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ERDF Summative Assessment: DEMAND Hub

PREPARED FOR:
University of Birmingham

UNIVERSITY OF BIRMINGHAM | DEMAND Hub | European Union European Regional Development Fund

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Executive Summary

This report provides an ERDF summative assessment of the DEMAND Hub project. Desk research, data analysis, and various stakeholder and beneficiary consultation methods were used to conduct this independent assessment.

Justification

The DEMAND Hub project supported SMEs within the Black Country, Greater Birmingham and Solihull, Coventry & Warwickshire, and Stoke-On-Trent & Staffordshire LEP regions to support medical technology innovation and boost product development.

The University of Birmingham, in collaboration with University Hospitals Birmingham NHS Foundation Trust, delivered the project. This included a wide range of services such as business development support and Digital Tech assistance, as well as validation and commercialisation. They also provided technician and lab support, helped with clinical studies and trials, and provided clinician, patient, and user experience data.

The DEMAND Hub project was designed to help SMEs develop new to the market/firm products and processes, increase employment and cooperate with the local knowledge base.

The activities supported by the ERDF project were well aligned with previous and current government policy at a national and regional level. The DEMAND Hub project aligned with national policies by supporting innovation within the life science industry, through R&D support within the Med Tech and digital healthcare space. The growth of the life sciences industry is also a key ambition of regional policy, as the sector has been identified as a key regional strength and an opportunity for future growth.

The medical technologies sector is a key area of opportunity for the West Midlands economy and currently generates a turnover in excess of £1.5 billion. The region has a strong industrial heritage and is now home to a large medical technology business cluster, highlighting the importance of the DEMAND Hub project.

Delivery

The project started in July 2020 and will run until June 2023, meaning that the project is set to be delivered on time.

The original contracted capital spend was £425,000, and the original contracted revenue spend was £6,090,595, creating an original total budget of £6,515,595. Of the total contracted funding of £6,515,595, 50% was provided by ESIF under an ERDF Investment

Priority Axis 1 (Promoting Research and Innovation) grant. The remaining 50% was funded through match funding.

However, the capital spend element of the project did not occur due to delays to the Institute of Translational Medicine (ITM) renovations caused by COVID. While the project delivery team were informed that they did not need to submit a PCR regarding this, the managing authority did refer the project team to the financial penalty calculator for the underspend, which they completed in February 2022. The DEMAND Hub project is expected to underspend by £2,287,909.56 at project closure.

The DEMAND Hub project will underdeliver on the output targets outlined in the logic model at project closure. However, the project will come close to meeting the C1/C4 target (reaching 84% of the contracted target by project closure, having engaged with 110 SMEs) and the C8 target (which will reach 75% when the project concludes). The project has engaged with a significant number of SMEs and generated a number of material benefits for these organisations relating to TRL movement, increased turnover and enabling beneficiaries to leverage additional funding.

While the project will be delivered on time, it will under-deliver on its C-output targets due to the unexpected and unprecedented challenges created by COVID-19. However, effective project management did mitigate many COVID-19 related issues. In addition, survey respondents shared positive reflections on the project, rating DEMAND Hub 4.3 out of 5.

Value for money

The DEMAND Hub project is estimated to have created £2.69 million of GVA. Using a deadweight rate of 33.3%, there is a re-calculated GVA net benefit of £1.796 million.

The total DEMAND Hub spend reduced from a contracted spend of £6.09 million to £4.23 million, the cost per job created, including indirect jobs, was £180,552. This is higher than the mean cost per job across ERDF programmes in the UK between 2017-2020, which was £98,228. Therefore, DEMAND Hub has struggled to deliver Value for Money (VFM) in terms of GVA in the short term, due to the relatively low job creation numbers for a project of its size.

However, DEMAND Hub has to be evaluated beyond job creation, as this programme generated other economic benefits, not used to calculate GVA. These other VFM-related benefits include TRL progression, sales turnover increase and additional funding for supported SMEs in the region.

Lessons learnt

Although the DEMAND Hub did not meet its intended output indicators by the project's conclusion or deliver the anticipated capital investment, the project has successfully aided SMEs in increasing employment, enhancing turnover, leveraging additional

investment, and advancing in TRL (with SMEs experiencing an average shift from TRL 3.7 to TRL 4.8).

Consultations with stakeholders and businesses confirmed that DEMAND Hub project benefited from efficient allocation and coordination of partner responsibilities. The high quality of project support was mirrored by 87% of surveyed SMEs stating they would apply for a similar support project in the future or recommend this project to other businesses.

A couple of opportunities to improve the DEMAND Hub project were identified. The following lessons were identified for the grant recipients, or those designing similar interventions:

- → Elevate the value of future projects by extending and intensifying the support offered to SMEs.
- → A clear and well-designed Logic Model at the onset of a project will increase the chances of project success and value being recognised.

In terms of lessons learnt for policy makers, we conclude that we need to look beyond immediate output metrics and consider the wider, often intangible, impacts of projects like DEMAND Hub, such as the progress it has made in facilitating community engagement. We also suggest that sectorial concentrations challenges within underdeveloped geographies should be considered.

We also suggest a learning for beneficiaries of the DEMAND Hub project, which relates to the importance of engaging with project evaluation activities to inform the development of future programmes.

1. Introduction

This evaluation report provides a summative assessment to understand the outcomes, impact, and value of the ERDF funded DEMAND Hub Project.

The **D**ata-**E**nabled **M**edical technologies **AN**d **D**evices (DEMAND) Hub project supported SMEs within the healthcare market across the Black Country, Greater Birmingham and Solihull, Coventry & Warwickshire, and Stoke-On-Trent & Staffordshire LEP regions. The project was delivered in partnership with University Hospital Birmingham, and sought to provider business and technical services to SMEs, such as quality assurance, marketing, access to financial support, regulatory advice and prototyping support.

This summative assessment took place between March and May, 2023 and included the use of both primary and secondary research methods. The evaluation methods and this report were designed in accordance with ERDF guidance (ESIF-GN-1-033 and ESIF-GN-1-034) for conducting summative assessments.

In identifying and attributing changes achieved by the DEMAND Hub project, this summative assessment report covers the following key themes as prescribed by ERDF guidance:

1	Project Context
2	Project Progress
3	Project Delivery and Management
4	Project Outcomes and Impact
5	Project Value for Money
6	Conclusions and Lessons Learnt

2. Project Context

The DEMAND Hub project was an intervention to support SMEs in the Black Country, Greater Birmingham and Solihull, Coventry & Warwickshire, and Stoke-On-Trent & Staffordshire LEP regions to develop R&D and innovation within the healthcare sector.

2.1. The Opportunity

The University of Birmingham seeks to support SMEs in the healthcare market to develop its R&D and innovation. The project builds upon elements of the previous Medical Devices Testing & Evaluation Centre (MD-TEC) project which ended in November 2019. As a project partner on the MD-TEC project, the University of Birmingham designed the DEMAND Hub project to maximise their expertise and target the needs of SMEs in. The DEMAND Hub project is distinct from MD-TEC, as it delivered scientific services, commercial pathway support and utilised healthcare data to guide product development across a wider West Midlands geography i.e. the Black Country, Greater Birmingham and Solihull, Coventry & Warwickshire, and Stoke-On-Trent & Staffordshire LEP regions.

The DEMAND Hub project delivered specialist commercialisation expertise with a healthcare sector focus to reduce the risk and burden of product development for SMEs across the aforementioned LEP regions, utilising the technical knowledge and facilities of both delivery partners. The project will support medical technology innovation within the wider digital healthcare technologies space to boost product development and commercial pathway support.

This support was designed to complement the existing strengths of the four LEPs, which are a vital element of the UK's overall manufacturing base[1]. The Life Sciences industry is a key economic sector within the UK economy, of which Medical Technologies is the leading Life Sciences employment segment (OLS, 2017). The UK's Medical Technologies sector has experienced strong growth since 2009, with 98% of its activity being SME-based.

The West Midlands has a growing reputation as a centre of excellence within the broader life sciences ecosystem[2]. The region has specific strengths in medical technologies, particularly relating to the R&D, design and production of devices, diagnostics and software as a medical device (West Midlands Science and Innovation Audit, 2017). The regional LEP areas are also crucial to UK manufacturing, but the region suffers from lower than average GVA and low investment in skills and training (West Midlands Science and Innovation Audit, 2017). The DEMAND Hub project will support SMEs within the LEP's life science ecosystem through the provision of healthcare data infrastructure and business support expertise to support local SME growth.

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[1] Invest West Midlands - Key-Sectors - Advanced Manufacturing

[2] Enhancing the Life Sciences Ecosystem in the West Midlands (abpi.org.uk)

2.2. The DEMAND Hub Project

The DEMAND Hub project was delivered by the University of Birmingham in partnership with University Hospitals Birmingham NHS Foundation Trust from July 2020, with practical and financial completion in June 2023. As the lead partner of the programme, the University of Birmingham is responsible for overall project management and the delivery of the DEMAND Hub project. University Hospitals Birmingham provided resource, support and expertise in Clinical Data.

The aim of the project is to support SMEs within the Black Country, Greater Birmingham and Solihull, Coventry & Warwickshire, and Stoke-On-Trent & Staffordshire LEP regions to drive collaborative R&D amongst SMEs which would result in the development of innovative products and processes. The project involves the delivery of the following services:

1. **Business development support:** expertise to engage businesses with knowledge of IP and access to funding specific to medical technologies and digital healthcare
2. **Digital Tech support:** DEMAND Hub provides a unique "Data Sherpa" model of support for industry. It provides access to individuals who understand the local NHS, academic and business environments and can deliver the appropriate study design, data linkage, extraction and analysis to provide SMEs with the insights they need to support their product development.
3. **Validation and commercialisation:** DEMAND Hub provides Technical and Clinical understanding to help evaluate the relevance of solutions, the evidence required and optimal developmental pathway, including potential service redesign.
4. **Technician and lab support:** The DEMAND Hub project provides highly-skilled support utilising our extensive laboratory infrastructure to underpin effective product design, development and testing.
5. **Clinical Studies and Trials support:** DEMAND Hub has expertise in the design of clinical trials and studies attuned to the medical technology regulatory environment, and can guide businesses in the testing and evaluation needs and designs for specific product types.
6. **Clinician/patient/user experience support:** DEMAND Hub helps to facilitate user experience and accessibility testing and development by connecting businesses to appropriate stakeholders and guiding appropriate design and evidence tools.

As outlined within the logic model, it is assumed that the provision of these services would:

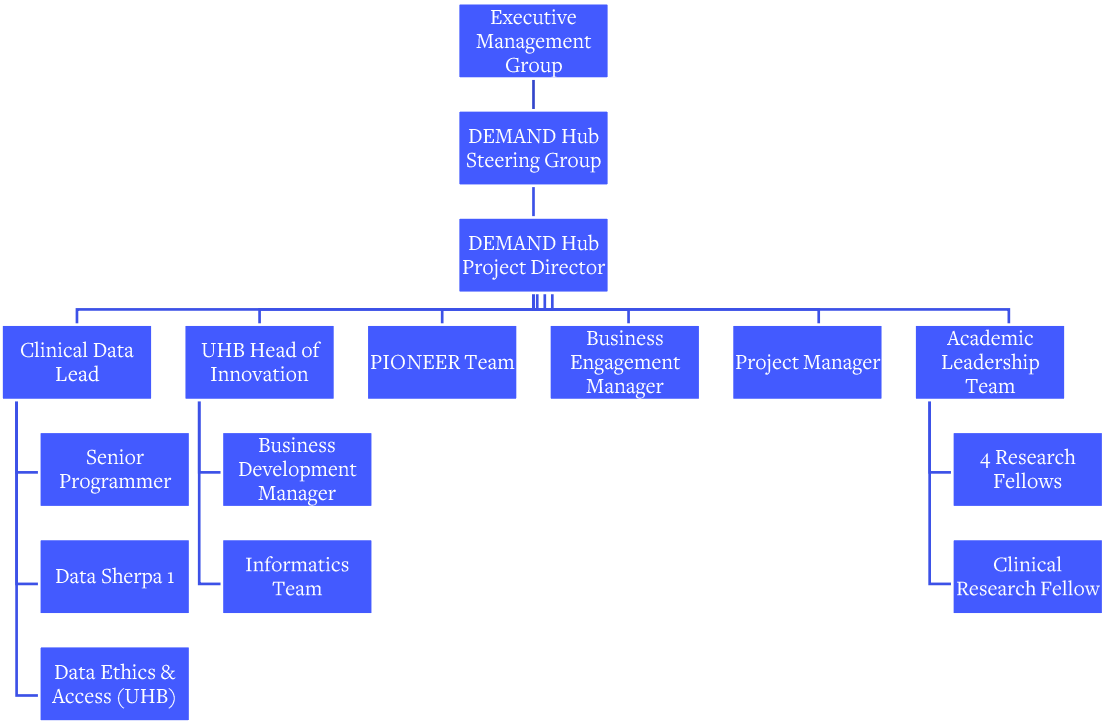
- → Improve access to support, equipment, facilities and networks
- → Enable user driven innovation to accelerate Med Tech design and early phase development
- → Provide access to academic, clinical, financial, legal and regulatory expertise
- → Encourage regional and national innovation development
- → Integrate NHS partners into product development

The managing authority approved ERDF support for the DEMAND Hub project under Priority Axis 1 (Promoting Research and Innovation Investment Priorities). The aims of Priority Axis 1 are to improve how SMEs commercialise research and how they collaborate with research institutions.

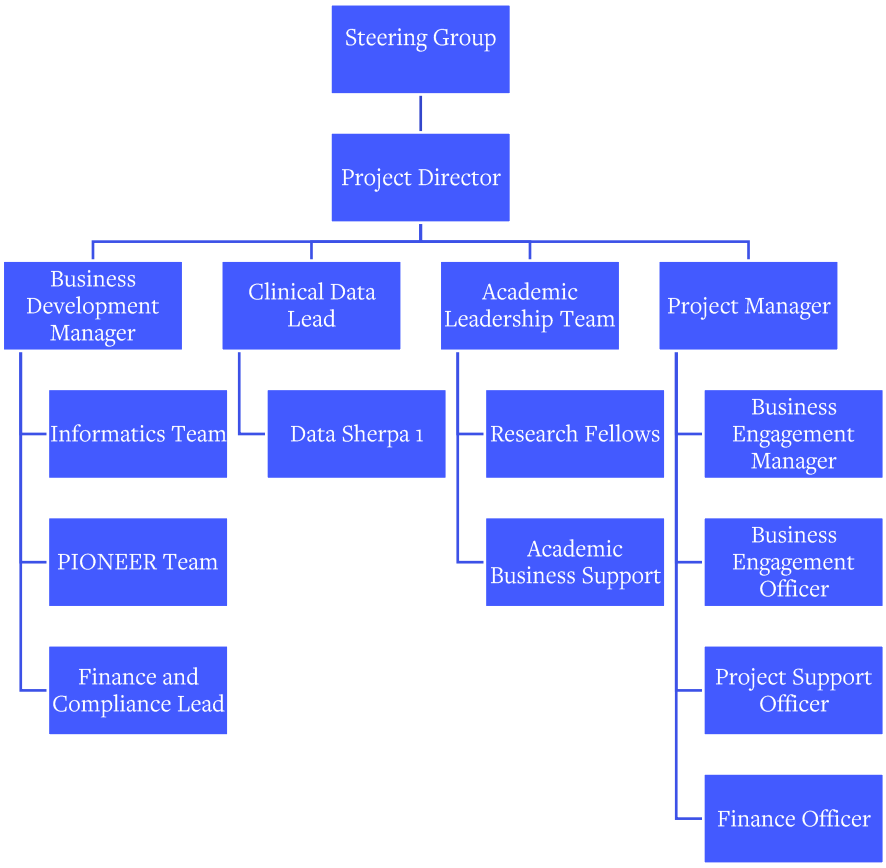
2.3. Delivery Structure and Team

The delivery team was made up of staff from the University of Birmingham and University Hospitals Birmingham, who were responsible for the implementation of the ERDF funded DEMAND Hub project. The DEMAND Hub delivery team was overseen by a Project Manager from the University of Birmingham, as the lead partner on the project.

