	✓

Table 5.5: Risk allocation: Sketty Lane/Singleton

5.11.2 Morriston

Risk Category	Potential Allocation	
	Public	Private
1. Design Risk	✓	
2. Services, Construction & Development Risk	✓	✓
3. Transition & Implementation Risk	✓	
4. Availability and Performance Risk	✓	✓
5. Operating risk	✓	
6. Variability of Revenue Risks	✓	
7. Termination Risks	✓	
8. Technology & Obsolescence Risks	✓	
9. Control Risks	✓	
10. Residual Value Risks	✓	
11. Financing Risks	✓	
12. Legislative Risks	✓	
13. Other Project Risks	✓	✓

Table 5.6: Risk allocation: Morriston

Note that SBUHB's Capital Planning Team will manage the operational/change process and will endeavour to mitigate any risk of disruption to Health Board services and performance during the development stage.

The planning contingency has been assessed by an independent cost advisor in consultation with the Project Manager. The planning contingency sum of 10% (including non-recoverable VAT) is a robust assessment of risk and complies with NWSSP - FS guidance.

5.12 Key contractual arrangements

5.12.1 Sketty Lane/Singleton (City Deal-funded phase)

The proposed contractual arrangements for the development at Singleton Campus would include:

- Swansea University will appoint a client-side project manager using existing framework agreements, in compliance with the SBCD Procurement principles and alongside the University's estates team throughout.
- Swansea University will procure a design team either through open market tender or an existing framework in compliance with policy and the SBCD Procurement principles to develop the design to RIBA stage 3 (Developed Design).
- Client-side consultation team and design team will be appointed on an NEC3 or NEC4 professional services contract.
- Swansea University will procure a contractor. It is proposed that this is on a Two Stage NEC4 Design & Build Contract utilising Option A (Priced Contract with Activity Schedule).

5.12.2 Morriston (City Deal-funded phase)

The proposed contractual arrangements for the development at Singleton Campus would include:

- SBUHB will appoint a supply chain contractor and design team from its Local Contractor and Consultant Framework to deliver refurbishment of existing accommodation.
- Contractors and consultants are to be appointed according to the works value of the scheme either directly on a rotational basis or via a mini-competition, as appropriate ensuring compliance with policy and alignment with the SBCD procurement principles.

5.13 Personnel arrangements

A TUPE (Transfer of Undertaking and Protection of Employee) will not apply to any of the investments.

5.14 Accountancy treatment

The City Deal funding for Campuses is by way of a grant. No assets underpinning delivery of Campuses will be on the balance sheets of the funders. In each case, the assets will be on the balance sheets of the lead organisations for each of the elements comprising the project at both the City Deal-funded and non-funded phases.

5.15 Potential cost increases

The project recognises the sharp cost increases and lengthened delivery times currently being experienced by the construction sector due to a combination of the rate of growth across the sector and shortages of essential building materials due to the pandemic, Brexit or a combination of the two.

The Building Cost Information Service (BCIS) is currently reporting significantly higher prices for projects requiring a quick turn-around which were subject to premiums being paid to reflect the current materials shortages. The Royal Institute of Chartered Surveys (RICS) are expecting the supply market to catch up by early 2022 and an associated moderation of tender prices. Current cost plans from cost consultants Mace include a forward annual inflationary figure of 2% and a contingency of 10%. Nevertheless, the project is aware of the potential risk of affordability and by way of mitigation will consider alternative methods of construction to obviate the reliance on traditional materials and construction methodologies.

Financial Case

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6. Financial Case

6.1 Introduction

The financial case provides an overview of the capital funding for the SBCD Campuses project, identifying the phase, source of funding and the projected timescales; the expenditure and funding profile and the revenue and long term sustainability forecasts related to Swansea Bay City Deal (SBCD) funding. The financial case has been prepared using the preferred option and demonstrates overall project affordability.

Included within the financial case is a breakdown of Sketty Lane and Morriston refurbishment (Phase 1) build costs which utilise SBCD funding and details the sources of public and private sector investment. The financial case also considers the expected balance sheet and VAT accounting treatment to be utilised by the project.

The investment required to deliver the whole SBCD Campuses project will be £164m. Through direct investment of £15m from SBCD, the SCBD Campuses project is projected to generate an additional investment of c. £149m over the 15 year period to 2032/33. This is delivered through c. £34m from Phase 1 (£11m Public investment and £23m Private investment) and c. £115m from Phase 2 capital inward investment from private sector partners and developers, the project will create lasting and sustainable economic growth within the region.

6.2 Capital Funding

The breakdown of the total capital funding requirements (c. £130m) for the full SBCD Campuses project by phase, source of funding and projected timescales is presented in Table 6.1 below.

Table 6.1. Capital Funding Requirements

Capital Requirements		2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	Total
Phase 1	City Deal		£ 360,000	£ 200,000	£ 5,190,000	£ 8,500,000	£ 750,000			£ 15,000,000
	Public Sector	£350,000	£ 78,000	£ 140,000						£ 568,000
	Private Sector									
Total		£350,000	£ 438,000	£ 340,000	£ 5,190,000	£ 8,500,000	£ 750,000	£ -	£ -	£ 15,568,000
Phase 2	City Deal									
	Public Sector						£12,250,000	£28,716,000	£ 16,466,000	£ 57,432,000
	Private Sector						£12,250,000	£28,716,000	£ 16,466,000	£ 57,432,000
Total		£ -	£ -	£ -	£ -	£ -	£24,500,000	£57,432,000	£ 32,932,000	£114,864,000
Life Science, Wellbeing and Sport Campuses Project Capital Total										£130,432,000

The SBCD funding will be fully utilised in Phase 1 of the SBCD Campuses project. MACE cost consultants were appointed to carry out a masterplan which included the build costs associated with the construction of a new building at Sketty Lane and refurbishment of the Management Centre at Morriston Hospital and considers the functional use of space as outlined in the commercial case. Table 6.2 provides the breakdown of estimated build components and costs utilising SBCD funds. The design planning for the new access road to the Phase 2 Life Science Park commenced in 2019/20 where costs have been projected through the appointment of WSP to lead the design of the road and planning

application. The current cost plans include contingencies, inflation and VAT. Where applicable any recoverable VAT will be reinvested into the Phase 1 build/refurbishment.

SBCD Campuses Project		£m
Sketty Lane/Singleton	Enabling works	0.29
	Construction	9.17
	External works	0.97
	Design	0.23
	Management fees	2.14
	Subtotal City Deal investment	12.79
Morriston	Enabling works	0.12
	Construction	0.91
	External works	0.01
	Design	0.21
	Road planning activities	0.96
	Subtotal City Deal investment	2.21
Total City Deal investment		15.00

Table 6.2: City Deal investment breakdown

6.3 Land allocation and investment

The SBCD Campuses project will develop sites at both Sketty lane and Morriston Hospital. Table 6.3 below identifies the Gross Internal Area (GIA) of land allocated within the project, the phase of development, the estimated investment for each allocation and the expected source of funding.

Table 6.3: SBCD Campuses land allocation and investment

Land allocation	Project Phase	Funding	Gross Internal Area (m ²)	Estimated investment costs £m
Sketty Lane	Phase 1	City Deal/Public/Private	2,000	37.33
Sketty Lane Land Value	Phase 1	Public	-	0.03
Morriston Refurbishment	Phase 1	City Deal/Public/Private	700	10.54
Morriston Refurbishment Land Value	Phase 1	Public	-	0.11
Road Planning and Design	Phase 1	City Deal/Public	-	1.39
Swansea Bay Sports Park	Phase 2	Private/Public	9,650	65.86
Morriston Life Science Park	Phase 2	Private/Public	6,000	49.00
			18,350	164.26

The land at Sketty lane and Morriston Hospital used in the development of Phase 1 will continue to be owned and managed by Swansea University and Swansea Bay University Health Board (SBUHB) respectively. Through a separate lease agreement, the refurbished space at Morriston Hospital will be leased to Swansea University for a peppercorn rent of £1 p.a. The land requirements to deliver Phase 1 of the project are estimated within the financial case on the following basis. Swansea University Sketty Lane is estimated at the net book value of the land and building as at 31st July 2020 (which was revalued in 2014). Morriston refurbishment is estimated at the current valuation of land and building at 31/3/21, from the 2017/18 NHS Wales Quinquennial valuation which has been updated on an

annual basis with NHS indices. Consultants have been appointed to carry out an up to date and detailed valuation of both sites in Phase 1 for inclusion in the full business case.

The land in scope for the future Phase 2 development of the Swansea Bay Sports Park is currently owned by Swansea University and the City and County of Swansea. The land in scope for the Morriston Life Science Park Phase 2 development has been estimated in the schedule of accommodation and is owned solely by SBUHB. The ownership and balance sheet treatment of this land will be determined as Phase 2 planning and investment opportunities develop.

6.4 Investment summary

The investment projections are based on the eight year delivery term from project inception in order to maximise the full benefits realisation of the operational schemes during the lifetime of SBCD funding, which is to be released to the SBCR from both the UK and Welsh Governments over a 15-year period. In addition to the £15m SBCD funding, the projected investment of the SBCD Campuses project and SBCD funding is c. £130m over the eight year period resulting in a total investment of c. £146m. Of which, c. £63m will be public investment and c. £68m from private investments including for education, research grant awards, commercial investments and lease agreements. The projected investment forecast for the eight year period is presented in Table 6.4. The Phase 1 public and private revenue investment leveraged over the full 15 year term is forecast at c. £34m (£11m Public investment and £23m Private investment), details of which can be seen in Annex 6.1 and Annex 6.2.

The investment in Phase 2 is currently projected as capital investment only. The c. £65m investment in the Phase 2 Swansea Bay Sports Park has been developed through master planning by Swansea University who commissioned MACE cost consultants to review redevelopment opportunities at the site which would create facilities to benefit the region with appropriate sports capacity, quality and accessibility, and enable co-location of academic and industrial collaboration. Moving this development forward, funding is being sought for the development of a detailed feasibility study and options appraisal, providing critical insight and funding and commercial options to support development of this Phase 2 project. The Morriston Life Science Park will form part of the wider regeneration of SBUHB land and early projections suggest that c. £49m of capital investment would be generated to deliver healthcare, life science, education, and related innovation opportunities. Section 6.4.1 provides further details on the expected investment portfolio and current status.

<u>Expenditure</u>	Year 1 2018/19 (£m)	Year 2 2019/20 (£m)	Year 3 2020/21 (£m)	Year 4 2021/22 (£m)	Year 5 2022/23 (£m)	Year 6 2023/24 (£m)	Year 7 2024/25 (£m)	Year 8 2025/26 (£m)	Year 9 2026/27 (£m)	Year 10 2027/28 (£m)	Total (£m)
Capital	£ -	£ 350,000.00	£ 438,000.00	£ 347,000.00	£ 5,190,000.00	£ 8,500,000.00	£ 750,000.00	£ 24,500,000.00	£ 57,432,000.00	£ 32,932,000.00	£ 130,439,000.00
Revenue	£ -	£ -	£ -	£ 111,308.00	£ 711,588.56	£ 2,038,522.62	£ 2,608,550.00	£ 3,090,531.82	£ 3,316,193.54	£ 3,434,833.68	£ 15,311,528.23
Total	£ -	£ 350,000.00	£ 438,000.00	£ 458,308.00	£ 5,901,588.56	£ 10,538,522.62	£ 3,358,550.00	£ 27,590,531.82	£ 60,748,193.54	£ 36,366,833.68	£ 145,750,528.23
<u>Funding</u>											
Swansea Bay City Deal Grant	£ -	£ -	£ 360,000.00	£ 200,000.00	£ 5,190,000.00	£ 8,500,000.00	£ 750,000.00	£ -	£ -	£ -	£ 15,000,000.00
Public Sector	£ -	£ 350,000.00	£ 78,000.00	£ 231,396.00	£ 192,519.89	£ 803,473.55	£ 965,254.61	£ 13,283,150.04	£ 29,766,553.74	£ 17,533,847.03	£ 63,204,194.86
Private Sector	£ -	£ -	£ -	£ 26,912.00	£ 519,068.67	£ 1,235,049.08	£ 1,643,295.39	£ 14,307,381.78	£ 30,981,639.80	£ 18,832,986.65	£ 67,546,333.36
Total	£ -	£ 350,000.00	£ 438,000.00	£ 458,308.00	£ 5,901,588.56	£ 10,538,522.62	£ 3,358,550.00	£ 27,590,531.82	£ 60,748,193.54	£ 36,366,833.68	£ 145,750,528.23

Table 6.4. Expenditure and Funding forecast eight year term

The overall investment composition comprises the three following investment components:

- The **City Deal investment** component consists of the government grants awarded by UK and Welsh government totalling £15m. City Deal Grant is awarded to projects / programmes of the fifteen-year term up to a maximum of the allocated value.
- **Public sector investment** consists of investment from local authorities and other public funded and public service organisations such as health boards. Public sector investment will also consist of specific Welsh Government, UK Government and European funding secured through research grant awards.
- **Private sector investment** includes regional investment from local and national private sector partners as well as local healthcare and sports providers. The project will lever in private sector funding directly from the supply chain development and indirectly from private research and development partnerships.

6.4.1 Research and innovation funding

The project aligns with key funding opportunities intended to stimulate growth, and particularly within the MedTech sector. In addition to seeking collaborative research funding from industry and stakeholders, the project will secure funding from research councils, charities and other funding bodies. Funding for research and innovation aligned to life sciences, data science, sports science and technology development is available from several sources, including UK Research and Innovation:

- The project is a particular fit with the Medical Research Council's research strategy, e.g. its Foundations in (1) discovery science, (2) investing in people, (3) new technologies and infrastructure and (4) fostering collaboration. The MRC's funding is aligned to its health focus themes, including themes directly aligned to the project: prevention and early detection, precision medicine, mental health, and global health.
- Similarly, the project aligns with funding streams under the Economic and Social Research Council, including for mental health and innovation in health and social care.
- The Engineering and Physical Sciences Research Council will also be a key focus for targeted funding applications, with proposals aligned to EPSRC themes in (e.g.) assistive technology and rehabilitation (current portfolio c£58M), medical imaging (c.£96M), Microelectronics (c.£27M), and data/artificial intelligence technologies (c.£245M).
- Innovate UK's funding opportunities include Knowledge Transfer Partnerships and Smart Grants, as well as funding for research in (e.g.) healthy ageing.

The position with regard to European funding (ERC, Horizon Europe, etc) is less certain given the UK's departure from the European Union. However, should these significant funding opportunities continue to be available in the longer term, the operation will seek to maximise appropriate calls and funding streams. For instance, relevant Horizon Europe programmes include:

- Sport and Society
- Health, Demographic Change and Wellbeing
- Future and Emerging Technologies, which supports data analysis research;
- Societal Challenges (e.g. inclusive societies);
- Industrial Leadership in (1) enabling technologies such as ICT and (2) innovation in SMEs;
- Digitising and transforming European industry and services (a 1.7Bn Euro fund).

6.4.2 Public and private sector investment breakdown

Table 6.5 sets out the public and private sector investment for the associated activity and phase of the SBCD Campuses project along with the expected investment and current status.

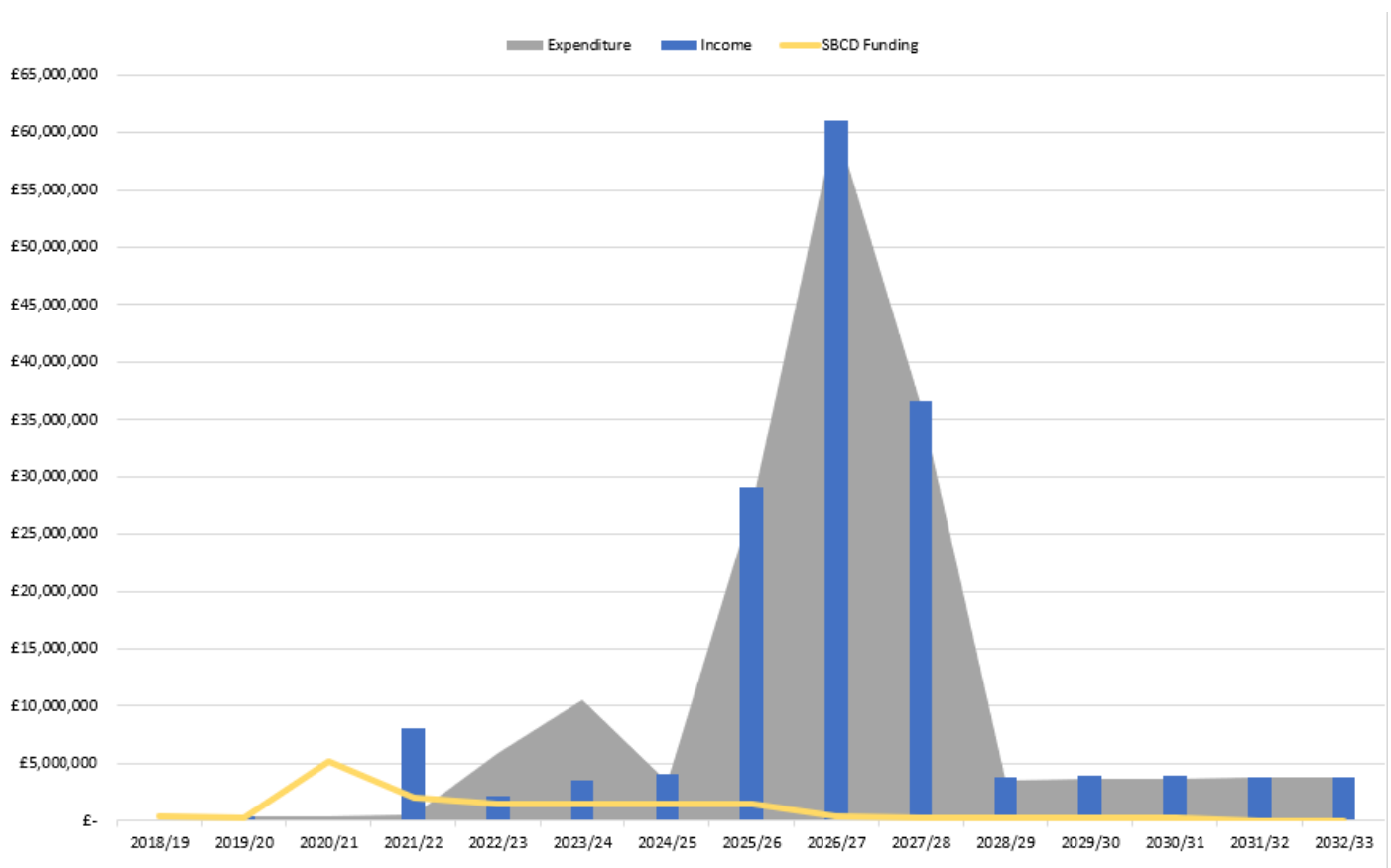
Table 6.5: Public and private sector funding status

Theme	Phase	Public Contribution (£m)	Public Contribution (%)	Public Investment Component	Status	Detail
Internet of Life Science & Well-being						
Sketty Lane	1	0.03	0%	Swansea University	Formally Committed	Swansea University will contribute the land requirements at Sketty Lane.
Morrison Management Centre	1	0.11	0%	Swansea Bay University Health Board	Formally Committed	Swansea bay University Health board will contribute the existing building space at Morrison Hospital.
Road Planning	1	0.43	1%	Swansea Bay University Health Board	Formally Committed	Swansea Bay University Health Board have committed to invest in the planning and design of the road infrastructure required for Phase 2. This is already in process, having started in 2019/20.
Morrison Management Centre	1	4.00	6%	Research Income	Formally Committed	This is committed within the ILS planning for HTC and associated development to be embedded within the Campuses initiative. Part of FLSS Business Plan and Strategic Programme
Sketty Lane	1	5.52	8%	HEIW commissioned programmes	Final Approval	Swansea University have been awarded a contract to deliver Occupational Therapy programmes at undergraduate level. Health Education and Improvement Wales (HEIW) will fund student places on these programmes.
Morrison Management Centre	1	1.29	2%	Tenancy Agreements	Early Engagement	Once SBCD funding approval is received engagement with tenants and lease agreements will be developed.
Sub Total Phase 1		11.39	17%			
Swansea Bay Sports Park	2	32.93	48%	LHB & Local Authority	Early Engagement	Advanced discussions with public sector partners (CCS and ABMU) to define detail of the preferred option for delivery. Feasibility and options appraisal will further define funding and commercial options.
Morrison Life Science Park	2	24.50	36%	LHB & Local Authority	Early Engagement	Advanced discussions with public sector partners (CCS and ABMU) to define detail of the preferred option for delivery.
Sub Total Phase 2		57.43	83%			
Total		68.82	100%			
Theme	Phase	Private Contribution (£m)	Private Contribution (%)	Private Investment Component	Status	Detail
Internet of Life Science & Well-being						
Sketty Lane	1	7.02	9%	Tenancy Agreements	Not Applicable	Investment of this income has been committed from the project partners to invest into the initiative. This relates to both project and sustainability phases. Once SBCD funding approval is received engagement with tenants and lease agreements will be developed.
Morrison Management Centre	1	4.00	5%	Research Income	Final Approval	This is committed within the ILS planning for HTC and associated development to be embedded within the Campuses initiative. Part of Faculty Business Plan and Strategic Programme
Sketty Lane	1	12.00	15%	Academic programmes	Final Approval	The establishment of new programmes utilising the skills space in Sketty Lane will generate funding from student tuition fee income
Sub Total Phase 1		23.02	29%			
Swansea Bay Sports Park	2	32.93	41%	Development Partnership	Early Engagement	Engagement with CCS and other key stakeholders to develop strategic commercial partnerships. Feasibility and options appraisal will further define funding and commercial options.
Morrison Life Science Park	2	24.50	30%	Health Care providers and private companies	Early Engagement	Advanced discussions with various private sector partners to define detail of the preferred option for delivery.
Sub Total Phase 2		57.43	71%			
Total		80.45	100%			

6.5 Income and expenditure summary

The UK and Welsh Government capital grant contribution to the SBCD Campuses project is awarded over a fifteen-year period. Funding will only be released from the portfolio on the successful approval of business cases by both the UK and Welsh Governments, up to a maximum of the agreed grant allocation. This funding profile creates an inherent temporary funding gap which is recognised with the funding being released to the project over a fifteen-year period as shown below in Figure 6.1. As the project Lead Authority, the City and County of Swansea is responsible for managing the operational cash flows in respect of the project. They are also, therefore, subsequently accountable for managing inherent risks and any funding gap recognised. The SBCD Campuses project will work with the City and County of Swansea to manage this as outlined in section 6.7.

