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EARLY ASSESSMENT OF WEST MIDLANDS INNOVATION PROGRAMME (WMIP)

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Executive Summary

Introduction

The West Midlands Innovation Programme (WMIP) acts as an umbrella programme for a set of initiatives to support innovation in the region. Its origins can be traced back to the West Midlands Combined Authority (WMCA) Innovation Working Group, which was reconstituted as the West Midlands Innovation Board (WMIB) in 2019. The Board brought key stakeholders together in the region including businesses, business support intermediaries and the region's universities. It was tasked to:

- act as champion for innovation across the WMCA geography,
- act as the prime collective voice for encouraging innovation in the region's firms,
- embed innovation in public service reform

The WMCA made available £2.96m in 2019 for three years (Phase 1) to test new approaches to supporting innovation in the region that could be scaled up into a larger programme (phase 2) capable of leveraging funding of £36 million over its five-year life. WMIP aims '*to drive up levels of* ***demand-led*** *business innovation across all areas of the region*' by delivering:

1. A stronger, more integrated innovation support offer to business leading to more innovation active businesses and productivity gains in supported businesses
2. Targeted support for businesses to access more national innovation funding
3. The expertise needed to target and deliver a large scale (£30m+) phased innovation programme, accurately targeted at firms and commercial areas to focus on for future calls
4. Proactive communication of innovation opportunities

WMIP is underpinned by the West Midlands Innovation Framework which includes five pillars:

- Networks and linkages
- Investment programmes
- Talent
- Intelligence
- Culture

Methodology

We have chosen to call this an early assessment of WMIP rather than an evaluation as we are evaluating phase 1 to inform the business case and design of phase 2. By early assessment we mean:

A. Revisiting the rationale for WMIP to establish if it stills holds true or needs refining.
B. Testing and elaboration where necessary of the existing programme theory.
C. Assessment of the implementation of the programmes.
D. Capturing early impacts of the programme for direct beneficiaries and the wider regional innovation support ecosystem.
E. Qualitative assessment of value for money based on delivery of intended activities and outcomes.

This assessment was structured around lines of enquiry (see Appendix A for further information on the issues that informed our consultations and analysis of documentation).

Findings

WMIP is underpinned by a detailed well evidenced business case that clearly sets out the context for the programme and correctly focused on supporting demand led innovation.

There was significant and substantial progress in the first six months before the pandemic hit. WMIP continued to be successful in achieving its target outputs and exceeding four out of the five main outputs that were set out at the beginning of this project.

Using the similar methodology as the original business case, we calculated that over the 3 years to date that the programme will have generated £29,109,177 in total net additional GVA effects (cumulative).

WMIP has:

- Supported activities and initiatives that foster and develop innovation to address real-world challenges faced by businesses and the public sector in the West Midlands.
- Provided practical means to provide leadership and capability to support innovation by businesses and development of the West Midlands innovation ecosystem.
- Provision of leadership in business support and developing aids for businesses, navigating their innovation journey.
- Supported initiatives that assisted businesses and their customers to plan for, co-produce and enact innovation, as would be expected for a demand led policy approach.
- Been very effective in the identification and signposting of businesses who recognise they need to innovate to remain competitive, by adopting new technologies or processes and those businesses who have potentially innovative products and services to the right support. Similarly, WMIP has been effective in drawing on synergies with existing business support provision through the activities and initiatives it has funded.
- Built on existing networks and knowledge of key people in the relevant sectors to create the Virtual Innovation Team which acts as a central hub for cross-sector innovation that had previously been lacking in the region.

Based on the learning, good practices that have been developed and the systems and structures that been put in place, the WMIP is scalable.

WMIP is contributing to addressing information and coordination failures at regional level by:

- Practical actions - albeit currently on a relatively modest scale though piloting new approaches (see case studies below).
- Better understanding of how such failures manifest in different contexts and for different actors in the region's innovation ecosystem.
- Tailoring of information and its delivery on specific challenges to actors in the regional innovation ecosystem.

WMIP has:

- Supported a broad portfolio of investments in new products that responded to specific gaps in provision in the existing innovation support ecosystem. The products we assessed in greater depth as case studies tended to be well designed and genuinely supported demand-led innovation.
- Innovation Engine 3 and West Midlands Health and Wellbeing Innovation Network (see case studies) provide examples of how products have effectively used existing local supply chains in delivery of innovation support (linking together expertise both in providing advice and guidance around innovation and access to in the wider innovation support ecosystem).
- Addressed a gap in funding for new innovative innovation support activities

This report presents several case studies that underpin our assessment of WMIP.

Conclusions

Our overall assessment is that WMIP has provided good value for money in terms of achieving the objectives it set out to achieve. It has been successful in marshalling and leveraging resources within the region to support a change in the coordination of the development of the region's innovation support ecosystem. This has been achieved by creating a strong infrastructure that has allowed the programme to be responsive to

changing circumstances and new opportunities. The pooling and funding of expertise in innovation in different sectors it has created a much-needed centre of expertise to support the development of the region's innovation ecosystem.

Recommendations

1. WMIP continues to operate as a flexible regional fund that supports intermediaries to continue to innovate in their provision in response to insights and intelligence on the regional innovation ecosystem. Future phases of WMIP need to retain the agility demonstrated in phase 1 to undertake rapid prototyping of new approaches in one sector and their transfer to other sectors.
2. That funding and support is maintained for the Virtual Innovation Team to allow cross-fertilisation of ideas across sectors.
3. WMIP should continue to fund a portfolio of projects. It should continue to support new initiatives with an eye to scaling up more successful interventions.