The structure of the project delivery team changed over the course of the project, with the original organogram out the outset of the project is shown below:



The delivery team adapted significantly over the course of the project. By project closure, the organisation chart for the delivery team had adapted, with less functions reporting directly to the Project Director, and more functions reporting to the Project Manager. The updated organogram at project closure is as follows:



2.4. Aims & Objectives

The DEMAND Hub project utilised the capabilities of the University of Birmingham and project partners to drive collaborative R&D within SMEs to enable the development of new products and processes for the broader benefit of the medical technologies sector.

The main objectives of the DEMAND Hub project are as follows:

- Deliver sector leading facilities, improving access to manufacturing and prototyping space.
- Realise an improved capacity to commercialise for new businesses, including access to IP awareness and evidential requirements of trial development pathways.
- Promote growth through the commercialisation of novel products and processes
- Enable collaborative working between HEI's and Industry.
- Improve awareness of and access to leveraged funding avenues

The ERDF output targets set for the DEMAND Hub project are summarised in Table 1.

Table 1 - ERDF DEMAND Hub Output Targets

Indicator	Target
C1: Number of enterprises receiving support	131
C4: Number of enterprises receiving non-financial support	131
C5: Number of new enterprises supported	50
C8: Employment increases in supported enterprises	20
C26: Number of enterprises cooperating with the knowledge base	78
C28: Number of enterprises supported to introduce new to market products	19
C29: Number of enterprises supported to introduce new to firm products	19

Further details on the outputs, and how this relates to potential outcomes and impacts can be seen in the DEMAND Hub logic model (Appendix I).

2.5. Geographic Context

SME beneficiaries supported by the DEMAND Hub project operated within the following LEP regions within the West Midlands:

- Black Country LEP
- Greater Birmingham and Solihull LEP
- Coventry & Warwickshire LEP
- Stoke-On-Trent & Staffordshire LEP

This geographic context is significant, as the medical technologies sector is a key area of opportunity for the West Midlands economy and currently generates a turnover in excess of £1.5 billion. The West Midlands has a strong industrial heritage and is home to a large medical technology business cluster. This highlights the importance of the DEMAND Hub project in supporting the existing cluster and the growth of the sector in the region more broadly.

2.6. Economic Context

This section provides the economic context in which the project was initially designed and developed and includes five interrelated topics to describe the economic context in the 4 LEP regions (BGCS):

- Employment
- Businesses
- Production
- Socioeconomic profile
- R&D expenditure

Key highlights of the economic context of DEMAND Hub are as follows:

- BGCS is a region characterised by employment growth less affected than other regions when an economic crisis causes a negative shock.
- In BGCS, the COVID-19 crisis in 2020 affected economic (GDP) growth more than twice compared to the economic-financial crisis (2008-2009).
- GDP per capita in BGCS has higher levels than the UK as a whole.
- It is estimated that DEMAND benefits economic sectors that concentrate 6.24% of the GVA.
- The socioeconomic profile of the population in BGCS is characterised by a level of human capital above the aggregated at the national level (measured by levels of qualifications).
- R&D expenditure in West Midlands, including BGCS, is higher than in other regions. Most of the R&D expenditure is allocated to productive activities (businesses).

After the negative effects of the Covid-19 crisis, the economic context in BGCS reflects a strong economy compared to other UK regions. One of the most attractive characteristics of this region is its high level of human capital. As a result, a high level of R&D expenditure reflects the spatial concentration not only of infrastructure but also of a population with high levels of qualifications. The link between R&D investment and a strong economy reflects virtuous economic feedback between investment in innovation and more efficient production processes that generate more jobs in the region.

Employment

During 2022, the number of jobs in BGCS was 2,511,200, which represented 5.10% of the total jobs in Great Britain (GB). Between September 2021 and 2022, the number of jobs in BGCS increased from 2,479,500 to 2,511,200, equivalent to employment growth of 1.28%. Figure 2 displays the employment growth path comparing BGCS with the aggregated figure at the national level (GB).

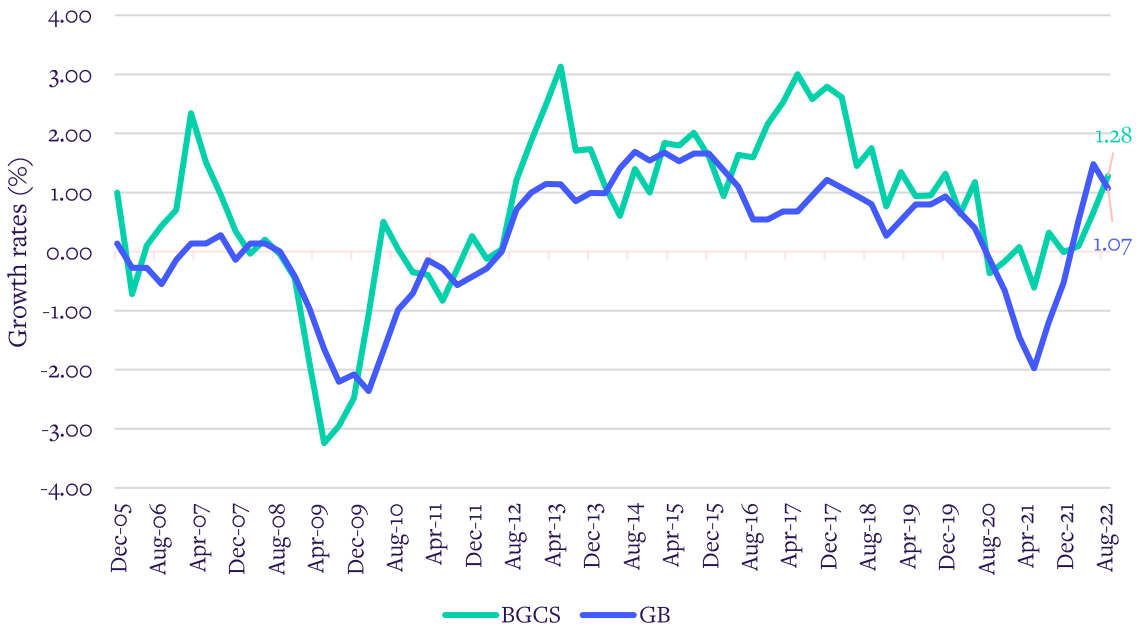


Figure 1 - Employment growth in BGCS compared to GB, 2005-2022. (Growth rates %)

Figure 1 shows the 'rebound' of GB and BGCS after the Covid-19 crisis However, Figure 1 indicates that BGCS 's employment growth did not drop as deep as GB. In 2020, employment growth in GB was -1.94%, while in BGCS was -0.44%. Therefore, BGCS can reflect a stable regional economy less susceptible to negative economic shocks.

Businesses

There were 189,755 businesses in BGCS during 2022, representing 7.05% of the total businesses in GB. The number of businesses in BGCS increased from 187,810 to 189,755 enterprises over 2021-2022, equivalent to a growth rate of 1.04%. At the national level, the growth in the number of businesses was 0.05% during 2022 (GB). Figure 3 displays the growth rates in the number of businesses in BGCS compared to GB. Overall, the growth path in the number of businesses between BGCS and the national level is highly correlated.

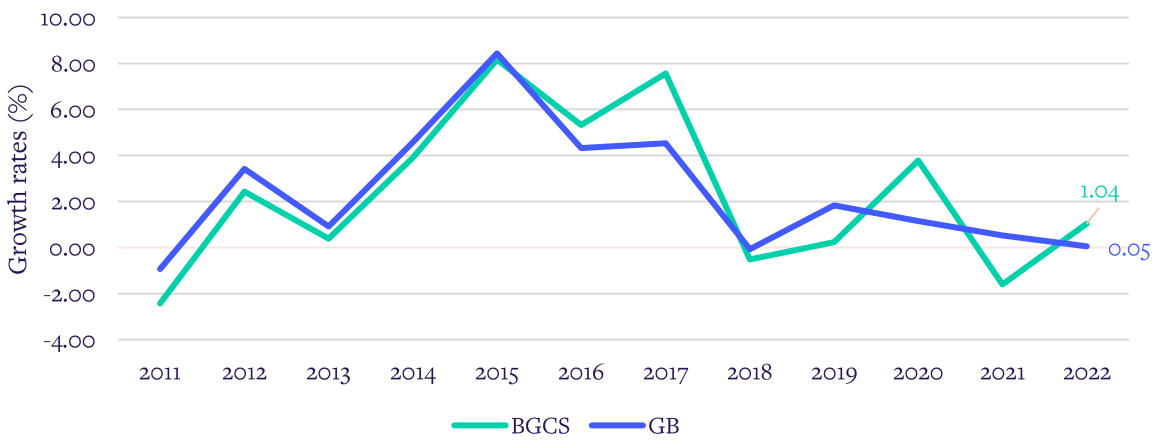


Figure 2 - Number of businesses growth in BGCS compared to GB, 2011-2022. (Growth rates %)

Production

Figure 3 shows production in West Midlands (WM)[3], which is a geographical approximation to the area of study, using the growth rates of Gross Domestic Product (GDP) in constant prices as the analysis metric. Figure 3 shows the evolution of the GDP growth in WM compared to the United Kingdom (UK) from 1999 to 2020. The COVID-19 crisis has had a significant adverse effect on production loss compared to the global financial crisis of (2008-2009). GDP growth fell -6.02% and -4.25% in WM and UK, respectively, during the financial crisis of 2009. However, GDP growth fell -9.69% and -11.60% in WM and UK, respectively, during the COVID-19 crisis. The evidence shows that the detrimental production impact of COVID-19 was twice higher compared to the economic-financial crisis of 2008-2009 (Figure 4). In addition, the production in WM is susceptible to fall to a larger extent than the production in UK during a negative economic shock.

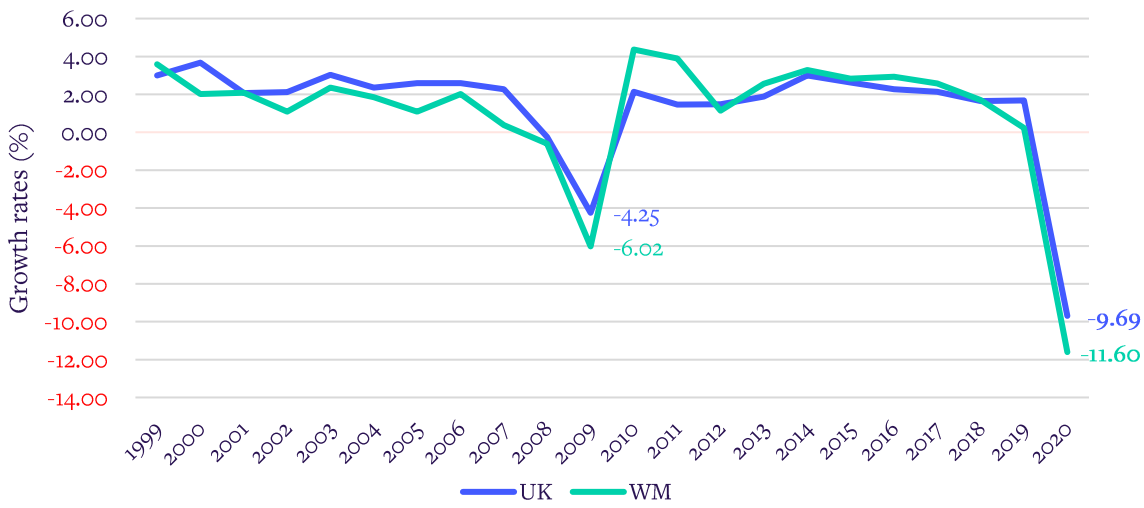


Figure 3 - GDP growth in WM compared to the UK (constant prices), 1999-2020. (Growth rates, %)

GDP in WM was equivalent to £145.47 billion, which represented 7.14% of the GDP in the UK during 2020. Figure 4 shows that the GDP in WM as a share of GDP in the UK has followed a decreasing trend from 7.62% in 1998 to 7.14% in 2020.

[3] This area includes Birmingham, Coventry, Dudley, Herefordshire, Sandwell, Shropshire, Solihull, Staffordshire, Stoke-on-Trent, Telford and Wrekin, Walsall, Warwickshire, Wolverhampton and Worcestershire

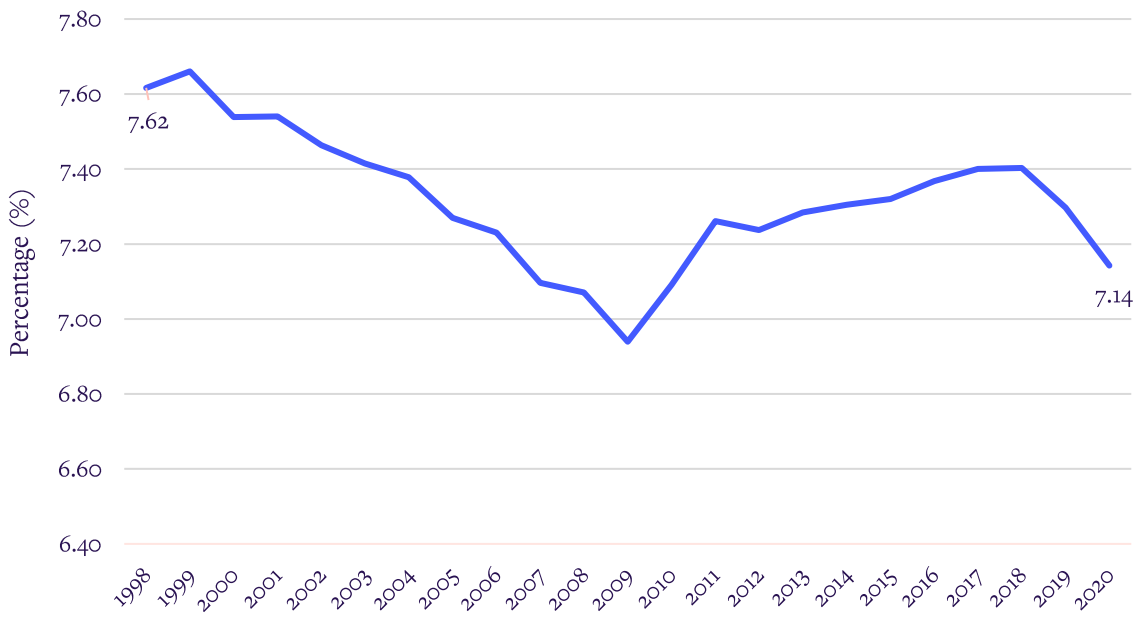


Figure 4 - WM/UK GDP, 1998-2020. (Percentage, %)

Figure 5 shows GDP per capita in WM (constant prices) is lower than in the UK average. This evidence indicates that the WM has been a region with some economic deficiencies in production over the last 20 years compared to the production at the national level.