Figure 6.1: Funding forecast



6.6 Revenue projections and long-term sustainability

6.6.1 Revenue projections

The operating income and expenditure associated with the delivery of Phase 1 of the SBCD Campuses project can be seen in Appendix A9 and evidences the long term sustainability of the project. The revenue forecast demonstrates that the cumulative return from the initial building occupancy in 2023/24 and 2024/25 for Morrision and Sketty Lane respectively, would exceed the capital outlay by 2027/28 (excluding the time value of money). The income and expenditure forecast estimates a most

likely position that will be achieved. This has been calculated using a success rate of 75% of total forecasts. Figure 6.2 highlights the forecast operating revenue to the 15-year period of the City Deal programme. Confidence of the long term sustainability of the project and associated activities can be evidenced through the expected revenue forecast surplus delivered by Phase 1 estimated at c. £14.5m over the 15 year project life to 2032/33, subject to the assumptions outlined in Table 6.6. Further revenue is expected to be generated through Phase 2 capital investment, which will be determined following detailed feasibility studies and options appraisals as described in section 6.4.

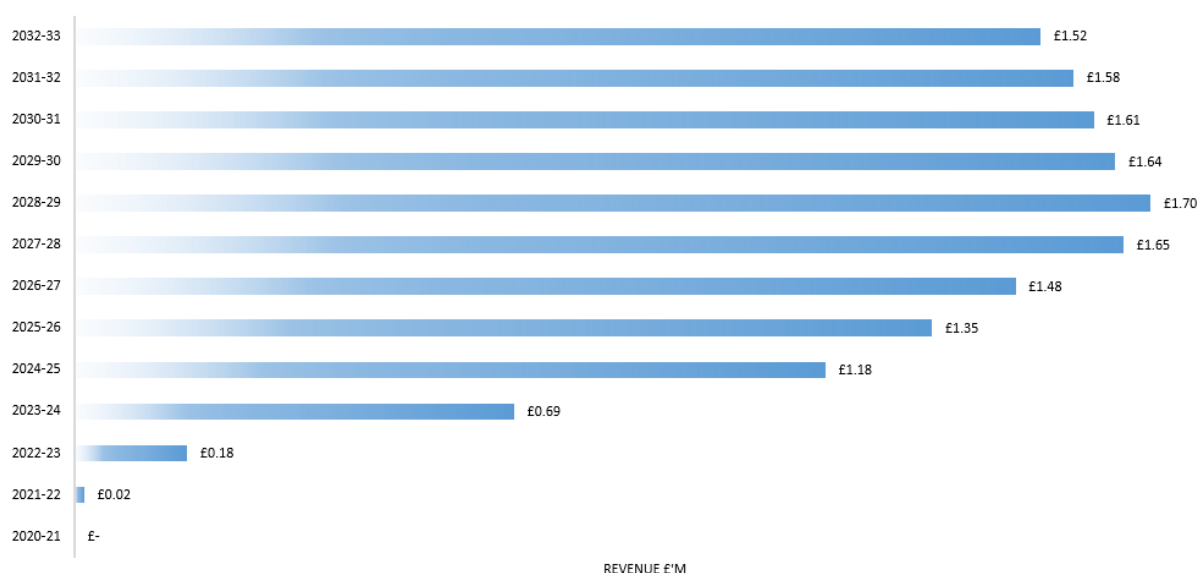


Figure 6.2: Revenue forecast (most likely)

Note that any revenue surplus could be reinvested into the ongoing operational costs in support of the developments and deliverables.

6.5.2 Consolidated financial assumptions

All figures included in the business case have been calculated to align to Local Authority financial years (April-March). Swansea University financial years are August to September.

Revenue assumptions
1. The Morryston development will be completed by December 2022; income generation will commence from April 2023.
2. The Sketty Lane development will be completed September 2024; income generation will commence from October 2024 with the exception of academic programmes which will be temporarily housed until the build is complete.
3. The student income figures are estimated fees based on similar programmes for 22/23. No inflation has been used in future years.
4. Undergraduate home student fees are set by Welsh Government and have been based on current fees of £9,000 per annum. There is no inflationary uplift to these fees or the commissioned places (HEIW).
5. Income figures do not include any research figures for Sketty Lane but do for Morryston Site.
6. Other income has been inflated at 3% per annum.
7. We have not included overseas student figures at this point but we would fully expect to enrol overseas students once courses are established. Overseas students have a higher fee structure and would therefore increase the contribution.

8. Assume 1/15th of current Medical School research income

Table 6.6: Revenue assumptions

Expenditure assumptions

- | |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1. The Morriston development will be completed December 2022; operational expenditure will commence from this date. |
| 2. The Sketty Lane development will be completed by September 2024; operational expenditure will commence from October 2024 with the exception of academic programmes staffing, equipment and consumables, and project team staffing commencing in 2022. |
| 3. Loan Interest is calculated on calculated on reducing capital balance subject to SBCD funding profile and base rate interest (0.1%) plus 0.25%. |
| 4. Consumable operating expenses forecast is based on Swansea University allocation per student with annual 3% inflation. |
| 5. Rents/Service charges at Morriston are current estimates provided by SBUHB plus assumed inflation of 3% annually. |
| 6. Rents/Service charges at Singleton are current estimates provided by Swansea University (less existing pavilion budget allocation) plus assumed inflation of 2.6% annually. |
| 7. Assume research expenditure is 80% of research income. |
| 8. High level estimates of start-up and fit out costs of new academic programmes |

Table 6.6: Expenditure assumptions

6.7 City Deal funding

6.7.1 Swansea Bay City Deal funding flow

The release of funds from the Accountable Body will follow one of two funding routes. This is determined on a project basis, dependant on whether funding is being released to a Regional Project or a Local Authority Project. The flow of funding is shown in Figure 6.3 below:

Local Delivery Funding Flow

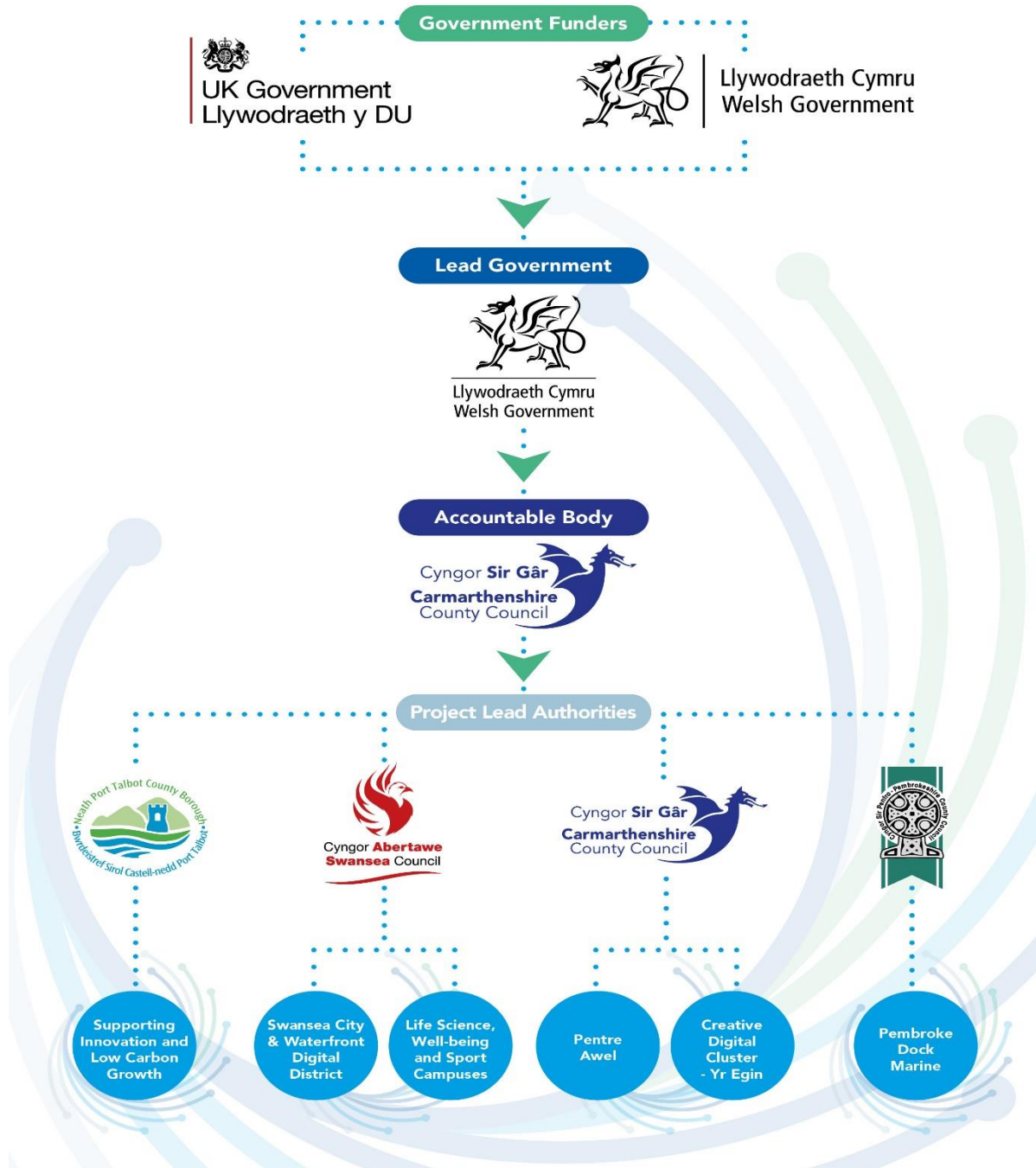


Figure 6.3. City Deal funding flow

6.7.2 Borrowing

The Joint Committee is responsible for overseeing the proportion of each Council's responsibility for borrowing to provide funding for regional projects/programmes. The capital borrowing (in respect of the Government funded element) for the City Deal projects will be re-paid by identified Government funds (UK & Welsh Government) over the 15-year period.

The exact level of borrowing and the structure and terms of the borrowing will be determined between City and County of Swansea and Swansea University in line with the individual local authority's internal requirements. All borrowing will be agreed based on the principles of the Prudential Code and Treasury Management Policy and Strategy for each local authority. The current forecast assumes Swansea University will pay loan interest to City and County of Swansea at 2% on the capital borrowing, reducing in line with SBCD funding release of the £15m investment. This has been included in the operational expenditure.

When further details of the investments required for each project are known, a full business case appraisal for each individual project will be completed and submitted to the relevant local authority for approval before submission to the Joint Committee. These full business cases will include the detailed funding proposals and requirements of the local authority.

6.7.3 Government grant 'top slice'

Annually, up to 1.5% of the Portfolio Investment Fund, specifically the government grants awarded, will be earmarked to support the Joint Committee and central administration functions required to support the delivery of the Portfolio. This is referred to as 'Top Slice' of Government Grants. Where applicable, this will be managed through the individual funding arrangements between Swansea University and Swansea Council, and any subsequent funding arrangements with SBUHB.

6.7.4 Interest on investments

It is recognised that throughout the lifecycle of the City Deal portfolio, cash balances will arise through cash flow movements as and when projects become live and actual expenditure is incurred. Cash balances held by the Joint Committee will be invested through Carmarthenshire County Council as the Accountable Body. Income generated from cash investments will be ring-fenced and redistributed direct to projects based on the allocation outlined within the original Heads of Terms. Where applicable, this will be managed through the individual funding arrangements between Swansea University and Swansea Council, and any subsequent funding arrangements with SBUHB.

6.7.5 Retention of national Non-Domestic rates

Welsh Government have agreed in principle (as per below) that 50% of the additional net yield generated through City Deal developments can be retained by the region to support revenue costs associated with the programme. This has been acknowledged by the Lead Authorities within the Joint Committee Agreement (JCA - 29th April 2018).

Welsh Government (Cabinet Secretary for Finance, 11th April 2018)

'I intend to initiate arrangements to allow the region to retain 50% of the additional net yield in Non-Domestic rates generated by the 11 projects which are to be delivered by the Deal'

Where applicable, this will be managed through the individual funding arrangements between Swansea University and Swansea Council, and any subsequent funding arrangements with SBUHB.

6.8 Financial monitoring and evaluation

The City Deal portfolio finances will be monitored through the SBCD Programme Board and Joint Committee, with the Economic Strategy Board also making recommendations on possible additional funding opportunities or alternative portfolio expenditure. Regular reports will also be presented by the Accountable Body to the regional Local Authority Directors of Finance and Regional Section 151 Officer working group. This working group will, in collaboration with the Welsh Government and the SBCD Portfolio Management Office, agree the financial monitoring process which will be:

- In line with overall reporting processes for the City Deal, and
- Based on best practice principles and guidance on project / programme monitoring contained within the Green Book.

The monitoring process will allow for the control of project cost variations and visibility of variations at a portfolio level.

The monitoring requirements of the Portfolio will require the Project Authority Lead to submit a claim for project funding to the Accountable Body at a frequency to be determined by the Accountable Body. The claim shall include a progress report on the project. The progress report shall include an assessment of risks associated with the project and details of progress against the agreed outputs. After the parties have agreed in accordance with clause 6.7 of the funding agreement that the project has achieved practical completion, the project authority lead shall not be required to submit claims for project funding. Thereafter, the project authority lead shall complete annual monitoring returns in a form to be specified by the Accountable Body prior to the Accountable Body releasing any project funding to which the project authority lead is entitled. The annual monitoring forms will include an obligation to report on the progress in achieving the agreed outputs. The Accountable Body reserves the right to impose additional monitoring requirements at a frequency and for such period as it considers reasonable in all the circumstances.

In addition to the above monitoring requirement the Accountable Body will require quarterly financial updates on project spend to support the cashflow management of the portfolio. These will detail the actual spend to the period, with forecast outturn over the 15-year duration of the portfolio. Project lead authorities are also obligated to support the Accountable Body with any progress update reporting as required by the Welsh and UK Governments.

6.9 Accounting treatment of project transactions

6.9.1 Accounting for income and expenditure

City and County of Swansea (as the Lead Authority), Swansea University and SBUHB will be responsible for accounting for the appropriate elements of income and expenditure in relation to the projects outlined in this business case.

6.9.2 Revenue requirement

The Welsh Government has acknowledged that revenue funding may be required to support the delivery of projects within the City Deal portfolio. The revenue requirements by projects of the City Deal are to be managed locally by the project Lead Authorities and project partners. The Welsh

Government recognises that the four local authorities will need to manage their capital funding to enable revenue expenditure to be supported.

To achieve this through the use of the Local Authorities' capital receipts, Local Authorities will reference to the latest direction from Welsh Government Ministers on the use of capital receipts. This was issued under section 15(1) (a) of the Local Government Act 2003, along with accompanying guidance. Specific revenue funding will be detailed within project business cases and funded through partner investment. There is currently no expectation that SBCD funding will be used on revenue expenditure.

6.9.3 Balance sheet accounting

Assets generated through phase I of the project at Singleton will be accounted for and held on the balance sheet of Swansea University in line with the organisation's accounting policies: land and buildings are capitalised at cost on initial recognition.

After initial recognition, land and buildings are subsequently measured at costs less accumulated depreciation and accumulated impairment losses. Costs incurred to land and buildings after initial purchase or construction, are capitalised to the extent that they increase the expected future benefits to the University. Where parts of the assets have different useful lives, they are accounted for as separate items of fixed assets. Freehold buildings are depreciated on a straight-line basis over their expected useful lives to the University of between 12 and 75 years. No depreciation is charged on assets in the course of construction and depreciation is accelerated when there is a known demolition date.

Assets generated through phase I of the project at Morriston Hospital will be accounted for and held on the balance sheet of SBUHB in line with the organisation's accounting policies: freehold land, assets under construction and assets held for sale are not depreciated. Otherwise, depreciation and amortisation are charged to write off the costs or valuation of property, plant and equipment and intangible non-current assets, less any residual value, over their estimated useful lives, in a manner that reflects the consumption of economic benefits or service potential of the assets.

The estimated useful life of an asset is the period over which the NHS Wales Organisation expects to obtain economic benefits or service potential from the asset. This is specific to the NHS Wales organisation and may be shorter than the physical life of the asset itself. Estimated useful lives and residual values are reviewed each year end, with the effect of any changes recognised on a prospective basis. All property, plant and equipment are measured initially at cost, representing the cost directly attributable to acquiring or constructing the asset and bringing it to the location and condition necessary for it to be capable of operating in the manner intended by management. Land and buildings used for services or for administrative purposes are stated in the Statement of Financial Position (SoFP) at their revalued amounts, being the fair value at the date of revaluation less any subsequent accumulated depreciation and impairment losses.

Where subsequent expenditure enhances an asset beyond its original specification, the directly attributable cost is capitalised. For All Wales Capital Schemes that are completed in a financial year, NHS Wales organisations are required to obtain a revaluation during that year (prior to them being

brought into use) and also similar revaluations are needed for all Discretionary Building Schemes completed which have a spend greater than £0.5m. The write downs so identified are then charged to operating expenses. Assets generated through Phase II of the project will be held on the balance of project partners as deemed appropriate when details are known.

6.9.4 Value Added Tax

Value Added Tax (VAT) is included where appropriate within the forecasts and estimates demonstrated.

Swansea University is an exempt charity, Registered Charity Number: 1138342. As an educational charity the University is classified as an “Eligible Body” and is entitled to certain reliefs in respect of VAT. Irrecoverable VAT on inputs is included in the costs of such inputs. Any irrecoverable VAT allocated to fixed assets is included in their cost.

Most of the activities of the NHS Wales organisation are outside the scope of VAT and, in general, output tax does not apply and input tax on purchases is not recoverable.

Irrecoverable VAT is charged to the relevant expenditure category or included in the capitalised purchase cost of fixed assets. The ability to recover any VAT will be determined and accounted for by the project partner organisations as the detail of the proposed works are known.

6.10 Financial risk management and assurance

6.10.1 Financial risks

The portfolio financial risks are monitored and managed as part of the City Deal’s overall risk management arrangements. The City Deal Programmes and Projects maintain, manage and monitor their own risks in line with guidance from the Green Book and the City Region’s Accountable Body and SBCD Programme Management Office.

The project operates a risk register and issues log, specifically including any financial risks identified. These risks will be monitored and updated with mitigating control actions through the project board as a standing item and then regularly presented to the Programme Board and Joint Committee, through the Portfolio Management Office.

6.10.2 Issues, dependencies and interdependencies

The project board will develop and maintain a log of any financial issues, dependencies and interdependencies at both programme and project level. This log will be considered alongside the financial risk register outlined above. The Accountable Body will work through the Section 151 Officer Working Group to determine any actions necessary to address identified issues and will present recommendations for required action to the Programme Board, Economic Strategy Board and Joint Committee for approval. Regular updates on financial issues, dependencies and interdependencies will also be provided to the Programme Board and Joint Committee via the Portfolio Management Office as appropriate.

6.10.3 Assurance - internal audit

The review of the effectiveness of the system of Internal Control and Governance arrangements is informed by the work of the Internal Auditors, from which the Project Lead Authority and project board gain assurance. Internal Audit is required to undertake their work in accordance with the standards as set out in the Public Sector Internal Audit Standards (PSIAS) established in 2013, which are the agreed professional standards for Internal Audit in Local Government.

As required by these Standards, the Head of Internal Audit as appropriate to the Project Lead Authority will undertake an independent review and report findings to the Project Lead Authority and Project Board. The format of the Annual Report complies with the requirements of the Code of Practice. The Strategic and Annual Audit Plans are approved annually by the Project lead authority and Project board. In addition, the Internal Audit Unit undertakes fraud investigation and pro-active fraud detection work.

The revenue and expenditure of this project will also be subject to any appropriate internal audit requirements in line with Swansea University and SBUHB processes and procedures.

6.10.4 Assurance - external regulators

The Audit Wales as External Auditor to the Project Lead Authority reviews and comments on the financial aspects of Corporate Governance which include the legality of financial transactions, financial standing, systems of Internal Financial Control and standards of financial conduct and fraud and corruption. Swansea University and SBUHB are required to undertake annual external audits. The financial transactions associated with this project will form part of these external audit reviews.

6.11 Commissioner's support

Included within the proposed educational course developments (Appendix A3) are programmes which have been identified by HEIW as part of their workforce strategy and planning, which ensures the needs and aims of healthcare organisations and the workforce align in meeting the needs of patients.

Management Case

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7. Management Case

7.1 Introduction

The Project Management Case provides the Project Board, SBCD Portfolio Management Office and Joint Committee with the reassurance and confidence that the capability and capacity to govern and deliver the project is in place, and that they and other governance and delivery structures receive information in a timely and transparent manner to help them make informed decisions.

This will be achieved by establishing and operating capacity and capability to implement and manage robust governance and approvals utilising the Prince 2 project management practices and principles.