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Abbreviations

AHSN	Academic Health Science Network
B2B	Business to Business
BRIC	Brownfield Research and Innovation Centre
BCRRE	Birmingham Centre for Railway Research and Education
CA	Combined Authority
DIPS	Digital Innovation in Public Services
EGB	Economic Growth Board
ERDF	European Regional Development Funding
GBSLEP	Greater Birmingham and Solihull Local Enterprise Partnership
GVA	Gross Value Added
FTE	Full time equivalent
HEI	Higher Education Institution
KPIs	Key performance indicators
IAWM	Innovation West Midlands
IE3	Innovation Engine 3
LEP	Local Enterprise Partnership
LIS	Local Industrial Strategy
MIT REAP	MIT Regional Entrepreneurship Accelerator Programme
MAA	Midlands Aerospace Alliance
MVP	minimum viable product
NHS	National Health Service
OECD	Organisation for Economic Development and Cooperation
RTO	Research Technology Organisation

R&D	Research and development
PBFS	Professional Business and Financial Services
SBRI	Small Business Research Initiative
SME	Small medium sized enterprise
SWM	Sustainability West Midlands
WM	West Midlands
WMBSP	West Midlands Business Support project
WMCA	West Midlands Combined Authority
WMHWIN	West Midlands Health and Wellbeing Innovation Network
WMIB	West Midlands Innovation Board
WMIF	West Midlands Innovation Framework
WMIP	West Midlands Innovation Programme
WMREDI	West Midlands Regional Economic Development Institute
VC	Venture capital
VIT	Virtual Innovation Team
UHCW	University Hospital Coventry and Warwickshire

EARLY ASSESSMENT OF WEST MIDLANDS INNOVATION PROGRAMME (WMIP)

Introduction

The West Midlands Innovation Programme (WMIP) acts as an umbrella programme for a set of initiatives to support innovation in the region. Its origins can be traced back to the West Midlands Combined Authority (WMCA) Innovation Working Group which was reconstituted as the West Midlands Innovation Board (WMIB) in 2019. The Board brought key stakeholders together in the region, including businesses, business support intermediaries and the region's universities. It was tasked to:

- Act as a champion for innovation across the WMCA geography,
- Act as the prime collective voice for encouraging innovation in the region's firms, and
- Embed innovation in public service reform.

The Board provides expert advice to the WMCA Economic Growth Board (EGB) on innovation priorities that can support inward investment, growth, productivity and skills through partnerships that deliver translational innovation.

The WMCA Investment Board initially made available £2.96m in 2019 for three years (Phase 1) to test new approaches to supporting innovation in the region that could be scaled up into a larger programme (phase 2) capable of leveraging £36 millions of funding over five-year life.

Programme Aims

WMIP aims '*to drive up levels of **demand-led** business innovation across all areas of the region*'[1] by delivering:

1. A stronger, more integrated innovation support offer to business leading to more innovation active businesses and productivity gains in supported businesses,
2. Targeted support to business to access more national innovation funding,
3. The expertise needed to target and deliver a large scale (£30m+) phased innovation programme, accurately targeted at firms and commercial areas to focus on for future calls
4. Proactive communication of innovation opportunities.

[1] 24th June 2019 paper to the Investment Board

Targets

The following targets were set for Phase 1 of the programme, which is the focus of this early assessment:

- **£1.6m leveraged resource** to fund the operation of WMIP and matched regional and national funding to fund innovation ecosystem pilot projects. This includes partners' co-funding the virtual team posts and bidding for external funding linked to specific activities. Match for pilot projects can include company time, Local Enterprise Partnership resources or funding from external bodies such as Innovate UK or central government challenge funds such as the Community Renewal Fund and the Shared Prosperity Fund.
- **3,600+ attendances** at 'innovation network and linkage' sector specific and sector agnostic events and groups by private and public sector bodies.
- **200 innovation collaborations involving businesses** through working groups and project catalysis
- **280 businesses assisted** towards developing new products and services leading to growth and productivity gains
- **75 jobs created** through development of new markets.

Other more qualitative outputs and outcomes include the development and establishment of:

- The West Midlands Innovation Framework (Box 1).
- A set of Principles.
- An approach to programme delivery strongly focused on demand-led innovation.
- Governance arrangements and a supporting team structure (Box 2) including the:
  - Innovation Alliance Executive Team whose role is to coordinate across sectors, bring more sector-specific support organisations on board, and contribute to cross-sector/ collaborative projects.
  - West Midlands virtual innovation team (VIT) - which comprises sector-specific innovation experts who understand the needs and capabilities of their sector ecosystem and are capable of working together to foster innovation across sectors.
  - WMIP Programme Team based in WMCA.
- A map of regional innovation ecosystem.

Programme design

Central to WMIP is the adoption of a demand led approach to innovation. As such it is classified as a demand-side innovation policy. The OECD (2016)[2] describes demand-side innovation policy as a set of public measures to increase public and private demand for innovations, to improve conditions for their uptake or to improve the articulation of demand to spur innovation and facilitate diffusion. Demand side policies usually aim to lower barriers to the introduction and diffusion of innovations. The classic example of such a policy is the Small Business Research Initiative (SBRI) scheme which supports the procurement of innovative solutions by small businesses to specific issues identified by the public sector.

[2] OECD (2016), "Stimulating demand for innovation", in OECD Science, Technology and Innovation Outlook 2016, OECD Publishing, Paris. DOI: https://doi.org/10.1787/sti_in_outlook-2016-26-en

To support the development of a demand-led approach to innovation within the region WMIP has recruited a virtual team of innovation experts - who are sector specialists who understand the capabilities of their sector ecosystem – who work together to maintain a map of the regional innovation ecosystem. Through bringing together of these experts into a single regional team the programme seeks to encourage cross-fertilisation of innovations across sectors. Individual member experts provide linkages and systematically identify potential projects to address specific demand led challenges with their sectors that might be piloted within the WMIP funding envelope.

WMIP is underpinned by the West Midlands Innovation Framework (WMIF) which includes five pillars described in Box 1 and **Error! Reference source not found.**. The structure of the programme is set out in **Error! Reference source not found.**.