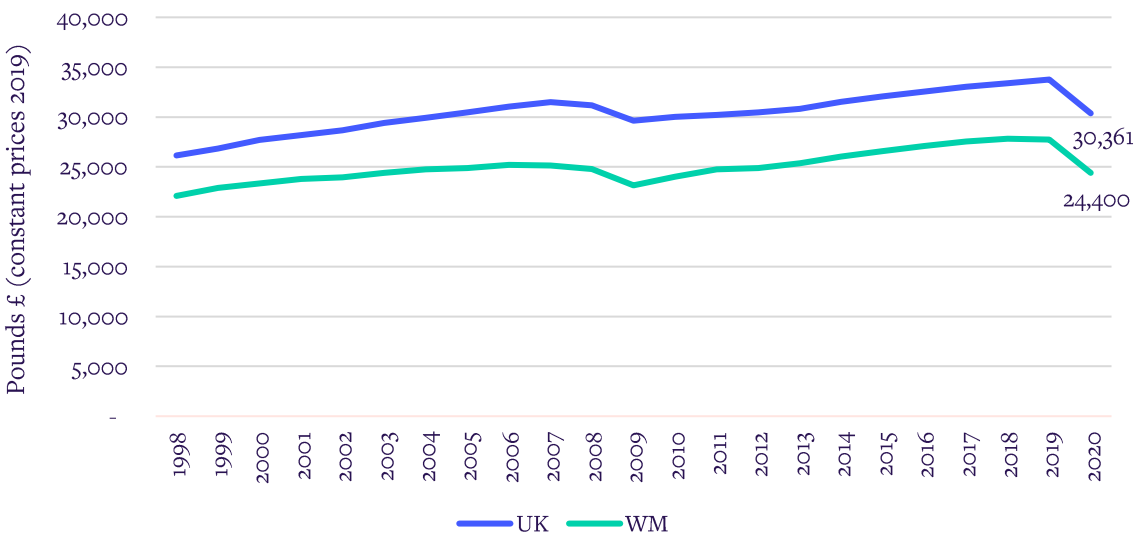


Figure 5 - GDP per capita in WM compared to UK (constant prices 2019), 1998-2020. (Pounds per head)

Table 2 uses the Gross Value Added (GVA) as the analysis metric to provide a perspective of the BGCS economic composition by sectors. During 2020, GVA (constant prices) in BGCS region was £98,900 billion. The largest economic sector in BGCS was the real estate activities, which concentrated 12.04% of the GVA. There are two main economic sectors that the project DEMAND supports in the economy of BGCS. Those sectors are indicated in blue in Table 2. There is estimated that DEMAND supports two economic sectors related with DEMAND Hub that concentrate 6.24% of the GVA in BGCS (Table 2).

Table 2 - GVA composition (constant prices) in BGCS by economic sector, 2020. (pounds and percentages, %)

SIC description	Pounds million	Percentage
AB (1-9) Agriculture, forestry and fishing; mining and quarrying	379	0.38
CA (10-12) Manufacture of food, beverages and tobacco	948	0.96
CB (13-15) Manufacture of textiles, wearing apparel and leather	271	0.27
CC (16-18) Manufacture of wood and paper products and printing	519	0.52
CD-CG (19-23) Manufacture of petroleum, chemicals and other minerals	2,002	2.02
CH (24-25) Manufacture of basic and fabricated metal products	2,130	2.15
CI-CJ (26-27) Manufacture of electronic, optical and electrical products	521	0.53
CK-CL (28-30) Manufacture of machinery and transport equipment	6,242	6.31
CM (31-33) Other manufacturing, repair and installation	1,184	1.20
DE (35-39) Electricity, gas, water; sewerage and waste management	4,293	4.34
F (41-43) Construction	6,222	6.29
G (45-47) Wholesale and retail trade	11,613	11.74
H (49-53) Transportation and storage	4,780	4.83
I (55-56) Accommodation and food service activities	1,842	1.86
J (58-63) Information and communication	4,975	5.03
K (64-66) Financial and insurance activities	5,571	5.63
L (68) Real estate activities	11,950	12.08
M (69-75) Professional, scientific and technical activities	5,652	5.71
N (77-82) Administrative and support service activities	4,620	4.67
O (84) Public administration and defence	5,285	5.34
P (85) Education	6,208	6.28
Q (86-88) Human health and social work activities	8,398	8.49
R (90-93) Arts, entertainment and recreation	1,288	1.30
S (94-96) Other service activities	1,953	1.97
T (97-98) Activities of households	54	0.05
Total	**98,900**	**100.00**

Socioeconomic profile

There were 2,645,300 persons economically active in BGCS, and 134,100 persons unemployed, representing an unemployment rate of 4.0%, slightly above the national unemployment rate

(3.7%). Table 3 displays employment and unemployment in BGCS by category (Oct 2021-Sep 2022).

Table 3 - Employment and unemployment composition in BGCS, Oct 2021-Sep 2022. (Numbers and percentages, %)

Category	BGCS (All People)	BGCS (%)	GB (%)
Economically Active	2,645,300	79.4	78.4
In Employment	2,511,200	75.4	75.5
Employees	2,204,300	66.2	66
Self Employed	295,900	8.9	9.2
Unemployed	134,100	4.0	3.7

Table 4 displays the composition of the population with economic inactivity in BGCS. The results in Table 3 are relevant to characterise the population out of the productive (economic) activities. There were 740,700 persons with economic inactivity in BGCS. As expected, a large share of this group is students. Table 4 shows that the rate of students in BGCS was 28.1%, significantly higher than in GB (26.6%).

Table 4 - Composition of the population with economic inactivity in BGCS, Oct 2021-Sep 2022. (numbers and percentages, %)

Category (economic inactivity)	BGCS (All People)	BGCS (%)	GB (%)
Total	740,700	22.2	21.6
Student	208,100	28.1	26.6
Looking After Family/Home	173,900	23.5	19.6
Long-Term Sick	181,800	24.5	25.5
Retired	78,100	10.5	14.1
Other	79,900	10.8	11.8
Wants A Job	138,300	18.7	18.4
Does Not Want A Job	602,400	81.3	81.6

The high GVA per capita level can be related to the high level of qualifications in the region of BGCS. Table 5 displays the composition of the population by qualification. During 2021, a large percentage of the population (equivalent to 73.4%) in BGCS had qualification NVQ2 and above.

Table 5 - Composition of population by qualification in BGCS, Jan 2021-Dec 2021. (numbers and percentages, %)*

Category (Qualifications)	BGCS (All People)	BGCS (%)	GB (%)
NVQ4 And Above	1,249,500	37.5	43.6
NVQ3 And Above	1,846,500	55.5	61.5
NVQ2 And Above	2,442,600	73.4	78.1
NVQ1 And Above	2,761,400	82.9	87.5
Other Qualifications	242,800	7.3	5.9
No Qualifications	266,500	8.0	6.6

*No Qualifications: No formal qualifications held. Other Qualifications: Includes foreign qualifications and some professional qualifications. NVQ 1 Equivalent: e.g., fewer than 5 GCSEs at grades A-C, foundation GNVQ, national qualification (Scotland) or equivalent. NVQ 2 Equivalent: e.g., 5 or more GCSEs at grades A-C, intermediate GNVQ, national qualification (Scotland) or equivalent. NVQ 3 Equivalent: e.g., 2 or more A levels, advanced GNVQ, NVQ 3, 2 or more higher or advanced higher national qualifications (Scotland) or equivalent. NVQ 4 Equivalent and Above: e.g. HND, Degree and Higher Degree level qualifications or equivalent.

R&D expenditure

This subsection presents disaggregated data on R&D expenditure by administrative regions. BGCS is located in the WM, and this region had a R&D expenditure of 2.92 billion GBP in 2019, representing 7.57% of the R&D expenditure in the UK. In addition, R&D expenditure on businesses located in WM represented 6.12% of the total R&D in the UK. Figure 6 displays the evolution of R&D expenditure in the WM as a share of the R&D expenditure in the UK. From 2011 to 2019, WM's share of R&D expenditure has followed a positive trend. R&D share in WM increased from 6.01% to 7.57%, while the R&D of business grew from 4.72% to 6.12% (Figure 5).

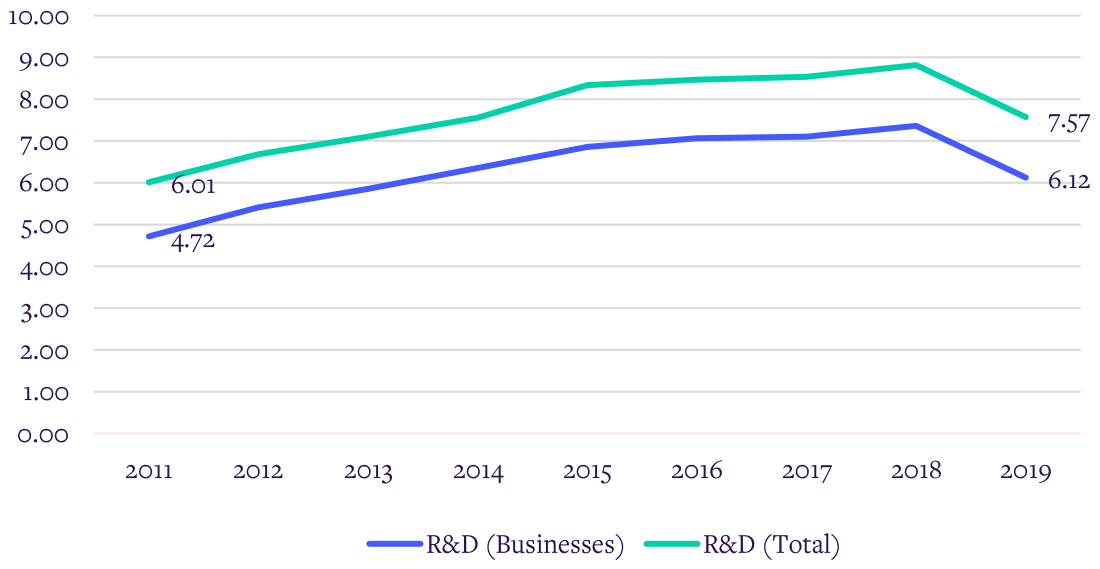


Figure 6 - R&D expenditure in the WM as a share of the R&D in the UK (percentages), 2011-2019.

Even though R&D expenditure in WM as a share of the UK has been stagnant over recent years, its contribution to the national level was the fifth highest during 2019, compared to other regions. Figure 7 presents the percentage composition of R&D in the UK by regions during 2019.

In that year, WM had a share of 8%. WM is a solid economic region with a large concentration of R&D expenditure, reflecting the spatial concentration of infrastructure and human capital in that region.

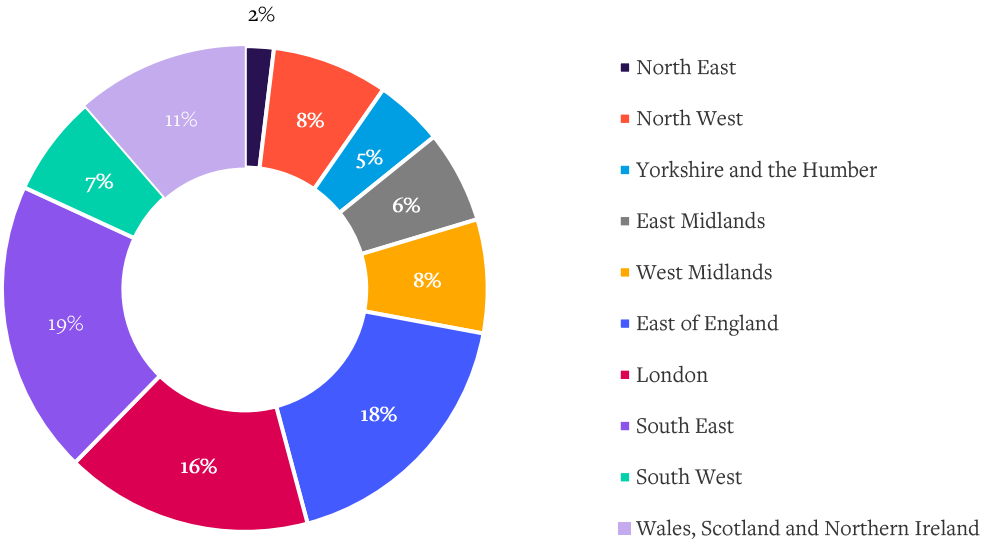


Figure 7 - Percentage composition of R&D expenditure by regions in UK during 2019 (percentage).

R&D expenditure can be allocated into four categories: government and UKRI, higher education, business and private non-profit. Over the recent years, R&D expenditure in the WM has been allocated to productive activities. Figure 8 displays that 80.80% of the R&D expenditure in the WM was allocated to businesses. Therefore, the link between R&D investment and high GDP per capita in the WM reflects a virtuous economic feedback between investment in innovation and more efficient production processes.

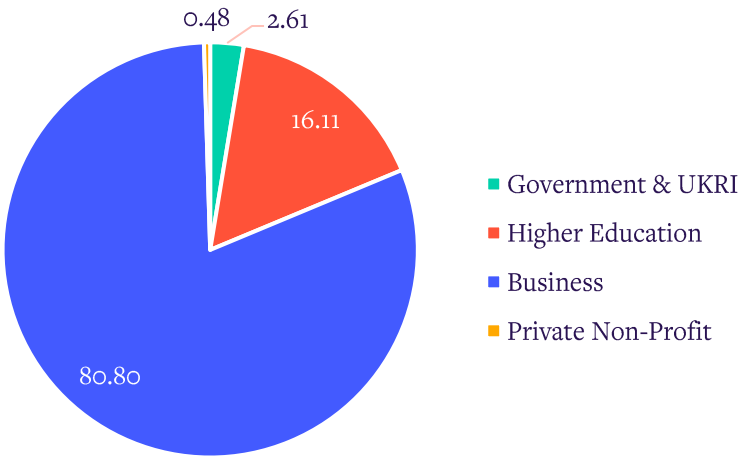


Figure 8 - Percentage composition of R&D expenditure by category in the WM during 2019 (percentage).

2.7. Strategic Context

The strategic rationale for the ERDF-funded DEMAND Hub project was to strengthen the medical technology sector within the region. The West Midlands has a strong industrial heritage and is home to a large medical technology business cluster. The region is home to the second largest number of med-tech SMEs in the UK, with SMEs making up 98% of the region's medical technology sector. This regional cluster could be strengthened by addressing barriers to start-up, scale up, attracting inward investment, and business sustainability.

The scale and economic impact of the region in this area is yet to be realised, as the region lags behind the South-East, East and North-West in terms of turnover and employment. However, the area around Birmingham Health Partners has received national recognition as a centre of excellence for health research and translational medicine, with significant investment in related infrastructure.

Therefore, the strategic approach of the University of Birmingham is to support businesses within the medical technology sector to overcome barriers, enabling innovation and accelerating product and process development through the provision of expertise, assets and resources. In doing so, the University of Birmingham and University Hospitals Birmingham will contribute to the development of a more vibrant regional innovation ecosystem, and complement existing investment.

