



Hwb Gwyddorau Bywyd Cymru
Life Sciences Hub Wales

Life Sciences Hub Wales Annual Review 2020-21

“Our partnerships with organisations like Life Sciences Hub Wales have been essential to supporting NHS Wales organisations and dedicated staff through the pandemic. Their support has been invaluable and has demonstrated the importance of collaborations between industry and healthcare services to deliver change at pace and scale.”

Darren Hughes, Director, Welsh NHS Confederation

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“When we produced the tests, the first people we contacted were Life Sciences Hub Wales. The reason being that they have strong links with ourselves and all the life sciences community. And they can really help us and give us advice on how to take the tests forward into the Welsh community.”

Paul Hales, Senior Director of Operations, Ortho Clinical Diagnostics



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Life Sciences Hub Wales

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About Life Sciences Hub Wales

The aim of Life Sciences Hub Wales (LSHW) is to help the people of Wales benefit from improved health, social care and economic wellbeing by accelerating the development and adoption of innovative healthcare solutions. We convene partners, orchestrate the innovation system and deliver a pipeline of high-value opportunities, alongside supporting transformational change.

With the global life sciences industry providing important opportunities to enable economic recovery and produce benefits for patients, few, if any sectors are more important to support. Investing in health delivers better patient benefits and can be a critical lever for future growth and an important part of economic recovery. Instead of thinking of health as a cost to society, focusing on health as an investment can deliver significant social and economic returns and provide a prescription for prosperity.

The pressing need to transform to a health, wellbeing and prevention-focused integrated system of care, enabled by the adoption of new therapeutic approaches and use of new technologies remains true following the impact of Covid-19. It has presented an unprecedented public health challenge and highlighted system weaknesses. The scale of the challenge is compounded as we face fiscal and economic uncertainty in its wake.

The initial response to the Covid-19 pandemic provided a glimpse of the possible with innovation implemented at unprecedented scale and pace. Critical barriers were removed and a complex ecosystem worked in unison, which comprised of interdependent relationships between academia, patients, the NHS, social care, medical research funders and life science companies both large and small. Life Sciences Hub Wales played an important role in these mobilisation efforts in Wales, acting as a front door to healthcare by collating and triaging all offers of support made by industry.

The need for whole system transformation is aligned with the Welsh Government's agenda. This includes supporting the objectives of the Wellbeing of Future Generations Act (Wales) and the requirements of 'A Healthier Wales', which supports a shift to a wellness-based system with prevention as its keystone. It acknowledges the importance of encouraging personal responsibility and a more integrated approach to health and social care. This includes care provided closer to home, alongside delivering more personalised treatments, via innovative life science and digital technologies – such as precision medicine and advanced

therapies. In aiding a recovery, Wales needs to be strongly positioned within highly competitive international markets to lead in the discovery, evaluation and adoption of new innovative scientific platforms for improving health and wellness. This includes digital, big data systems, robotics, artificial intelligence, age tech, advanced therapeutic and precision medicine approaches such as gene and cell therapy.

Central to our work is collaboration on both national and international levels, working with a range of partners – government, academia, commerce and healthcare providers – all with the common aim of realising a step change in improving the health and wealth of the people in Wales.

This will depend upon everyone working together, and not least involving the people of Wales in co-design, co-production and co-ownership to find innovative and new ways to develop and deliver our healthcare systems and processes.

“Transcend Packaging is a proud part of the Welsh business community and when the Covid-19 outbreak began we saw the critical need for personal protective equipment and wanted to do what we could to help.

“We quickly realised that we could adapt our digital printing equipment to create face shields and with the help and guidance of Life Sciences Hub Wales, we were able to perfect the design and produce products that were fully certified and met the right standards.”

Lorenzo Angelucci, Managing Director, Transcend Packaging

Foreword

No-one could have imagined the year that lay ahead and the global chaos that the world would experience through the Covid-19 pandemic when we submitted our business plan for 2020-21.

There is no doubt the pandemic clearly demonstrated the need for the health and social care sectors to work much more closely with industry, in order to quickly identify the challenges and find solutions even faster. We played a significant part in responding to these events, where we took a strategic role in providing a 'front door for industry' to engage with NHS Wales and social care.