Box 1: West Midlands Innovation Framework

The framework has provided the structure for WMIP and has been deployed in the identification and delivery of new initiatives, programmes, and networks. It comprises of five pillars to be used in prioritising resources in developing an effective regional innovation ecosystem.

i. **Networks and linkages** to join-up assets and entrepreneurs, and help identify the opportunities for collaboration across sectors, technologies, and supply chains.
ii. **Investment programmes*:*** including demonstrator projects, broad and accessible investment and finance products on attractive terms integrated with local supply chains. Encouraged projects with novel approaches that may attract further funding if successful
ii. ***Talent:*** support businesses with skills needed to innovate through programmes with universities, Catapults, and innovation networks
v. ***Intelligence:*** developed the WM foresight programme to identify gaps in the innovation ecosystem and provide insights into how innovation can respond to major issues.
v. ***Culture:*** showcase capabilities and develop a culture of innovation within the SME community; the "New Voices of Innovation" database collates role models and case studies

Administration and delivery of WMIP

Support for the delivery of the programme takes the form of the WMIP Delivery Team, which includes both a dedicated programme team within the WMCA and the Virtual Innovation Team which reports to the Innovation Alliance Executive Team. The roles of each of the teams are outlined in Box 2.

Box 2: Role of different teams in the programme

WMIP Programme Team based in WMCA	• Project managing and administering WMIP. • Supporting the WM Innovation Board. • Leading the development of better fore-sighting and horizon scanning • Preparatory work for phase 2. • Develop LIS innovation actions not covered by WMIP (e.g. 'innovation talent').
Virtual Team of sector innovation specialists (specialists embedded in a range of organisations representing the 12 sectors and major market opportunities in the LIS)	• Promote innovation and to develop innovation-related actions in their relevant sector or major market opportunity plan. • Deliver challenge-led Innovation Programmes. • Develop themes for calls for proposals in preparation for phase 2 of WMIP. • Develop proposals for external innovation funding in support of innovation aspects of the LIS or sector/ major market opportunity plans. • Work with other sector specialists to share and seek synergies across sectors.
Innovation Alliance Executive Team, part funded by WMIP	• Coordinate across sectors, bring more sector-specific support organisations on board, contribute to cross-sector/ collaborative projects. • Work with specific sector support organisations to build and facilitate the Virtual Innovation Team (as above). • Coordinate a range of sector-agnostic 'network and linkage' and 'innovation culture' activities in line with the LIS innovation actions, with wider partners as appropriate.

Figure 1: West Midlands Innovation Framework

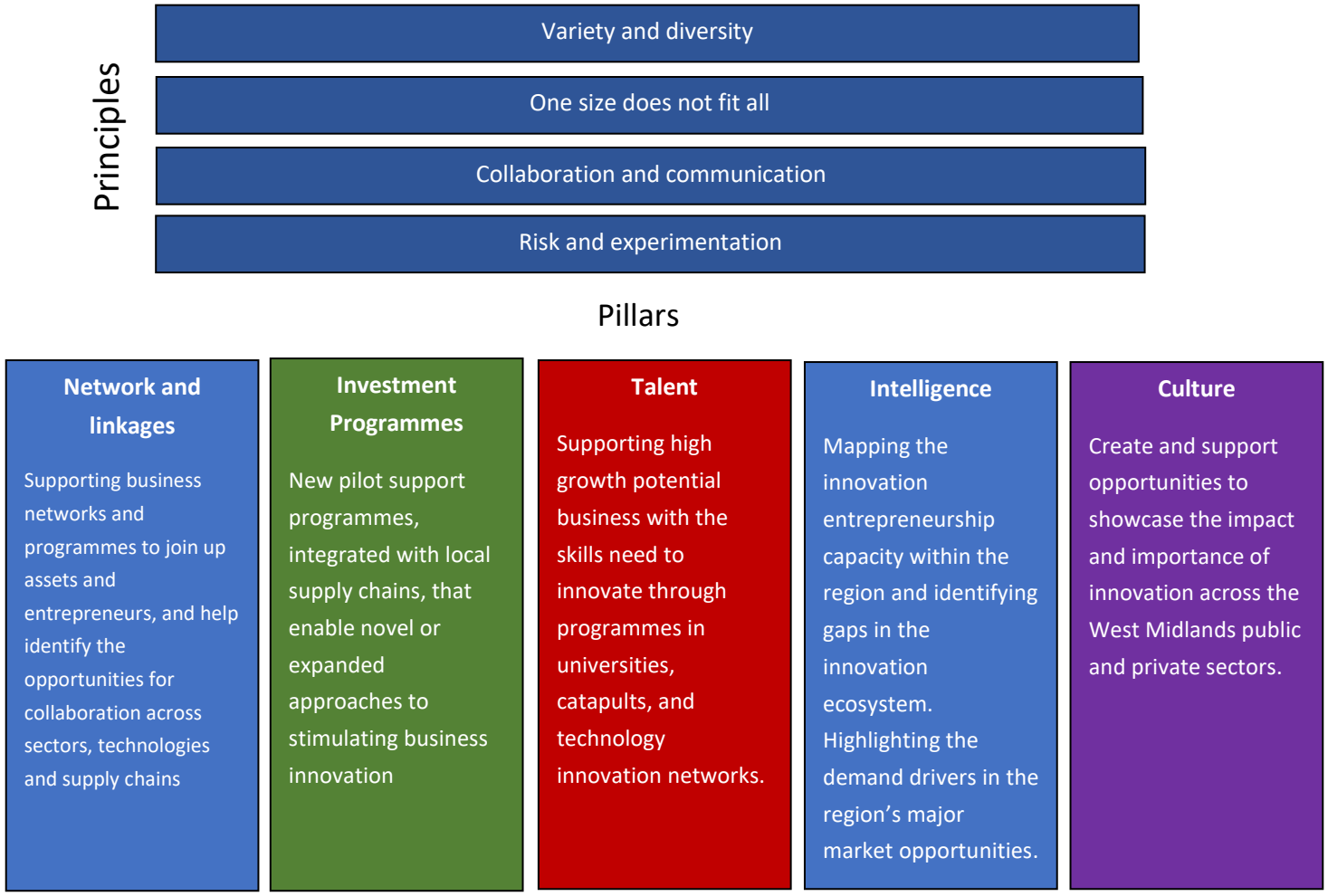
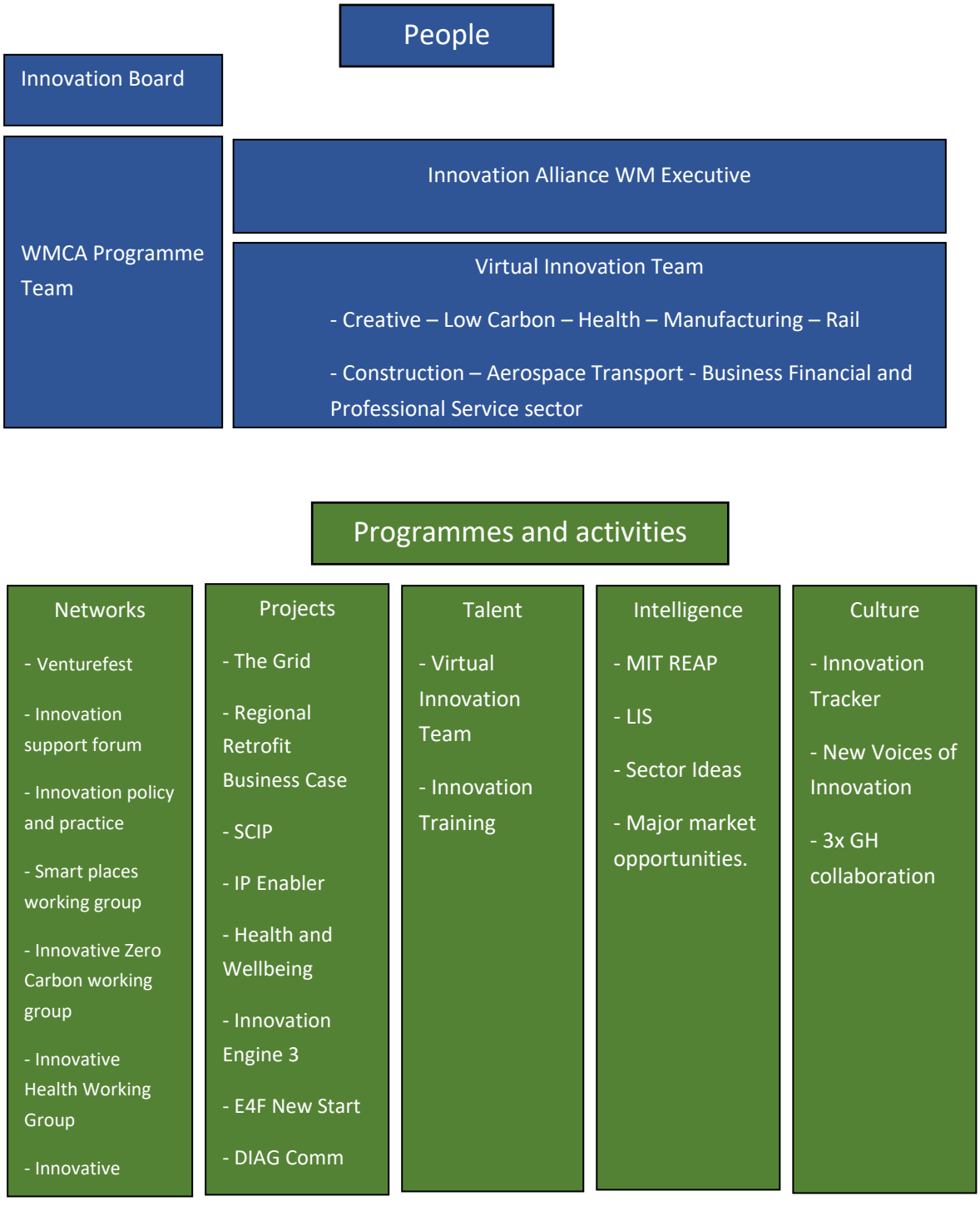