The DEMAND Hub project was closely aligned with various key national, regional, and industrial policies which were in place at the time the project was designed. The DEMAND Hub project has maintained its relevance over the course of project delivery. As a result, the policies and DEMAND Hub's relevance to them is split into Table 5 (depicting the policy context before the start of the DEMAND Hub project in July 2020) and Table 7 (reflecting additional policies introduced during project delivery up to June 2023).

Table 6 - Strategic policy context before the DEMAND Hub project

Policies, plans and strategies in operation at the outset of the project		
Level	Policy	Summary
National	Strength and Opportunity (2017), HM Government	This report explores existing strengths of the UK's Life Science industry and identifies opportunities for growth. Overall, the sector accounts for £70.3 billion in annual turnover, generated by around 5,649 businesses (of which a significant proportion are SMEs). Of this figure, Biopharma is responsible for two-thirds of turnover, while Med Tech is responsible for less turnover but comprises more businesses. The report identifies that core Med Tech employment is concentrated in South East of England, West Midlands and Yorkshire and the Humber, which generates significant turnover. The DEMAND Hub project supports the ambition to strengthen the Life Science industry, through the support it offers within the Med Tech and digital healthcare space. The project also recognises the significant proportion of SMEs within the sector and provides targeted support for these organisations.
National	Life Sciences Industrial Strategy (2017), Office for Life Sciences	This strategy sought to identify growth sectors of the economy and recognises the importance of Life Sciences within the UK's economic base. The report outlines a set of key recommendations. Those relevant to the context of this project are outlined below: • Provision of fiscal support to ensure the growth of the sector and addressing of market failures. • Support the growth of Life Science clusters and networks. • Increased NHS collaboration The DEMAND Hub project aligns with these objectives, by using a combination of ERDF and match funding to provide access to the expertise and facilities of the University of Birmingham and University Hospitals Birmingham to address key market failures. In doing so the project will support the developing Life Science cluster within the West Midlands.

National	UK Life Sciences Sector Deal 2 (2018), HM Government	Recognising that the Life Sciences industry generates £70 billion annually and employs 240,000 jobs within the UK, this report outlines a direction for the growth of the sector. The UK is committed to becoming "the world's most innovative economy". To achieve this the report recommends increasing research and development funding to increase global competitiveness. The DEMAND Hub project will contribute to this broader R&D funding picture, by supporting SMEs within the Med Tech and digital healthcare space to commercialise their ideas and develop new products and processes.
Regional	West Midlands Science and Innovation Audit (2017), SQW	The West Midlands SIA highlighted that the area supported around 350,000 employees in 'science and technology' related sectors and identifies specific concentrations of employment in Birmingham, Coventry and Wolverhampton city centres, in Edgbaston (with a particular focus on life sciences), the area surrounding Birmingham Airport, in Gaydon, Warwickshire (a hub of automotive activity, and home to JLR and Aston Martin), and in Warwick and Leamington Spa. Despite this, productivity is below the national average. As a result, the SIA places focus upon leveraging science and innovation excellence to drive-up productivity. The DEMAND Hub project aligns with these goals by supporting SMEs within the science and technologies sectors to develop new products and processes, and increase overall productivity. The project will provide access to IP awareness, data and novel data testing platforms and leverage funding to accelerate R&D in supported organisations. In doing so the project will support emerging clusters and increase regional productivity as a whole.
Regional	WMCA strategic economic plan (2016) West Midlands Combined Authority	This SEP highlights digital and life sciences as a growing dynamic sector which is playing an increasing role in the region's success. It is also noted that the West Midlands has excellent infrastructure to support innovation and R&D. Despite this, the output gap between the West Midlands and the rest of the UK was forecasted to grow due to productivity constraints. Therefore, the growth of medical and life sciences (among other key sectors) is identified as a priority action. By 2021, the SEP projected to see an additional £2 billion in GVA and 35,000 more jobs. This impact would rise by 2030 to account for an additional £6 billion in GVA and 75,000 jobs. The DEMAND Hub project is well aligned with these ambitions, as the project seeks to support the creation of 20 new jobs within supported organisations and boost productivity through the commercialisation of new innovation.

Regional	West Midlands Local Industrial Strategy (2019), HM Government	Data-driven health and life sciences is identified as a distinctive strength of the West Midlands which is driving growth and productivity increase. The West Midlands is increasingly becoming a centre for testing and proving health innovation, as public leaders, givernment, universities and businesses have come together to develop a a life sciences cluster. To continue growth in this area, a key priority outlined by the startegy is: "continue to invest in the business support and networks needed to drive health innovation cluster development". The DEMAND Hub project contributes to this priority through the provision of business support and its ambition to improve connections within the co-located Health Technologies network. By establishing new connections and providing support to SMEs within the region the DEMAND Hub project will assist in the strengthening of the local life sciences cluster.
Regional	State of the Region (2018), West Midlands Combined Authority	This report indicates that the performance of the West Midlands has been improving, with GVA per head growing, job creation, improving skills and rising exports. The region is still experiencing challenges surrounding the five year business survival rate of 43.8% across the WMCA region which is lower than the UK average (of 44.1%), and an increasing output gap. It is recognising that building skills within the workforce and investing in business locations is key to imrpoving productivity. DEMAND Hub is well aligned with these ambitions, as the intended impacts of the project relate to 'increased levels of business R&D', 'skills development' and 'expanded supply chain opportunities'.

By analysing the policies introduced after the start of the DEMAND Hub project (

Table 7), it is clear the project continued to respond to key emerging policy and strategic areas. The new policies are still well aligned to the objectives and targets of the project. It can be concluded that the context in which the project was developed has not changed materially, and therefore did not affect project's relevance, nor the ability of the University of Birmingham and University Hospital Birmingham to perform well against their respective targets.

Table 7 - Strategic policy context after DEMAND Hub project started in July 2020.

Policies, plans and strategies currently in place		
Level	Policy	Summary
National	Life Sciences Vision (2021) HM Government	The COVID-19 pandemic highlighted the strategic importance of the Life Sciences sector within the UK. The vision identifies preconditions for the success of the sector. Those of relevance to the DEMAND Hub project are detailed below: • NHS as an Innovation Partner. • Investment in science and research in Life Sciences must be maintained and grown over the next decade. • The governance and oversight of NHS health data must be simplified to drive research and innovation. The DEMAND Hub project contributes towards these preconditions through its investment into SMEs within Life Science industries. In addition, University Hospitals Birmingham is a key project partner, who will provide SMEs with access to novel data testing platforms through the DEMAND Hub project.
National	Building the future economy - plan for action for UK business innovation (2021-2025), UKRI	This document outlines the core ways in which UK businesses will be supported to innovate between 2021 and 2025. As part of this, it is suggested that the UK should be at the forefront of global opportunities. Additionally, it is imperative that innovative businesses continue to grow and fuel the UK economy. As a result, this report recommends supporting all companies to grow. The DEMAND Hub project aligns with these ambitions through its commitment to increasing innovation capacity by boosting the number of SMEs engaged in collaborative research and innovation to bring new products to market. This assistance strengthened the offering of some SMEs and will support their growth in the long term.
National	UK Shared Prosperity Fund Prospectus (2022), HM Government	The UKSPF aims to support the government's commitment of Levelling Up areas of the UK. The UKSPF will replace sources of European funding, such as those available through ERDF. Additionally, the UKSPF seeks to boost productivity across the UK. Therefore, learnings developed as a result of the DEMAND Hub project will inform the creation of future projects using Shared Prosperity Funding.

Regional	State of the Region (2020), West Midlands Combined Authority	The West Midlands was one of the UK regions most heavily impacted by the COVID-19 pandemic. Private sector R&D and innovation assets, employment growth and business R&D investment are highlighted as key strengths of the economy prior to the COVID-19. However, the pandemic resulted in a reduction in R&D and innovation investment and large scale unemployment. Both issues are supported by the DEMAND Hub project, which offers scientific services and commercial pathway support to guide product development. In doing so, the project was targeted to assist SME beneficiaries to increase employment by 20, creating jobs within the region. As a result, the assistance offered as part of the project will assist SMEs in continuing R&D activities in spite of the economic challenges posed by COVID-19.
Regional	Enhancing the Life Sciences Ecosystem in the West Midlands (2021) ABPI	The West Midlands is becoming a centre of excellence in the life sciences sector, with world-leading anchor institutions and a large patient population. The report outlines areas of strength and barriers surrounding 5 key themes: investment; health inequalities; the pandemic response; leadership and collaboration. With regards to R&D investment, the report highlights that investment per head is lower in the West Midlands than in other areas of the UK and the West Midlands receives less government funding. To enable the region to meet its potential the report states that more public and private R&D investment should be brought into the region. Regarding the theme of collaboration, the report outlines the importance of fostering connections between healthcare professionals and the life sciences sector. The DEMAND Hub project makes contributions towards both of these themes through its focused R&D investment in the Black Country, Greater Birmingham and Solihull, Coventry & Warwickshire, and Stoke-On-Trent & Staffordshire LEP regions. The project will also facilitate collaboration building between beneficiaries and both delivery partners (the University of Birmingham and University Hospitals Birmingham), alongside other research institutions.

2.8. Addressing Market Failure

ERDF projects provide funding to overcome market failure and enable activity which would not happen without intervention. There were several market failures that DEMAND Hub originally set out to address to enable SMEs to overcome barriers preventing the region from achieving its commercialisation and productivity aspirations:

1.	A lack of critical mass of knowledge-led firms or behaviours
2.	A need for a coherent and integrated support service for businesses
3.	A serious lack of foresight, capacity and capability in small and medium sized enterprises
4.	Absence of skills and knowledge transfer capacity in technical and business support for the med tech sector
5.	Limited access to external information
6.	Engagement with research institutions
7.	Timely and accurate market knowledge

3. Project Progress

The DEMAND Hub will be completed on its scheduled timeline, but will under deliver on its C-Outputs due to the impact of COVID-19 restrictions at the start of the project.

The original project start date was July 2020, with the initial financial and activity end dates set for June 2023. This final deadline for DEMAND Hub remains unchanged and the overall project is still set to be delivered on this timeline.

Whilst the DEMAND Hub is projected to be delivered on time, it will be under-delivering on its C-output targets due to the unexpected and unprecedented challenges created by COVID. The capital spend element of the project also did not occur due to COVID-19 related challenges. This means the DEMAND Hub project is expected to underspend by £2,287,909.56 at project closure.

Adjustments to the project

The absence of the capital spend element of this project is a result of extensive delays to the Institute of Translational Medicine (ITM) renovations. COVID-19 restricted the availability of ITM space that could be used for response work, and then there were also delays in getting the new licence agreed for the space. This meant the ITM renovations did not take place under the ERDF DEMAND Hub project. As a result, the capital spend did not take place.

ITM renovations may still take place in the future under a different fund, using the space for similar initiatives to the intentions set out in the original GFA, but the absence of capital spend on the project meant none of the C25 target was able to be met by the project.

The project delivery team was informed by the manging authority that they did not need to submit a PCR, who instead referred the team to the financial penalty calculator, which they completed in February 2022 as a way to document the project's underspend. The financial penalty calculator is a standard document within the contract the University of Birmingham holds with the Managing Authority, which has been formally accepted as part of the project's monitoring. The project's underspend has continued to be reported through the quarterly progress reports

3.1. Progress Against Milestones

The original key DEMAND Hub milestones versus actual completion dates are shown in Appendix II. This shows that overall, DEMAND Hub has managed to maintain its original overall scheduled start date and end date.

Despite a significant portion of initial project delivery occurring during the COVID-19 pandemic, the project team were successful in mitigating its impact of on key project milestones.

3.2. Spend and Output Performance

Spending progress

The original contracted budget for the DEMAND Hub project was split into both capital and revenue spend. Across both ERDF and Public Match funding, the total contracted capital spend was £425,000, and the total contracted revenue spend was £6,090,595, creating a total budget of £6,515,595. This spend began once the project started in July 2020.

The capital costs related to reconfigurations costs for the refit of facilities to enable collaboration across the medical technologies. The revenue budget was to be spent on salary costs, office costs, consumables, marketing and events costs, and evaluation costs.

Of the total contracted funding of £6,515,595, 50% was provided by ESIF under an ERDF Investment Priority Axis 1 (Promoting Research and Innovation) grant. The remaining 50% was funded through Public Match funding.

As previously mentioned, the capital spend did not occur due to delays to the ITM renovations. As a result, the DEMAND Hub project is projected to underspend by project closure, with a total spend of £4,227,685.44 (marking an underspend of £2,287,909.56).

Table 8 sets out the overall budget expenditure for the DEMAND Hub project to date and what it is forecast to reach by the end of the project:

Table 8 - Breakdown of Original Contracted Spend

Funding / Expenditure	Contracted	To date (by end Q1 2023)	Forecast at closure (by end Q2 2023)
ERDF Funding (Revenue)	£3,045,297	£1,906,677.09	£2,209,188.76
Public Match (Revenue)	£3,045,298	£1,831,993.64	£2,018,496.68
ERDF Funding (Capital)	£212,500	£0	£0
Public Match (Capital)	£212,500	£0	£0
Total Funding	£6,515,595	£3,738,670.73	£4,227,685.44

Output progress

Table 9 summarises the ERDF output performance for the DEMAND Hub project to date (end of Q1 2023) and what it is forecasted to reach by the end of the project (end of Q2 2023).

Table 9 – DEMAND Hub ERDF Output Performance

Output Indicator	Original target (GFA)	Claimed by Q1 2023	% Of target at time of evaluation	Forecast at closure	% Forecasted to be declared at closure
C1/C4 SME support (>12 hours)	131	94	72%	110	**84%**
C5 New Enterprises supported	50	13	26%	21	**42%**
C8 Employment increase	20	0	0%	15	**75%**
C25 Number of researchers working in improved research facilities	8	0	0%	0	**0%**
C26 Collaboration with research institute	78	0	0%	0	**0%**
C28 New product to market	19	34	44%	43	**55%**
C29 New product to firm	19	0	0%	2	**11%**

By project closure, the DEMAND Hub project will underdeliver on all contracted c-output targets outlined within the project's GFA and logic model. Despite not meeting these ambitious

output targets, the project was still able to support a not SMEs to introduce 43 new products to market, and will support 21 new enterprises. The achievement of these outputs will have an positive impact on the regional economy. The project will come close to meeting the C1/C4 target (reaching 84% of the contracted target by project closure, having engaged with 110 SMEs in total) and the C8 target (which will reach 75% when the project concludes). The project's engagement with a significant number of SMEs has generated a number of material benefits for these organisations, detailed more in later chapters.

4. Programme Delivery and Management

SME and stakeholder perceptions of the DEMAND Hub project management and delivery were mostly positive, with some areas for improvement identified.

4.1. SME Beneficiary and Stakeholder Consultation

The following section provides feedback from the DEMAND Hub project stakeholders, gathered using online surveys and in-depth interviews. These involved representatives of delivery partners, supporting organisations and SME beneficiaries.

In April 2023, an online survey was developed and sent to the SMEs signed up to the DEMAND Hub project. Responses were received from 23 of the beneficiaries by the time the survey closed in mid-May 2023.

Furthermore, during the March to May 2023 evaluation period, 7 in-depth interviews were conducted, alongside a detailed 'project debrief' focus group with the DEMAND Hub project management and delivery team to gather various stakeholder perspectives on all aspects of the project. Three of the interviews engaged project partners or key strategic players of DEMAND Hub, namely: The Black Country Consortium, GBS LEP, and Technology Supply Chain. A further 4 interviews with SME beneficiaries explored their experience of receiving support via the DEMAND Hub project. Details of SMEs and stakeholders interviewed are in Appendix III.