The SBCD Campuses project will be periodically reviewed by the regional PMO and external stage gate reviews to assess and improve its governance, assurance, and communications arrangements. This will ensure that the ambition of the project is aligned to delivery. These arrangements will also ensure that progress and deliverables are communicated effectively and transparently, while demonstrating value for money to the region and people of Wales.

7.2 Governance and delivery structures

Governance and delivery structures have been established with terms of reference to provide accountability, responsibility, oversight, management and monitoring of the Campuses project and the wider SBCD.

7.2.1 SBCD Governance and delivery structure

The SBCD established a legal governance document - the *Joint Committee Agreement (JCA)* - in May 2018. Leading to the establishment of the SBCD Joint Committee, this document outlines the principles, rights and obligations of City Deal arrangements.

Under the terms of the JCA, the four regional local authorities have pledged to work in partnership to discharge their obligations to one another, and to the Welsh Government and the UK Government, to promote and facilitate projects funded under the SBCD.

The management processes and procedures outlined in the JCA include financial cash flow, project approval, risk management and progress updates.

The overarching SBCD governance and delivery structure, as outlined below in Figure 7.1, is operational with established Terms of Reference, membership/post holders, and plans and processes in place to govern and deliver the SBCD portfolio.

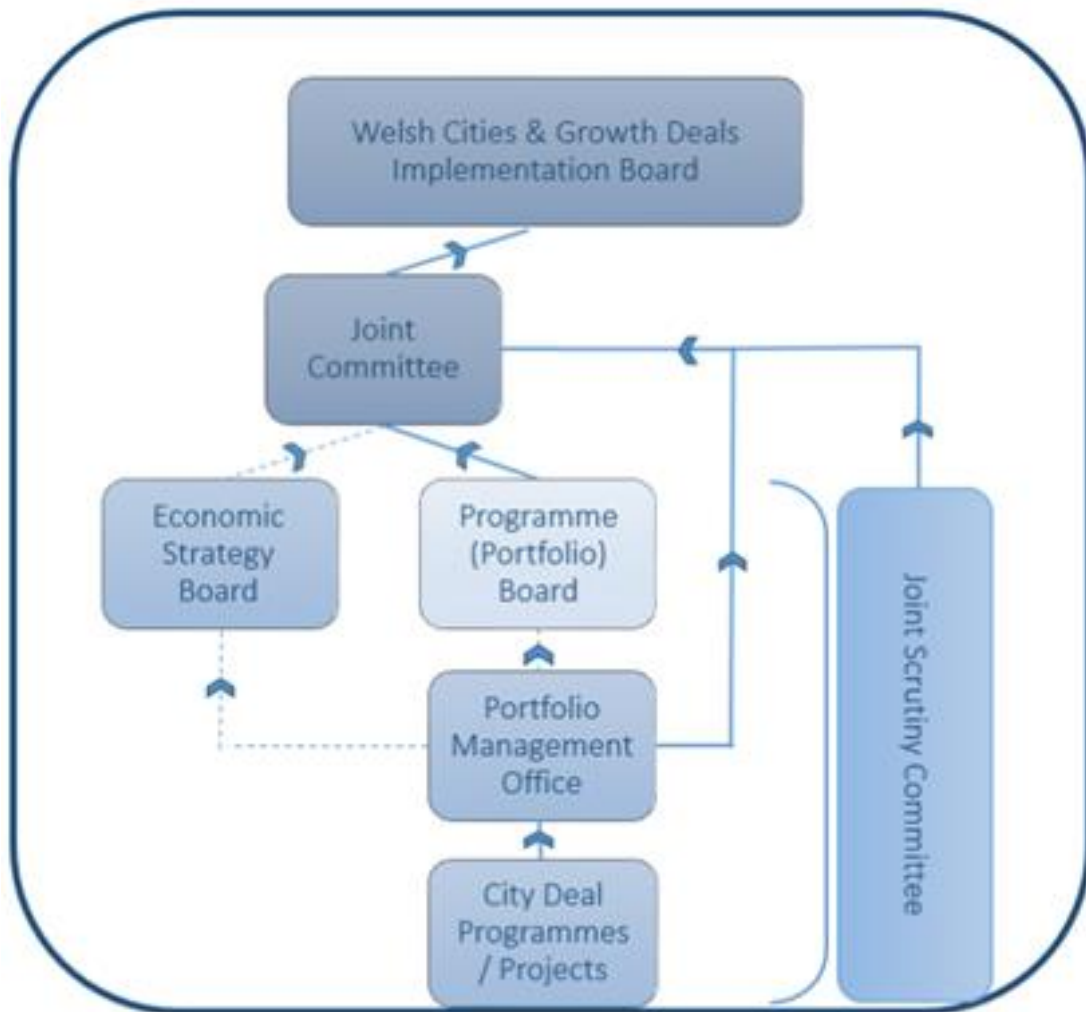


Figure 7.1: SBCD governance structure

The table below summarises the key elements of SBCD governance and delivery structure, which includes committees, boards and key roles.

Governance entity	Purpose	Owner/ Lead	Meets	Reports to
Joint Committee	Executive board with overall responsibility for scrutiny and business case approvals. It holds the Programme (Portfolio) Board and Portfolio Management Office to account. Comprises the four Local Authority Leaders.	CIr Rob Stewart	Monthly	WG/UKG
Programme (Portfolio) Board	Oversees SBCD operations. Responsible for reviewing business case developments and portfolio progress. Consists of the head of paid service of each of the eight primary SBCD partners. Chaired by the SBCD Senior Responsible Owner.	Wendy Walters	Monthly	Joint Committee

Senior Responsible Owner	Appointed by the Joint Committee, the SRO is also the chairperson of the Programme (Portfolio) Board to champion the SBCD and drive its successful implementation by overseeing portfolio delivery and ensuring that appropriate governance arrangements are in place. SRO holds Portfolio Director to account.	Wendy Walters	-	Joint Committee
Portfolio Director	Responsible for delivering the Portfolio Business Case and Project Development Roadmap.	Jonathan Burnes	-	Joint Committee and SRO
Programme / Project managers	Experienced individuals who manage the development of the programme / project Business Cases and implement the Assurance and Approval plan and project plan. Also works with the Portfolio Director and the Portfolio Management Office to apply the Portfolio Development Roadmap. Depending on the size and complexity of the programme / project the Programme / Project Manager will run the Programme / Project Team and manage external advisers.	PM for each City Deal project	Monthly	Portfolio Director
Portfolio Management Office	Responsible for day-to-day management of matters relating to the Joint Committee and the SBCD.	SRO Wendy Walters	Weekly team meetings	Joint Committee/SRO
Economic Strategy Board	Private sector advisory body which acts as the voice of business. Provides strategic direction for the City Deal through advice to the Joint Committee on matters relating to the City Region. Chair is accountable to the Joint Committee.	Chris Foxall (whilst Ed Tomp is on sabbatical)	Monthly	Joint Committee
Joint Scrutiny Committee	Provides advice, challenge and support to the Joint Committee for the SBCD Portfolio and associated cross-cutting regional projects/programmes. The full terms and reference for the Joint Scrutiny Committee are set out in the Joint Committee Agreement.	Cllr Rob James	Bi-monthly	Joint Committee
Accountable Body	Carmarthenshire County Council is the Accountable Body responsible for discharging City Deal obligations for the four Local Authorities including financial and staffing matters, for example. The Accountable body is the primary interface for the City Deal with the Welsh Government and the UK Government.	CEO Wendy Walters Leader Cllr Emlyn Dole	-	Joint Committee

Table 7.1 Key elements of SBCD governance structure

7.2.2 Project governance and delivery structure

The project governance and delivery structure, as outlined below in Figure 7.2, is operational with established Terms of Reference, membership/post holders, and plans and processes in place to govern and deliver the Project. The project governance structure aligns with the partner organisational structure and is complemented by the overarching SBCD governance structures.

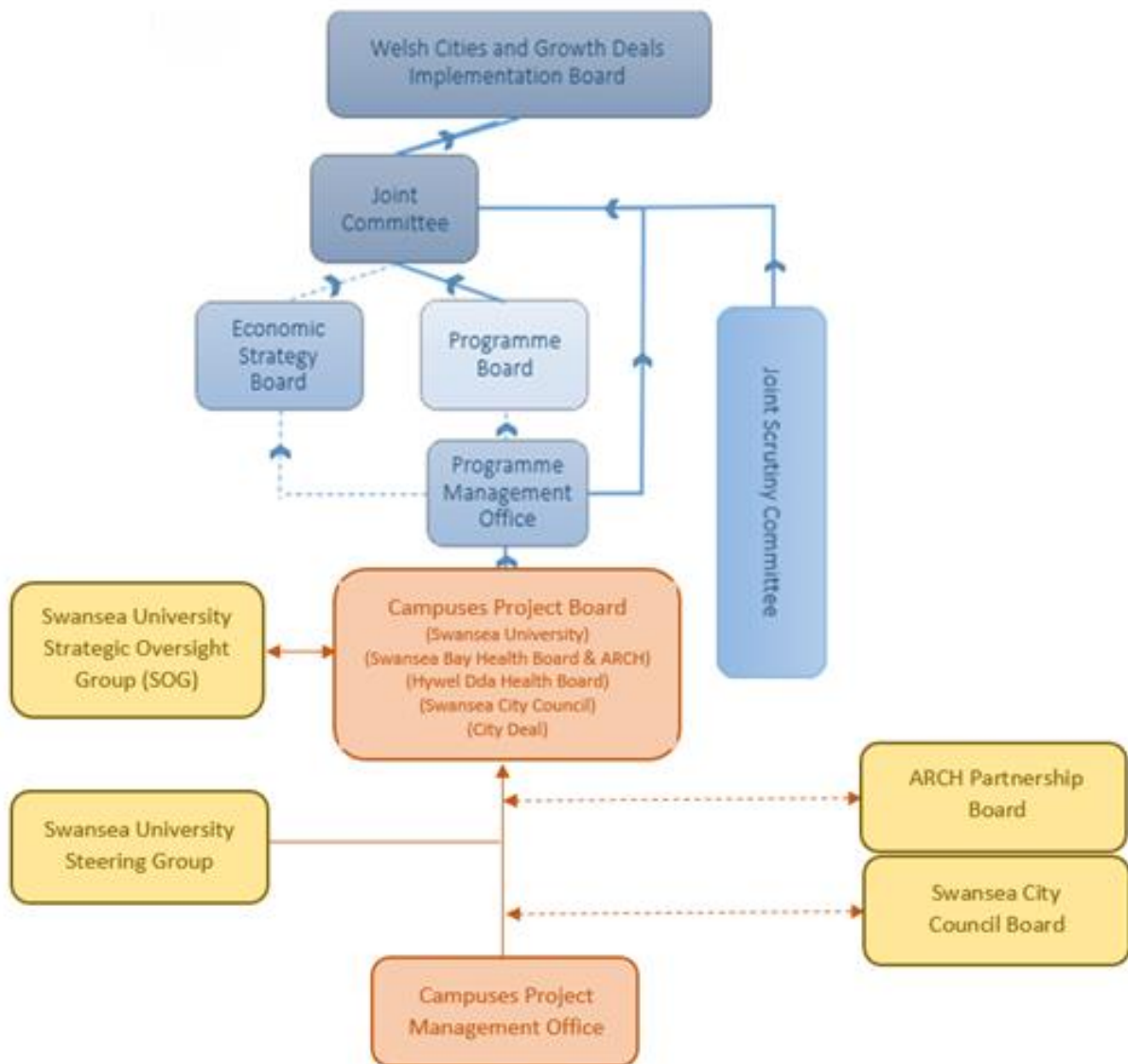


Figure 7.2: Project governance structure

Note that groups highlighted in yellow form part of the project assurance process. The Swansea University Steering Group and the Strategic Oversight Group are the key, internal committees that will provide institutional project assurance and oversight from the University's perspective. Dotted lines to the Council and ARCH Partnership reflect regular communication and engagement, ensuring that the project is also integrated within partner organisations' assurance processes.

7.3 Project Board

The Project Board heads the governance structure for the project and, through the project Management Office, will ensure the project is managed effectively, to approved timescales and in line with the governance structures laid out in this Business Case. The Project Board's remit is to support the Senior Responsible Owner (SRO) in: providing management oversight for the Project; liaising with stakeholders as necessary; monitoring project performance and providing direction and guidance to ensure project outputs meet stakeholder expectations.

The Project Board met for the first time on 11th March 2021 and replaced the previous forum with oversight of the project (the External Reference Group) in order to meet the requirements of the governance structure. Membership was reviewed to ensure that all partners are represented and that there is collective decision making against the project. The Board's Terms of Reference can be found in Appendix A12.

7.4 Project Management Office and Senior Responsible Owner

The Project Management Office (PMO) has been established to lead the development and overall delivery of the project on behalf of the region, in liaison with UK Government, Welsh Government, the private sector and all other partners and stakeholders. It is led by Professor Keith Lloyd, Pro-Vice Chancellor and Executive Dean, Faculty of Health and Life Science. Professor Lloyd has been the project's Senior Responsible Owner since September 2020 (previously it was Swansea University's Provost, Professor Steve Wilks) and chairs the Project Board.

The PMO is hosted by Swansea University, who are the named Project Lead within the City Deal. The Office draws on expertise and resource from across the partnership in support of the development and delivery of the project and as agreed at Programme Board. The PMO has overall responsibility for the development of the project, including management of aims and objectives, benefits realisation, risk, finance, timeline and governance maintaining communication and engagement across all sectors, and achieving project outcomes. All links to external partners providing consultancy, contractor commissioning and infrastructure deployment will be made through the PMO structure.

The PMO is accountable to the Project Board, SBCD Programme Board and SBCD Joint Committee as required. It will work closely with key partners including, but not limited to, Swansea Bay University Health Board, Swansea Council (the lead local authority for this project), and anchor partners.

The PMO is currently staffed on an interim basis but plans are in progress to recruit personnel into the permanent positions outlined below. A full-time, dedicated project manager will be recruited in to the PMO imminently, with the role specification developed around the specific skills, experience and qualities required to successfully and effectively deliver the project. Further recruitment and resourcing requirements will be addressed throughout the development of the business case. The costs of the PMO during the business case development will be absorbed by the partner institutions during the business case development. The ongoing PMO and operational team costs have been included within the financial case.

The PMO currently comprises the following full-time equivalent (FTE) roles:

Resource	Number (FTE)	Role
Senior Responsible Owner	0.2	Strategy and leadership. Interaction with Welsh and UK Govts
Project Manager	1	Undertake all project management responsibilities
Project Support Officer	0.4	Provide Project Manager with support and administration
Estates Lead	1	Lead the estate planning and development activities
Finance Lead	0.2	Inform, review and manage financial case and arrangements
Economics Lead	0.1	Inform, review and manage economic case and impact
Legal Lead	0.25	Inform and review contractual and legal arrangements
Procurement Lead	0.25	Design, develop and manage procurement for the project
Business Engagement Mgr	1	Relationships and strategic partnerships management
Communications Lead	0.25	Profile raising, communications and stakeholder marketing

Table 7.2: PMO team during business case development

7.4.1 Project Manager

A Project Manager has been appointed on an initial 12-month term to guide the project through its Outline Business Case, Full Business Case and approval stages. It is anticipated that the post will be made permanent as the project moves into delivery.

The Project Manager will lead the project team and work within the University's Project Management framework. The project manager appointed to the position is a qualified PRINCE2® practitioner and member of the Association for Project Management.

The full "Original" job description and person specification for this role is annexed as Appendix A11.

7.4.2 Delivery phase

Following approval of funding, the project will be embedded and supported by the partner organisational structures and functions. Role requirements and functions will be reassessed as necessary throughout the project development and implementation.

A dedicated team employed at Swansea University will consist of the following roles to support the delivery and operational phase of the project. Note that all posts will work across the project, supporting delivery at both the Sketty Lane and Morrison sites.

Resource	Number (FTE)	Role
Senior Responsible Owner	0.2	Strategy and leadership. Interaction with Welsh and UK Govts
Hub Director	0.2	Lead the implementation of strategic ambitions and plan
Project Manager	1	Undertake all project management responsibilities
Commercial Manager	1	Client and partner development. Relationship management
Business Support Assistant	1	Assist Commercial Manager. Support tenant/affiliate partners
Finance Officer	0.4	Management, monitoring and reporting of project finance
Operations and Communication Manager	1	Manage the day-to-day operations of the facilities and lead the internal and external communications

Table 7.3: Planned project delivery team

Of these roles, the SRO and Project Manager will be existing posts as the SRO will continue to lead the project from development to implementation and delivery, and it is envisaged that the Project Manager position will become permanent once the project moves into its delivery phase.

The other positions identified will be new appointments into the project. While appointees may come from within the existing University staff community, these are wholly new positions that will be advertised and filled through an open and transparent process.

7.4.3 Approach to project management

Swansea University provides a professional project and risk management resource to assure the successful implementation of externally funded projects and activities. Aligned to Association of Project Managers (APM) and Prince2® best practice, the team provides support within a comprehensive portfolio management framework.

The University's approach to portfolio and project management is based on the Axelos P3M3 Maturity Model and the associated best practice guide Management of Portfolios (MoP). This model originated from UK Government's Office of Government Commerce (OGC) and is widely adopted (and often mandated) across Government and Public Sector organisations. More widely it is recognised as industry best practice, and aligns with the Cabinet Office's Procurement Capability Review, the National Audit Office's Financial Maturity Model, HM Treasury's Green Book, and recognised project management best practice including the APM Body of Knowledge (APMBOK).

The University classifies its projects and change initiatives as

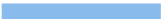



- Tier 1 (projects that are key to delivering the University's strategic priorities or could significantly disrupt its ability to do so.)
- Tier 2 (Major, externally funded projects)
- Tier 3 (Business Plan/continuous improvement initiatives, and traditional funded research and innovation projects).

This project is categorised as a Tier 2 project and is sponsored by the SRO, who is a member of the University Senior Leadership Team. It is subject to independent assurance provided by the University's Strategic Project Management Office and to annual, mandatory assurance checks carried out by Project Support & Assurance Managers. More frequent checks are driven in response to each project's specific reporting requirements.

7.5 Project management plan

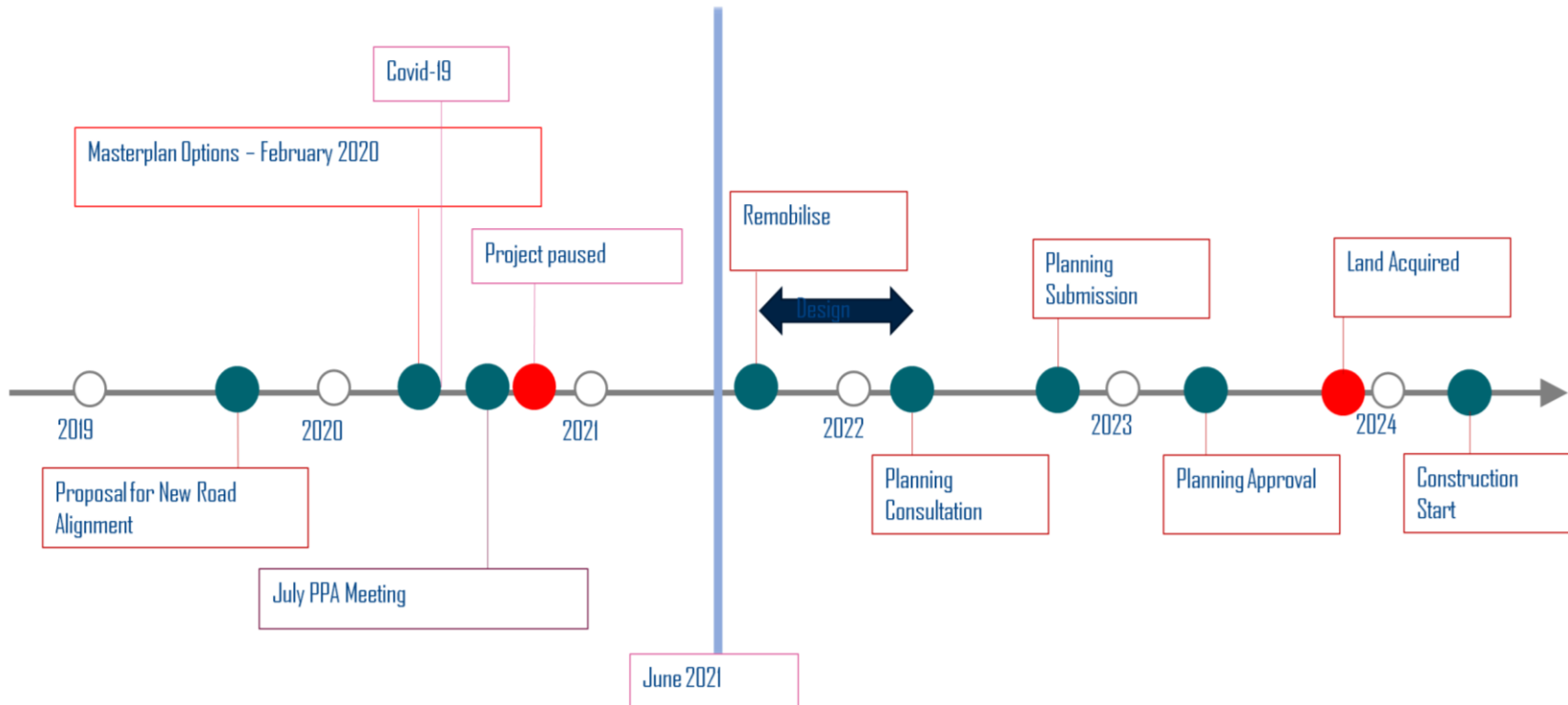
The Project Management Plan is presented below. This has been based upon feasibility studies undertaken to date. Both components and sites across both phases are depicted within the integrated programme. ***(Note: The Phase 2 timelines are indicative and as planning progresses and contractors are appointed we anticipate that there will be opportunities to reduce the delivery timelines and therefore bring forward benefits realisation.)***

ID	Task Name	Start	Finish	2021				2022				2023					
				Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	
0	Morrison Hospital Phase 1 Programme Draft REV B	Mon 03/01/22	Thu 13/04/23														
1	Design Phase	Mon 03/01/22	Fri 18/02/22														
2	Design team appointment	Mon 03/01/22	Thu 20/01/22														
3	Design development	Fri 21/01/22	Wed 09/02/22														
4	Design review/sign off	Wed 09/02/22	Wed 09/02/22														
5	Building regs submission	Wed 09/02/22	Wed 09/02/22														
6	Preparation of contract documents	Thu 10/02/22	Fri 18/02/22														
7	Completion of design	Fri 18/02/22	Fri 18/02/22														
8	Procurement Phase	Mon 21/02/22	Tue 07/06/22														
9	Su Procurement upload	Mon 21/02/22	Tue 19/04/22														
10	Advertide on sell2wales	Wed 20/04/22	Mon 09/05/22														
11	Tender return	Mon 09/05/22	Mon 09/05/22														
12	Tender evaluation period	Tue 10/05/22	Wed 18/05/22														
13	Contract sign off with legal	Thu 19/05/22	Tue 07/06/22														
14	Place order with contractor	Tue 07/06/22	Tue 07/06/22														
15	Completion of procurement	Tue 07/06/22	Tue 07/06/22														
16	Construction Phase	Tue 07/06/22	Thu 13/04/23														
17	Pre start meeting	Tue 07/06/22	Tue 07/06/22														
18	Contractor mobilisation	Wed 08/06/22	Mon 27/06/22														
19	Contract period	Tue 28/06/22	Mon 06/03/23														
20	Snagging	Tue 07/03/23	Fri 24/03/23														
21	Fit out of furniture & AV	Mon 27/03/23	Thu 13/04/23														
22	End of project/Handover	Thu 13/04/23	Thu 13/04/23														

Project: Morrison Hospital Pha Date: Tue 08/06/21	Task 	Milestone 	Summary 	Project Summary 
------------------------------------------------------	------------------------------------------------------------------------------------------	-------------------------------------------------------------------------------------------------	-----------------------------------------------------------------------------------------------	-------------------------------------------------------------------------------------------------------



New project programme and Next Steps



7.6 Use of specialist advisers

In addition to the expertise that resides within the project partners, several specialist advisers have been utilised. Further expert advice will be sought, as necessary.