We know healthcare services were facing major challenges before the pandemic, with increased demand pressures as a result of an ageing population who are living longer, but with more chronic conditions. The pandemic has added to these pressures – both financially and through a growing backlog of care to provide.

Life Science Hub Wales will be operating within this new context. There will be a focus on responding at pace to both immediate need and taking a mid- to long-term view on supporting health and social care innovation and transformation.

We will continue to take forward work programmes that are selected, designed and informed by extensive engagement with health and social care providers. We have reviewed with those partners in the light of Covid-19 and believe they continue to represent opportunities to deliver transformative change.

It is our long-term view to achieve such major transformation. However, it will be the small and incremental steps we take during this year and over coming years that will ensure we achieve our proposed impact.

We will achieve success through collaborative partnerships and can only flourish by working together with multiple stakeholders to accelerate innovation.

Cari-Anne Quinn
Chief Executive Officer

Chris Martin
Acting Chairman

This foreword is from Life Sciences Hub Wales business plan for 2021-22

Our strategy map

Vision	To make Wales the place of choice for health, care and wellbeing innovation.
Mission	To accelerate the development and adoption of innovative solutions for better health and wellbeing.
Strategic Aims	<ul style="list-style-type: none">• Improve health and wellbeing outcomes for people in Wales• Improve efficiency and value within the health and social care system• Drive economic development through business growth and jobs
Achieving Aims	<ul style="list-style-type: none">• Convene partners• Orchestrate the system• Accelerate opportunities• Build for the future
Delivery priorities	<ul style="list-style-type: none">• Identify and develop innovation from industry• Curate and promote innovation within NHS Wales• Develop an effective funding identification and delivery function in line with health and social care thematic opportunities• Convene and orchestrate stakeholders to drive forward national programmes and innovation deployment.
Organisational values	<p>Resourceful: believing that something better, innovative or currently out of sight is within our reach.</p> <p>Collaborative: harnessing potential, sharing with others and working together in a respectful way to benefit people in Wales.</p> <p>Socially responsible: fostering health and well-being by channelling our skills, talents, energies and relationships.</p> <p>Ownership: maximising our impact with the time, funds and knowledge available.</p>

Overview: 2020-21

During the 2020-21 business year, Life Sciences Hub Wales demonstrated its value and significant contribution to both the health and social care sectors and the economy in Wales.

This annual review sets out the strategic way in which the organisation has been a key support to NHS Wales during a period of unprecedented pressure – through harnessing key partnerships with local, national and international life sciences companies to provide relevant and timely solutions.

Our work with companies has included providing impartial guidance and oversight to leading innovation projects. We have worked with a plethora of private sector organisations to identify and deploy products and services to support critical supplies and set up and delivery of new business ventures across Wales. At the same time, we have worked with Welsh Government to support a number of inward investment projects which have the potential to bring sustainable employment and economic growth to the country.

On a global level, the life sciences sector is recognised as a key partner and enabler in supporting health services recover and rebuild from the pandemic. This remains the case for Wales too. Our progress and achievements over the last year demonstrate that Life Sciences Hub Wales will continue to play a strategic and crucial part in the Welsh recovery.

[1] We undertook a co-ordinating role with industry to enable partner organisations (NHS Wales, Welsh Government and procurement teams) to use this capacity to focus on their key strengths and responsibilities in responding to the pandemic



- All industry engagement was undertaken by Life Sciences Hub Wales, enabling data capture, due diligence and triage offers from industry to be processed and referred where required and at pace.
- As result of working with Export Wales, SMART Cymru, NHS Wales Shared Services Partnership and other partners, including being part of the Critical Equipment Requirement Engineering Team (CERET) team, we were able to process over 2,285 enquiries, referring 556 to the NHS, Welsh Government and other relevant organisations. We were able to alleviate pressures on healthcare by reviewing documents where three quarters of the enquiries triaged, but not

progressed were for incomplete documentation, or failure to pass initial due diligence and products and processes falling out of scope and not on the critical products list.