Figure 2: Structure of West Midland Innovation Programme



Programme theory

In parallel to this early assessment SQW were commissioned by WMREDI to pilot a case study approach to teaching business case development, using WMIP as the focus of the training. The training was piloted with regional experts with experience in the design, delivery, and commissioning of programmes to support businesses to innovate. This provided an opportunity to refresh and review the programme theory in the form of a logic model for the programme as part of developing the business case for further funding. The logic model developed by SQW as part of the training is shown below in **Error! Reference**

Context and rationale

- Significant amount of innovation activity in the West Midlands but often occurring in isolated pockets
- Fragmented innovation ecosystems and opportunity to better join-up existing provision / assets / agendas
- Barriers include information gaps, risk aversion, externalities, and coordination failures
- Specifically, there is a lack of funding to develop / embed innovative new technologies and a lack of clear routes to market for SMEs developing novel products and services
- Stronger emphasis globally / nationally on demand-led innovation

Programme aims

- To improve levels of business innovation in the West Midlands through:
  - Providing flexible funding for demand-led innovation projects
  - Encouraging greater take-up of existing innovation support
- To help address real and substantial challenges faced by public and private sectors in the West Midlands
- To position the West Midlands as the trailblazer for sub-regional demand-led innovation in the UK
- To deliver again the objectives of the West Midlands Local Industrial Strategy Framework

Inputs

- c£5m in CA funding over 5 years
- Core programme team of 8 FTEs
- Project funding will be sought from the CA and public / private partners of the five-year period

Key partners

- WM Innovation Alliance, Industry bodies, RTOs, HEIs

Activities

Demand led projects

- Organising funding calls for demand-led projects
- Supporting and mentoring consortia formed to develop solutions

Ecosystem support

- Running events and workshops to promote innovation in the West Midlands

Innovation vanguards

- Delivering innovation vanguard projects

Outputs

- Funding applications submitted
- Collaborative projects delivered
- New collaborations formed
- Existing collaborations strengthened
- Pilot, feasibility and demonstrator projects developed
- New technology-led solutions co-developed with West Midlands based organisations

Outcomes and impacts

- Increased R&D investment
- Stronger, more integrated West Midlands innovation ecosystem
- New services and products developed more quickly (reduced cost and risk)
- Improved understanding of demand-led innovation
- Increased levels of innovation across the SME base
- Increased exports and FDI
- Increased VC activity
- Increased productivity
- Increased GVA

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Figure 3: Logic model for WMIP (Source: SQW 2022

Methodology

We have chosen to call this an early assessment of WMIP rather than an evaluation as we are evaluating phase 1 to inform the business case and design of phase 2. By early assessment we mean:

A. *Revisiting the rationale for WMIP* to establish whether it stills holds true or needs refining. By 'rationale' we mean market, institutional and information failures identified that act as barriers to innovation and the wider strategic case.
B. *Testing and elaboration where necessary of existing programme theory.* This will involve testing existing assumptions set out in, and respecifying (as applicable), the existing theory of change underpinning the programme design.
C. *Assessment of the implementation of the programmes*. This will take the form of a formative assessment and will capture learning that can be used in design of phase 2. The outputs are identification of learning, good practices, data allowing a better insight into what interventions may work best in different contexts.
D. *Capturing early impacts* of the programme for direct beneficiaries and the wider regional innovation support ecosystem.
E. *Qualitative assessment of value for money* based on delivery of intended activities and outcomes.