Focus area	Purpose	Timeframe	Provider
Feasibility Assessment	Cost consultancy to determine affordability of the developments.	Q1 2020	MACE
Regional Master planning	Master planning of Singleton and Morriston Hospital sites	Q2 2017	BDP
Architectural predevelopment	Master planning of Sports Village and outline	Q3 2020	AHR
Finance/Procurement	Review of innovative finance models		PWC
Commercial and Strategy	Review of business case, commercial strategy proposal	Ongoing	Grant Thornton

Table 7.5: Specialist advice sought

In addition, the SBCD Economic Strategy Board (ESB) is made up of private sector representatives from sectors including energy, finance, life sciences, manufacturing, housing and economic acceleration. While also applying private sector rigour to the assessment of the project's Business Case, the ESB makes recommendations to the Joint Committee for consideration. New members were appointed as specialist advisers in 2020 to broaden the representation of further sectors including skills and micro businesses. All ESB member appointments used an open recruitment exercise process and all members are unpaid for their SBCD contributions.

Specialist advisers will be necessary in the following areas as the project progresses:

- Technical
 - Capture of requirements
 - Production of service definitions
 - Production of procurement documentation
 - Interaction with stakeholders and national and regional governments
 - Supplier dialogue
- Legal
 - Draft contracts
 - State aid guidance and judgements
 - Procurement support in dialogue and contract finalisation
 - Such advisors are readily available from most large consultancy firms, but also from smaller, bespoke consultancies.

7.7 Change management strategy

Change management is aligned to the University's existing processes, which reflect Association for Project Management best practice, which defines Change Control as *"the process through which all requests to change the approved baseline of a project, programme or portfolio are captured, evaluated and then approved, rejected or deferred."* Recognising that all projects, programmes and portfolio

are subject to change, a Change Management strategy for the project will be developed to raise awareness of key changes and report them through the appropriate governance arrangements. The strategy will be owned by the Project Board and will be used to highlight relevant changes at project, level, while also integrating with the overarching Swansea Bay City Deal Portfolio Change Management Strategy.

The Strategy will consider several aspects of change that impact on project scope, delivery and benefits as set out in this business cases, and specifically where a change is likely to affect at least one of the following categories:

- the total cost / financials
- the completion of delivery of output(s) / key milestones
- the quality outlined
- the benefits outlined
- the GVA, jobs created or inward investment

Any variance - positive or negative – will be subject to the agreed change control process to ensure that any change does not have a detrimental impact to the successful delivery of the project.

The change management strategy will be developed and owned by the Project Board and will highlight the changes that occur in the development and delivery of the Project. The Change Management Plan will detail the potential impacts and benefits for stakeholders, how stakeholders will be engaged to understand the impact (positive or negative) of the change and how the changes will be communicated, escalated, implemented and managed.

7.8 Contract management strategy

Each of project partners has existing and robust contract management processes in place and each has experience of implementing good contract management practices, particularly on contracts that carry higher risk, value and duration. Contract management will be brought into the start of the procurement process and ensure that administrative activities (e.g. paying of invoices) receipt) and developmental activities (supplier relationship management and market management) are covered. Contraction contracts will follow the NEC3 templates.

7.9 Benefits realisation

The Project Management Office maintains the benefits realisation framework and ensures that there is a focus across work streams on specific elements of benefits planning, management and tracking. The project benefits framework provides a single structured document detailing key activities, anticipated benefits and resources required to realise the project objectives.

The key SMART objectives will be set out under the Prince2® methodology to identify the benefits that will be derived and delivered from the project. The SRO is responsible for ensuring benefits are measured and realised.

The overarching benefits measures will be the contribution to GVA and the number of jobs created across the region, linked with the benefits to population health and well-being. Note that the project's base-line indicators are those that underpin the case for the Swansea Bay City Deal (see also the Strategic Case, above).

The outputs and benefits identified are predicated on the future opportunities to the regional economy, maximising the opportunities provided by the enabling environment for research and innovation created by the project, and the skills and talent opportunities it affords.

The benefits management process will assess and review all outcomes resulting in change that were achieved as part of the activities undertaken by the Skills and Talent Programme. The milestones to review benefits will be agreed at programme level to ensure that benefits are realistically and meaningfully measured however benefit progress will be reported at least quarterly to the Portfolio Management Office. These will be aligned to the SBCD Portfolio Integrated Assurance and Approval Plan (IAAP) and external stage gate review process. As previously noted, the full range of Community Benefits outcomes achieved through procurement will also form part of the annual performance review and reported on a quarterly basis.

The project's lasting legacy will be the establishment of a vibrant ecosystem that supports innovation in life sciences and sports science, applied to community health, physical activity and sporting endeavour. It will drive expansion of life science research and development in the region, and will establish a successful Sports Tech economy in Wales.

The partners' track record of collaborative working will ensure

- improved efficiency through collaboration and integration of services where appropriate
- a flexible and responsive approach to the needs of the local RD&I environment, and
- a flexible and responsive approach to the needs of the local labour market by bringing learning and skills together with regeneration opportunities in the region.

See also the sections on Risk Management (7.10) and Monitoring and Evaluation (7.11) below.

7.10 Risk management

The risk management strategy provides the means by which risks can be consistently managed throughout project delivery. It is owned by the Senior Responsible Owner and is supported by Swansea University's Risk Manager. Based on best practice from the Association of Project Managers and the Institute of Risk Management, the strategy ensures that the project's approach to risk, opportunity and issue management is embedded within its governance structures. The purpose of the Risk Management Strategy is to:

- inform stakeholders how risks will be identified, assessed, addressed and managed
- enhance the capability, willingness and understanding of appropriate governance and assurance, thereby increasing the likelihood of successful delivery of the project aligned to the City Deal portfolio
- highlight the groups and individuals with responsibility for specific risks and issues
- signpost to additional resource, support and training
- provide standard definitions and language to underpin the risk management process, and
- implement an approach that follows best practice.

As the project lead, Swansea University will manage risks in accordance with the following core principles:

- Clarity - risks are clearly linked to objectives

- Scope - risks can have positive and negative consequences, so risk management will include the identification and management of opportunities as well as threats
- Appropriate response - the effort and resource put into risk management must be proportionate to the business benefit which it creates
- Ownership - risks are owned at the appropriate level in the institution and escalated when additional actions and / or resources are required
- Responsibility - all staff have a responsibility to ensure that risk management is an integral part of any decision making process in their role profiles.

Following establishment of the Project Management Office and the agreement of the project delivery structure, a workshop for partners was held to develop the initial risk register. The register details the responsible owners, management and mitigation measures. The risk register has developed alongside the project and reflects the individual high level and operational risk identified by partners in each of the individuals work streams. A copy of the project risk register is attached in 'Appendix A5 - Risk Assessment'.

The management of the project and work stream risk register is a standing item on each meeting agenda and at each Campuses Project Board. Delegated responsibility for overall risk management lies with the Project Manager with escalation guidance to executive leads and SRO. In addition, each risk is allocated a score using 'likelihood' and 'impact' to ensure due consideration. The Project Manager will develop a risk management strategy and will manage the risk register for this project. The project risk register will inform the City Deal Portfolio Risk Register.

Each identified risk provides details of the description, owner, consequence and a review update, accompanied by a scoring based on probability and impact for each risk. The identification and assessment of risks in the risk register are aligned to the UK and Welsh Government Guidance, where risks fall into three main categories:

- Business – remain with the public sector and can never be transferred
- Service - occur in the design, build, funding and operational phases of a project and may be shared between the public and private sectors
- External - systemic risks affect all society and are unpredictable and random in nature

The business-related risks that can affect the scope, time and cost at project level include those risks impacting on co-investment leverage and inward investment, and to longer-term sustainability of the project.

The service-related risks are primarily those impacting on stakeholder engagement.

The external Risks are not within the control of the programme but are significant to delivery and are therefore monitored accordingly. Key external risks have been identified as arising from the impact of the Covid-19 pandemic and of Brexit.

A copy of the The Risk management strategy is held within Project control and also attached as Appendix A14

7.11 Monitoring and evaluation

Post Implementation and Evaluation will involve a detailed review of the spending objectives, outputs and benefits of the programme. The timescale for carrying out this review after the programme closure will be decided by the Programme SRO and Campuses Project Board. The review team will be independent to the programme. The Project Manager will ensure a Project Implementation Review and a Post Evaluation Review will be carried out in line with HMT Green Book guidance.

The project Monitoring and Evaluation processes will replicate those set out in the SBCD Monitoring and Evaluation Plan. The plan is targeted at Programme / Project SROs, the Portfolio Management Office and SBCD Programme / Project teams. For this project, the SRO will ensure that the project team makes appropriate arrangements to collate, monitor and communicate project milestones, deliverables and benefits realisation. The M&E Plan aligns to the revised HM Treasury Green and Magenta books and the UK Government's Project Delivery Guidance.

The M&E plan will be applied at project level where a two-way cascade of outputs and outcomes will be required to understand performance and impact of the SBCD portfolio. The tools and templates used to monitor and evaluate activity include:

- Monthly highlight reports
- Quarterly monitoring reports
- Annual reports
- Benefits realisation plan – continually updated and reported quarterly
- Milestone evaluations as agreed with the Portfolio Management Office

Monitoring and Evaluation requires a periodic assessment of project implementation and performance activities and the evaluation of their results in terms of relevance, effectiveness, and impact. Monitoring and Evaluation activities will provide all levels of the governance structure with information on the progress and impact made towards achieving the project's milestones, outputs and outcomes. This information will be shared with the Welsh and UK Governments through periodic updates and reviews, while also being made available to the public on an annual basis.

7.12 Contingency arrangements

The project will align to the City Deal's agreed contingency arrangements, which include scenarios identified for (e.g.) the withdrawal of project from the City Deal portfolio, the change of a project local authority lead, and the withdrawal of a partner from the City Deal portfolio. All these scenarios and contingency arrangements will be managed via the portfolio and project risk registers and issue logs, and reported accordingly. The Project Board will establish contingency plans to develop steps to take when an issue occurs and to ensure that the Portfolio Management Office is advised as soon as reasonably practicable. The following process will be adopted to ensure the issue is managed appropriately.

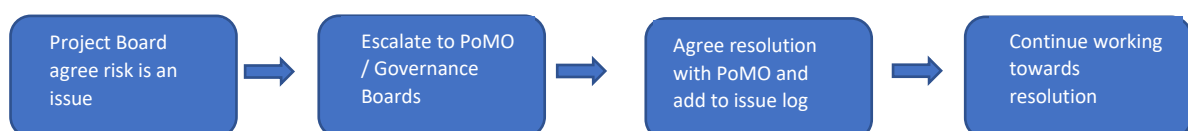


Figure 7.3: Moving a Risk to an Issue

The project team will work with the Portfolio Management Office to ensure that appropriate contingency arrangements are considered and in place at project level to manage potential scenarios in the development, delivery and operational phases of the individual schemes.

The Project Manager will have quarterly monitoring meetings with the SRO and Project Board to review programme progress, risks, issues and performance against targets, timescales and budget. Each project component has been reviewed for risks and their management during development and delivery phases (see risk register). However, contingency arrangements will be developed to support benefits realisation in the event of failure or severe delay. Should such an unlikely event occur the benefits register will be reviewed, with existing capabilities/capacities being to optimise delivery of benefits (e.g. reconfiguring spaces / reprioritising projects).

7.13 Project assurance

The project's assurance processes will integrate with the SBCD Portfolio Integrated Assurance and Approval Plan (IAAP) to ensure that the planning, coordination and provision of assurance activities and approval points are understood and are proportionate to levels of cost and risk.

The project will further develop, through the Project Board and in consultation with the Welsh Government Office for Project Delivery, an IAAP which will be regularly reviewed and reported on through the governance arrangements.

This plan will include a schedule of Stage Gate and complementary reviews, an initial Gateway Review was undertaken on the 11th – 13th August with an "Amber Green" RAG Rating being issued and Eleven recommendations being included within the final report, an action plan to meet the review recommendations has been included as Appendix A15.

The Project will follow the agreed assessment and approval process detailed in the Portfolio Business Case.

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Appendices

- A1 Engagement Log
- A2 Positioning the Health and Life Science City Deal Schemes
- A3 Proposed educational course development
- A4 Benefits register
- A5 Risk register
- A6 Accelerate HTC
- A7 Full options approach framework
 - A7b (PDF): Assessing shortlisted options (Singleton Workshop, 03 July 2020)
- A8 Masterplans and detailed site appraisal
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- A9 Financial Case Supporting Documents
- A10 Project Board terms of reference
- A11 Project Manager job description
- A12 Letters of support
- A13 Summary of policy alignment
- A14 Risk Management strategy.
- A15 Welsh Government Gateway review recommendations and action plan.

Appendix A1: Engagement log

Please note this engagement log presents some of the key engagements and is not exhaustive and does not repeat regular engagements.

Date (s)	Meeting Name
Bi-weekly (weekly since March 2021)	Campus Delivery Team Meeting with representation from partners.
Bi-weekly	S/wansea University Campus Steering Group
Bi-weekly	Campus Project Board
Monthly	Briefing with Swansea University Senior Leadership Team
Bi-weekly	ARCH Update Meetings
Quarterly	ARCH Partnership Board
Bi-weekly	Swansea Bay City Deal Regional Office Project Leads Meeting
Monthly	Strategic Oversight Programme Board
27.04.20	Campuses Learning & Teaching Scoping Session
29.04.20 – 01.07.20	Strategy Development Meetings (multiple)
29.05.20 08.07.20 01.10.20 27.10.20	Singleton Master Planning and Phase I Feasibility Studies. Meetings with Architects and Cost Consultants
04.06.20	Swansea Council engagement session
12.06.20	Campuses Feasibility and Viability Assessment Executive Meeting
19.06.20	Update on Master planning at Swansea Bay City Deal Strategic Oversight Group
03.07.20	Assessing the Shortlisted Options for Campuses Project Workshop Attended by project partners. See notes attached as Appendix A7b
08.07.20	Alignment with regional sports agenda
22.07.20	City Deal planning session with the Swansea Bay City Deal Regional Office
31.07.20	Presentation of Financial Business Case to Swansea University Strategic Oversight Group
Quarterly	ARCH Delivery Leadership Group
Monthly	ARCH Research, Enterprise & Innovation Board Meeting
27.08.20	Swansea University Sport & Wellbeing Board – alignment of Campuses project
04.09.20 24.09.20 01.10.20	Financial Business Case Development
08.09.20	Reviewing options and development of commercial arrangements with Swansea Council
07.04.20	Campuses Financial Forecasting Meeting
16.04.20	Campuses Discussion
30.04.20	Engagement session with the Swansea Bay City Deal Regional Office
09.07.20	City Deal Skills Workshop
04.08.20	Collaborative R,D&I Sports Technology Project Scoping Session
16.09.20	Private Sector Engagement Planning

23.09.20	Skills & Talent Programme Workshop
27.10.20	Risk Register Workshop
02.12.20	Morrison feasibility Planning Session
01.12.20 14.12.20 17.12.20	Engagement session with Consultants Grant Thornton
17.12.20	Finance Case Review
29.10.20	Meeting with Swansea Council to agree principles of commercial case and repayment schedule
16.11.20	Pentre Awel Synergies and Strategy Meeting
23.11.20	Morrison Phase II Planning
02.12.20	Engagement Session with Welsh and UK Gov – Presentation of Campuses Project
22.12.20	Engagement with Welsh Government
April 2021	Grant Thornton interviews and workshops with key stakeholders
April 2021	Branding workshops involving stakeholders and project team
20.05.21	Meeting with Department of International Trade to discuss inward investment opportunities.
10.06.21	Health Innovation Parks Collaboration Meeting, involving Cardiff and Vale UHB, Life Science Hub for Wales, Welsh Blood Service, Cardiff University, Aneurin Bevan UHB, Welsh Government.
March – June 2021	Ongoing discussions with potential anchor partners
16.06.21	Online meeting with Parliamentary Undersecretary (Wales Office), David TC Davies MP
08.07.21	Ministerial visit (David TC Davies MP) to Institute of Life Science, including opportunity to meet with SMEs and Vodafone.

Appendix A2: Positioning the Health and Life Science City Deal Schemes

Pentre Awel (Llanelli)		Campuses (Morrison and Singleton)	
Theme	Differentiating Characteristics	Synergistic Characteristics	Differentiating Characteristics
<p>Life Science Enterprise Opportunities</p>	<p>Targeting companies with technologies aligning to the service opportunities at the site, typically geared towards keeping people well and in the community (e.g. wearable technologies, assistive living, later stage clinical trials).</p> <p>Targets mainly higher technology readiness levels.</p>	<p>Intention to make it easier for life science business to start-up and grow though offering high quality business incubation environment, tailored support, and strong links with the health service and related industries.</p> <p>Both seek to nurture and exploit the innovations that occur when disciplines and specialisms collide (the intersect between sport, health, and healthcare).</p> <p>Both schemes could contribute to the overall development of a product. For example, a new device developed at a Singleton Laboratory might eventually be tested in a latter stage clinical trial at Pentre Awel.</p>	<p>Targeting companies with technologies aligning to the service opportunities at the site, typically geared toward improving treatments, interventions, and recovery (e.g. new device and drug development requiring specialist laboratories and the equipment typically found at a university campus and/or specialist hospital setting).</p> <p>Targets include lower technology readiness levels, and with a particular emphasis on digital technology and data science.</p> <p>Opportunities include:</p> <ul style="list-style-type: none"> • Health, fitness and well-being products • Sports and exercise wearables • Sports and well-being analytics • Digital/remote healthcare • Physical and mental health products • Physiotherapy and occupational health <p>Three “anchor” partners for technology, health and sport will drive the innovation ecosystem enabled by the project and will catalyse investment and collaboration.</p>
<p>Education</p>	<p>A purpose built and next generation learning, and teaching environment geared towards keeping people well offers several unique educational opportunities, notably in the fields of human and health</p>	<p>Both schemes are likely to be important at different points of an educational pathway. Students might, for example, start their education at Singleton and be subsequently placed at Pentre Awel.</p>	<p>Looks to build upon existing offers at Singleton and Morrison, leveraging the rich placement opportunities associated with the clinical activity at each site.</p>

	<p>science. The example growth areas include occupational therapy, adult nursing, advanced practice, multi professional educational placements. Other educational providers also have an interest in the scheme and may bring their own interests.</p>	<p>Conversely a student might start at Pentre Awel and go onto a secondary degree at Singleton. Understanding how both schemes are linked, helps demonstrate how together they result in a larger impact than any single scheme advancing on its own.</p>	<p>The example growth areas include graduate entry medicine; physician associates; and several new sport and exercise science courses, including in Sports Tech.</p>
Research	<p>Research will reflect the service, teaching, and proximal industrial opportunities. Thematic areas might include:</p> <ul style="list-style-type: none"> • Assistive living and activities of the Innovative Ageing Centre. • Joint Clinical Research Facility (later phase trials). • Health and Well-being Academy. • Population health interventions. • Leisure and tourism, enabled by adjacencies. 	<p>Both sites are likely to offer slightly different twists on some common research themes (e.g. a new device developed in a lab is then tested in the community)</p> <p>Both sites can be used to recruit patients into trials, which might take place at the other.</p>	<p>Research will reflect the service, teaching, and proximal industrial opportunities in MedTech and Sports Tech. Thematic areas might include:</p> <ul style="list-style-type: none"> • Health Technology Centre. • Joint Clinical Research Facility (early stage trials). • Reconstructive surgery. • Therapy and physical rehabilitation. • Sports and exercise science. • Large scale data analytics. • Preventative and personalised healthcare. • Wearable digital devices.
Surrounding Environment	<p>Scheme looks to lever several unique locational benefits, including:</p> <ul style="list-style-type: none"> • Wider regeneration of the Delta Lakes site. other phases of development will see extra care accommodation and an expanded retail offer. • A next generation approach to clinical service delivery, designed around primary and community care models. 	<p>Benefits associated with the digital connectivity uplift planned for the Swansea Bay City Region associated with the Deal.</p> <p>The aligned City Deal projects, including the skills project and digital infrastructure, which provide further opportunities to maximise impact.</p>	<p>Scheme looks to leverage several unique locational benefits, including:</p> <ul style="list-style-type: none"> • Proximity to established clinical facilities at Morriston and Singleton Hospitals. • Proximity to established sporting facilities, on the Sketty Lane site, with expansion opportunities. • Proximity to complementary R&D initiatives in (e.g.) advanced manufacturing, semiconductors, printing and coating, and Data Science.