Product type	Organisation receiving referral	Number of referrals
Infection control (including PPE) and medical devices	Shared Services	226
Digital solutions	Welsh Government Digital Health Cell	205
Point of care and testing	Public Health Wales	22
Other	Industry Wales, Welsh Government and others	143
Total		556

(Procuring and Supplying PPE for the Covid-19 Pandemic, Audit Office, April 2021)

- The Digital Solutions Fund was launched in summer 2020 to build on offers from industry to pilot market ready technology to support the pandemic and post-pandemic response. From 142 submissions, 5 products were chosen to pilot.
- Through our Digital Health Ecosystem Wales programme (DHEW), we played an integral part in the rapid delivery of the video consultation services for primary, secondary and community care across Wales.

The first six months of our business year was predominantly Covid-19-related. After moving back to a period of business as usual, we returned to our business plan for the year and were able to deliver support through a diverse range of remits.

[2] We set out the need – and the opportunity – for digital to provide key solutions to the challenges facing health and social care



- Our partnership with NWIS (now Digital Health & Care Wales) continued during this period to deliver the Digital Health Ecosystem Wales (DHEW) programme. This work has included a successful bid to the Health Foundation to establish one of five UK Networked Data Labs in Wales. We worked with Public Health Wales to develop and launch an online resource for care home and domiciliary staff who need quick and easy access to vital information, as well as welcoming the National Data Resource to www.digitalhealth.wales and supported their webinar series. We have supported the delivery of the Digital Solution Fund pilots, learning about the challenges in delivering front line innovation and supported Digital Health Care Wales and others with procurement activity.

- We brought the digital ecosystem together to support organisations in Wales to participate in the NHSX ‘Artificial Intelligence in Health and Care Award’ competition.

[3] We strategically contributed to major transformation programmes across Wales – convening key stakeholders, bringing business insight and expertise and partnerships with industry



- As part of our precision medicine impact area, we are working with health boards across Wales on a number of patient pathways.
- In partnership with the NHS Wales Health Collaborative, we have acted as chair to convene Welsh stakeholders spanning local and international industry, health, and social care. This is to consider the national service requirements and scope the case for a pioneering Centre of Excellence for Precision Medicine
- Our focus on advanced therapies, as part of delivering on Welsh Government’s Statement of Intent, has involved key partnerships and offering support with Health Technology Wales, Health Care Research Wales and the newly launched Advanced Therapies Wales.
- We are actively developing our industry focus within Value-Based Health Care – working with NHS Wales’ national delivery team, colleagues in procurement and academia and this year published the first Value-Based Health Care Charter.

[4] We have been the ‘front door to industry’ for health and social care in Wales. This has involved identifying opportunities, making connections and providing advice and support for businesses to establish a presence in the country



- Over the course of the year, Life Sciences Hub Wales has worked with over 700 organisations, which involved making connections with the NHS, signposting, offering advice and support, as well as securing funding. Over the course of the year, we have assisted 624 jobs, contributing over £34 million in GVA.
- We have worked with global multi-national companies, as well as at a local and national level building on the partnership during Covid-19 opening opportunities for Welsh companies into the NHS.
- We have supported the development of the National Robotics Assisted Surgery programme, which is a partnership between Cardiff and Vale, Aneurin Bevan, Betsi Cadwaladr, Swansea Bay, Cwm Taf Morgannwg and Hywel Dda University Health Boards.

[5] We have brought additional funding and resource into Wales through new funding opportunities, developing consortia and offering peer review advice and guidance to maximise success



- In the first round of the NHSX ‘Artificial Intelligence in Health and Care Award’ competition there were four Welsh bids, with Breast Test Wales securing funding. The third round opens in summer 2021 and we will continue to encourage and support participation.
- We supported Public Health Wales to secure £400K to deliver the Networked Data Lab Wales with NWIS, SAIL and Social Care Wales.
- We worked with all Health Boards and supported several bids to the Health Foundation’s ‘Adopting Innovation’ competition, which led to Hywel Dda University Health Board going through to full application stage.