It is our view that is too early to undertake a full economic impact evaluation because insufficient time has elapsed for economic benefits to have materialised. However, this assessment captures leverage of other funding that can be used to estimate economic benefits and compare against the calculations in the business case.

Since Phase 1 is about capability building and proof-of-concept this early assessment is a formative process evaluation focusing on the following questions:

- How do the different activities fit together? Are there any gaps in achieving the set targets? Are functions duplicated?
- Have the capabilities to implement a successful phase 2 been developed? What is missing? Can we be more ambitious with phase 2?

This assessment was structured around the lines of enquiry (see Appendix A) agreed at the commissioning stage of this study based around the aims, pillars, and principles of WMIP that informed our consultations and analysis of documentation.

We adopted a mixed methods approach triangulating the following evidence sources:

- Desk review of documents relating to WMIP, and other key schemes identified by the Innovation Team and Innovation Alliance Executive Team to understand:
    - *Rationale for WMIP and the supporting evidence base.*
    - *How WMIP contributes to national and regional objectives.*
    - *Programme theory.*
- Analysis of existing management information and, where available, data at the individual beneficiary level.

- Interviews with the WMIP Virtual Innovation Team sector specialists and their main partner organisations.
- Case studies of networks supported, including working groups and events.
- Case studies of projects supported.
- Interviews with members of the WMCA Innovation Team and Innovation Alliance Executive.

Findings

Rationale

The programme is underpinned by a detailed business case that clearly sets out the context for the programme situating the programme within the WMCA's Local Industrial Strategy and setting out the region's innovation assets that it would be able to draw upon, as well as barriers to innovation culture within the region. Evidence from extensive consultations is presented to make the case for the programme to focus on the fragmented innovation ecosystem within the region and for supporting a demand led approach innovation to improve commercialisation of new technologies and research under development in the region. The rationale set out in the business case states that the *WMIP should have a key role to play in enhancing the WM ecosystem by creating viable exploitation innovation pathways for successful demonstrators* […] *through broader networking and linking activities to encourage innovation investment, talent and collaboration*.

In our view WMIP has correctly initially focused on two of the four categories of demand side policy initiatives - these being ones that WMCA can enact and influence:

- *Public demand (procurement)* – innovation as a key criterion in tendering and assessment processes and strategic procurement, which encourages the development of certain technologies, products, and services.
- *Private demand* – direct / financial support to consumers (e.g. demand subsidies and tax incentives) and indirect/soft steering support (awareness building, labelling and information campaigns).

It not realistic to expect WMIP, being a regional intervention, to have *influence over regulations* which are set at the national level. However, WMIP has funded activities that have improved regulatory advice provided to innovative businesses through its partner organisations. The other category is *systematic approaches that integrate supply and demand side* measures, which as the business case notes, are dependent to some extent on the enactment of local industrial strategies that can underpin greater coordination of measures within the region.

The business case draws on the work of Edler (2016)[3] which sets out the justification of demand side interventions in developing the market and other failures underpinning the economic case for WMIP set out in Box 3.

Our assessment is that rationale for WMIP is clearly specified and well evidenced. The underpinning market, informational and institutional failures still hold true based on the consultations and review of available documentation undertaken as part of this early assessment supporting the case for continued funding of WMIP.

[3] Edler, J 2016, 'Local Needs, Global Challenges: The Meaning of Demand-Side Policies for Innovation and' Global Innovation Index. https://www.globalinnovationindex.org/

Box 3: Market and other failures underpinning the economic rationale for WMIP

The rationale specifically in relation to the WMIP intervention is necessary to tackle the following three market and other failures:

a. co-ordination and network failures on multiple fronts, including (i) the lack of fully joined-up networking and collaboration for the purposes of demand-led R&D in the region and (ii) a rather complex and fragmented innovation support landscape in the WM (as is the case in most city-regions in the UK), caused in part by the complexities of a funding landscape that is largely externally driven and not geared to local needs and opportunities.
b. information failures and risk aversion issues, whereby individuals and businesses developing new and innovative ideas often lack the necessary understanding, skills and/or capability to commercialise products/services in response to specific challenge areas e.g. when trying to understand NHS opportunities it can often be very difficult to access clinician time from busy consultants/doctors, and businesses can find NHS procurement difficult to understand and navigate.
c. the opportunity to generate wider externalities and spillovers arising from further growth and development of the WM's key tech-rich clusters, particularly across the four main priority areas of the emerging LIS:
    - the future of mobility (the West Midlands is the centre of transport innovation in the UK, leading the smart, low carbon movement of people and goods);
    - modern services and business, professional and financial services (the global trend towards services represents a major opportunity for the West Midlands);
    - data-driven healthcare and precision medicine (partnering with patients and business to improve health and wellbeing);
    - creative content, techniques and technologies (the West Midlands has a long history of creative business success, from the earliest development of new techniques in industrial design and processing, to 90,000 creative jobs today).