Appendix A3: Proposed educational course development list

New Course Provision
BSc Sport and Social Science
BSc Sport Business Management
BSc Sport Therapy and Rehabilitation
BSc Sport and Exercise Medical Sciences
BSc Sport Technology
MSc Management (Sport)
MA Sport Ethics and Integrity
MSc Sports Performance
MSc Preventative Sports Medicine
BSc Pharmacy
MSc Life Science Innovation
MSc Healthcare Technology Innovation
Modules for Continued Professional Development
Intensive Learning Academy – Value Based Healthcare (<i>now launched</i>)
Intensive Learning Academy – Innovation (<i>now launched</i>)

Appendix A4: Benefits register

Note: The benefits register reflects the benefits identified at project benefits scoping during initial project development and this is reflected in the options appraisal and Cost Benefit Analysis. The horizon for benefits realisation for the project is 15 years.

Benefit No:	Benefit Description	Benefit Target	Targeted End Achievement Date	Year Time Value			Data Sources	Activities Required/Critical Dates	Responsible Officer/Who will deliver it	How will it be evidenced	Reporting
	<i>(including enabling project or activity)</i>	<i>Measurable Target - Expected level of change</i>	<i>Specific date when will the benefit be realised</i>	<i>(what benefits will be delivered over the 5yr, 10yr, 15yr period)</i>			<i>(what aspect of the project will give rise to the benefit - to facilitate monitoring)</i>	<i>(to secure the benefit)</i>			
IMPLEMENTATION PHASE				5yrs	10 yrs	15yrs					
QUANTITATIVE INDICATORS											
IP 1	Establish additional ILS Innovation Centre at Singleton	2,000m2 new build infrastructure	Q1 2025	N/A	100%	N/A	Project Board Minutes, Planning permissions, Design studies, specification, Cost estimates, Project execution plan, Contractor agreements, Building regulations application, Construction programme, Handover certificate	SBCD Approval, Planning permission granted, procurement contractor, design and build	Project Board	Copies of Plans & Designs of facility. Works - Certificate of Practical Completion. Photos of completed facility.	Project Board Minutes
IP2	Establish additional ILS Innovation Centre at Morriston	700m2 refurbished infrastructure	Q2 2023	na	100%	na	Project Board Minutes, Planning permissions, Design studies, specification, Cost estimates, Project execution plan, Contractor agreements, Building regulations application, Construction programme, Handover certificate	SBCD Approval, Planning permission granted, procurement contractor, design and build	Project Board	Copies of Plans & Designs of facility. Works - Certificate of Practical Completion. Photos of completed facility.	Project Board Minutes

IP3	Enable the new road planning process to unlock the wider Morriston site	Submission of outline planning application for the new road	Q3 2023	100%	na	na	Project Board Minutes, Hybrid planning application, ARCH Infrastructure working group minutes	Planning application design and development	Project Board	Copies of Hybrid Planning Application, Copy of confirmation of receipt	Project Board Minutes
IP4	Development of the Swansea Bay Sports Park at Singleton	Transformation of the 23.23 hectare site	Q2 2027	20%	80%	NA	Project Board Minutes, Planning permissions, Design studies, specification, Cost estimates, Project execution plan, Contractor agreements, Building regulations application, Construction programme, Handover certificate	SBCD Approval, Planning permissions granted, procurement contractor, design and build	Phase II Sports Park Board	Copies of Plans & Designs of facilities. Works - Certificate of Practical Completion. Photos of completed facility.	Project Board Minutes
IP5	Development of the Health and Life Science Park at Morriston	Transformation of the 55 acre site	Q2 2030	0%	50%	50%	ARCH Governance Board minutes and ARCH DLG minutes, Project Board Minutes, Planning permissions, Design studies, specification, Cost estimates, Project execution plan, Contractor agreements, Building regulations application, Construction programme, Handover certificate	SBCD Approval, Planning permissions granted, procurement contractor, design and build, road construction	Phase II Morriston MediPark Board	Copies of Plans & Designs of facilities. Works - Certificate of Practical Completion. Photos of completed facility.	Project Board Minutes
IP5	Develop strategic partnerships	Secure 3 anchor strategic partners for the project	Q2 2027	66%	33%	NA	Project Board Minutes, Letters of Intention and Support, Project Collaboration agreements	Engagement and relationship management	Project Board	Copy of collaboration agreements and MOUs	Project Board Minutes

IP6	Creation of employment	1000-1120 jobs created	Q1 2033	5%	45%	50%	Employment contracts, Supplier contracts, construction contracts, enterprise declarations, job descriptions and adverts, role profiles, employer returns, equality and diversity returns	SBCD funding approval	Project Board	Job descriptions and confirmation of employment confirmation from employers	Project Board Minutes
IP7	Secure investment into the developments	Attract 4 significant inward investments	Q1 2029	50%	50%	0%	Investment contracts, collaboration agreements, account statements, defrayment evidence	Engagement and promotion	Project Board	Copy of the collaboration agreement, account records	Project Board Minutes

OPERATIONAL PHASE				5yrs	10 yrs	15yrs					
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QUANTITATIVE INDICATORS											
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OP1	Creation of employment (Operational)	1000-1120 jobs created	Q1 2033	5%	45%	50%	Employment contracts, Supplier contracts, construction contracts, enterprise declarations, job descriptions and adverts, role profiles, employer returns, equality and diversity returns	SBCD funding approval	Project Board	Job descriptions and confirmation of employment confirmation from employers	Project Board Minutes, Evaluation and Impact Reports
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OP2	Gross Value Added (GVA) - net additional.	£150-153m cumulative	Q1 2033*	N/A	N/A	100%	Creation of SBCD funded assets, Commercial Deals to evidence inward investment and jobs related data	SBCD funding approval	Partners, collaborators, Industry	Independent Portfolio Evaluation	Portfolio Evaluation Reports
OP3	Wage premium	£78.8m (£6000 per job against Welsh average)	Q1 2033	N/A	N/A	100%	Creation of SBCD funded assets, Commercial Deals to evidence inward investment and jobs related data	SBCD funding approval	Partners, collaborators, Industry	Independent Portfolio Evaluation	Portfolio Evaluation Reports
OP4	Improve population Health and Wellbeing	Citizen receives one additional year of perfect health valued at £15,000 (est population impact 250,000 people)	Q1 2033	N/A	N/A	100%	QUALY data, health economic impact assessment	SBCD funding approval	Project Board	Health Economics Impact Evaluation	Health Economics Impact Evaluation Reports
OP6	Develop cluster growth within the ecosystem	Develop a cluster in excess of 300 firms	Q1 2033	20%	40%	40%	Collaboration agreements, affiliate memberships, contacts registered	Engagement and promotion	Project Board	Copy of collaboration agreements, copy of lease and licences, copy of affiliate membership confirmations	Project Board Minutes. Ecosystem Maps
OP7	Expand the innovation and commercialisation pipeline	Develop inn excess of 100 new innovation and commercialisation opportunities	Q1 2033	20%	40%	40%	Project reports, project plans, collaboration agreements, intellectual property registrations, licences and partnerships,	Engagement and promotion	Project Board	Copy of collaboration agreements, project reports, intellectual property registrations,	Project Board Minutes. Ecosystem Maps

							commercial agreements				
QUALITATIVE INDICATORS											
OP8	Improved Health and Wellbeing of the regional population		Q1 2033				Local Health Board data	Project implementation	Project partners	Local Health Board data	Independent economic impact reports at the programme level. Project Board Minutes & associated evidence / reports.
OP9	Attraction and retention of staff and students		Q1 2033				DHELI datasets	Project implementation	Project partners	DHELI datasets	Independent economic impact reports at the programme level. Project Board Minutes & associated evidence / reports.
OP10	Increased local employment		Q1 2033				Industry evidence	Project implementation	Project partners (collaborating with Skills & Talent lead and academia)	Stakeholder engagement survey. Job centre statistics.	Independent economic impact reports at the programme level. Project Board Minutes & associated evidence / reports.
OP11	Increased skills development		Q1 2033				Training and skills surveys	Project implementation	Project partners (collaborating with Skills & Talent lead and academia)	Training and skills surveys	Independent economic impact reports at the programme level. Project Board Minutes & associated evidence / reports.

*Please refer to the Economic Case analysis for treatment of the time horizon

KALEIDOSCOPE

Accelerating partner (s): Healthcare Technology Centre (HTC)

Project duration: 6-9 months

Kaleidoscope is the largest provider of support services to people who use drugs in Wales. They have been part of an informal working group, including members of the Swansea University School of Pharmacy, and the Royal Pharmaceutical Society, looking at challenges around drug dispensing for therapy and rehabilitation, during the COVID-19 pandemic.

Dispensing these therapeutic drugs in a safe way has been a big problem people who are undergoing therapy and presenting a separate set of challenges for the prescribing pharmacists.

A need was identified for a secure take-home dispenser for multiple doses of a therapeutic drug to prevent accidental or deliberate overdose or misuse, but no suitable device is currently available. Such a device needs to meet multiple complex requirements for safety, accuracy, and usability.

The Accelerate Healthcare Technology Centre has helped to establish the dispenser requirement specification and developed a proof-of-concept prototype. Further support has sought stakeholder approval and manufacturer interest.

HTC is supporting Kaleidoscope's plan for MHRA approval and assisting with two applications for further development funding.

SUGARS FOR HEALTH

Accelerate partner (s): Canolfan Technoleg Gofal Iechyd (HTC)

Project duration: 6 months

The company is interested in the discovery and commercialisation of naturally occurring plant sugars, known as iminosugars, as food supplements with numerous health benefits.

Sugars for Health has identified iminosugars which have therapeutic benefits such as anti-inflammatory, anti-cancer and anti-diabetic properties. However, the mechanism of action is unknown. Additional evidence is required through fundamental research and clinical trials in order to approach pharmaceutical companies for adoption.

The company approached the Accelerate Healthcare Technology Centre for support with project aims to; understand the impact of iminosugars on neutrophil immune responses, investigate the mechanism of action through arrays which show changes inside and outside the cell, and to use the information to inform their commercialisation and clinical use strategy.

Sugars for Health plan to use this data to support their current understanding of iminosugars and their MoA.

A collaboration with the Accelerate Healthcare Technology Centre will help the company to identify global changes in cellular responses to iminosugars. This will help to narrow the search for the receptor through which iminosugars act. The data will support the company moving forward to clinical trials and eventually pharmaceutical adoption.

CPR GLOBAL TECH

Accelerating partner (s): Healthcare Technology Centre (HTC)

Project duration: 6-9 months



CPR Global Technology Ltd (CPR) are a Swansea-based technology company with a strong track record in creating products that provide consumers with well-designed solutions that are manufactured to the highest possible standards, innovating for everyday life. CPR's existing product range includes call blocking technology was born out of a needed solution to block Personal Harassment Calls, so the CPR Call Blocker came to life in 2010. And with over 1 million customers and over 1 billion robocalls worldwide. CPR Global Technology is in receipt of various prestigious. More recently the team have developed and deployed 'Guardian II Smartwatch'.

A collaboration between HTC and CPR Global Tech provided a solution that overcame several challenges, including researching the social and economic burden of dementia care, data analysis and evaluation of existing technologies on the market, evaluation of the Guardian II SmartWatch capabilities, mapping of technology capabilities of need in dementia care, and opportunity costing.

Ambitious timescales were achieved and recommendations for future research, development, innovation, and marketing activities were recommended. HTC developed a report outlining the landscape of dementia care and market opportunity, that was used for marketing and access opportunities, RD&I on product development, results conclusions and recommendations on current product.

HTC is now working with CPR Global Tech on a future research collaboration to further expand their portfolio in dementia care.

TRINSIC COLLAGEN LTD

Accelerating partner (s): Healthcare Technology Centre (HTC)

Project duration: 6-9 months

The health benefits of drinking collagen-rich drinks are the subject of a new collaboration involving Swansea University researchers.

Experts from the Healthcare Technology Centre, led by the University's Medical School as part of the £24m pan-Wales Accelerate programme, are working with Swansea-based ProColl, and Trinsic Collagen Ltd on the unique project.

Collagen is the most abundant protein in the human body, found in the bones, muscles, skin, and tendons. It is what holds the body together and provides a framework for strength and structure.



Due to the unique properties of alkaline water, an innovative technique called Natralysis Process™ has been used to mimic the natural process of mineralisation of water to create a stable and hydrating alkaline drink.

Trinsic Collagen Ltd. has utilised this innovative technique to create a new drink, NATIIV™ Wellbeing, the world's first pure collagen nutraceutical, as a mineral stable, alkaline water.

Existing research already suggests increased health benefits to drinking mineralised water and increased hydration effects of alkaline water for athletes. However, it is unknown if the single chain collagen dissolved in the alkaline drink can be absorbed into the body.

Now, the Healthcare Technology Centre is researching if collagen can be absorbed into the body via the oral cavity e.g., soft tissue cells inside the mouth.

If collagen can cross into the lymphatic system orally, it may provide additional health benefits such as aiding the formation of ligaments and other connective tissues. The potential increase in collagen absorbed from the drink could also stimulate the production of fibroblasts, thereby boosting the body's own production of collagen.

ENERGIST LTD

Accelerating partner (s): Healthcare Technology Centre (HTC) and Assistive Technologies Innovation Centre (ATiC)

Project duration: 6-9 months

A new £70K research project is under way to develop a quick, painless, and drug-free treatment option for patients living with chronic acne.

The collaboration between world-leading innovator in nitrogen plasma technology [Energist Ltd](#), Swansea University Medical School's Healthcare Technology Centre (HTC), and the University of Wales Trinity Saint David's (UWTSD) [Assistive Technologies Innovation Centre \(ATiC\)](#), has been established through the £24m [Accelerate Wales](#) programme, co-funded by the European Regional Development Fund.



Energist Medical Group, based in Swansea Enterprise Park, is the founding and leading global provider of nitrogen plasma technology to the medical aesthetics industry, with more than 20 years' experience in design, manufacture and distribution of innovative aesthetic, dermatological and surgical energy-based devices.

The company's NeoGen™ Plasma devices are non-invasive, clinically proven and cleared for treating anti-ageing cosmetic and dermatological conditions including acne scars, actinic keratosis, facial rhytides, non-facial rhytides, superficial skin lesions, seborrheic keratosis and viral papillomata.

As part of the new nine-month research project with HTC and ATiC, Energist is looking to innovate further by developing new equipment and practices for use in the

treatment of chronic acne. Chronic acne has traditionally been treated through the use of drugs, which can have longer-term health effects on patients.

The HTC will undertake an in-vitro study to validate the use of the unique nitrogen plasma technology for the treatment of acne. This work will be undertaken in the Microbiology and Infectious Disease Laboratory within the Medical School.

Porcine skin samples inoculated with a common bacteria associated with the pathophysiology of acne, will be treated with Energist's innovative nitrogen plasma technology. This research will provide evidence that the NeoGen™ Plasma device can be used to treat chronic acne conditions.

In addition to the bacterial research study, HTC will use its team's expertise to investigate the diffusion rate of specific molecules through skin samples in response to the plasma treatment. The use of Franz cells and high-performance liquid chromatography will quantify molecules diffusion rate and demonstrate the potential advantages of using the NeoGen™ Plasma device for increased skin absorption of topical products leading to enhanced clinical outcomes.

ATiC's role within the project are in two distinct areas – a research study into capturing treatment areas, and user experience (UX) and ergonomic evaluation.

Using its team's expertise and the UX research laboratory, as well as mobile eye tracking and prototyping facilities, ATiC will conduct an in-depth UX study to investigate the ergonomics and controllability of the NeoGen™ Plasma device.

The work will include a study of user comfort and fatigue for clinicians during procedures, and review and capture current treatment methods to understand the issues around over and under treatment, to provide a better experience and outcome for patients.

The novel technology and practices the project aims to develop will be among the first in the world, highlighting the expertise concentrated in Swansea and positioning Wales as a leader in this field.

WYN GRIFFITHS DESIGN, EMBER TECHNOLOGIES

Accelerating partner (s): Healthcare Technology Centre (HTC)

Project duration: 6-9 months



Swansea University's Healthcare Technology Centre has played a key role in developing an award-winning communication aid for frontline health staff forced to wear face masks during the pandemic.

The Centre was part of the Welsh-based team behind MaskComms, a microphone designed to be small

enough to fit inside a face mask and transmit voice through wireless to a wearable loudspeaker.

The project has just won an £8,000 grant at this year's prestigious Welsh Health Hack which aims to stimulate innovation and encourage collaboration between NHS Wales, industry and academia.

MaskComms is a response to one of many challenges faced due to the Covid-19 outbreak, after the NHS identified that the wider use of facial masks within the hospital environment has reduced the ability to communicate effectively.

The project, led by **Dr Simon Burnell**, consultant anaesthetist at Betsi Cadwaladr University Health Board, is a collaboration with design engineer **Wyn Griffith**, of Wyn Griffith Designs, product designer **Thomas Turner**, of Ember Technology Design, and **Dr Arif Reza Anwary**, innovation technologist at **Swansea University Medical School's Healthcare Technology Centre (HTC)**.

MaskComms, which will now go into production in North Wales, offers an adaptable platform so a group of healthcare professionals wearing masks can communicate easily in the hospital environment, such as in an operating theatre during a surgical procedure.

This project won first place at the event hosted by M-SPARC and supported by Life Science Hub Wales, MediWales, Bevan Commission, Bangor University, Awyr Las, Santander and Betsi Cadwaldr University Health Board. This year's event, held online for the first time, saw health and care workers pitch Covid-19 related problems to an audience of techies, product designers, businesses, makers, industry experts, academics, and NHS colleagues.

Appendix A7: Full options approach framework

Summary of Options

Option A – Do minimum, Rely on existing activity/sites.

This option describes no expansion of the existing ecosystem but a small investment into the existing infrastructure on order to reconfigure space to maximise efficiency of existing facilities.

Option B – Dispersed Growth, Investment fund for disparate activities

This option describes the creation of an investment fund to invest in individual opportunities across the region on a competitive basis as they emerge in a portfolio of disparate activities/facilities.

Option C – Intermediate I

This option describes limited investment across 2 sites (Singleton and Morriston) to begin an incremental increase in capacity and capabilities at both development sites in line with the expectations of the SBCR.

Option D – Intermediate II

This option describes a larger investment across 2 sites (Singleton and Morriston) to establish increased capacity in response to need demand and establish at Singleton and establish a footprint at Morriston to support regionalisation and further incremental development.

Option E – Intermediate III

This option describes the creation of a fund as described in **Option B** to invest in small regional opportunities across the region in addition to the expansion of ILS at Singleton and the development of an ILS at Morriston as described in **Option D**.

Option F – Do Maximum

This option describes major investment across 3 sites (Singleton, Morriston and Hywel Dda) to realise the ARCH vision to create Campuses at all sites through new build developments.