[6] We are supporting NHS Wales and social care providers in unblocking barriers to innovation – through taking a system change approach



- Bringing universities together through the Accelerate programme, working with Cardiff University, Swansea University, University of Wales, Agor IP and Smart Cymru) to provide the infrastructure for the acceleration of early innovation and supporting a culture of innovation. Since the start of the programme, 85 organisations have been supported through Accelerate, with 23 completed projects and 60 jobs assisted.
- We are a key partner in the three new Intensive Learning Academies, providing strategic input to their development (particularly Bangor and Cardiff) and the national and international marketing of them.
- We are working with innovation leads across all health boards to develop a ‘once for Wales’ system for procurement and commercialisation, which will involve a standard approach for engaging and managing relationships with industry.

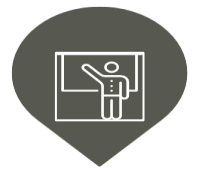
[7] We have actively built the profile and reputation of the healthcare life sciences sector in Wales – and its contribution to both the health sector and economy



- We developed our focus on international collaboration through working with the Department for International Trade and Wales International to build a pipeline of opportunities for Wales.

- We connected with similar life sciences organisations, including the Academic Health Science Networks (AHSNs), Twins International MultiHelix (TIM) providing access to organisations across Europe, Japan and north America.
- We have started developing a series of Welsh-based industry case studies to promote the breadth, versatility and agility of the Welsh life sciences sector - each demonstrating a commitment to making Wales the place of choice for health, care and wellbeing innovation.
- We led on the marketing and engagement for the launch of Advanced Therapies Wales – mapping and engaging with companies in Wales, the UK and internationally to horizon scan new technologies for deployment.

[8] We have created the platform and opportunity for a Wales-wide focus on innovation and industry engagement with health, social care and academia



- The Health and Social Care Innovation Senior Leaders' Group – established and convened by Life Sciences Hub Wales – provides a horizon-scanning role in anticipating future needs to inform and scope industry solutions, as well as responding to emerging funding and transformation opportunities.
- A programme of online events over the last twelve months has continued to bring together key stakeholders to address and respond to the innovation agenda in Wales. These include our Innovation Network for Health and Social Care for health, social care and industry – and special events focussed on particular issues, like supporting manufacturing companies in providing certified PPE products.
- We have worked on a number of projects with universities across Wales, including the NHSX 'Artificial Intelligence in Health and Care Award' competition. We have worked with Swansea University developing plans for a Digital Health Technology Centre to support Welsh SMEs develop new digital projects, as well as supporting Health Boards and DHCW in securing funding for PhD students, working with the Computational Foundry.
- We also contributed to the business case for the development of the medical school in north Wales.

[9] We have continued to shape and develop the conversation around innovation – in order to promote a culture that is enabled to accelerate adoption



- We partnered with Cardiff & Vale University Health Board on the delivery of the Spread and Scale Academy – providing frontline staff with the skills and tools to innovate.

- We worked with the Bevan Commission to support the pipeline of projects from the Exemplar programme to adoption ready products.
- As a strategic partner of the Welsh Health Hack, we have collaborated with health and care organisations and businesses across Wales to surface potential new products and services.
- We have undertaken research and senior stakeholder engagement on the barriers and opportunities for achieving innovation, which will also be used as part of academic training through the ILAs.
- We have published new episodes of our Healthy Thinking podcast series, featuring key leaders and influencers from health, care and industry. Episodes create, support and showcase innovation in Wales – including opportunities to learn and build on inspiring work taking place.

Life Sciences Hub Wales will continue to play its unique role in bringing health, social care and industry together to accelerate the development and adoption of innovative solutions for better health and wellbeing. Across the UK and internationally, there is a significant focus and investment in the life sciences sector to support post-pandemic recovery – which will also be a key focus of the development of our five-year business plan in the 2021-22 business year.

“When the crisis struck there was a lot of confusion and what Life Sciences Hub Wales was able to do in fairly short order was provide some clarity – so that industry knew where to come to, what hoops they needed to come through, what information was needed and what opportunities there were.”