4.2. Quality of Management and Delivery

As stated in section 2, DEMAND Hub is projected to be delivered on time, but under-delivering on its C-output targets due to the unexpected and unprecedented challenges created by COVID. However, DEMAND Hub did manage to mitigate a number of issues created by COVID through effective project management.

The positive aspects of the project management and delivery process were identified during the stakeholder interviews that were key to achieving this are outlined below:

Efficient Distribution and Coordination of Partner Responsibilities

DEMAND Hub demonstrated good division of labour and coordination between the University of Birmingham (UoB) and University Hospitals Birmingham (UHB), which proved crucial for efficiency. Roles were clearly defined according to each organisation's respective expertise, with UHB focusing on the data-led aspects and UoB handling other technical areas.

This careful division prevented any overlap or duplicated efforts, a common issue when multiple organisations target similar outputs in the same geographic area.

Despite operating independently, regular bi-weekly meetings between the partners ensured open communication and alignment, especially towards the end of the project.

> "The way the project management team carved up the engagement between UOB and UHB worked well. We made sure we did not step on each other's toes. Normally when you have two BDMs working for different organisations trying to deliver similar outputs in the same geography is can be tricky, but we coordinated well"
>
> ~ DEMAND Hub Delivery Team Member

Facilitating Community Engagement and Diversity in MedTech and Life Sciences within the region

One of the main strengths of this project is its successful fostering of a robust and diverse community within the Life Sciences and MedTech sectors in the West Midlands region. Prior to this initiative, there was a lack of cohesive community in these sectors in the region. Through strategic meetings arranged in collaboration with Greater Birmingham and Solihull Local Enterprise Partnership (GBS LEP), a vibrant ecosystem of diverse companies, ranging from AI to Imaging to Molecular Diagnostics, was cultivated.

This project not only successfully established a joint-up offer from UHB and UoB, but also managed to amplify the local sector by increasing the number and diversity of companies engaging with each other regularly. The project's ability to create continuity and synergy between different assets has significantly enhanced the regional MedTech ecosystem, fostering a sense of community that persists without mandatory attendance, highlighting genuine interest and commitment from the participants to share knowledge collaborate.

> "The thing that has been most positive about this project is that we have started to create a new community of Life Science and MedTech businesses in the West Midlands region. The businesses supported by DEMAND Hub still meet regularly through us and the GBS LEP, not because they have to be there, but because they want to be."
>
> ~ DEMAND Hub Delivery Team Member

A key opportunity to improve on project management and delivery process were identified is outlined below:

Project had difficulty adapting to COVID-19 Restrictions

It should be noted that the project did initially struggle to effectively adapt to the COVID-19 restrictions that were largely out of its control. This caused significant disruptions to the initial delivery plans and led to an underspend. The pandemic constraints severely hindered the implementation of crucial components of the project such as the capital spend programme, which was designed to increase the capacity of the DEMAND Hub facility itself, thereby limiting the number of projects that could be accommodated.

The inability to host in-person launch and outreach events hampered the SME sign-up process, and changes in personnel due to COVID-related furloughs impacted the consistency of the project team. Lab-based assists, a significant part of the program, were drastically limited due to capacity constraints and strict operating rules, including shift work and a limited number of people allowed in the labs at a time.

These limitations led to a compromise on in the quantity and diversity of support that could be provided to companies, with the team sometimes unable to offer the desired level of technical assistance. However, the DEMAND Hub project team did well to recover from this slow start to the project and will almost achieve its original C1/C4 targets by the end of the project.

The experience highlighted the need for a more focused approach, potentially offering more substantial assistance to a smaller number of companies in the future.

4.3. Quality of Support Given to SMEs

Overall, the DEMAND Hub project delivered it's intended activities to a high standard, according to the 23 businesses supported by DEMAND Hub which had replied to our survey.

On average, survey respondents rated the overall DEMAND Hub project 4.3 out of 5. This score represents a high satisfaction level amongst beneficiaries.

The survey also confirmed that:

- 87% of supported businesses would apply for a similar support project in the future or recommend this project to other businesses.
- 91% of supported businesses felt that their business was in a stronger position than it was prior to partaking in the DEMAND Hub project.

The SME survey and interviews also a highlighted few key aspects of the DEMAND Hub project which drove positive SME satisfaction levels. This includes:

Providing SMEs to access to people with technical expertise

A major benefit of the DEMAND Hub project relates to the advice and activities it was able to offer to SMEs who would not otherwise be able to access the services. This is reflected in the C1/C4 output indicator data, which has confirmed that 94 enterprises have received support so far. By the end of the project, DEMAND Hub is projected to have supported a total of 110 SMEs, which 84% of the large C1/C4 target it set itself to achieve.

Beneficiaries found that having an external view from academics with specialist knowledge and skills was particularly useful, as often SMEs lack the capability or expertise within their own organisations to overcome tough technical challenges.

> "The project gave us the ability to speak with academics and manufacturing experts to guide us to the best approach to manufacture our product."
>
> ~ SME Beneficiary

> "The DEMAND Hub project support we received was truly great. Their assistance and expertise were invaluable in helping us achieve our goals, and we are grateful for their involvement."
>
> ~ SME Beneficiary

Helping SMEs overcome regulatory hurdles

A strength of the DEMAND Hub project was its ability to provide invaluable support to SMEs in navigating the complex landscape of medical regulations. This regulatory guidance on offer allowed participating businesses to ensure compliance with all necessary requirements, thus enabling them to focus on product development with confidence. Such support was instrumental in overcoming regulatory hurdles, often a major challenge in the life sciences and MedTech sectors, demonstrating the project's critical role in fostering a conducive environment for business growth and innovation.

> "The most valuable aspect of the DEMAND Hub support we received was undoubtedly their assistance in navigating the complex landscape of medical regulations. Their guidance proved to be instrumental in ensuring our compliance with all relevant regulatory requirements, allowing us to focus on developing our product with confidence".
>
> – SME Beneficiary

4.4. Opportunities to Improve the Programme

The majority of SMEs who responded to the survey and were willing to be interviewed expressed satisfaction with the support they received. However, some beneficiaries did suggest some learning opportunities could be taken from the DEMAND Hub project, which could improve future support projects. Key aspects reported as potential improvement opportunities from the perspective of the beneficiary were:

SMEs need more follow-up support

Some businesses indicated that follow-up could have been improved, suggesting a demand for continued engagement to assess progress post-project. An opportunity for improvement for DEMAND Hub would be to provide more robust follow-up support to SMEs once the minimum C1/C4 engagement concludes. This could involve working in conjunction with SMEs to produce an action plan that is tracked to an achievable conclusion.

Moreover, SMEs would benefit from greater access to resources like clinical trials or clinics themselves, which would allow them to further develop and test their products. Additionally, providing more assistance in data interpretation, rather than just data provision, could help SMEs make more informed decisions, enhancing the overall effectiveness of the project. These suggested improvements highlight a desire for a more comprehensive, long-term engagement model that extends beyond the project's end date.

> "I would like to have had access to more follow-up support following the end of the project, such as more help interpreting the data."
>
> ~ SME Beneficiary

> "Access to clinical trials or the rehabilitation clinic would have been an ideal opportunity to take the product to the next level."
>
> ~ SME Beneficiary

The DEMAND Hub team recognised there was an opportunity to do fewer, but more intense engagements with high-potential businesses to maximise impact, but they felt restricted by ERDF requirements.

> "The issue with ERDF is that it restricts what you can offer companies. It is very output focused. A new programme should be able to provide more intense and concentrated support to companies with potential for growth."
>
> "Our time with companies is quite small and limited. On average you are looking at 7-10 years to get a medical device from TRL 1 to the market, it makes difficult to be impactful in just 12 hours of support".
>
> ~ DEMAND Hub Delivery Team Member

The Black Country Consortium also shared concern about the temporary nature of ERDF support, meaning expertise and capability that was built could be lost once the project ends.

> "Understanding that continuity of innovation support is needed. Eventually that support is going to come to an end. You can build expertise, innovation and knowledge and then it suddenly stops. We need to take place-based approach. These support activities need to be owned by the region. That's what's missing. Having a central deposit to retain knowledge. That takes time, money and resource. That's the only drawback of these projects."
>
> ~ Black Country Consortium

Help sign-posting to other funding sources

Some beneficiaries expressed a desire for additional financial support beyond the life of the DEMAND Hub project to continue to advance their work. A number of beneficiaries felt that advice relating to how they can raise more funding or apply for funding through the programme would have been beneficial.

> "The technical support is fine, but we could do with more financial support to fund wider aspects of the project."
>
> ~ SME Beneficiary

Identifying and supporting relevant Black Country SMEs

The team faced significant challenges recruiting businesses from the Black Country LEP Region due to the low concentration of MedTech and Life Science businesses based there. This situation likely explains the overall under-delivery of the C1/C4 output targets. The targets would likely have been met if the project had been able to recruit SMEs from more developed ecosystems within the GBS region. Even when enquiries with businesses were made, it proved challenging to convert them into fully signing up for the programme.

> "It takes a lot of SME engagements to meet targets. We enquired with 135 companies and converted just 15% into C1 assists. Most had to be based in the Black Country, despite it being difficult to find relevant healthcare SMEs there. There were more suitable business in Birmingham and Solihull region. We could have easily supported more businesses for the project, but the sub-targets had already been met for that geography. It was shame to turn those businesses away because they had some good innovation to offer."
>
> ~ DEMAND Hub Delivery Team Member

Discussions with the Black County Consortium also highlighted some of the challenges faced trying to support SMEs within its region.

> "DEMAND Hub suffered from the same problems other business support schemes, in that the businesses that need support are hard to reach. SMEs in the Black Country especially struggle to attend engagements in other parts of the West Midlands where the support activity is based. A different approach is needed to reach those other businesses which need longer term and more accessible support."
>
> ~ Black Country Consortium

4.5. Beneficiary Selection

The DEMAND Hub team endeavoured to identify and select MedTech and Life Science SMEs within the four West Midlands LEP regions, based on their needs and whether these aligned with UoB's and UHB's own areas of expertise. UoB and UHB each had their own dedicated Business Development Managers to seek out qualifying SMEs.

UoB and UHB operated independently of each other when seeking leads and supporting businesses, but were careful to avoid overlap. They accomplished this by holding meetings every two weeks to ensure they were not supporting the same organisations.

UoB had the largest target of SMEs to recruit to the programme (101 SMEs across all four LEP regions), while UHB was tasked with a smaller but harder to engage segment of businesses (30 businesses, predominantly in the Black Country LEP Region).

4.6. Delivery of Project Activities

The following are further insights on the key activities specified in the original logic model that DEMAND Hub set out to deliver:

Improved access to support, equipment, facilities and networks

This project activity was crucial as it accelerated R&D and product development for 65% of the SMEs that responded to the beneficiary survey. By providing improved access to support, equipment, facilities, and networks, the DEMAND Hub would have significantly facilitated the product development and creation.

Access to novel data sets and testing platforms, reported by 48% of respondents, would have enabled these businesses to experiment, iterate, and validate their concepts more effectively, reducing the time and cost of development.

Moreover, 43% of SMEs reported that the DEMAND Hub helped them create better connections to HealthTech networks, which is essential for collaboration, knowledge exchange, and accessing new markets.

Additionally, access to labs for prototyping and manufacturing, as indicated by 48% of the SMEs, provided these businesses with the physical resources necessary to transform their concepts into products.

Enable user driven innovation to accelerate Med Tech design and early phase development

Some SME feedback provided indicates that the project successfully enabled user-driven innovation, a crucial factor in accelerating MedTech design and early phase development. Specifically, the support from the DEMAND Hub allowed SMEs in the region to tap into its technical services and facilities.

> "Without this support I wouldn't be at the stage of taking the product to market, I would still be in the early stages of deciding whether the idea would work."
>
> ~ SME Beneficiary

> "The support highlighted how SMES in the region are able tap into professional services and facilities through the demand hub."
>
> ~ SME Beneficiary

This access to resources and expertise is critical in fostering innovation, as it allows SMEs to quickly respond to market needs and adapt their products accordingly. Supported SMEs were able to streamline their design and early development processes, thereby accelerating the time-to-market for their innovations.

> "We managed to get insight into real life usage of the proposed technology, and hands on feedback from our targeted userbase. This helped us shape our plans for the functionality of our product."
>
> ~ SME Beneficiary

Provide access to academic, clinical, financial, legal and regulatory expertise

The project appears to have been largely successful in providing SMEs with access to academic, clinical, and regulatory expertise, which aided their development. SMEs were given the opportunity to collaborate with experts in their field and consult with academics of UoB and clinicians of UHB.

Clinically, the project provided SMEs with crucial insights into the practical application of their products in real-world healthcare settings. By helping SMEs understand the complexities and challenges of implementing their products in environments, such as hospitals or other healthcare facilities, the project likely helped some SMEs bridge the gap between theory and practice.

Regulatory guidance was another key area of support, with the project helping businesses to ensure compliance with all necessary requirements. This allowed SMEs to navigate the often complex landscape of medical regulations and focus more effectively on their product development.

However, there was no explicit mention of financial or legal support from the DEMAND Hub in the feedback provided by the supported SMEs.

Focal point for regional and national innovation development

The DEMAND Hub project has started to develop a focal point for both regional and national innovation in MedTech and Life Sciences in the West Midlands. At its heart, the project is the nurturing of a thriving community of businesses in these sectors. The project has filled a previously unmet need in the region, creating a new network where businesses can share ideas, collaborate, and drive forward innovation.

The DEMAND Hub has also been instrumental in forming a strategic partnership between UoB and UHB, a collaboration that could significantly boost the region's innovation potential. By connecting these institutions, the project has shared end-to-end resources and expertise, stimulating product development and enhancing the diversity and number of engaged companies.

The DEMAND Hub has provided invaluable assistance to some SMEs, enabling them to navigate complex medical regulations, access essential resources, and speed up their R&D processes. This focus aligns with the current UK Research and Innovation (UKRI) strategy, which seeks to foster thriving research and innovation clusters across the UK.

Furthermore, the project has created a conduit for knowledge transfer. By offering SMEs access to academic, clinical, and regulatory expertise, the project has facilitated the flow of knowledge and best practices between SMEs, academics, and the NHS.

Integration of NHS partners into product development.

The integration of NHS partners into product development was a unique offering of the DEMAND Hub project. By involving NHS partners directly into the product development process, the project provided SMEs with a relevant perspective on the practicalities of implementing their products within an real healthcare environment. This direct involvement helped businesses understand the complexities and challenges of healthcare settings that aren't easily replicated or predicted in a lab environment.

NHS partners, with their practical experience and first-hand knowledge of patient/clinician needs and healthcare protocols, were able to give businesses valuable feedback and data about how their products might or might not function in real-world clinical scenarios. In some cases, this collaboration enabled businesses to design and adapt their products more effectively, making them more likely to succeed when launched. Equally, it helped rule-out ideas that would have no chance of ever being adopted in a healthcare setting.

In addition to this, integration with NHS partners also gave businesses a clearer understanding of the regulatory landscape they would have to navigate, as well as insights into the procurement processes within the NHS.

Ultimately, this integration helps to bridge the gap between innovation and practical healthcare delivery, accelerating the path to market for some MedTech and Life Science businesses.