Funding and resourcing of WMIP

Initial funding of WMIP was deployed to establish the supporting management infrastructure of the programme, marketing, events, networks, and to pilot new approaches. An initial £2.96m was secured for from the WMCA three years for the operation of the programme. This covered budgeted revenue costs to related to:

- The WMIP programme team: £360,000 was made available to fund 2 FTE staff.
- Virtual team: £600,000 was made available to fund sector innovation specialists members employed on a part-time basis and embedded in a range of organisations representing the 12 sectors and major market opportunities in the LIS (70 per cent WMIP funding with 30 per cent match by partners).
- IAWM Executive Team: £585k was made available to support 3-4 FTEs (with 30 per cent match by partners).
- £1,421,000 for funded pilots, marketing, events, communication, professional fees, and contingency. Inherent in the programme design was the leveraging of additional resources external funding and partner contributions to staffing.

It was anticipated that £1.6m would be achieved in leveraged resources, however the actual leveraged resources were £10.6m; this is 564 per cent higher than anticipated.

There was no significant variation in overall expenditure over the three years against the plan since the budget was used flexibly and responsively to the emerging and changing situation. Where it was

necessary, funding was appropriately transferred from activities and projects that failed to properly establish to other activities and projects responding to new issues and priorities.

Development of WMIP

There was significant and substantial progress in the first six months before the Covid-19 pandemic hit. The business case for WMIP received approval on 24th June 2019 by the WMCA Investment Board subject to review by the Investment Board before 10 per cent of funds were spent. The progress report submitted to the Board for consideration in January 2020 describes progress made in the first six months of the programme prior to the pandemic, as summarised in Box 4.

Box 4: Progress made in first six months

Networks and Linkages	• Venturefest WM 2020 was well advanced in its planning for the event and had secured £25,000 in funding from partner LEPs and participating Universities. It was agreed that WMCA would take over from Innovation Birmingham as the accountable body. • WM Innovation Support Forum established and tasked to broker cross-sector, cross programme and cross-service provider support to SMEs. It had held three meetings (including a 'speed mapping exercise', Ecosystem marketplace and a joint workshop with Innovate UK West Midlands). • Smart City Alliance had held two themed meetings (Energy and 'Smart Opportunities for Global Growth'). • Leading professional services firms with an interest in innovation ecosystem had hosted two well attended Innovation Policy and Practice Events on 'How large and small companies can collaborate to innovate' (EY) 'Innovation and the Circular Economy' (Mott Macdonald) and third arranged 'Innovation and the LIS – time for action' (Trowers and Hamlin). • Existing Priority Sector Innovation Working Groups (Low Carbon and Health) had each met twice with a total of about 50 attendances.
Investment Programmes	The purpose of the investment programme was to create new support programmes that are integrated with local supply chains, including crucial Tier 2 and Tier 3 firms through demonstrator projects, supporting broad and accessible investment and access to a good supply of appropriate finance products on attractive terms. Within the first six months development included: • A business plan for rolling out the IPO Enabler pilot being delivered by the Intellectual Property Office and GBSLEP to provide intellectual property audits and confidence grants to the other two LEPs within the WMCA region. • Work had begun on the Virtual Innovation Platform with Aston University and GBSLEP and on securing matched funding. • Business Plan for CITEC innovation pilot to support collaboration within and between supply chains to develop innovative new product and process technologies, focusing on five key Midlands' industries (Next Generation Transport, Medical Technologies, Food Processing, Energy and Low Carbon, and Sustainable Construction).
Talent	• Mapping of the current provision of innovation skills support within the region and initiated development of a business plan was being developed in collaboration with the creative sector for innovation skills support from the WMCA.
Intelligence	• Recruited lead for programme and initiated discussion with sector organisations to provide members for the virtual innovation team including Sustainability WM, the WM Academic Health Science Network and Create Central.
Culture	• Innovation by Stealth had started to develop a pool of good business innovation case studies that could be offered to business events/ publications to inspire others.

Assessment against targets

WMIP has been very successful in achieving its target outputs, exceeding four out of the five main outputs that were set out at the beginning of this project. Table 1 below compares the forecasted outputs against the actual outputs of WMIP (phase 1).

The almost six-fold leverage of additional resources can be seen as indicative that there was a clear need for programme that allowed coordination of support for innovation in the region. The exceeding of targets in the context of the pilot being delivered in a period that included the pandemic and changes in the funding landscape for partner organisations reflects the robust structures and systems the programme put in place and the commitment of partners to collaborate. There were 65 per cent more than anticipated attendees for networking events and 141 per cent more businesses assisted than anticipated. The number of innovation collaborations between businesses, that can require significant attention and resource to create, also exceeded targets by 22 per cent and jobs created also exceeded targets albeit by a more modest 8 per cent.

Table 1: Forecasted vs Actual Outputs

Output Target (Phase 1)	Forecasted Output Target	Actual Output	Difference from target	Percentage difference from target	Target Achieved
Leverage resources	£1,600,000	£10,748,352	£9,148,352	572%	√
Networking event attendees	3,600	5,936	2,336	65%	√
Innovation collaborations between businesses	200	244	44	22%	√
Businesses Assisted	280	676	396	141%	√
Jobs Created	75	81	6	8%	√

Using a similar methodology as the original business case we calculate over the 3 years to date the programme will have generated £24,053,007 in total net additional GVA effects generated from business assisted (cumulative). Plus £5,056,169 in total net additional GVA effects from jobs created (cumulative) (see Appendix C which analyses the additionality of the project). In total net additional GVA effects for this project are £29,109,177.

Assessment against aims

A. Develop a more integrated innovation support offer to help more businesses to be innovative within the region

The WMIP has made good progress against this aim given the context of the pandemic and changing funding regime with the winding down of European Regional Development Funding (ERDF). The Innovation Alliance and WMIP teams have made good use of opportunities that have arisen, including the MIT Regional Entrepreneurship Accelerator Programme which supported mapping of existing provision and underlined the need for a flexible adaptive programme such as WMIP. Members of the WMIP team were actively engaged in the West Midlands Business Support project (WMBSP) which provides a potential opportunity for both simplification and refocusing of the innovation offer to the region's businesses. These, in combination with the work of sector specialists in the VIT in developing networks and joint activities and events with partners including universities, sector bodies, local enterprise

partnership, existing providers of support and the work of Innovation Alliance and WMCA team, have resulted in tangible and real examples of:

- the identification and exploitation of synergies in existing provision to best effect to produce more tailored (aka premium) business support packages such as WMHWIN and IE3 (see case studies1, 2 and 5 below).
- development of innovative business support solutions by business support providers in the region, for example, methodology developed by WMG to support consortia of businesses respond to real challenges and market opportunities in the NHS (see case study 1 below).
- more relevant packages of support from the perspective of businesses, their advisors, and main providers of support (see case studies describing IE3, IP Enabler, WMHWIN).
- sector specialists in the virtual team developing necessary intelligence of existing support, both within their and other sectors, which has contributed events and improved information for businesses to navigate existing provision. Assisting with navigation was mentioned by several VIT members interviewed as a key part of their role.
- Infrastructure and systems developed to support the delivery of the programme (VIT, Working Groups, WMCA programme team).