**Lee Waters, Former Deputy Minister for Economy & Transport,
Welsh Government**

Priority areas in 2020-21

Following Life Sciences Hub Wales' initial efforts in supporting healthcare in the Covid-19 response, we were able to focus on delivering across our four organisational priorities. These have been identified as key focus areas through extensive engagement work with health and social care:

1. Digital, Artificial Intelligence (AI) and Robotics (including the Digital Health Ecosystem Wales), with a focus on Healthy Ageing
2. Precision Medicine
3. Advanced Therapies
4. Value-Based Health Care

1. Digital, AI and Robotics (including Healthy Ageing)

The digital revolution is set to transform many aspects of healthcare. The Covid-19 pandemic gave us a glimpse of the possible, where the healthcare system rapidly implemented new technology-based tools. However, we are still at the early stages of digital health.

Advancing the development and implementation of digital health innovation can help to accelerate this, where tools such as AI can transform fields such as diagnostics and imaging.

Artificial Intelligence (AI) provides great promise for the interpretation of vast amounts of combined data which can be applied to diagnostics, medical imaging analysis, patient medical records and genetics. Robotics can benefit healthcare by supporting the delivery of less invasive and more precise procedures. Moreover, digital healthcare can support healthier ageing by improving patient outcomes and combating social isolation and loneliness.

This digital revolution also offers significant economic development opportunities for Welsh-based companies. The global preventive healthcare technologies and services market size is expected to reach £330 billion¹ and the digital health market £384 billion², almost on a par with the entire global smartphone market within the next five years.

¹ Grand View Research (2016) Preventive Healthcare Technologies and Services Market Size, Share & Trends Analysis Report

² Global Market Insights (2018) Digital Health Market Size By Technology

2. Precision Medicine

Precision medicine enables clinicians to develop treatment plans that are the best fit for individual patients, as opposed to testing numerous options. Advances in genetics provide a clearer indication of which patients will respond to specific treatments. This can result in personalised plans delivering improved outcomes and more effective services reducing or eliminating treatments that are not beneficial and can be unnecessary and harmful.

Wales has an emerging cluster of health life sciences companies and clinical, academic and professional expertise in precision medicine. There is significant opportunity for precision medicine to enable economic recovery through investing in its use in healthcare systems.

3. Advanced Therapies

Advanced therapies is an emerging sector that uses gene therapy, cell therapy and tissue engineering. It offers huge potential and ground-breaking opportunities for the long-term management and curing of disease, especially in areas of high unmet medical need, by using and enhancing the body's natural defence and repair mechanisms.

Wales has some emerging strengths in its universities and important infrastructure, e.g. the Midlands and Wales Advanced Therapy Treatment Centre (WMATTC). Cardiff became the ninth site in the UK to offer Chimeric Antigen Receptor T cell (CAR-T) therapy. Translating the hope and potential of advanced therapies in Wales into reality is a significant and complex challenge, which can only be delivered with sustained and focused effort over the longer term and by supporting and fostering strategic partnerships and collaboration between NHS Wales, industry and academia.