> "The people supporting us were excellent. Access they have to the NHS and the university provided unique value for us."
>
> ~ SME Beneficiary

> "We have observed some SMEs overestimating their capability and maturity of their products. One of the most valuable things UHB have done is to help SMEs to reset their scope and expectations."
>
> ~ DEMAND Hub Delivery Team Member

4.7. Horizontal Principles

This section explores to what extent the ERDF horizontal principles/themes have been integrated into the design and delivery of the DEMAND Hub project.

Three themes need to be reflected in all ERDF Strategic Interventions and Operations (ESIF) projects: Equality Between Men and Women, Sustainable Development, and Equal Opportunities and Non-Discrimination[4].

Support for Equality Between Men and Women

DEMAND Hub's project delivery team contained female employees at all levels and across multiple business units. This including project managers, business development managers, project support officers and technical staff. The project also supported female-led SMEs and entrepreneurs.

Support for Sustainable Development

Supporting sustainable development was not the primary focus of the project, but there were companies which were helped to develop greener products that would have broader environmental benefits. For example, one SME interviewed stated that support for their project would help them reduce its drug and plastic waste.

Support for Equal Opportunities and Non-Discrimination

UoB and UHB have diversity and equality policies in place to ensure that they support their staff and eligible beneficiaries on a non-discriminatory basis[5][6].

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[4] https://ec.europa.eu/regional_policy/sources/docgener/guides/blue_book/blueguide_en.pdf

[5] https://www.birmingham.ac.uk/university/about/equality/index.aspx

[6] https://www.uhb.nhs.uk/about/equality/

5. Programme Outcomes and Impact

The DEMAND Hub project boosted regional R&D investment by increasing the technology readiness level of SMEs, supporting new products to market and building new collaborations

This section evaluates the impact attributable to the DEMAND Hub project, including progress in achieving the intended and actual outcomes and impacts set out in the logic model. It also provides conclusions about the specific result indicators relevant to the project, strategic added value, and difference it has made.

PLEASE NOTE: The DEMAND Hub logic model that was designed at the outset of the project contained several duplications which has led to difficulty in assessing the difference between the intended (short to medium-term) outcomes and the (longer term) impacts of the project. For example, areas around novel data testing platforms, supply chains, skills development and R&D acceleration were covered in both the "outcomes" and "impacts" section of the original logic model.

5.1. Outcomes

The following outlines the progress the DEMAND Hub project made towards achieving the outcome indicators set out in its logic model (Appendix I):

Market expansion

60.8% of the project beneficiaries surveyed believed that the support offered by the DEMAND Hub project was helpful in enabling their business to enter new markets. In addition, when asked what the most valuable aspect of the DEMAND Hub support was the ability to "look at future market opportunities in new sectors". This beneficiary believed that the information gathered would support further product development and business strategy.

Another beneficiary specified that they gain around 6000 new customers each month, and attributed a small proportion of that to the DEMAND Hub project due to the clinical evidence they gained which enabled them to prove the benefits of their product to industry. Both beneficiaries claim to have expanded their market reach through the support received by the DEMAND Hub project.

Accelerated R&D

65.2% of beneficiaries believed that the DEMAND Hub project was helpful in accelerating their R&D and product development. SME engagement with the DEMAND Hub project has led to a shift in the TRL position of multiple beneficiaries. The average starting TRL of beneficiaries was 3.7, which increased to an average of 4.8 following support. The average TRL movement of beneficiaries was 1.05.

Figure 9 reflects the TRL of DEMAND Hub beneficiaries prior to and following the support using a sample of 22 beneficiaries who shared their TRL progression. The majority of beneficiaries started at earlier points on the TRL scale, with 15 beneficiaries entering DEMAND Hub with TRLs ranging between 1 and 4. Following support, a positive skew can be observed, as the number of beneficiaries at TRL 3 and 4 increased significantly. Additionally, the number of beneficiaries with TRLs ranging from 6 to 9 rose significantly following support.

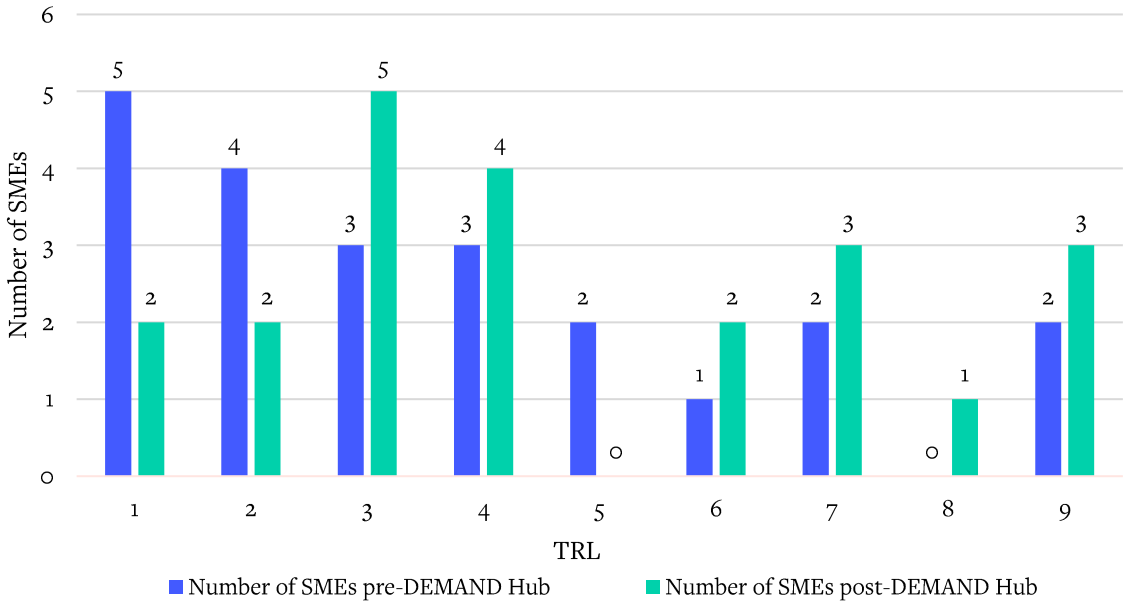

Figure 9 - TRL of business beneficiaries prior to, and following DEMAND Hub project support

Figure 10 breaks down the number of TRL positions beneficiaries have moved as a result of the support received. In total, 45.5% of beneficiaries were able to progress up the TRL scale as a direct result of the support received from the DEMAND Hub project.

While 54.5% of beneficiaries were not able to make TRL progression, if an SME did move up the TRL scale, the most common shift was 2 TRL positions (27.3%). Two beneficiaries were able to move 4 or 5 TRL positions as a result of the support they received, marking an impressive level of acceleration in the commercial viability of the R&D innovation of these companies.

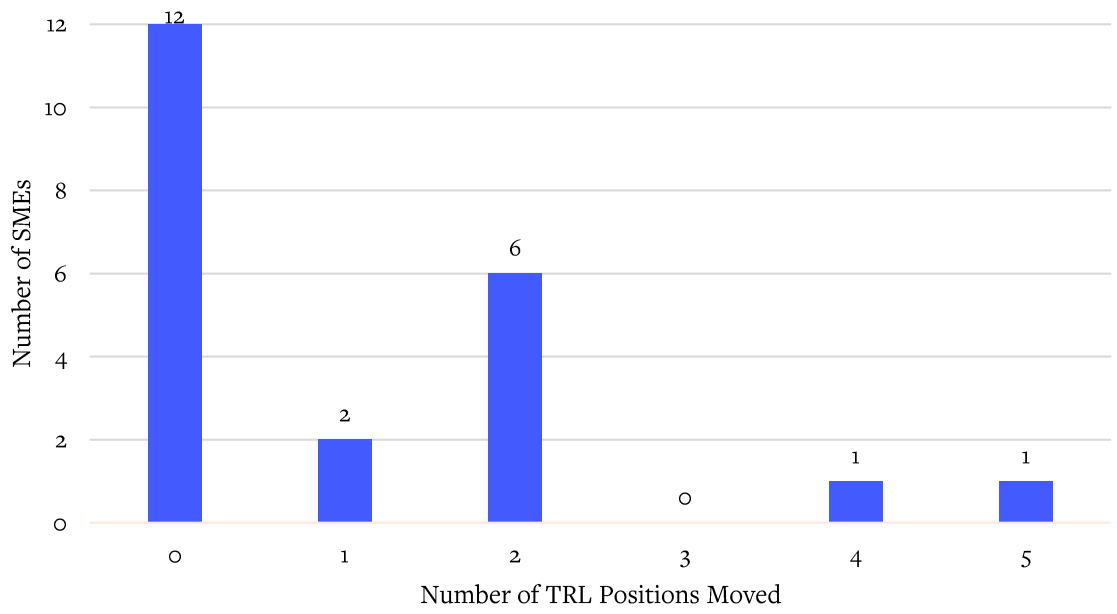

Figure 10 - Number of TRL positions moved by SMEs following the support of the DEMAND Hub project

Of the 23 organisations which responded to the business survey, the DEMAND Hub project enabled 34.8% to introduce new to the market products, and 47.8% to introduce new to the firm products.

> "The DEMAND Hub project gave us more understanding of what we were doing. We now understand the key areas we need to focus on which has propelled us forward in the development of our product"
>
> ~ SME Beneficiary

> "The project has done a great job for our members. A lot of the people I have referred to the project have definitely moved on with their product development as a result."
>
> ~ Project Partner

New supply chains

Supply chain development is crucial for the growth and competitiveness of SMEs in the Med Tech sector. It allows them to improve their operations, reduce costs, increase their market reach, and enhance their capacity for innovation.

According to survey feedback from SMEs involved in the project, almost half (43%) reported that the project had been helpful in increasing its supply chain opportunities. This means DEMAND Hub project has played a role in fostering the growth and development of some MedTech supply chains in the region.

For example, one beneficiary stated that they have developed different supplier connections and collaborations since participating in the DEMAND Hub, as the support gave them the

confidence to approach suppliers.

> "We have received offers to work with two different suppliers after meeting organically, and have now decided to collaborate. The support from DEMAND Hub and the feedback we received gave us the confidence to approach these people."
>
> ~ SME Beneficiary

Novel data testing platforms

According to 48% of SMEs surveyed, The DEMAND Hub project has provided benefits by providing access to novel data sets and testing platforms. These resources can provide invaluable insights into healthcare trends, patient needs and the clinical environment to inform product design.

For example UHB, using appropriate privacy and security measures, stated they were able to provide healthcare related data, not readily available or accessible to SMEs, to help evaluate the appropriateness and effectiveness of their products and identify new market opportunities. The long term impact of this would not only support innovation efforts of these companies, but also produce better health outcomes for patients.

Data accessibility and interpretation expertise

30.4% of beneficiaries believed the project was helpful in providing access to data interpretation expertise. The DEMAND Hub project has provided clarity and feedback, enabling some organisations to further develop the concept beyond the life of the project.

> "We received a clear set of data and feedback from potential end users of solutions. This will help us to fine tune the solution and reach market in the best way"
>
> ~ SME Beneficiary

However, a small but vocal number of the SMEs also felt that the project was unhelpful (~18%) in this area. This reflects an opportunity to provide additional data interpretation support, in line with what was previously referenced in the section 4.4 of this report.

Sector leading facility with renovated collaborative space, including access to manufacturing and prototyping space

As previously mentioned, the capital spend element of this project did not take place due to external challenges presented by delays to the ITM renovations due to the COVID-19 pandemic. In the absence of this capital spend, the project was unable to deliver against the C25 output by project closure. The development of this sector leading facility through ITM renovations may still take place in the future under different funding for similar initiatives.

Despite this, 47.8% of beneficiaries felt that the DEMAND Hub project was helpful or very

helpful in enabling them to access physical infrastructure or labs for prototyping or manufacturing. Therefore, while the capital spend on ITM renovations did not occur, beneficiaries still gained access to some manufacturing and prototyping space through the project.

In addition, the Greater Birmingham and Solihull LEP Growth Hub collaborated with the University of Birmingham on the DEMAND Hub project to establish invite-only networking group, HALSEC (Health And Life Sciences Enterprise Community), which brings together 45-50 SMEs across the Med Tech and Life Sciences sector in the West Midlands. A representative of the Greater Birmingham and Solihull LEP Growth Hub shared that DEMAND Hub hosted 8 networking events for HALSEC. In doing so the Greater Birmingham and Solihull LEP Growth Hub was able to gather intelligence on the needs of local businesses, and identified a lack of initial incubator laboratory space as a barrier to businesses. Recognising this need, the LEP hosted round tables to enable companies to communicate the need for the provision of incubator space to key decision makers.

As a direct result of this intelligence £60,000 was granted to establish an incubator space in the region. Therefore, while the funding for DEMAND Hub was not directly used to develop a facility, the connections it established enabled the needs of SMEs in the Med Tech and Life Sciences space to communicate their need for a new incubator laboratory space.

Improved capacity to commercialise for new business including access to IP awareness and evidential requirements of trial development pathways

30.4% of beneficiaries felt that the project was helpful or very helpful in granting access to IP support, although the majority of respondents (~34.8%) were neutral about the statement. One beneficiary shared their experience of gaining this specific expertise:

> "This project provided expertise on the regulatory pathway and gaining MHRA approval. We would normally have pay to use that service."
>
> ~ SME Beneficiary

Better connected and co-located Health Technologies network

The DEMAND Hub project sought to enhance collaborative working between Higher Education and Industry, strengthen local networks and connect local thinkers within the space. 43.5% of beneficiaries felt that the DEMAND Hub project was helpful or very helpful in creating better connections to Health Technology networks.

The DEMAND Hub project has made a significant contribution towards connecting SMEs with industry, research or academic institutions. As shown in Figure 11, 65.2% of beneficiaries were able to establish one of more collaborations as a result of their involvement in the project.

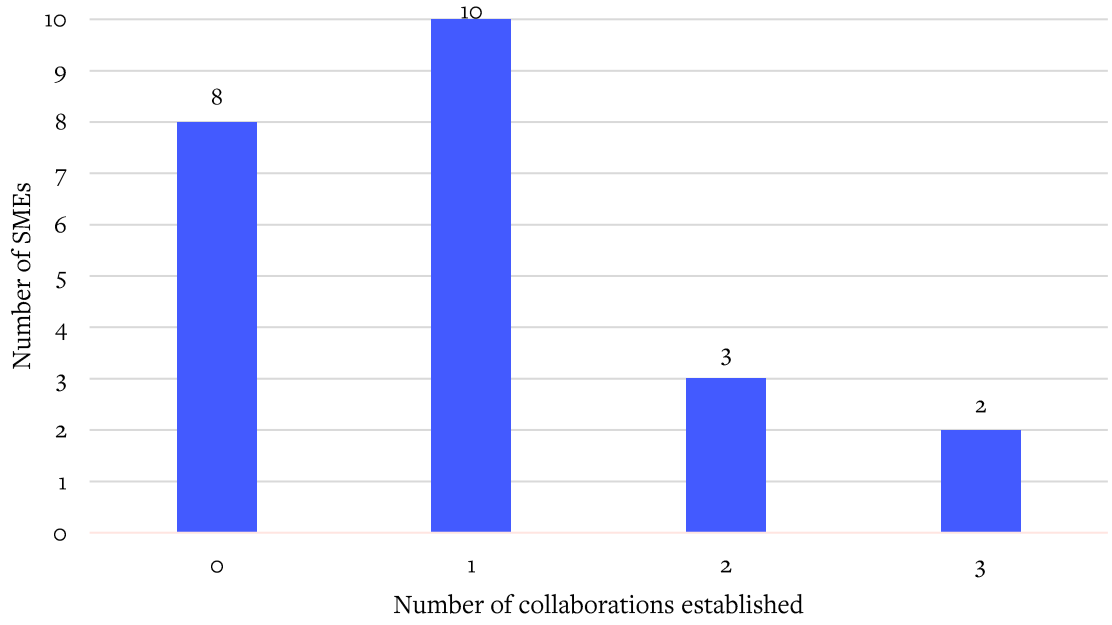

Figure 11 - The number of collaborations established by beneficiaries of the DEMAND Hub project

These collaborations spanned a range of organisations such as:

- The British Heart Foundation
- South East Health Technologies Alliance (SEHTA)
- The University of Warwick (WMG)
- The University of Manchester
- Other hospitals (undisclosed)

A number of project partners highlighted the progress DEMAND Hub has made in establishing connections, both for beneficiaries and key stakeholders within the region.