Our consultations indicate that **WMIP has supported activities and initiatives that foster and develop innovation to address real-world challenges faced by businesses and public sector in the West Midlands.** The programme has funded approaches that have connected businesses, potential customers and existing providers of support and services based in the region to identify and create solutions around specific challenges, and support development through the provision of support, space, networks, and mentoring.

The **WMIP has provided practical means to offer leadership and capability to support innovation by businesses and development of the West Midlands innovation ecosystem**. The WMIP, by funding the Virtual Innovation Team (VIT), has helped business sector groups to develop their capability to support their sector. The collaborations and contacts that the VIT have developed have been significant and instrumental. The collaborative approach has been constructive in building relationships for cross-sector networking. Whilst it can be considered a little early to aggregate up the impact for the regional economy, the starting point has been improved upon to enable businesses to develop innovative solutions to challenges.

Three years has not been sufficient time to develop a truly integrated innovation support offer to help more businesses to be innovative within the region.

WMIP has supported initiatives that assisted businesses and their customers to plan for, co-produce and enact innovation, as would be expected for a demand led policy approach. This was seen as a relatively new and important development for the West Midlands innovation ecosystem. Three examples of such initiatives include DIPS (Digital Innovation in Public Sector), West Midlands Health and Wellbeing Innovation Network (WMHWIN) and Innovation Engine 3.

DIPS support Birmingham City Council work with innovative procurement to go beyond "approved suppliers" so that tech SMEs can access city council contracts. The approach has identified champions and challenges to overcome which have been addressed and put into practice with partners alongside Birmingham City University. The approach has targeted the public sector to evidence how innovations in the sector can be encouraged and embedded.

The WMCA **team provides leadership for business support through the development and catalysis of appropriate aids for business navigation**. This has involved working closely with the VIT and the Growth Hub to understand different innovation models as it important to be aware that innovation in manufacturing can look very different from innovation in a digital company or an SME. Significant investment has been made in the development of navigation tools involving mapping the ecosystem, in the Pathfinder Guides project. The production of guides involves curating and describing the beaten path for innovation in a specific sector. For example, they might provide information on which manufacturing businesses to engage with and at what stage, and what steps that might be best to take.

WMIP was seen to open doors by identifying challenges faced by the public sector, and in some cases OEMs[4]. WMIP supported projects that involved specification of problems faced by large organisations into challenges or briefs smaller innovative businesses can respond to. In most cases the benefits of the solutions developed are applicable to other similar organisations and businesses. The wider applicability of solutions whose development is supported by WMIP helps ensure greater additionality (which otherwise may not have happened because it does not confer a commercial advantage to the sponsor) and the creation of public goods (know-how that can shared within wider innovation ecosystem). While we are not able to assess leakages, by connecting the large local organisations needing innovative solutions with regionally based consortia of innovative businesses, WMIP has helped to provide a 'home-grown solution, intellectual property and products that can be provided within the region'. These solutions can often be resold outside of the project, thereby creating additional business opportunities that support the wider regional economy.

Creating Synergies

WMIP can be said to be **truly ambitious in its aims to create synergies within the existing innovation ecosystem in terms of support offered to businesses and innovators**. Phase 1 has been about putting in place the infrastructure needed to achieve this aim. As one sector specialist observed, WMIP Phase 1 has been instrumental in developing the necessary climate of trust and good communication between stakeholders necessarily to identify and unlock potential synergies. The West Midlands Innovation Accelerator announced in the Levelling Up the United Kingdom White Paper has provided timely catalyst to draw upon this investment.

[4] Original Equipment Manufacturers – The Pivot CITEC challenge encouraged businesses in other manufacturing sectors respond to generic common challenges faced by OEMs in the aerospace sectors

B. Provision of targeted support to businesses to help them access national innovation funding

Our consultations indicate that **WMIP has been very effective in (a) the identification and signposting of businesses who recognise they need to innovate to remain competitive by adopting new technologies or processes and (b) businesses who can potentially offer potentially innovative products and services to right support.** A team used by some VIT members was chain of support, which includes directly referring businesses to WMCA and other funders. This helps cut down the number of other schemes and helps build a more direct chain of support. It allows the VIT to be very flexible and very agile in the way that they work. The advantages of working regionally as the direct chain of support ensures there is a more relational approach, which WMIP has focused on building.

The **WMIP has been effective in drawing on synergies with existing business support provision** through activities and initiatives it has funded. There are several examples of how WMIP has done this. For example, the West Midlands Health and Wellbeing Network has drawn on the expertise of the Warwick Manufacturing Group in delivering a structured challenge led approach to innovation, and has drawn on business support developed by Bruntwood who operate several innovation parks and incubators in the region and the Serendip Programme which was originally funded by the NHS to support the adoption and commercialisation of new health technologies (See case study 1),

The VIT acts as a central hub for cross-sector innovation that had previously been lacking in the region. The connections and networks developed by the VITs have focused on strengthening connections with stakeholders in the region, such as the private and public sectors and universities. The results are a better provision of business support advice and signposting for supported businesses.

Many business support providers continue their existing practices to support application processes. These have been proven over several years to work. Bruntwood has supported applications and ensured the applications are as easy as possible to manage. Further, the “no dead end” approach ensures that unsuccessful applicants are still directed on to suitable business support opportunities. Easy access applications are important because they provide a way into the innovation business support ecosystem, whether that is through the WMIP project directly or through another relevant business support service.