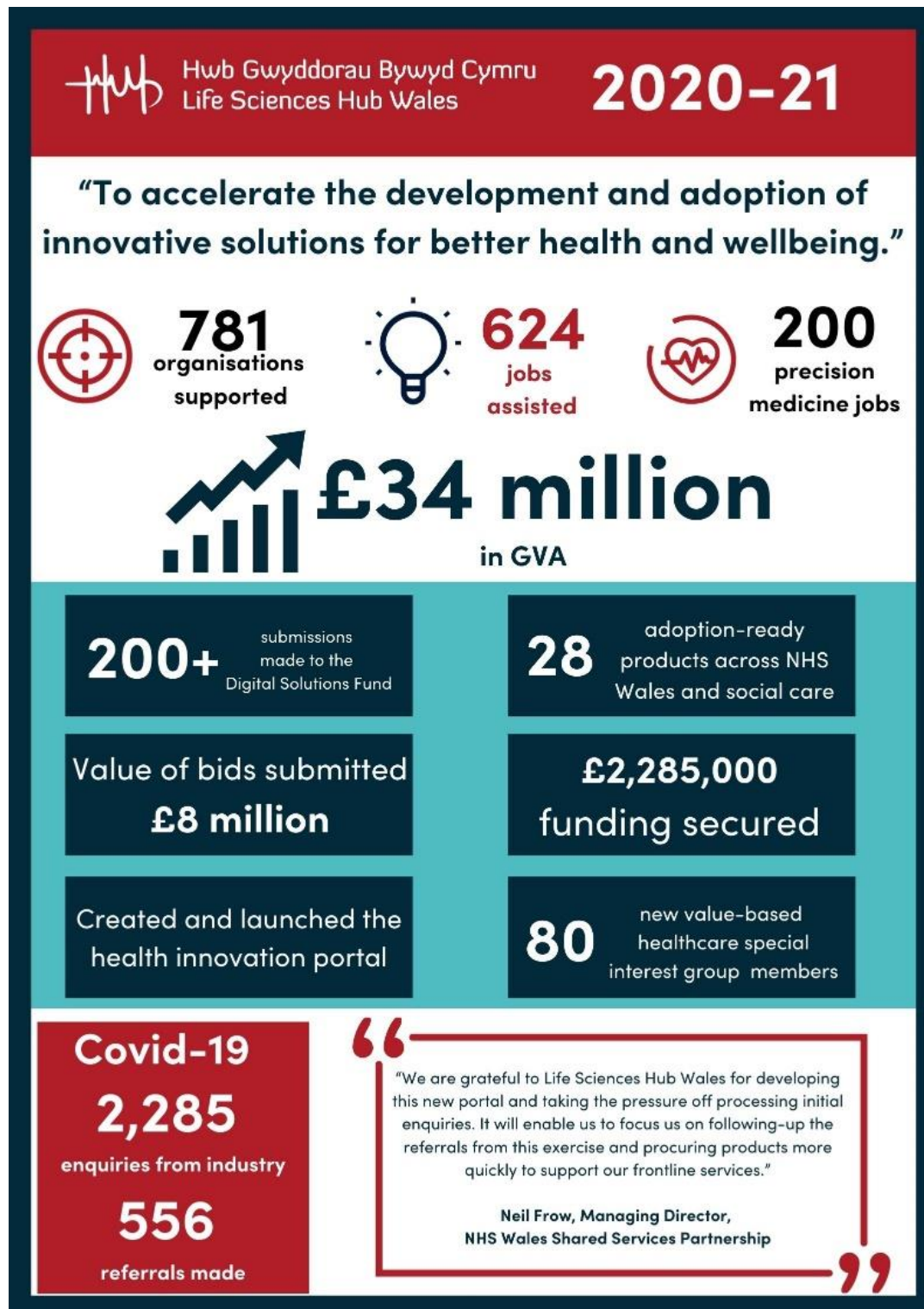
4. Value-Based Health Care

Value-Based Health Care is a transformational approach to designing and delivering care solutions that offer the greatest value to a person receiving them at the lowest possible cost to health and social care systems. It is rapidly gaining global popularity as an effective way of improving patient experience, health outcomes and sustainably using finite resources.

Wales is already at the forefront of the global Value-Based Health Care movement, which is underpinned by a Welsh Government three-year action plan. This details how radical steps are needed to redesign care around the changing health and care population needs of our population, while using the limited available resources.

Networks and events

A key part of our work is the convening of key stakeholders and partners to identify new solutions, develop them and take them to market for the benefit of the health and social care sector in Wales. All of our communications, engagement and event activity has a digital first focus. This has allowed us to facilitate and deliver a busy programme of events and networks for our stakeholders.



Next steps: 2021-22

Our business plan for 2021-22 is set within the context of our 2019-24 operational plan. It provides detail on our planned activities, deliverables, outcomes and the resources required for Life Sciences Hub Wales to continue to deliver in 2021-22.

Context

The global life sciences industry provides many important opportunities to enable economic recovery and produce benefits for patients. Investing in health delivers better patient benefits and can drive future growth and economic recovery. Focusing on health as an investment rather than cost can create significant social and economic returns to provide a prescription for prosperity. Transforming our systems to create an integrated approach to care with a wellbeing and prevention focus can therefore drive health and economic wellbeing.