> "The project has helped the LEP and Universities to become more collaborative, and businesses can see that the support services from a range of organisation are now joined up. That was a real benefit of the project."
>
> ~ Project Partner

Access to leveraged funding

The project was successful in enabling 22% of the SMEs surveyed obtained additional external financial funding following support from DEMAND Hub. For one organisation this was in the form of private funding and another was from an Innovate UK grant (the value of both was not disclosed).

The remaining three SMEs received public grant funding following their involvement in the project. The sources of this public grant funding are listed below:

- £60,000 from Eureka Eurostars
- £25,000 from ERDF KEEP PLUS
- £50,000 from UKRI

Therefore, in total we can conclude that the DEMAND Hub project has enabled beneficiaries to leverage at least £135,000 of additional public grant funding, with further private investment. For other SMEs, their involvement in the project was not wholly responsible for additional investment, but made the business more investable by progressing product development.

> "We completed the project with DEMAND Hub in 2021 and have since received a significant amount of VC funding to support a range of projects. The support we received made us more investable, but it's part of a wider story. We're continuing to develop the concept internally."
>
> ~ SME Beneficiary

> "DEMAND Hub helped us to move to the next stage of product development. We are now trying to raise funds using the evidence generated with the market. We wouldn't be ready to take a product to market without the support"
>
> ~ SME Beneficiary

Skills and knowledge transfer

Beneficiaries of the project highlighted the gaps in expertise which the DEMAND Hub project helped to fill, typically through specific research projects. 39% of the 23 businesses surveyed believed the project had been helpful in enabling skills and knowledge transfer. Knowledge was transferred both through the delivery of reports and through communication between the beneficiary and technical delivery team. This was highlighted in conversations with two different SME beneficiaries:

> "The University of Birmingham did scientific studies to explore the effect stomach acid has on collagen. We have the scientific knowledge in-house, but not the know-how to implement these studies. The professor who completed the study is very intelligent and shared their knowledge with our in-house doctor"
>
> ~ SME Beneficiary

> "The work we did with the University of Birmingham further cemented and developed our idea. It enabled us to gain a better grasp on the science."

~ SME Beneficiary

As previously mentioned, the Greater Birmingham and Solihull LEP Growth Hub worked with the DEMAND Hub project to develop HALSEC (Health And Life Sciences Enterprise Community). When speaking to a representative of the GBS LEP Growth Hub they shared that this network was facilitating knowledge transfer among SMEs within the community, and exposing them to key speakers from university incubators, Innovate UK and other key organisations. HALSEC's bottom up approach meant that the University of Birmingham and the GBS LEP Growth Hub were guided by what would be of most of benefit to attendees.

5.2. Impacts

The DEMAND Hub project logic model (Appendix I) also outlines a number of intended impacts. The project's progress towards achieving these is further explored below:

PLEASE NOTE: Some of the original logic model "impacts" are duplicates of what is already defined as project "outcomes" and will be referred back to the previous section where appropriate.

Increased levels of business R&D

The project's progress towards achieving this impact has been discussed in section 5.1, under the outcome 'Accelerated R&D'.

Faster innovation to clinic pathway through simplified and direct access to clinical support

6 of the 23 businesses surveyed received clinical studies and trials support through the DEMAND Hub project. Following support, 47.8% of beneficiaries believed that the project had been helpful in improving beneficiaries' understanding of the clinical/patient pathway through the provision of direct access to clinicians. SMEs interviewed discussed the support they received from clinicians through the DEMAND Hub project in interview. These reflections were extremely positive and proved to be extremely valuable for beneficiaries.

"We did a survey with clinicians around the useability and functionality of the machine. The access to clinicians was more meaningful than the funding itself. We would have paid to use that service."

~ SME Beneficiary

"The DEMAND Hub project connected me with consultants who did the research on my behalf. They asked lecturers, consultants from mum and baby units and representatives of prenatal mental health to review the service and provide feedback. I'm really happy with this support".

~ SME Beneficiary

Skills development

Of the 23 beneficiaries surveyed, 52% stated that their employees had gained new skills because of the support of the DEMAND Hub project. For further information on how the project contributed to skills development, please refer to the 'Skills and knowledge transfer' outcome in section 5.1.

Novel data testing platforms

The progress the DEMAND Hub project has made towards achieving this impact is discussed in section 5.1 under the same outcome ('Novel data testing platforms') outlined within the Logic Model.

Expanded supply chain opportunities

The development of supply chain opportunities is essential to the growth and competitiveness of SMEs in the MedTech sector. 43.4% of all beneficiaries surveyed believed the project had been helpful or very helpful in extending their supply chain opportunities. The ways in which the DEMAND Hub project has contributed towards this impact is previously discussed in 5.1 under the outcome 'New supply chains'.

Advances in personalised medicine

The DEMAND Hub project helped one of the beneficiaries interviewed to gain clinician feedback on the useability and functionality of the mechanisms they are developing to measure dosage control within 3D printing technology. The company is developing bespoke proprietary additive manufacturing systems to personalise consumables and impact preventative and curative health through personalised medicine dosing.

As a result of this support, the beneficiary is building upon the feedback from the potential end users of the solutions to continue product development. The representative interviewed noted that gaining feedback from end-users and the regulatory expertise of the DEMAND Hub team was extremely valuable, as high costs would have prohibited them from doing this work otherwise. The SME will now have to validate and test the clinical stability of the product, but have made advancements in the development of its custom dosing machinery.

Overall, over half of beneficiaries surveyed (~52.2%) felt that the project had been helpful in enabling them to make advancements in personalised diagnostics and treatments more broadly, reflecting the project's success in achieving this impact.

5.3. Additionality – Has DEMAND Hub made a difference?

This section explores additional benefits the DEMAND Hub project has brought to beneficiaries, partners and the region. In other words, these observations account for the added value the project did not expect to see, in addition to the intended output/outcome targets achieved.

Increased Sales Turnover

A key added benefit of the DEMAND Hub project was its ability to help SMEs increase its sales revenue. A striking 91% of supported businesses felt their business was in a stronger position

than before, due to the DEMAND Hub project. For instance, 26% of SMEs surveyed stated they were able to increase their annual sales turnover as a result of the DEMAND Hub project. This underscores the important commercial benefits realised for SMEs by these types of projects. The collective sales turnover increase of 6 of the surveyed SMEs was at least £421K per year, with one SME claiming to have increased its turnover by £200K per year thanks to help from DEMAND Hub.

Other SMEs claimed the research conducted as part of the DEMAND Hub project is projected to increase its future sales.

> "The research has confirmed that the product is safe and it helps with the credibility. It will help improve the future sales of the product."
>
> ~ SME Beneficiary

Job creation

6 SMEs who responded to our survey stated they were able to increase the number of employees in their business due to the support they received from the DEMAND Hub project. According this sub-sample of supported SMEs, the new full-time role salaries ranged from £20,000 to £100,000+, as shown in Figure 12.

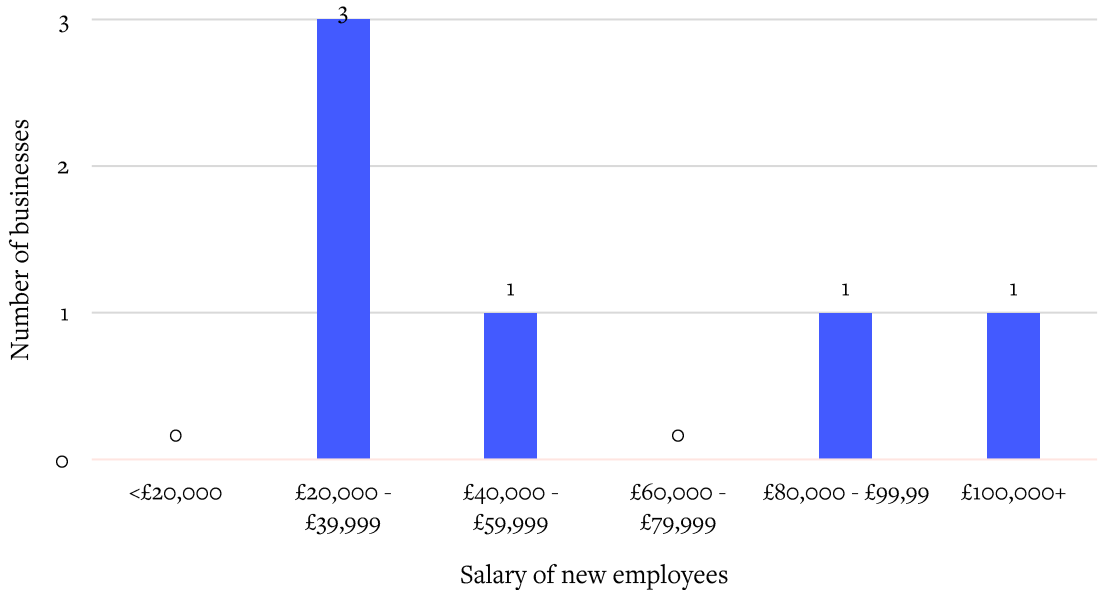

Figure 12 - The range of new employee salaries within supported beneficiaries

These jobs were located within the Black Country LEP region, the Greater Birmingham and Solihull LEP region and some other locations outside of the 4 LEP areas targeted by the DEMAND Hub project. This reflects the broader impact of the project, through the creation of jobs outside of the West Midlands.

Formation of lasting supports which will support SMEs beyond the life of the DEMAND Hub project

As noted earlier in the report, the DEMAND Hub project has embarked on a mission to develop a central focal point and forum for innovation in MedTech and Life Sciences in the West Midlands. This project has been the catalyst for a burgeoning regional community of businesses in these sectors, establishing a network where businesses can exchange ideas, collaborate, and foster innovation.

The DEMAND Hub has also played a key role in fostering a strategic partnership between UoB and UHB. By bridging these institutions, the project has facilitated the sharing of end-to-end resources and expertise. This has not only spurred product development but also amplified the diversity of engaged companies, effects that will continue beyond the lifetime of this project.

The enduring impact of the DEMAND Hub project is most evident in the announcement of the West Midlands Innovation Accelerator[7]. The Innovation Accelerator is set to receive a portion of a new £100m fund from Innovate UK, which will augment the region's innovation and R&D capabilities. The West Midlands Innovation Board has channelled investment towards five projects designed to enable new solutions in the domains of Medical and Clean Technologies. UoB is spearheading the "6D Innovation Accelerator" project, assembling key partners to expedite the development of new health and medical technologies. Its aim is to offer a more focused and intensive business support program, based on key learnings from the DEMAND Hub project.

5.4. Strategic Added Value

This section outlines the three main sources of Strategic Added Value the DEMAND Hub project has created.

Aligning with regional strategic objectives and the goals of key regional actors

Strengthening of regional clustering

The Black Country Consortium was particularly passionate about establishing a life sciences presence within the Black Country LEP. As part of the DEMAND Hub project, the organisation worked closely with the business development manager at the University of Birmingham and identified 70 SMEs within the space. These organisations were contacted and invited to two events (one in the Black Country and another in Birmingham), to bring the organisations together. The intention of this support was to accelerate the development of a "mini-cluster", which could then be shaped using further investment. The Black Country Consortium representative stated that "the development of a mini cluster requires additional funding", but the DEMAND Hub project has made progress in developing the regional cluster and emerging sectors (such as assistive technologies).

Collaboration between DEMAND Hub and other business supports within the region gained positive feedback from key regional stakeholders

[7] https://www.birmingham.ac.uk/news/2023/west-midlands-innovation-accelerator-to-spark-growth-and-innovation

As part of our summative assessment activities, we gathered interview feedback from representatives of 3 key regional stakeholders (Black Country Consortium, the GBS LEP Growth Hub and Technology Supply Chain), which each offer business supports. The business development manager at the University of Birmingham established a collaborative relationship with each of these organisations, as the project aligned with their own strategic objectives.

Table 10 summarises the way in which the DEMAND Hub project complemented the strategic objectives of each stakeholder.

Table 10 – Stakeholder strategic objective alignment with DEMAND Hub

Stakeholder	Complementarity between project objectives and individual strategic objectives
The Black Country Consortium	The Black Country Consortium hoped to establish a greater life sciences presence within the region. As a result, they identified specific businesses and introduced them to the DEMAND Hub project by promoting its services.
The Greater Birmingham and Solihull (GBS) LEP Growth Hub	The Greater Birmingham and Solihull LEP was also delivering a similar ERDF project, 'Business Growth Programme 2', which sat in line with the DEMAND Hub project. The Greater Birmingham and Solihull LEP representative collaborated with the business development manager at the University of Birmingham, by sharing their portfolios of beneficiaries to help meet the targets of both programmes. The representative estimated that they referred approximately 75% of their portfolio of around 50 businesses to the DEMAND Hub project and also received a number of referrals. In addition, the representative noted that the University of Birmingham is responsible for delivering a whole host of ERDF projects. They believed that the business development manager at the University of Birmingham acted as a conduit, by referring businesses shared by the Greater Birmingham and Solihull LEP to other ERDF programmes delivered by the University, reflecting the broader impact of this collaboration on beneficiaries within the region.
Technology Supply Chain	The strategic objective of Technology Supply Chain relates to the support they offer to their members. They therefore referred 36 of their members involved in the healthcare market to the DEMAND Hub project, to enable these companies to grow.

6. Programme Value for Money

It is estimated the DEMAND Hub project has created over £2.69 million of GVA for the UK and helped SMEs increase TRL level, turnover and leverage additional funding.

The DEMAND programme has claims it will create 15 direct jobs by the end of the project. This could lead to a further 8 indirect jobs[8], meaning 23 jobs in total and a GVA impact of £2.693 million.[9] There is an estimated deadweight rate of 33.3%. As a result, there is re-calculated GVA net benefit of £1.796 million.

The total DEMAND Hub spend reduced from a contracted spend of £6.09 million to £4.23 million, the cost per job created, including indirect jobs, was £180,552. This is higher than the mean cost per job across ERDF programmes in the UK between 2017-2020, which was £98,228.[10]

Therefore, DEMAND Hub has struggled to deliver Value for Money (VFM) in terms of GVA in the short term, due to the relatively low job creation numbers for a project of its size.

However, DEMAND Hub has to be evaluated beyond job creation, as this programme generated other economic benefits, not used to calculate GVA. These other VFM-related benefits include:

- Average TRL progression of SMEs from 3.7 to 4.8 (across a sample of 22 the total 23 survey respondents).
- Collective sales turnover increase of SMEs of at least £421K per year (claimed by 6 of the 23 survey respondents).
- Additional funding and financed leveraged by SMEs of at least £135K (claimed by 5 of the 23 survey respondents).
- Equivalent commercial value of access to UoB and UHB experts, assets and equipment.