(Note that a workshop to appraise the shortlisted options was held on 03 July 2020. Notes from this workshop are attached as Appendix A7b)

Options

	A - Do Minimum Rely on existing activity/sites	B – Dispersed Growth Investment fund for disparate activities	C - Intermediate I Incremental increase(s) of existing Ecosystem (ILS1/2) across two sites	D - Intermediate II Mixed – Dual Site combination: Incremental Development and Focused major development	E - Intermediate III Mixed – Dual Site Development and fund for disparate activities	F - Do Maximum Full ARCH Prospectus Expand existing and establish new Campuses
Description	This option describes no expansion of the existing ecosystem small investment into the reconfiguration of existing infrastructure to maximise efficiency of existing facilities.	This option describes the creation of an investment fund to invest in individual opportunities across the region on a competitive basis as they emerge in a portfolio of disparate activities/facilities.	This option describes limited investment across 2 sites (Singleton and Morriston) to begin an incremental increase in capacity and capabilities at both development sites in line with the expectations of the SBCR.	This option describes a larger investment across 2 sites (Singleton and Morriston) to establish increased capacity in response to need demand and establish at Singleton and Morriston to support regionalisation and further incremental development.	This option describes the creation of a fund with the same intention as Option B to invest in small regional opportunities across the region in addition to the expansion of ILS at Singleton and the development of an ILS at Morriston as described in Option D .	This option describes major investment across 3 sites (Singleton, Morriston and Hywel Dda) to realise the ARCH vision to create Campuses at all sites through new build developments.
Scope	Utilise current ILS facilities to support growth of existing, and capture of new, opportunities. Capital investment limited to enhancing efficiency of existing facilities. ~500s.m. of mixed facilities [^]	Develop specialist capabilities / capacities in locations across SBCR with public and private sector in response to emerging opportunities. This would be market-led opportunities developing a portfolio of projects giving Open Access capabilities	Increase capacity/capability of existing ILS through development of new facilities across 2 sites (i.e. Sketty Lane/ Singleton and at Morriston in response to need demand. ~4,500s.m. of mixed facilities (3,000m ² at Singleton and 1500m ² at Morriston)	Establish significant capacity/capability of existing ILS through development of new facilities in response to need demand, along with initial development at a further site to support regionalisation. ~10,000sqm of mixed facilities over the period to 2032 (2,000sqm at Singleton, 7,700sqm (2 phases) at Morrison)	Providing a combination of B&D approaches with realisation of ARCH Campuses scope; i.e. ILS-scale facilities at two locations and further smaller developments across the region. ~12,000s.m. + 1,000s.m +2000m ² of mixed facilities	Expand existing ILS site and establish full ARCH Morriston and Hywel Dda Campus infrastructures. This would realise the original 2014 ARCH ambition across both UHB regions. ~24-30,000s.m. of mixed facilities
Service Solution	Promotion and reconfiguration of existing SU capabilities to maximise capacity of current operations.	Development of facilities across the region through open competition amongst existing ecosystem	Mixed Refurbishment / New-build of facilities, with delivery through existing ILS initiative	Mixed Refurbishment / New-build of facilities, with delivery through existing ILS initiative	Combination of Implementation Approaches B&D	New-build of major facilities at Singleton, Morriston and Hywel Dda sites.
Service Delivery	Swansea University and partners (inc. Life Sciences Hub Wales)	Diverse (Procured) Ecosystem – portfolio procured/ partnered on individual opportunity basis	Utilisation of existing organisation Frameworks	Mixed: Public/Private Partnership: Procured development co-investment partnership	Mixed: Public/Private Partnership: Procured development co-investment partnership	Mixed: Public/Private Partnership: Procured development co-investment partnership
Implementation	Immediate start as 3/5-year project	3-year project – Competition / procurement of portfolio of investments	5-year project	Phased 3, 5-year project	Phased 5, 8-year project	Immediate start ~7yr project
Funding	~£5m City Deal funding Total : ~£5m	~£15m City Deal Funding with potential to leverage an additional £15m of public/private investment. Total : ~£30m	~£15m City Deal Funding with the potential to leverage an additional £65m of public/private investment Total : ~£80m	£15m City Deal funding with the potential to leverage an additional £115m public/private capital investment Total : ~£130m	£15m City Deal funding with the potential to leverage an additional £125m public/private investment Total : ~£140m	£15m City Deal funding with the potential to leverage an additional £200m public/private investment Total : ~£215m

[^] Balance of facility provision reflects Need/Demand section: See also Report - Life Sciences & Health in south west Wales

Spending Objectives and Critical Success Factors

	A - Do Minimum Rely on existing activity/sites	B – Dispersed Growth Investment fund for disparate activities	C- Intermediate I Incremental Modest increase(s) of existing Ecosystem (ILS1/2) across two sites	D - Intermediate II Mixed – Dual Site Incremental Development and Focused major development	E - Intermediate III Mixed – Dual Site Development and fund for disparate activities	F - Do Maximum Full ARCH Prospectus Expand existing and establish new Campuses
Description	This option describes no expansion of the existing ecosystem small investment into the reconfiguration of existing infrastructure to maximise efficiency of existing facilities.	This option describes the creation of an investment fund to invest in individual opportunities across the region on a competitive basis as they emerge in a portfolio of disparate activities/facilities.	This option describes limited investment across 2 sites (Singleton and Morriston) to begin an incremental increase in capacity and capabilities at both development sites in line with the expectations of the SBCR.	This option describes a larger investment across 2 sites (Singleton and Morriston) to establish increased capacity in response to need demand and establish at Singleton and establish a footprint at Morriston to support regionalisation and further incremental development.	This option describes the creation of a fund as described with the same intention Option B to invest in small regional opportunities across the region in addition to the expansion of ILS at Singleton and the development of an ILS at Morriston as described in Option D .	This option describes major investment across 3 sites (Singleton, Morriston and Hywel Dda) to realise the ARCH vision to create Campuses at all sites through new build developments.
Spending Objectives:						
New regional employment	Limited additionality	Market-led, potential for distributed if limited growth	Only delivers capacity for existing demand	Aligns with identified market-need/opportunity	Aligns with identified market-need/opportunity	Would maximise capacity to support employment growth
High GVA Sector growth	Limited additionality	Lacks potential agglomeration and other benefits	Limited capacity to support significant growth long-term	Aligns with identified market-need/opportunity	Aligns with identified market-need/opportunity	Would maximise capacity to support activity growth
Regionalisation	Limited beyond existing ecosystem engagement	Wide, though potentially low impact	Limited beyond existing ecosystem engagement	Expands beyond initial ILS to deliver regional activity	Expands beyond initial ILS to deliver regional activity	Greatest ensured regional footprint
Network/Ecosystem	Limited additionality, though with robust/extensive existing ecosystem	Potential to engage broadly across ecosystem, though challenge for linkages	Effective platform for collaboration/orchestration with Open Access approach	Effective platform for collaboration/orchestration with Open Access approach	Potential to engage broadly across ecosystem and create systematic linkages	Effective platform for collaboration/orchestration with Open Access approach
Expanded Commercialisation	Limited potential to expand commercialisation activity	Market-led though without systematic sector approach	Modest potential to expand commercialisation activity	Strong alignment with ACCELERATE/AgorIP potential	Strong alignment with ACCELERATE/AgorIP potential	Strong alignment with ACCELERATE/AgorIP potential
Critical Success Factors						
Strategic Fit	Limited contribution to ambitions	Weak – due to lack of systematic approach (except variant)	Limited delivery against policy and market drivers	Delivers against policy and market drivers	Delivers against policy and market drivers	Delivers against policy and market drivers
Business Needs	Minimal impact upon needs	Market-led approach gives potential for alignment	Supports only existing requirements	Aligns broadly with identified requirements	Aligns broadly with identified requirements	Potential to be overly in advance of market needs
ARCH Integration	Cornerstone of existing ARCH RE&I programme	Aligns with ACCELERATE / AgorIP elements only	Cornerstone of existing ARCH RE&I programme	Works towards realising ARCH programme ambitions	Works towards realising ARCH programme ambitions	Fulfils ARCH ambitions
Internet Coast Integration	Existing integration, though delivers limited additionality	Initially weak – though with potential for development	Aligns with infrastructure/skills growth sectors approach	Aligns with infrastructure/skills growth sectors approach	Aligns with infrastructure/skills growth sectors approach	Aligns with infrastructure/skills growth sectors approach
Potential Value for Money	Diminishing returns on existing at capacity infrastructure	Relatively unknown/untested	Good value, though without performance step-change	Co-investment opportunity to optimise value and scale	Core robust, though with unknown element	Potential to be overly in advance of market needs
Potential Achievability	Viable	Procurement / management complexities / risks	Proven model – based upon ILS Phases 1 & 2	Proven model – both operational and commercial	Procurement / management complexities / risks	Availability of sites and wider programme challenges
Supply-side Capacity	Viable	Relatively unknown/untested	Proven model – based upon ILS Phases 1 & 2	Co-investment model proven in similar context	Relatively unknown/untested	Availability of sites and wider programme challenges
Potential Affordability	Challenge to sustainably develop revenue, though relatively limited requirement	Relatively unknown/untested, though commitment only with market response	Public partnership potential to realise development	Requires market testing to provide confidence for co-investment opportunity	Dispersed investment(s) nature may lack mass to develop private sector interest	Level of co-investment may be challenging spread across three locations

Preferred Approach

	A - Do Minimum Rely on existing activity/sites	B – Dispersed Growth Investment fund for disparate activities	C - Intermediate I Incremental increase(s) of existing Ecosystem (ILS1/2) across two sites	D - Intermediate II Mixed – Dual Site combination: Incremental Development and Focused major development	E - Intermediate III Mixed – Dual Site Development and fund for disparate activities	F - Do Maximum Full ARCH Prospectus Expand existing and establish new Campuses
Description	This option describes no expansion of the existing ecosystem small investment into the reconfiguration of existing infrastructure to maximise efficiency of existing facilities.	This option describes the creation of an investment fund to invest in individual opportunities across the region on a competitive basis as they emerge in a portfolio of disparate activities/facilities.	This option describes limited investment across 2 sites (Singleton and Morriston) to begin an incremental increase in capacity and capabilities at both development sites in line with the expectations of the SBCR.	This option describes a larger investment across 2 sites (Singleton and Morriston) to establish increased capacity in response to need demand and establish at Singleton and establish a footprint at Morriston to support regionalisation and further incremental development.	This option describes the creation of a fund with the same intention Option B to invest in small regional opportunities across the region in addition to the expansion of ILS at Singleton and the development of an ILS at Morriston as described in Option D .	This option describes major investment across 3 sites (Singleton, Morriston and Hywel Dda) to realise the ARCH vision to create Campuses at all sites through new build developments.
Scope	Utilise current ILS facilities to support growth of existing, and capture of new, opportunities. Capital investment limited to enhancing efficiency of existing facilities. ~500s.m. of mixed facilities^	Develop specialist capabilities / capacities in locations across SBCR with public and private sector in response to emerging opportunities. This would be market-led opportunities developing a portfolio of projects giving Open Access capabilities	Increase capacity/capability of existing ILS1/2 through development of new facilities across 2 sites (i.e. ILS3 at Singleton and ILS at Morriston) in response to need demand. ~4,500s.m. of mixed facilities (3,000m ² at Singleton and 1500m ² at Morriston)	Establish significant capacity/capability of existing ILS through development of new facilities in response to need demand, along with initial development at a further site to support regionalisation. ~10,000sqm of mixed facilities over the period to 2032 (2,000sqm at Singleton, 7,700sqm (2 phases) at Morrison)	Providing a combination of B&D approaches with realisation of ARCH Campuses scope; i.e. ILS-scale facilities at two locations and further smaller developments across the region. ~12,000 + 1,000s.m. of mixed facilities^ over the period to 2032	Expand existing ILS site and establish full ARCH Morriston and Hywel Dda Campus infrastructures. This would realise the original 2014 ARCH ambition across both UHB regions. ~24,000-30,000.m. of mixed facilities^
Service Solution	Promotion and reconfiguration of existing SU capabilities to maximise capacity of current operations.	Development of facilities across the region through open competition amongst existing ecosystem	Mixed Refurbishment / New-build of facilities, with delivery through existing ILS initiative	Mixed Refurbishment / New-build of facilities, with delivery through existing ILS initiative	Combination of Implementation Approaches B&D	New-build of major facilities at Singleton, Morriston and Hywel Dda sites.
Service Delivery	Swansea University and partners (inc. Life Sciences Hub Wales)	Diverse (Procured) Ecosystem – portfolio procured/ partnered on individual opportunity basis	Utilisation of existing organisation Frameworks	Mixed: Public/Private Partnership: Procured development co-investment partnership	Mixed: Public/Private Partnership: Procured development co-investment partnership	Mixed: Public/Private Partnership: Procured development co-investment partnership
Implementation	Immediate start as 3/5-year project	3-year project – Competition / procurement of portfolio of investments	5-year project	Phased 3, 5-year project	Phased 5, 8-year project	Immediate start ~7yr project
Funding	~£5m City Deal funding Total : ~£5m	~£15m City Deal Funding with potential to leverage an additional £15m of public/private investment. Total : ~£30m	~£15m City Deal Funding with the potential to leverage an additional £15m of public/private investment Total : ~£30m	£15m City Deal funding with the potential to leverage an additional £115m public/private capital investment Total : ~£130m	£15m City Deal funding with the potential to leverage an additional £60m public/private investment Total : ~£75m	£15m City Deal funding with the potential to leverage an additional £80m public/private investment Total : ~£95m

Alternative Approach 1

	A - Do Minimum Rely on existing activity/sites	B – Dispersed Growth Investment fund for disparate activities	C - Intermediate I Incremental increase(s) of existing Ecosystem (ILS1/2) across two sites	D - Intermediate II Mixed – Dual Site combination: Incremental Development and Focused major development	E - Intermediate III Mixed – Dual Site Development and fund for disparate activities	F - Do Maximum Expand existing and establish new Campuses
Description	This option describes no expansion of the existing ecosystem small investment into the reconfiguration of existing infrastructure to maximise efficiency of existing facilities.	This option describes the creation of an investment fund to invest in individual opportunities across the region on a competitive basis as they emerge in a portfolio of disparate activities/facilities.	This option describes limited investment across 2 sites (Singleton and Morriston) to begin an incremental increase in capacity and capabilities at both development sites in line with the expectations of the SBCR.	This option describes a larger investment across 2 sites (Singleton and Morriston) to establish increased capacity in response to need demand and establish at Singleton and establish a footprint at Morriston to support regionalisation and further incremental development.	This option describes the creation of a fund with the same intention Option B to invest in small regional opportunities across the region in addition to the expansion of ILS at Singleton and the development of an ILS at Morriston as described in Option D .	This option describes major investment across 3 sites (Singleton, Morriston and Hywel Dda) to realise the ARCH vision to create Campuses at all sites through new build developments.
Scope	Utilise current ILS facilities to support growth of existing, and capture of new, opportunities. Capital investment limited to enhancing efficiency of existing facilities. ~500s.m. of mixed facilities^	Develop specialist capabilities / capacities in locations across SBCR with public and private sector in response to emerging opportunities. This would be market-led opportunities developing a portfolio of projects giving Open Access capabilities	Increase capacity/capability of existing ILS1/2 through development of new facilities across 2 sites (i.e. ILS3 at Singleton and ILS at Morriston in response to need demand. ~4,5,00s.m. of mixed facilities^ (3,000m ² at Singleton and 1500m ² at Morriston)	Establish significant capacity/capability of existing ILS through development of new facilities in response to need demand, along with initial development at a further site to support regionalisation. ~10,000sqm of mixed facilities over the period to 2032 (2,000sqm at Singleton, 7,700sqm (2 phases) at Morrison)	Providing a combination of B&D approaches with realisation of ARCH Campuses scope; i.e. ILS-scale facilities at two locations and further smaller developments across the region. ~12,000 + 1,000s.m. of mixed facilities^ over the period to 2032	Expand existing ILS site and establish full ARCH Morriston and Hywel Dda Campus infrastructures. This would realise the original 2014 ARCH ambition across both UHB regions. ~24,000-30,000s.m. of mixed facilities^
Service Solution	Promotion and reconfiguration of existing SU capabilities to maximise capacity of current operations.	Development of facilities across the region through open competition amongst existing ecosystem	Mixed Refurbishment / New-build of facilities, with delivery through existing ILS initiative	Mixed Refurbishment / New-build of facilities, with delivery through existing ILS initiative	Combination of Implementation Approaches B&D	New-build of major facilities at Singleton, Morriston and Hywel Dda sites.
Service Delivery	Swansea University and partners (inc. Life Sciences Hub Wales)	Diverse (Procured) Ecosystem – portfolio procured/ partnered on individual opportunity basis	Utilisation of existing organisation Frameworks	Mixed: Public/Private Partnership: Procured development co-investment partnership	Mixed: Public/Private Partnership: Procured development co-investment partnership	Mixed: Public/Private Partnership: Procured development co-investment partnership
Implementation	Immediate start as 3/5-year project	3-year project – Competition / procurement of portfolio of investments	5-year project	Phased 3, 5-year project	Phased 5, 8-year project	Immediate start ~7yr project
Funding	~£5m City Deal funding Total : ~£5m	~£15m City Deal Funding with potential to leverage an additional £15m of public/private investment. Total : ~£30m	~£15m City Deal Funding with the potential to leverage an additional £15m of public/private investment Total : ~£30m	£15m City Deal funding with the potential to leverage an additional £45m public/private investment Total : ~£60m	£15m City Deal funding with the potential to leverage an additional £60m public/private investment Total : ~£75m	£15m City Deal funding with the potential to leverage an additional £80m public/private investment Total : ~£95m

Alternative Approach 2

	A - Do Minimum Rely on existing activity/sites	B – Dispersed Growth Investment fund for disparate activities	C - Intermediate I Incremental increase(s) of existing Ecosystem (ILS1/2) across two sites	D - Intermediate II Mixed – Dual Site combination: Incremental Development and Focused major development	E - Intermediate III Mixed – Dual Site Development and fund for disparate activities	F - Do Maximum Expand existing and establish new Campuses
Description	This option describes no expansion of the existing ecosystem small investment into the reconfiguration of existing infrastructure to maximise efficiency of existing facilities.	This option describes the creation of an investment fund to invest in individual opportunities across the region on a competitive basis as they emerge in a portfolio of disparate activities/facilities.	This option describes limited investment across 2 sites (Singleton and Morryston) to begin an incremental increase in capacity and capabilities at both development sites in line with the expectations of the SBCR.	This option describes a larger investment across 2 sites (Singleton and Morryston) to establish increased capacity in response to need demand and establish at Singleton and establish a footprint at Morryston to support regionalisation and further incremental development.	This option describes the creation of a fund with the same intention Option B to invest in small regional opportunities across the region in addition to the expansion of ILS at Singleton and the development of an ILS at Morryston as described in Option D .	This option describes major investment across 3 sites (Singleton, Morryston and Hywel Dda) to realise the ARCH vision to create Campuses at all sites through new build developments.
Scope	Utilise current ILS facilities to support growth of existing, and capture of new, opportunities. Capital investment limited to enhancing efficiency of existing facilities. ~500s.m. of mixed facilities^	Develop specialist capabilities / capacities in locations across SBCR with public and private sector in response to emerging opportunities. This would be market-led opportunities developing a portfolio of projects giving Open Access capabilities	Increase capacity/capability of existing ILS1/2 through development of new facilities across 2 sites (i.e. ILS3 at Singleton and ILS at Morryston in response to need demand. ~4,500s.m. of mixed facilities^ (3,000m ² at Singleton and 1500m ² at Morryston)	Establish significant capacity/capability of existing ILS through development of new facilities in response to need demand, along with initial development at a further site to support regionalisation. ~10,000sqm of mixed facilities over the period to 2032 (2,000sqm at Singleton, 7,700sqm (2 phases) at Morrison)	Providing a combination of B&D approaches with realisation of ARCH Campuses scope; i.e. ILS-scale facilities at two locations and further smaller developments across the region. ~12,000 + 1,000s.m. of mixed facilities^ over the period to 2032	Expand existing ILS site and establish full ARCH Morryston and Hywel Dda Campus infrastructures. This would realise the original 2014 ARCH ambition across both UHB regions. ~24,000s.m. of mixed facilities^
Service Solution	Promotion and reconfiguration of existing SU capabilities to maximise capacity of current operations.	Development of facilities across the region through open competition amongst existing ecosystem	Mixed Refurbishment / New-build of facilities, with delivery through existing ILS initiative	Mixed Refurbishment / New-build of facilities, with delivery through existing ILS initiative	Combination of Implementation Approaches B&D	New-build of major facilities at Singleton, Morryston and Hywel Dda sites.
Service Delivery	Swansea University and partners (inc. Life Sciences Hub Wales)	Diverse (Procured) Ecosystem – portfolio procured/ partnered on individual opportunity basis	Utilisation of existing organisation Frameworks	Mixed: Public/Private Partnership: Procured development co-investment partnership	Mixed: Public/Private Partnership: Procured development co-investment partnership	Mixed: Public/Private Partnership: Procured development co-investment partnership
Implementation	Immediate start as 3/5-year project	3-year project – Competition / procurement of portfolio of investments	5-year project	Phased 3, 5-year project	Phased 5, 8-year project	Immediate start ~7yr project
Funding	~£5m City Deal funding Total : ~£5m	~£15m City Deal Funding with potential to leverage an additional £15m public/ private investment. Total: ~£30m	~£15m City Deal Funding with the potential to leverage an additional £15m of public/private investment. Total : ~£30m	£15m City Deal funding with the potential to leverage an additional £45m public/private investment. Total : ~£60m	£15m City Deal funding with the potential to leverage an additional £60m public/private investment. Total : ~£75m	£15m City Deal funding with the potential to leverage an additional £80m public/private investment. Total : ~£95m

Appendix A8: Masterplans and detailed site appraisal

Please see separate PDFs for masterplan, site appraisals and cost plans.