Covid-19 demonstrated the ability of healthcare to respond at pace and rapidly adopt innovation. However, it also presented an unprecedented public health challenge and highlighted system weaknesses, with further fiscal and economic uncertainty continuing.

Our delivery

We will continue our work in health and wealth with a focus on project delivery which will accelerate the adoption of innovative solutions in our health and care system, delivering better patient care, improved efficiency and value. It will drive economic development, safeguarding and creating high-value Welsh jobs and a return on investment through funding and investment secured.

As a unique resource for Wales, we will:

Convene partnerships

During 2021-22 we will continue to build a 'digital first' approach to engagement building on our agile response to Covid-19. We will widen and strengthen our stakeholder engagement, strengthen our position as a single front door to industry and crucially expand our coverage internationally, building networks and relationships, key in a highly competitive global market for capturing opportunities to identify and adopt and to showcase Welsh innovation to the world.

Orchestrate the system

A 'One Wales' approach in which partners work seamlessly together, recognise the strength of collaboration and avoids internal competition is important if Wales is to accelerate the pace and scale of innovation as required. There is a compelling need,

recognised by our stakeholders for a leadership function within the wider system when it comes to:

- Engagement with industry – we will further develop our role as the front door and provide navigation of the ecosystem.
- To boost the international profile and recognition of Wales as a place of choice for health and social care innovation – working with partners we will invest in building the proposition for Wales and deliver a targeted programme to attract solutions and investment.
- Deliver key services for ecosystem stakeholders, we will work to:
 - Raise awareness and introduce new services to support the ecosystem including bid development (recognising the need for Wales to secure higher proportion of external funds and opportunities on investment in life sciences),
 - Initiate plans for a Welsh health innovation portal, providing an online space and tool where NHS Wales, social care, academia and industry can develop new products and services in a more collaborative way and act as an interactive knowledge resource base, and
 - Refocus our communication and marketing activity to showcase work taking place across the ecosystem in order to amplify its impact, offering a range of services to, and working closely with, key stakeholders.

Accelerate opportunities

We will continue to focus on key impact areas offering opportunities for short term delivery and longer-term transformative change. These have been selected, shaped and informed by extensive engagement with NHS Wales and social care partners identifying their needs and ambitions, alignment with national programmes and market opportunities:

- Digital and AI (including the Digital Health Ecosystem and Healthy Ageing)
- Precision Medicine
- Advanced Therapies
- Value-Based Health Care
- Prevention becomes a key thread across all impact areas, underpinned by a value-based approach.

Build for the future

To deliver the system change required to a virtual cycle between health and wealth is complex. History and international practice demonstrate the benefits of consistent and long term investment horizons providing highest rates of return, with focus on key skills, infrastructure and resources. There are various areas in which our activity is aligned.

- Foundational economy: Practices adopted during the initial response to Covid-19 showed the possibilities of a different approach to procurement. We have

seen increased company engagement regionally, adoption of innovation at pace and the safeguarding and creation of Welsh jobs. We will continue to explore and support this approach which aligns with the foundational economy strategy laid out by the Welsh Government.

- Skills development: We supported the development of the proposals for the Innovation and Transformation; Value-Based Health Care and Prevention intensive learning academies and will support the co-development of branding and marketing strategy for the network and engagement with industry. We will continue to work with, for example Health Technology Wales, NHS Confederation, Health Education Improvement Wales (HEIW) to support joint initiatives.
- Prescription for prosperity: Stakeholders are identifying the need for us to lead on engaging industry on a range of transformative major infrastructure projects including centres of excellence for precision medicine, redevelopment of health estate, innovation clusters.

We will continue to engage with our partners in health and social care, responding with agility to their needs and priorities, remaining responsive to market changes and continuing to align our activities to policies, as we work together with our stakeholders to build back better in Wales.

Our five-year plan

This year we will be developing and publishing our five-year plan, which will build on our journey and progress to date – setting out an even bolder ambition to support health and social care, through the engagement of the life science sector. Engagement with our key stakeholders has already begun, as well as a scoping exercise to understand future needs and opportunities – along with national and international networks and collaborations which will be drawn on to support the delivery of it.



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For further information on our work, please visit our website at www.lshubwales.com or follow us on our social media channels.