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[8] The indirect jobs are calculated using an average multiplier of 1.561 across sectors in the British economy from the Input-Output tables (2013) https://www.ons.gov.uk/economy/nationalaccounts/supplyandusetables/articles/inputoutputanalyticaltables/guidanceforuse

[9] There is an average output per job of £115,052 in the sectors: "Manufacture of computer, electronic and optical products (SIC 26)" and "Scientific research and development (SIC 72)". Source: https://www.ons.gov.uk/economy/economicoutputandproductivity/productivitymeasures/datasets/outputperjobuk

[10] Source for funding allocation: https://cohesiondata.ec.europa.eu/2014-2020-Finances/ESIF-2014-2020-Financial-plans-daily-update-/rmer-4wcy Source for jobs creation: https://cohesiondata.ec.europa.eu/2014-2020/2014-2020-ERDF-Job-creation-Indicator-CO08-/54dq-8yuc

7. Conclusions and Lessons Learnt

This section synthesises the analysis to provide a final overall evaluation of the DEMAND Hub project and lessons learnt.

7.1. Overall Assessment

This summative assessment highlights that although the DEMAND Hub did not meet its intended output indicators by the project's conclusion or deliver the anticipated capital investment, the project has successfully aided SMEs in increasing employment, enhancing turnover, leveraging additional investment, and advancing in Technology Readiness Level (TRL).

Consultations with stakeholders and businesses confirmed that the DEMAND Hub project profited from efficient allocation and coordination of delivery partner responsibilities. The high quality of project support was mirrored in responses from surveyed SMEs, who rated the DEMAND project 4.3 out of 5, signifying high levels of satisfaction. Beneficiaries of the project had particularly positive views on access to UoB's and UHB's technical skills and expertise, which expedited product development for numerous organisations. Notably, 87% of supported businesses surveyed stated they would apply for a similar support project in the future or recommend this project to other businesses.

The DEMAND Hub project aimed to overcome barriers impeding the growth of the MedTech and Life Science sector within the region, including the adoption of products by healthcare providers. The project helped beneficiaries, on average, shift from TRL 3.7 to TRL 4.8 following the completion of project activities, marking advancements made in the development of MedTech technologies.

SMEs surveyed reported achieving additional success due to the support provided by the DEMAND Hub project. A striking 91% of supported businesses felt their business was in a stronger position than before, due to the DEMAND Hub project. For instance, numerous beneficiaries were able to increase their annual sales turnover and leverage additional investment as a result of the DEMAND Hub project. This underscores the importance of this type of business and innovation support for SMEs.

The activities backed by the ERDF project aligned well with both previous and current government policies at national and sub-regional levels. The project also enabled UoB and UHB to engage with other business support networks in the region, benefitting the development of networks and collaboration across the broader regional ecosystem. Overall, the DEMAND Hub project is estimated to have generated over £2.6 million of Gross Value Added (GVA), having created a total of approximately 23 direct and indirect jobs. After applying an estimated

deadweight rate of 33.3%, the net GVA benefit stands at £1.796 million.

It's important to acknowledge that there is potential to improve certain aspects of the DEMAND Hub project. For example, the project could have benefitted from follow-up processes and longer engagements to address issues around additional technical and funding support needed to create more jobs and larger GVA impacts. Additionally, the inability of the DEMAND Hub to deliver the capital infrastructure element of the project due to COVID-19 led to project underspend, a slower-than-anticipated start to the project, and limitations on the number of businesses that could be supported.

Despite this, overall, the project management team demonstrated great agility in response to challenges posed by the COVID-19 pandemic. The team also made concerted efforts to establish connections and identify companies to support in regions with a less developed MedTech SME cluster i.e. the Black Country. A summary of the major strengths and weaknesses of the project is shown in Table 11.

A summary of the major strengths and weaknesses of the project is shown in Table 11.

Table 11 - Summary of DEMAND Hub project strengths and weaknesses

Strengths	Weaknesses
→ Efficient distribution and coordination of partner responsibilities. → Facilitating community engagement and diversity in MedTech and Life Sciences within the region. → Helping SMEs overcome regulatory hurdles. → Providing SMEs access to people with technical expertise.	→ Project initially had difficulty adapting to COVID-19 restrictions, especially in regards to developing capital infrastructure element. → SMEs need more intense follow-up technical and funding support. → Identifying and supporting relevant Black Country SMEs. → Original Logic model / "theory of change" design of project has key elements duplicated.

7.2. Lessons Learned

The following are key lessons from the perspective of grant recipients and those implementing similar interventions, policy makers and beneficiaries that were identified during the evaluation.

Grant recipients and those implementing similar interventions.

The following are lessons for the grant recipient or project delivery body:

→ **Elevate the value of future projects by extending and intensifying the support offered to SMEs.**

A crucial lesson of DEMAND Hub project is the necessity for follow-on support for SMEs beyond the initial project duration. Feedback from the project indicated a desire among

SMEs for extended support after the initial 12 hour C1/c4 engagement had concluded.

In future projects, the team should consider developing a model of engagement that includes the creation of a brief action plan in collaboration with SMEs. This action plan, should be designed to be achievable as part of an extended timeline, and could be monitored and adjusted as necessary or providing a roadmap for continued progress post-support.

For example, enhanced access or signposting to resources or funding would be a valuable next step, or more assistance in interpreting data provided or generated, enabling SMEs to derive more meaningful insights and make more informed decisions to generate longer term impact.

→ **A clear and well-designed Logic Model at the onset of a project will increase the chances of project success and value being recognised.**

The logic model is a crucial tool for project delivery teams to show how resources, activities, outputs, outcomes, and impacts are expected to result from a intervention. It articulates the cause-and-effect relationships that link project inputs to expected results i.e. "Theory of change".

The DEMAND Hub project highlights the need for a clear and well designed logic model at the outset of the project. A well-defined logic model prevents the conflation or duplication of outcomes (short to medium-term) and impacts (longer-term). When outcomes and impacts are conflated or duplicated in a logic model, as was in the case for DEMAND Hub, it can lead to confusion and misinterpretation of both project implementation and evaluation. For example, areas around novel data testing platforms, supply chains, skills development and R&D acceleration were covered in both the "outcomes" and "impacts" section of the original logic model. This can result in project expectations not being clear and less accurate understanding the wider value achieved.

Policy makers

The following lessons have emerged from the evaluation of DEMAND Hub project and may help to inform policy makers:

→ **Recognising value beyond immediate output metrics**

Policy makers need to look beyond immediate output metrics and consider the wider, often intangible, impacts of projects like DEMAND Hub. One of the key successes of the DEMAND Hub project was its role in facilitating community engagement and diversity within the MedTech and Life Sciences sectors in the region. This community-building aspect, while not easily quantifiable, has the potential to bring about long-term benefits, such as strengthening the regional ecosystem, fostering collaboration, and encouraging innovation. These are vital elements for the sustained growth and competitiveness of the MedTech and Life Sciences sectors.

Building a thriving community of businesses is not a quick or straightforward process. It requires time, effort, and continuous engagement, but has great potential to increase engagement and innovation in the sector over time.

Therefore, when designing and evaluating such projects, policy makers should consider incorporating measures that capture these broader impacts. This might involve developing new evaluation frameworks or indicators that reflect the health and diversity of the business community, the strength of local networks, and the level of engagement between different stakeholders. Valuing the full range of impacts that projects like the DEMAND Hub can lead to more informed and effective policy decisions around the MedTech and Life Science sectors.

→ **Sectorial concentrations challenges within underdeveloped geographies should be considered.**

When planning and funding projects like DEMAND Hub, it is important to consider the existing concentration of relevant businesses within the chosen geographic area. As DEMAND Hub found, regions with a lower concentration of MedTech and Life Science businesses, such as the Black Country LEP Region, present significant challenges in meeting output targets.

There is value in stimulating growth and innovation in less developed regions, but it is also important to recognise that these regions may require additional resources, time, and strategic efforts to achieve desired outcomes. Therefore, policy makers and funders should be prepared to adjust their expectations and success metrics based on these geographic and sector realities. Rather than solely focusing on standard c-output targets, the success of projects in less developed regions might be better measured in terms of the overall impact on the local business ecosystem, such as the development of new collaborations or local supply chains.

SME Beneficiaries

The final lessons relate to the beneficiaries of the DEMAND Hub project:

→ **Engaging with project evaluation activities is important and will help inform the development of future programmes.**

While a representative sample of respondents was obtained within the beneficiary survey, additional responses could provide new insights and feedback on the project and shape recommendations for future support. Both survey responses and interviews help to inform the development of future programmes, meaning that SME engagement in project evaluation activities following support is vital.

APPENDIX

APPENDIX I DEMAND Hub Logic Model

Context

The Life Sciences industry is one of the most innovative and important economic sectors in the UK, with a £70.3bn turnover and over 240,000 employees across more than 6,300 sites. In 2017, Medical Technologies overtook Biopharmaceuticals as the leading Life Sciences employment segment (51% vs 49%, OLS S&O 2017), although still lags behind in turnover (32% vs 68%). The UK med-tech sector, 98% of which is SME-based (DIT), has demonstrated strong growth since 2009 (~6% turnover and \>8% employment growth) compared to weak turnover growth for medical biotech and pharma. Globally, the med-tech market reached nearly $521.2bn in 2017, predicted to hit ~$675bn by 2022 at a compound annual growth rate (CAGR) of 5.3%. The regional LEP areas are a vitally important part of the UK's manufacturing base, however, there are a number of key challenges for the region including; a lower than average GVA and low investment by employers in skills and training, particularly in small businesses.

Market Failure Assessment

Several barriers have been identified which are preventing businesses within each of the 4 LEP areas from achieving the commercialisation and productivity aspirations of the region. These include;

- A lack of critical mass of knowledge-led firms or behaviours
- A need for a coherent and integrated support service for businesses
- A serious lack of foresight, capacity and capability in small and medium sized enterprises
- Absence of skills and knowledge transfer capacity in technical and business support for the med tech sector
- Limited access to external information
- Engagement with research institutions
- Timely and accurate market knowledge

Project Objectives

DEMAND Hub will utilise the capabilities of project partners to drive collaborative R&D amongst SMEs to enable the development of products and processes that provide efficiency gains across the medical technologies sector, including;

(1) deliver sector leading facilities, improving access to maunfacturing and prototyping space
(2) realise an improved capacity to commercialise for new businesses, including access to IP awareness and evidential requirements of trial development pathways
(3) spur growth through the commercialisation of novel products and processes
(4) seed collaborative working between HEI's and Industry
(5) Improve awareness of and access to leveraged funding avenues

Rationale

The DEMAND Hub builds on several existing elements of the previous ERDF-supported Medical Devices Testing & Evaluation Centre (MD-TEC) project, which ended in November 2019, but is distinctive in prioritising scientific services and commercial pathway support, as well as bringing in a new focus around the utility of healthcare data (including patient-reported outcomes) in guiding product development. This new programme – the Data-Enabled Medical technologies ANd Devices (DEMAND) Hub – will be delivered by the University of Birmingham in partnership with University Hospitals Birmingham NHS Foundation Trust from July 2020. From within the sector leading facilities within the ITM, the DEMAND Hub will deliver specialist commercialisation expertise with extensive technical knowledge to reduce the risk and burden of product development for SMEs within each of the 4 LEP regions.

Inputs

What	Value
ERDF Funding (Revenue)	£3,257,798
University of Birmingham Funding (Revenue)	£3,257,798

Activities

What
Improved access to support, equipment, facilities and networks
Enable user driven innovation to accelerate Med Tech design and early phase development
Provide access to academic, clinical, financial, legal and regulatory expertise
Focal point for regional and national innovation development
Integration of NHS partners into product development

Outputs

What	Value
(C1) Number of enterprises receiving support	131
(C4) Number of new enterprises receiving non-financial support	131
(C5) Number of new enterprises supported	50
(C8) Employment increases in supported enterprises	20
(C25) Number of researchers working in improved research infrastructure facilities	8
(C26) Number of enterprises cooperating with research institutions	78
(C28) Number of enterprises supported to introduce new to the market products	19
(C29) Number of enterprises supported to introduce new to the	19

Outcomes

ID	Intended Outcome	How is it Measured?	Level	Baseline	Actual
1	Market expansion	Final evaluation			
2	Accelerated R&D	Final evaluation			
3	New supply chains	Final evaluation			
4	Novel data testing platforms	Final evaluation			
5	Data accessibility and interpretation expertise	Final evaluation			
6	Sector leading facility with renovated collaborative space, including access to manufacturing and prototyping space	Final evaluation			
7	Improved capacity to commercialise for new business including access to IP awareness and evidential	Final evaluation			
8	Better connected and co-located Health Technologies network	Final evaluation			
9	Access to leveraged funding	Final evaluation			
10	Skills and knowledge transfer	Final evaluation			
11	Novel data testing platforms	Final evaluation			

Intended Impacts

What
Increased levels of business R&D
Faster innovation to clinic pathway through simplified and direct access to clinical support
Skills development
Novel data testing platforms
Expanded supply chain opportunities
Advances in personalised medicine

APPENDIX II Project milestones – original versus actual delivery dates

#	Milestone	Start date	Planned completion date	Actual delivery date
1	Full application submitted	N/A	May 2019	May 2019
2	Grant Funding Agreement signed off	N/A	June 2020	March 2020
3	Facilities Work undertaken	July 2020	October 2020	Not delivered
4	Establish Project Governance	July 2020	October 2020	October 2020
5	Sign off Collaboration Agreement with UHB	July 2020	October 2020	March 2021
6	Recruitment of key project staff	May 2020	July 2020	December 2020
7	Engage SMEs	August 2020	June 2023	June 2023
8	Complete first R&D engagement	N/A	September 2020	August 2020
9	Complete all business engagement	N/A	June 2023	June 2023
10	Complete Evaluation	N/A	April 2023	May 2023
11	Project Close	N/A	June 2023	June 2023

APPENDIX III Details of the stakeholders interviewed.

Organisation	Reason for Interviewing	Role of representative
Recognize Ltd.	Beneficiary	CEO and Founder
Absolute Collagen	Beneficiary	Co-founder
Remedy Health	Beneficiary	CEO and Founder
Nishti's Choice	Beneficiary	Founder
GBSLEP Growth Hub	Project Partner	Previous Health and Life Science Business Specialist
Black Country Consortium	Project Partner	Digital Lead
The Technology Supply Chain	Project Partner	CEO

APPENDIX IV List of SMEs who responded to beneficiary survey.

#	SME Respondent
1	Mauser Ltd
2	EziDrops Ltd
3	Santorini Scientific
4	Narie Holistic and Naturopathic Healing Clinic
5	The replacement service
6	Prevention Plus
7	TREW VE Ltd
8	torc2 Ltd
9	Symbiotex Ltd
10	iethico
11	Warwick Medical Limited
12	Airguard Medical Limited
13	black space
14	Linear Diagnostics
15	Ergofigure Ltd
16	JSF Healthcare Ltd
17	Interactive Software/Achiever Medical
18	Let's Sanify Ltd
19	Moi therapy Ltd
20	UoB
21	Laennec AI Limited
22	Nouveau Healthcare Limited
23	Eco Research Ltd

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