Appendix A9: Financial Case supporting documents

Consolidated Campuses Financial Summary	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	2030-31	2031-32	2032-33	Total
Student ftes -														
Sketty Lane Total - based on 75% of planned recruitment	0	11	92	183	289	346	385	416	428	434	440	444	446	3,914.36
Net change (year on year)	0	11	81	102	187	159	226	190	238	196	244	200	246	
Income														
Sketty Lane Revenue - tuition fees based on 75% planned recruitment FTE (as above)	0	126,563	889,313	1,701,030	2,661,260	3,172,465	3,520,840	3,801,715	3,909,715	3,963,715	4,017,715	4,051,465	4,064,965	35,880,759.88
Sketty Lane Revenue - rental income OOH Clinic	0	0	0	0	27,500	58,750	61,350	63,191	65,086	67,039	69,050	71,121	73,255	556,342.05
Sketty Lane Revenue - rental income commercial letting	0	0	0	0	45,938	150,308	154,817	159,461	164,245	169,172	174,248	179,475	184,859	1,382,522.30
Management Centre Revenue - rental from tenants and affiliates	0	0	0	46,129	56,766	58,469	60,223	62,030	63,891	65,808	67,782	69,815	71,910	622,822.58
Management Centre Revenue - research income attracted by site	0	0	0	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000	10,000,000.00
Total Revenue (most likely)	0	126,563	889,313	2,747,159	3,791,464	4,439,992	4,797,230	5,086,397	5,202,937	5,265,734	5,328,794	5,371,877	5,394,989	48,315,884
Expenditure														
Sketty Lane Expenditure - staffing	0	92,975	339,512	630,023	1,013,677	1,309,798	1,496,901	1,578,998	1,618,473	1,706,239	1,772,547	1,816,860	1,862,282	15,238,283.12
Sketty Lane Expenditure - equipment/consumables	0	15,000	158,025	146,995	142,282	178,747	200,158	218,914	230,685	237,991	244,979	250,879	255,113	2,279,767.55
Sketty Lane Expenditure - service charge	0	0	0	0	133,374	271,372	278,427	285,667	293,094	300,714	308,533	316,555	324,785	2,512,520.48
Sketty Lane Expenditure - interest payment	0	0	0	22,751	20,255	15,135	10,015	4,894	3,741	2,806	1,871	935	0	82,401.96
Management Centre Expenditure - service charge actual	0	0	26,740	110,167	113,472	116,876	120,382	123,994	127,713	131,545	135,491	139,556	143,743	1,289,677.97
Management Centre Expenditure - rent actual	0	0	1	1	1	1	1	1	1	1	1	1	1	11.00
Management Centre Expenditure -costs assoc with research projects	0	0	0	800,000	800,000	800,000	800,000	800,000	800,000	800,000	800,000	800,000	800,000	8,000,000.00
Project Staffing	0	0	182,312	338,755	378,826	390,191	401,897	413,954	426,372	439,164	452,339	465,909	479,886	4,369,604.54
Project team running costs	0	3,333	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	58,333.33
Total Expenditure (most likely)	0	111,308	711,590	2,053,691	2,606,887	3,087,119	3,312,781	3,431,421	3,505,080	3,623,459	3,720,760	3,795,695	3,870,810	33,830,600
Net Surplus / (Deficit) (most Likely)	0	15,255	177,723	693,469	1,184,576	1,352,872	1,484,449	1,654,975	1,697,857	1,642,275	1,608,035	1,576,182	1,524,179	14,485,284
Net Surplus / (Deficit) to Income % (most likely)		12%	20%	25%	31%	30%	31%	33%	33%	31%	30%	29%	28%	30%

Sensitivity Analysis														
Tuition Fee income Variables														
100% planned recruitment FTE's														
additional fees less increase in variable costs @100%	£0	£34,688	£221,175	£531,144	£833,879	£994,719	£1,104,919	£1,192,128	£1,225,451	£1,241,137	£1,256,800	£1,266,268	£1,269,542	£11,171,849
amended total revenue	£0	£161,250	£1,110,488	£3,278,303	£4,625,343	£5,434,710	£5,902,149	£6,278,525	£6,428,388	£6,506,870	£6,585,594	£6,638,145	£6,664,531	£59,614,295
Net Surplus / (Deficit) (100% planned recruitment)	£0	£49,942	£398,898	£1,224,613	£2,018,455	£2,347,591	£2,589,368	£2,847,104	£2,923,308	£2,883,411	£2,864,834	£2,842,450	£2,793,721	£25,783,695
Net Surplus / (Deficit) to Income % (100% planned recruitment)		0%	36%	37%	44%	43%	44%	45%	45%	44%	44%	43%	42%	43%
50% planned recruitment FTE's														
decrease in fees less decrease in variable costs @50%	£0	-£34,688	-£221,175	-£531,144	-£833,879	-£994,719	-£1,104,919	-£1,192,128	-£1,225,451	-£1,241,137	-£1,256,800	-£1,266,268	-£1,269,542	-£11,171,849
amended total revenue	£0	£91,875	£668,138	£2,216,015	£2,957,585	£3,445,273	£3,692,311	£3,894,268	£3,977,486	£4,024,597	£4,071,995	£4,105,608	£4,125,447	£37,270,598
Net Surplus / (Deficit) (50% of planned recruitment)	£0	-£19,433	-£43,452	£162,325	£350,697	£358,154	£379,530	£462,847	£472,407	£401,138	£351,235	£309,914	£254,638	£3,439,998
Net Surplus / (Deficit) to Income % (50% of planned recruitment)		-21%	-7%	7%	12%	10%	10%	12%	12%	10%	9%	8%	6%	9%
Assumptions	All figures have been calculated to align to Local Authority financial years (April-March). Swansea University financial years are August to September.													
Revenue	(1) ILS@Morrison will be completed Dec 2022 - income generation will commence from April 23 (2) ILS@Singleton will be completed September 2024 - income generation from October 2024 with the exception of academic programmes which will be temporarily housed until build complete (3) The student income figures are estimated fees based on similar programmes for 22/23. No inflation has been used. (4) Undergraduate home student fees are set by Welsh Government and have been included based on 20-21 current fees of £9,000 p.a. There is no inflationary uplift to these fees or the commissioned places (H (5) The income figures do not include any research figures for Sketty Lane but do for Morrison Site. (6) Other income has been inflated at 3% per annum. (7) We have not included overseas student figures at this point but we would fully expect to have overseas students once courses are established. Overseas students have a higher fee structure and would increase the contribution. (8) Assume 1/15th of current Med school research income													
Expenditure	(1) ILS@Morrison will be completed Dec 2022 - operational expenditure will commence from this date (2) ILS@Singleton will be completed September 2024 - operational expenditure will commence from October 2024 with the exception of academic programmes staffing , equipment and consumables, and proje (3) Loan Interest - calculated on reducing capital balance subject to SBCD funding profile and base rate (0.1%) plus 0.25% (4) Consumable operating expences forecast based on SU allocation per student with annual 3% inflation (5) Rents/Service charges at Morrison are current estimates provided by SBUHB plus assumed inflation of 3% annually (6) Rents/Service charges at Singleton are current estimates provided by SU (less existing pavilion budget allocation) plus assumed inflation of 2.6% annually (7) Assume research expenditure is 80% of research income (8) High level estimates of Start up/Fit out costs of new academic programmes													

Appendix A10: Project Board terms of reference

The Project Board's key remit is to support the Senior Responsible Owner (SRO) in providing management oversight for the Project. The Project Board will:

1. Secure funding and approval for the project. Where required, this includes developing and updating a business case in accordance with the *Green Book* and *Building Better Business Cases Guidance*, submitting this for approval by the SBCD Portfolio Management Office and regional governance groups prior to the submission of a business case to Welsh and UK Government for approval. The board will ensure that the business case is developed in accordance with the requirements, expectations and timescales of the Welsh Government and UK Government.
2. Liaise with stakeholders across the region as necessary to ensure the project is aligned with the strategic direction of the SBCD, the Swansea Bay City Region and relevant oversight bodies.
3. Provide the resource required to enable the project delivery.
4. Monitor project performance against the key project spending objectives and controls to ensure it remains on track to deliver successfully against them. This includes providing support to the development of plans to address forecast deviations from agreed baselines and/or managing contingencies and agreeing (within its delegated authority) changes to agreed baselines.
5. Provide support to the project to resolve key issues and to manage the key project risks and opportunities in a timely manner.
6. Provide direction and guidance to the development and delivery of the project outputs so that these deliver the key requirements of the stakeholder community, including (though not exclusively) the end-users, where appropriate providing advice and guidance on the relative priority of these and ensuring the highest priority/highest value requirements are delivered as early as reasonably practicable in the Project delivery.
7. Consider if the expected project benefits (outcomes and impact) are still achievable and whether the value of these is worth the outstanding Project investment. This may include identifying and considering external factors that may diminish (or enhance) the expected benefits of the project.
8. Monitor and approve all project outputs as complete and in accordance with the agreed scope and quality standards.
9. Ensure the project outputs are handed over to the appropriate Business Owner(s) and the necessary transition plans (including change management activities, training, and support plans) are in place to enable these to be sustainably transitioned into operational use.
10. Monitor the realisation of the expected benefits (outcomes and impact), including identifying any unintended consequences of the project and providing guidance and support as required to maximise the realisation of the expected benefits and to mitigate the impact of any unintended consequences.

Appendix A11: Project Manager job description

Job Description: Project Manager

College/School:	<i>Medicine</i>
Job Title:	<i>Project Manager</i>
Department/Subject:	Swansea University Medical School
Salary:	<i>Grade 9</i>
Hours of work:	<i>Full Time</i>
Contract:	Fixed Term 12 months
Location:	This position will be based at the Singleton/Bay Campus, remote working during restrictions

Introduction	To deliver its sustainable top 30 ambition Swansea University needs a workforce with the differentiated skills necessary to ensure that it can deliver excellence in research, teaching, learning, and the wider student experience, and to be a powerhouse for the regional economy and internationally.
Background information	<p>Life Science & Wellbeing Campuses Project is a transformative project that will revolutionise health and wellbeing innovation across the region through the development of facilities and infrastructure.</p> <p>The project is being developed and delivered in partnership by Swansea Bay University Health Board, Swansea Council, ARCH Partnership and led by Swansea University as a cross-faculty project.</p> <p>Supported through £15m Swansea Bay City Deal funding, private and other public sector funding, the Life Science & Wellbeing Campuses project will create lasting economic development across Wales over the next 15 years.</p> <p>Building on the success of the Institute of Life Science, the project is focused on bringing together health, wellbeing, digital and sport technology, and innovation activities to foster strategic national and international partnerships, enable high skilled job creation and support economic growth regionally.</p> <p>Through major construction and refurbishment, the project will see the realisation of two major capital developments at Singleton and Morriston to support the longer-term plans to develop a Sports and Science Park.</p> <p>Specifically, this post will be focussed on support finalising the outline business case, developing the full business case and associated tasks to enable successful award of funding and project progress.</p>
Main Purpose of Post	The Project Manager is expected to lead a large project team on a complex project but the role will rely on direction from a project director or senior manager at the university. The Project Manager is responsible for applying the following independently in complex situations and may supervise others applying the competencies:

	<ol style="list-style-type: none"> 1. Promoting the wider public good in all actions, acting in a morally, legally and socially appropriate manner in dealings with stakeholders and members of the project team and the University. 2. Selecting, developing and managing the project team 3. Identifying, addressing and resolving differences between individuals and/or interest groups involved in the project 4. Securing the provision of resources needed for the project from either internal or external providers 5. Agreeing contracts for the provision of goods and/or services for the project, monitoring compliance and managing variances 6. Determining the best means of satisfying requirements within the context of project objectives and constraints, i.e. developing solutions 7. Preparing and maintaining schedules for project activities and events, taking account of dependencies and resource requirements 8. Developing, implementing and updating resources allocation plans needed for the project taking account of availabilities and scheduling 9. Developing and agreeing the budget for the project and controlling forecast and actual costs against this budget 10. Identifying and monitoring project risks, planning and implementing responses to them and responding to other issues that affect the project 11. Developing, maintaining and applying quality management processes for project activities and outputs 12. Consolidating and documenting the fundamental components of the project (scope, schedule, resource requirements, budgets, risks, opportunities, issues and quality requirements) 13. Establishing and maintaining governance arrangements to enable the delivery of the project, defining clear roles, responsibilities and accountabilities that align with institutional practice and governance structures 14. Managing project stakeholders, taking account of their levels of influence and particular interests 15. Establishing and managing reviews at appropriate points during the project, which will inform the governance of the project by providing evaluations of progress 16. Establishing and implementing protocols to change the scope of the project updating baseline documents as required 17. Preparing, gaining approval of, refining and updating business cases that justify the initiation and/or continuation or reprofile of the project in terms of benefits, costs and risks
<p>General Duties</p>	<ol style="list-style-type: none"> 18. To fully engage with the University's Performance Enabling and Welsh language policies 19. To promote equality and diversity in working practices and to maintain positive working relationships. 20. To lead on the continual improvement of health and safety performance through a good understanding of the risk profile and the development of a positive health and safety culture. 21. Any other duties as directed by the Head of College / Department or their nominated representative expected within the grade definition. 22. To ensure that risk management is an integral part of any decision making process, by ensuring compliance with the University's Risk Management Policy
<p>Leadership Values</p>	<p>All Professional Services areas at Swansea University operate to a defined set of Core Values (http://www.swansea.ac.uk/the-university/values/professional-services-values/) and it is an expectation that everyone is able to demonstrate a commitment to these values from the point of application through to the day to day delivery of their roles. Commitment to our values</p>

	<p>at Swansea University supports us in promoting equality and valuing diversity to utilise all the talent that we have. In addition the appointee will operate to a defined set of Leadership values. Our Leadership values are:</p> <p>We are Professional We develop ourselves and our teams through continued professional development, and use feedback to improve. We create a culture that delivers successful outcomes through people, supporting, developing and challenging our teams to succeed. We involve our people in developing a vision for the future and in enabling innovation and change, improving University, team and individual performance.</p> <p>We Work Together We enable our teams to work together and across functions to deliver successful outcomes that exceed the needs and expectations of our customers. We are responsible for creating environments that demonstrate equality, foster trust, respect and challenge. We are accountable for providing clarity and direction, communicating the “big picture” and harnessing ideas and opportunities to achieve the University’s vision.</p> <p>We care We create environments that identify, understand and give priority to delivering the needs of the University Community (our students, colleagues, external partners and the public). We motivate and inspire our teams to provide the highest standards of personalised care and in doing so uphold the Swansea University brand.</p>
<p>Project Management</p>	<p><u>Project Management at Swansea University</u></p> <p>Working with the Association for Project Management (APM) In 2015 Swansea University achieved the highly considered APM Corporate Accreditation status and the University considers the APM Body of Knowledge and the APM Competence Framework as leading knowledge references for project management functions, technical language and competences.</p> <p>Swansea University has developed a Competence Self-Assessment tool based on a subset of the APM Competences that staff can use to benchmark their project management skills and knowledge.</p> <p>Regular internal training on a variety of project management topics is available and staff have the opportunity to work towards APM qualifications through the project management e-learning platform The PM Channel https://www.thepmchannel.com/.</p> <p>Project Managers across the organisation meet quarterly as part of a Project Management Forum in order to share best practice, industry knowledge, facilitate peer networks and increase awareness of common issues experienced by project staff. All project management staff are expected to become a member of a project management professional body, ideally APM, see https://www.apm.org.uk/Individual for guidance on individual membership.</p> <p>Further information on project management at Swansea University, including the organisational Project Management Framework, is available here: - http://www.swansea.ac.uk/pspu/projectmanagement/</p>
<p>Person Specification</p>	<p>Leadership Values:</p> <ol style="list-style-type: none"> 1. Demonstrable evidence of creating a culture that delivers successful outcomes through people, developing and challenging teams to succeed and take pride in delivering professional services and solutions.

2. Ability to enable teams to work together and across functions to deliver successful outcomes that exceed the needs and expectations of customers, and in creating environments that demonstrate equality, foster trust, respect and challenge.
3. Demonstrable experience of creating environments that identify, understand and give priority to delivering the needs of the customer, and in motivating and inspiring teams to provide the highest standards of personalised care

Qualification:

4. Educated to degree level or equivalent
5. Either holds a project management qualification e.g. APMP, PRINCE2, etc. or with a willingness to work towards an Association for Project Management (APM) qualification
6. Member of a recognised professional body or with a willingness to work towards APM membership

Experience:

7. Experience of line management of a group of resources including recruitment, performance management, motivation and development planning
8. Experience in managing and monitoring project finances to ensure that the project is delivered within budget and achieves value for money
9. Experience in creating a detailed project plan and then managing and monitoring the plan to ensure successful completion of activities to achieve the required quality, timescales and budget targets
10. Experience of identifying risks and planning, implementing and monitoring responses to those risks on a complex project
11. Experience of managing and influencing stakeholders at all levels on a complex project including negotiations and the handling of conflicts
12. Experience of managing governance structures for a complex project, including defining clear roles, responsibilities and accountabilities
13. Experience of procuring goods or services, monitoring compliance and managing variances

Knowledge and Skills:

14. Excellent organisational skills, the ability to manage a variety of tasks simultaneously, and to organise and prioritise own work and that of others in order to meet project milestones
15. Excellent communication skills with clear evidence of effective presentation skills, report-writing skills, people management skills and the ability to converse authoritatively and persuasively with a range of stakeholders at all levels
16. Broad knowledge of project management procedures and an ability to deploy and customise procedures for an individual project
17. Knowledge of a project management planning tool such as MS Project
18. Knowledge of Health & Life Sciences sector within Wales and the UK

Desirable Criteria:

19. Ability to communicate in Welsh
20. Experience managing complex multi-partner projects
21. Experience of implementing Green Book guidance
22. Experience of developing business cases through the 5 case model
23. Experience of working in the Higher Education environment and dealing with stakeholders in the HEI environment
24. Willingness to travel to meet clients and other stakeholders at different locations within Wales and the UK
25. Experience of writing proposals and submitting bids to funding bodies

	26. Knowledge of funding rules, controls and communications 27. Knowledge of procurement regulations 28. Demonstrated commitment to personal and professional career development
Additional Information	Informal enquiries: Dr Naomi Joyce n.s.joyce@swansea.ac.uk Shortlisting Date: TBC Interview Date: TBC

Appendix A12: Letters of support

(See attached PDF)

Appendix A13: Summary of policy alignment

UK POLICIES AND STRATEGIES

Strategy/policy	Imperative	Relevance
Industrial Strategy	<p>Five foundations:</p> <ul style="list-style-type: none"> • Ideas • People • Infrastructure • Business environment • Places <p>Grand Challenges</p> <ul style="list-style-type: none"> • AI and Data • Ageing Society 	<ul style="list-style-type: none"> • Supporting the UK to be the world's most innovative economy. • Creating good jobs, enhancing earning power • Creating the facilities and environment to deliver a transformation in R&D targeted at life sciences, well-being and sports innovation. • Contributing to the UK being the best place to start and grow a business. • Focus on data and digital innovation aligns with the ambition to put the UK at the forefront of the AI and data revolution. • As an ageing population creates demands for technologies, products and services, including new care technologies, this project contributes to ensuring that older citizens can lead independent, fulfilled lives and continue to contribute to society.
UK Digital Strategy (2017) (Including the Assisted Digital Strategy)	<ul style="list-style-type: none"> • Building world-class digital infrastructure • Giving everyone access to digital skills • Making the UK the best place to start and grow a digital business • Helping every British business become a digital business • Unlocking the power of data in the UK economy and improving public confidence in its use 	<ul style="list-style-type: none"> • Project delivers infrastructure for R&D, education and training, supporting innovation and start-ups, and with a key focus on data innovation. • Ensuring equality of access to and engagement with technologies, particularly for disabled users, those with protected characteristics, and those in disadvantaged communities. • The Digital Strategy aligns to the Industrial Strategy, and is headed by the Secretary of State for Culture, Media and Sport. • Project therefore aligns to DCMS' aims to promote the UK globally, grow the economy, champion digital connectivity and maximise participation in sport.
Life Sciences Industrial Strategy	<ul style="list-style-type: none"> • Ambition for the UK to be the best place for Life Sciences businesses to thrive 	<ul style="list-style-type: none"> • Cohesive, integrated environment drawing on industry, academia and health services. • Underpinned by UK/local sector strengths in industrial capacity and academic research. • Supports regional efforts to drive regeneration in deprived areas. • Alignment with HE/FE and wider skills development and global investors supports delivery of skills and talent.
Life Sciences Sector Deal	<ul style="list-style-type: none"> • Strengthening the UK's environment for clinical research. 	<ul style="list-style-type: none"> • Focus on data-driven R&D is a fit with the Sector Deal's aligns with the ambition to make the UK the home of data-driven life sciences

	<ul style="list-style-type: none"> • Raising the intensity of R&D in the UK. • Growing life sciences manufacturing. • Supporting innovation in the NHS. • Upgrading infrastructure. 	<p>research, innovation and development, and to improve outcomes for patients and the NHS.</p>
Artificial Intelligence sector deal	<ul style="list-style-type: none"> • Ambition to create an economy harnessing AI and the opportunities enabled by Big Data through productive collaborations between academia, industries and the public sector. 	<ul style="list-style-type: none"> • Draws on regional infrastructure and expertise supporting AI and machine learning research (e.g. <i>Data Science at Swansea, Computational Foundry, IMPACT Advanced Manufacturing Institute</i>) • Project will ensure Wales is well-placed to respond to opportunities and initiatives supported by the sector deal, particularly in terms of the application of AI and machine learning to innovation in life sciences, health and well-being.
Building Digital UK and 5G Strategy	<ul style="list-style-type: none"> • Ambition to exploit 5G's potential and to create a world-leading digital economy 	<ul style="list-style-type: none"> • Embedding innovation activity within an integrated data, healthcare and life sciences environment, placing citizens at the centre of innovation • Also accords with the Swansea Bay City Region focus on digital infrastructure to harness the emerging digital capabilities to drive technology development.
Sporting Future: a new strategy for an active nation (2015)	<ul style="list-style-type: none"> • Highlights economic impact of sport (inc. from grassroots sports) to the UK as £39 billion in 2015. • Aspiration to ensure that the conditions are there to enable sport-related software and hardware to flourish. 	<ul style="list-style-type: none"> • Project targets the development of an internationally significant SportsTech sector in South Wales. • Project will attract investment in sports facilities from grassroot to elite sport.

WELSH POLICIES AND STRATEGIES

Strategy/policy	Imperative	Relevance
Well-being of Future Generations (Wales) Act 2015	<ul style="list-style-type: none"> • A prosperous Wales • A resilient Wales • A healthier Wales • A Wales of vibrant culture and Welsh language • A more equal Wales. • A Wales of cohesive communities • A responsible Wales. 	<ul style="list-style-type: none"> • Development of an innovative, productive and low-carbon society, and of a skilled population in an economy that generates wealth. • Provides the infrastructure for research and development and which fosters economic resilience. • Focus on innovation in life sciences, well-being and sport. • A distinctive R&D environment rooted in region's culture and values. • Supporting access to healthcare (e.g. through digital services) and to promote research and innovation that supports the development of devices and techniques that will support preventative health interventions • Creating an infrastructure that supports innovation to improve health and social well-being in Wales, the UK and internationally.
Taking Wales Forward 2016-2021 Provides the foundation for <i>Prosperity for all</i> , the <i>Parliamentary Review of Health and Social Care in Wales</i> and <i>A Healthier Wales</i>	<ul style="list-style-type: none"> • Deliver more and better jobs • A stronger, fairer economy • Improve public services • Build a united, connected and sustainable Wales. • Embed healthy living. 	<ul style="list-style-type: none"> • The project's intended benefits are aligned to the strategy, and particularly to the aspiration to promote "tech hubs, especially in towns and cities where there are colleges and universities."
The Parliamentary Review of Health and Social Care in Wales	Quadruple aim: <ul style="list-style-type: none"> • Health and care staff, volunteers and citizens should work together. • Improved health and well-being. • A cared for work force. • Better value for money 	<ul style="list-style-type: none"> • This initiative will support the delivery of the report's ten recommendations, and particularly the quadruple aim. • This project will also significantly contribute to harnessing innovation and accelerating technology and infrastructure developments, as outlined in recommendation seven. • The review concludes that while Wales is in prime position to further develop technology and innovation as a key strength in pursuit of the quadruple aim, current capacity and capability hinder the ability to deliver at pace. The project will provide both the capacity and capability for technology development and innovation within the region.
A Healthier Wales: Long Term Plan for Health & Social Care <i>Note that the Re-balancing Care and</i>	<ul style="list-style-type: none"> • A person-centred approach to health and social care. • More services to be provided outside 	<ul style="list-style-type: none"> • Focus on digital innovation to support health and well-being is directly aligned to these aspirations.

<p>Support White Paper <i>is consulting on improving social care arrangements and strengthening partnership working to better support people's well-being</i></p>	<p>hospitals, closer to home, or at home.</p> <ul style="list-style-type: none"> • To invest in new technology which will make a real difference to keeping people well. 	<ul style="list-style-type: none"> • The project supports technology development for rehabilitation, pre-abling, and personalised interventions.
<p>Prosperity for all</p>	<ul style="list-style-type: none"> • Prosperous and Secure • Healthy and Active • Ambitious and Learning • United and Connected 	<ul style="list-style-type: none"> • Project supports economic development and opportunity. It provides the environment to enable research and innovation that supports people and businesses to drive prosperity • Shifting the approach from treatment to prevention, inspiring people to be the fittest and healthiest they can be, and building the vital links that make it easier for people to come together and for the economy to grow. • As a testbed for innovation in data-driven life sciences, health, well-being and sport, it is the project's intention to offer access to training that will support skills acquisition, adaptability and creative thinking. • Supports community resilience through its emphasis on preventative health and well-being.
<p>Economic Action Plan</p>	<ul style="list-style-type: none"> • An economy that increases both wealth and well-being through inclusive growth and equitable distribution of benefits across Wales, delivering better jobs closer to home. 	<ul style="list-style-type: none"> • Project responds directly four of the Plan's seven "Calls to Action". • Expands capacity and capability to allow investment into training provision through expansion of apprenticeships, foundation, undergraduate, postgraduate training and continued professional development. • Enables the enhancement of vocational and innovative learning programmes and engagement with employers to ensure a true and sustainable pipeline of talent. • Digital capabilities will be incorporated into all aspects of the project. • Supports people and drives prosperity, through fostering technology innovation that delivers sustainable growth. • Harnesses the connected infrastructure. • Development of an ecosystem that supports the acquisition of skills for a changing world. • Ensures that Wales has a stronger regional voice and a reputation for digital innovation.
<p>Economic resilience and reconstruction mission</p>	<ul style="list-style-type: none"> • Shaping Welsh Government's approach to recovery post Covid-19. 	<ul style="list-style-type: none"> • Closely aligned to the vision for a well-being economy that drives prosperity and which promotes health and economic well-being across Wales.

Science Strategy for Wales, Innovation Wales and Smart Specialisation	<ul style="list-style-type: none"> • Life Sciences and Health as a Grand Challenge area. • Recognition of the links between the research and science skills base, and the processes of innovation, development and commercialisation. • Digital technology: the single biggest lever for productivity and competitiveness across every sector. 	<ul style="list-style-type: none"> • Supports the ambition for technology to be an enabler of innovation and economic and societal impact, rather than simply a driver of change. • The project supports open innovation with research users in line with the <i>Innovation Wales</i> aspirations to create critical mass and support the continued development of the Welsh research base. • Project leverages core research strengths and a proven life sciences innovation ecosystem to create a genuinely unique smart capability for Wales.
South Wales Crucible - Science and Innovation Audit (SIA)	<ul style="list-style-type: none"> • Developments within data driven life-long health and mental health will be accelerated by the creation of an interconnected test bed for innovative developments in healthcare. 	<ul style="list-style-type: none"> • Project aligns with the SIA’s Health Innovation thematic focus. • Emphasis on enabling competency in digital technologies. • Drawing on a breadth of expertise and skills ranging from clinical and laboratory-based research through to applied health and social care, and from preventative health and public participation in sport
Digital Strategy for Wales (2021)	<p>Six core “missions”</p> <ul style="list-style-type: none"> • Digital services • Digital inclusion • Digital skills • Digital economy • Digital connectivity • Data and collaboration 	<ul style="list-style-type: none"> • Project will deliver innovative digital products and services to support health and well-being, and to address issues of inequality and inclusion. • The project also supports skills acquisition and will contribute to regional economic prosperity. • The project will work with other projects in the City Deal portfolio to maximise the opportunities for fast and reliable digital infrastructure.
Prudent Healthcare	<ul style="list-style-type: none"> • Achieve health and well-being with the public, patients and professionals as equal partners through co-production. • Care for those with the greatest health need first, making most effective use of all skills and resources. • Do only what is needed – no more, no 	<ul style="list-style-type: none"> • The project takes a partnership approach to understanding health and well-being needs. • Interventions and new technologies will impact on access to healthcare and enable preventative health measures.

	<p>less – and do no harm.</p> <ul style="list-style-type: none"> • Reduce inappropriate variation using evidence-based practices consistently and transparently. 	
<p>National Action Plan - Value in Health</p> <p>(Aim: to improve the health outcomes that matter most to the people in Wales)</p>	<p>Key pillars:</p> <ul style="list-style-type: none"> • Clinical and patient reported outcomes • Understanding costs • Health informatics 	<ul style="list-style-type: none"> • The project aligns with the Action Plan’s focus on the measurement of health outcomes and person reported outcomes (using digital tools, wearables and over devices). • Not also that Swansea University hosts the Welsh Government-funded Value Based Health and Care Intensive Learning Academy and that Wales has been designated a Global innovator Hub for VBHC by World Economic Forum
<p>The Social Services and Well-being (Wales) Act (2014)</p>	<ul style="list-style-type: none"> • Support people who have care and support needs to achieve well-being. • Put people at the heart of the new system. • Shape and drive delivery through partnership and co-operation. • promote prevention of escalating need and the provision of the right help at the right time. • 	<ul style="list-style-type: none"> • Creating an environment that enables the development of technologies to support health and well-being. • An ecosystem underpinned by effective partnerships with health boards, councils, academia, industry and sports teams. • Key focus on preventative health and early health/well-being interventions
<p>Sport Wales</p>	<ul style="list-style-type: none"> • To transform Wales into an Active Nation where everyone can have a lifetime enjoyment of sport, no matter what level they participate at. 	<ul style="list-style-type: none"> • The project’s focus on innovation that supports preventative health aligns with the vision for sport in Wales, which highlights the value of sport to good mental health, including the reduced risk of dementia.

LOCAL POLICIES AND STRATEGIES

Strategy/policy	Imperative	Relevance
Local strategies and policies		
Swansea Bay City Region Economic Regeneration Strategy 2013 to 2030	<ul style="list-style-type: none"> • Business growth, retention and specialisation. • Skilled & Ambitious for long-term success. • Maximising job creation. • Knowledge economy and innovation. • Distinctive places and competitive infrastructure. 	<ul style="list-style-type: none"> • Project supports the development of a vibrant and specialised business base and specialist infrastructure to maximise job creation and to expand the regional knowledge economy. • Strengthens regional economic base and contributes to SBCR's ambition to grow GVA and the region's reputation as a distinctive location supporting investment in innovation. • Enhances competitiveness of regional economy by creating a knowledge ecosystem with suitable infrastructure to drive growth.
<p>City & County of Swansea's Corporate Plan 2017/22 – Delivering a Successful & Sustainable Swansea</p> <p>And</p> <p>City and County of Swansea Sustainable Development Policy</p>	<p>Well-being objectives:</p> <ul style="list-style-type: none"> • Economic prosperity and regeneration. • Environmental challenges. • Health, social care and well-being. • Cultural, social and community cohesion. • Public services and involvement in decision-making. 	<ul style="list-style-type: none"> • The project will secure and create sustainable employment, shifting the approach from treatment to prevention, inspiring people to be the best they can be and building the vital links that make it easier for people to come together and for the economy to grow and addressing population and economic changes. • Embeds digital technology and engages with stakeholders to support life science and sport innovation, alongside workforce skills and talent. • Also aligns to the ambition for Swansea to be “a great place to live now and in the future. Somewhere that is inclusive and safe and provides an excellent start to life. A county that supports a prosperous and resilient economy, recognises and benefits fully from its exceptional environment and promotes good health.”
City & County of Swansea's Digital Strategy – Aspiring to a Digital Business 2020	<ul style="list-style-type: none"> • Harnessing the emerging digital capabilities (e.g. ultra-fast broadband and 5G mobile connectivity) to drive technology development and innovation. 	<ul style="list-style-type: none"> • The Digital Healthcare Technology Centre ambition will feed into the project and will create a platform supported by industrial, academic and clinical expertise to enable the development, testing and validation of digital technologies within the health, sport and life sciences sectors.
<p>Swansea Bay University Health Board</p> <p>Organisational Strategy, Clinical Services Plan, and three-year plan</p>	<ul style="list-style-type: none"> • Maximising potential for digital transformation, improving value and efficiency, research development and innovation, and 	<ul style="list-style-type: none"> • The project will support SBUHB's aim to enable whole populations to develop healthy lifestyles, through preventative programmes, self-care and out of hospital care. • It will increase SBUHB's capacity and capability to work across industry, academia, NHS and third sector to develop health and well-being innovation from diagnostics to data, built upon

	<p>improving outcomes for patients.</p> <ul style="list-style-type: none"> • Integrating with partners in support of the regional health and care economy, and improving health and well-being. • Improving population health, meeting the needs of patients close to or in their homes, supporting self-care, delivering integrated physical and mental health services, and maximizing well-being. 	<p>the research strengths of the University and focused around the health needs of the population.</p>
<p>Hywel Dda University Health Board – Healthier Mid and West Wales</p>	<p>Three interconnected phases across the life-course:</p> <ul style="list-style-type: none"> • Starting and developing well. • Living and working well. • Growing older well. 	<ul style="list-style-type: none"> • Project supports the ambition to deliver integrated health and social care that will improve people’s health outcomes and well-being, and has a focus on wellness and prevention of ill-health by using local strengths and resources.
<p>Swansea University: Our Strategic Vision and Purpose</p>	<p>Key commitments include:</p> <ul style="list-style-type: none"> • To work with partners to make the Swansea Bay City Region the sporting and well-being capital of Wales. • To strengthen SU’s position as one of the UK’s leading, impact-driven, research-intensive institutions. • Highlights SU’s priority to promote Wales as a location that stimulates collaborative research and innovation, attracting international inward investment. 	<ul style="list-style-type: none"> • The project is a key strategic priority for the University.
<p>Swansea University - Sport Swansea:Active University Strategic Framework 2020-2023</p>	<ul style="list-style-type: none"> • Commitment to contribute to the health and well-being of the wider community. • Supporting income diversification and growth through partnerships, 	<ul style="list-style-type: none"> • The project is aligned to the Strategy’s commitments to support positive mental health, well-being and inclusivity, and to utilise technology to encourage participation. • These ambitions are matched by the Department of Sports and Exercise Science’s strategic driver to expand engagement with the physical, engineering and data sciences to develop applied technological innovations (e.g.

	relationships and opportunities.	analytics, materials development) that have measurable impact in industrial, sport, health and clinical settings.
ARCH: A Regional Collaboration for Health	<ul style="list-style-type: none"> • To improve the health, wealth and well-being of the people of South West Wales. • Create a healthcare system fit for the 21st Century. • Drive investment and create jobs • Upskill the next generation of clinicians, researchers, academics, innovators and leaders. 	<ul style="list-style-type: none"> • The project supports ARCH's ambitions, and particularly through its aims of bringing together industry, innovation, academic research and all health sectors, and using technology and Big Data to deliver innovative services and new technologies and treatments. • The project will support health and well-being challenges within the region through collaborative approaches, specifically around Skills & Workforce, Research, Enterprise & Innovation, Service Transformation and Well-being.
Regional Learning Skills Partnership	<ul style="list-style-type: none"> • Improving education and skills is integral to efforts to reduce poverty and to improve the city and economy. 	<ul style="list-style-type: none"> • The project will provide a pipeline of healthcare innovations benefitting communities during the development phase (locally) and from commercialisation (UK and further afield). • This will deliver both local economic uplift through improved health and well-being and subsequent productivity along with wider societal benefit and skills uplift. • Expanding ILS capacity and capability will allow investment to equip existing and prospective workforces across the Region with the relevant skills for employment, addressing skill gaps. • The project will enable the enhancement of vocational and innovative learning programmes, engaging with employers from the public and private sectors.

The project also aligns to **the Swansea Public Services Board Local Well-being Plan – Working Together to Build a Better Future**, which seeks to ensure Swansea is a great place to live well and age well, and which reflects the ambitions and principles of *the Regional Learning Skills Partnership* and the *Economic Regeneration Strategy*. The project also fits with the **West Wales and West Glamorgan Regional Partnership Boards**, who are responsible for ensuring health and care integration.

RISK MANAGEMENT POLICY

Introduction

Risk is the “effect of uncertainty on objectives”¹ and thus a Risk is an event which may or may not happen, but if it does, it will affect a planned objective.

Risks with potentially positive outcomes are known as opportunities, whereas those with potentially negative ones are known as threats. Risks that have occurred, or will do so imminently, are no longer risks, but are known as issues. They are no longer risks because the uncertainty about whether or not they will occur has been removed.

Risk Management is the process of identifying, understanding and proactively managing the risks to your objectives, (whether opportunities or threats), as well as issues. The aim is not to stop things from happening, but to make sure that objectives can be successfully delivered, maximising potential opportunities and minimising threats should they occur and issues when they have.

Why manage risk?

The Project is required to carry out risk management, but should also do so because when implemented effectively, risk management delivers many business benefits, including, (but not limited to);

- Better quality information - enables better decision making
- Better responses - exploiting opportunities and minimising threats and issues
- Better use of resources - avoids costly fire-fighting after the event
- Improving communication - sharing information
- Increased commitment - shared activity as part of a team
- Promoting a positive culture - looking forwards, not backwards
- Preparing for success - knocking down barriers to achievement

Risk management supports success through enabling better-informed decisions to be taken at the right level and at the right time. It improves efficiency, effectiveness and economy, whilst providing assurance on the management of the organisation’s activities.

Risk management is not a barrier to achievement; it is a tool for improving management and the delivery of new and existing services. Hence, it is an enabler for success.

Principles of Risk Management

1 BS ISO 31000:2018, Risk management - Guidelines

2 “The institution must ensure that it has an effective policy of risk management.” HEFCW Memorandum of Assurance and Accountability, 2015

The core principles of Projects Risk Management have been adopted from the Swansea University strategy and are:

Principle	Details
Clarity	Risks are clearly linked to objectives,
Scope	Risks can have positive and negative consequences, so risk management will include the identification and management of opportunities as well as threats
Appropriate Response,	the effort and resource put into risk management must be proportionate to the business benefit which it creates
Ownership	Risks are owned at the appropriate level in the institution and are escalated when additional actions are required.
Responsibility	All staff have a responsibility to “ensure that risk management is an integral part of any decision making process” in their role profiles. Further specific roles and responsibilities relating to risk management are detailed in the Risk Management Framework

Risk appetite

Risk appetite is the “amount and type of risk that an organization is willing to pursue or retain”

The Project recognises that its’ risk appetite will vary by type of risk and over time, as the environment within which it operates changes. It is therefore necessary for the project to set and regularly review its’ risk appetite in order to provide parameters within which effective risk management can take place.

The Risk Appetite Statement sets out the project’s considerations and appetite range for each type of risk that it faces.

Risk management policy statement

The Project faces numerous opportunities and threats, (risks), which have the potential to disrupt achievement of the strategic and operational objectives, for better or worse.

The Project will use risk management to take better-informed decisions and improve its ability to achieve or exceed its strategic and operational objectives.

The Project board considers risk management to be fundamental to good management practice and a significant aspect of corporate governance. Accordingly, risk management must be an integral part of the boards routine decision making and must be incorporated within the strategic and operational planning processes at all

levels across the Project

The Risk Management Framework supports this policy statement and contains details of the processes by which risk management will be carried out, reported and managed, including the tools and systems to be used.

The Governance structure is committed to ensuring that all stakeholders and team members are provided with adequate guidance and training on the principles of risk management and their responsibilities to implement risk management effectively.

The Project will regularly review and monitor the risk management process and the development of an appropriate risk management culture across the University.

Roles and responsibilities

For risk management to work effectively, it must be led from the top of the Project board and Governance structure and be carried out at all levels, as appropriate. The formal roles and responsibilities involved are set out in the Risk Management Framework set out by the Project lead authority, in this case Swansea University.

Appendix A15: Welsh Government Gateway review recommendations and action plan.

Ref. No.	Recommendation	Urgency	Target date	Classification	Ower / Allocated	Status - Open / Complete	Comments / Progress
1.	To enhance readability of the business case, consideration should be given to moving the lower level detail of the policy alignment to an appendix.	E- Essential	Pre-OBC submission	Context, Aims and Scope	Tony	Complete	Chris Marshal actioned the readability of the business case, as instructed lower level detail moved to appendices.
				8.3 Business case			
2.	The project should seek to formalise the involvement of the project delivery partners at the earliest possibility in order to secure investment and partnership working.	R - Recommended	Post-OBC approval and throughout delivery as potential partners come on board.	Stakeholder Management	Tony	Open/ Ongoing	Partners and stakeholders identified in Stakeholder mapping, work packages will commence following OBC approval - prior to Q1 2022.
				2.3 Relationship management across organisational boundaries			
3.	Complete a stakeholder mapping exercise to understand and document the impact and influence of each key stakeholder (or stakeholder group where necessary) in order to prepare a targeted and detailed communications plan as part of the overall stakeholder engagement strategy	E- Essential	Pre-OBC approval	Stakeholder management	Tony / Exec	complete	Stakeholder mapping exercise complete, refine the parties to the relevant communication section.
				2.1 Engagement Strategy and Planning			
4.	Develop a Benefits plan in line with the FBC, outlining base-line measures, target measures, timescales and owners	E- Essential	In line with FBC development	Benefits Management and Realisation	Tony / Exec	Complete	Benefits Plan Uploaded as Benefits register - Access via project controls
				6 Benefits Management and Realisation			
5.	Re-evaluate benefits at regular milestones throughout delivery to ensure that the FBC has access to all potential benefits	E- Essential	Throughout project	6 Benefits Management and Realisation	Tony	Open / Ongoing	Ongoing, each delivery stage will identify and updates included within Highlight reports
6.	Update the Economic case to describe each one of the CSFs	E- Essential	Pre OBC submission	Context Aims and Scope	Tony / Gareth	Complete	Details completed.
				8.3 Business case			
7.	Campuses Project manager and the two Procurement teams to work together to manage costs effectively at every stage of the procurement to ensure that there is minimal risk of cost overrun	E- Essential	Post-OBC approval, delivery stage	Programme and Project management	Tony	Open / Ongoing	Contact has been made with both Procurement teams - Sian Charles (Arch) Morriston and Uni Team, estates, Ben Lucas, Tom Gronow, a number of upcoming meetings have been pencilled in to work on the procurement plans.
				3.1 Planning			
8.	Develop a risk strategy incorporating best practice approaches to risk management, thus strengthening the effectiveness of the risk log	R - Recommended	Pre-OBC approval	Risks, Issues and Dependency Management	Tony	Complete	Risk Strategy adopted from Uni PMO, this is included within the OBC and a Risk register / Raid log has been set up and maintained by PM.
				9.2 Management of Risks			
9.	Align the risks and scoring within the OBC with the Project Risk register, making the Project Risk Register the master copy that can supply information into other project documents	E- Essential	Pre-OBC submission	Risks, Issues and Dependency Management	Tony	Complete	Master Copy uploaded and maintained by PM via Campuses Onedrive.
				9.2 Management of Risks			
10.	Create a standard Action/Decision Log to support the effective management, tracking and reporting of progress at the project board	R - Recommended	Pre-OBC approval	Programme and Project management	Tony / Exec	Complete	Raid Log set up, maintained with access via Onedrive which incorporates, Risk register, Action Log, Issue log, Decision log and Change register.
				3.1 Controls			
11.	Ensure that the Communication to all stakeholders (industry, academia, public, etc) is effective and relevant by bringing the benefits to life through case studies and real-life examples.	E- Essential	Pre-OBC approval	Programme and Project Management	Exec	Open / Ongoing	Communication management approach has been set up (Onedrive), work has commenced via stakeholder mapping to identify all stakeholders and formulate a structured comms plan in conjunction with UNI and PoMO, a work package has been setup to identify relating case studies and examples of the projects benefits to incorporate within communications however this will only commence post OBC approval to the audiences identified within the review.
				3.6 Communication			