Newsletters and email lists have been the main way in which WMIP business support provisions have been marketed. The targeting of support has been to a wide audience, in keeping with the aim to work cross-sector. The sharing of contacts between the different VITs across the programme has played a significant role in targeting businesses from different sectors.

Each business supported is recorded in the project reports. These outline the business name and sector. As a result, the businesses supported by a Virtual Innovation Team do reach beyond their sectors, indicating a strong level of cross-sector collaboration on providing solutions.

C. Build up expertise to deliver large scale innovation programme in region of £30 million

In making our assessment against this aim we have considered:

- Indication of potential demand.
- Potential barriers to scaling.
- Capacity to scale.
- Good practices developed and learning from phase 1.

Support from the West Midlands Innovation Alliance and existing partnerships and networks of individual businesses has helped ensure that the right organisations were in place to support the WMIP project. Working with the existing networks in the region was a highly effective starting point to provide successful outcomes of the project to date.

Based on the learning, good practices that have been developed and the systems and structures that been put in place, we conclude that the WMIP is scalable. The advantage of the programme is the high level of flexibility provided to develop and pilot new approaches in response to current and emerging challenges within the region's innovation ecosystem. This has been achieved by members of the VIT who have been closely involved in the development and implementation of network projects drawing on their intelligence, as well as partner organisation coming forward with proposals.

As noted earlier, the programme has exceeded most of its targets (see Table 1) in terms of attendance at events and business assisted which is indicative that within the **first three years the programme has built the expertise to scale**.

Building on existing networks and knowledge of key people in the relevant sectors was important in getting Virtual Innovation Team off the ground and up and running. The VIT approach brings together different key stakeholders who are important in linking the cross-sector innovations together already. Organisations such as the Midlands Aerospace Alliance have benefitted from linking in other projects into the WMIP because they already had the existing networks and had a tight remit going into the project. The successes in bringing other sectors into the project, as evidenced by the Midlands Aerospace Alliance, is because they have been running in a similar way for many years. Albeit in different guises, the culture of cross-sector synergies, such as in the Midlands Aerospace Alliance, has been a success factor in the WMIP project.

D. Communication of innovation opportunities within the region

This aim is closely linked to the intelligence and culture pillars assessed below.

The communication of innovation opportunities helps exchange knowledge and sharing of information across the region. The view of the sector specialists is that WMIP encourages the facilitation of knowledge and idea sharing, so learning from another. This is especially important for overcoming obstacles or failures that are common across the region. The networking approach of WMIP has been

particularly effective at bringing firms together that may otherwise have not crossed paths. The partnership approach has been particularly effective for projects such as Sustainability West Midlands and Birmingham Enterprise Community – who work with large organisations to help creative industries to pivot especially when being impacted from the pandemic.

Sharing of ideas through newsletters and events has been effective in sharing opportunities with a wider audience. This ensures that information is shared widely amongst partners both within and outside of the sector. The sharing of newsletters and events provides an effective and joined up approach to business support, where all potential stakeholders have access to knowledge about the support that is available.

WMIP has been successful in filling a gap within the West Midlands for companies to meet and discuss challenges around innovation. Networking events have been promoted mainly through emails, newsletters, and word of mouth. Members of VIT collaborate to share each other's events. This has had a good response with the numbers of attendees hitting their targets. Whilst there were already existing email and newsletter communications, the explicit focus on working across other sectors is a notable success of WMIP. The email and newsletter communications methods have been successful as the "reading rate" (i.e. the number of people who open and read email newsletters) is around 50%, which is higher than many other newsletters. As such, these indications show that awareness and interest of the work of WMIP has increased over the course of the programme.

E Networks and linkage

The programme has made good progress in the first three years in creating networks and linkages as evidenced by interviews with stakeholders and documents provided by the project team.

WMIP is **contributing to addressing information and coordination failures at regional level** by:

- practical actions - albeit currently on a relatively modest scale though piloting new approaches (see case studies below).
- better understanding of how such failures manifest in different contexts and for different actors in the region's innovation ecosystem.
- tailoring of information and its delivery on specific challenges to actors in the regional innovation ecosystem.

Activities untaken include **holding cross-sector events that have brought organisations, and businesses from different sectors together that are facing similar challenges, so they can learn from each other**. WMIP, through working groups lead by virtual team leads, have organised events covering sustainable manufacturing, digitalization, and additive manufacturing applicable to businesses in a range of sectors that have contributed to businesses diversifying their supplier base and customer network, as well as the transfer of technology and processes across sectors. This has been possible because of contacts that members of the VIT have access to by being embedded in relevant sector organisations. It is also because of their willingness to share contacts with colleagues to enable such events to take place and to provide introductions for businesses to whom working cross-sector is unfamiliar.

Attendance at networking events such as working groups was considered transient by some interviewees because events aimed at specific groups of businesses and stakeholders are not attracting the same people. This is a concern where continuity of dialogue is needed, and specific stakeholders need to be present, but this could be resolved by having a calendar of events and sending information to encourage more regular attendance. There were concerns where there was lower-than-expected turnout at events, that this might affect the success of the marketing and wider support for the WMIP. However, our analysis of the events held indicates that participation is likely to be determined by the topics being covered.

Below we provide case studies of how WMIP has supported:

- participants spotting new opportunities, including adopting new technologies.
- creation of linkages.
- collaborations.
- exchange of know-how and transfer of technologies across sectors.
- acting as a mechanism to support supply chain development / cluster development.

The WMHWIN programme **maximises the impact on the local supply chain in the region to deliver new innovative products** for the NHS. Engaging local businesses to provide innovative solutions to challenges in the NHS has two positive regional impacts. Firstly, the NHS can benefit from a more efficient product that is developed through WMIP. Second, the businesses engaged in the project have been able to

develop a product, develop their expertise, and build on their own growth strategies. Harnessing the expertise of local businesses to meet local needs is a highly effective investment which benefits the region. This novel approach is an innovation in business support itself. The potential for scaling this approach can be significant. Public procurement is a significant player in the regional economy and can be expanded into all public institutions. There are overlaps with organisations outside of the WMIP, such as the Birmingham Anchor Network, who also use public procurement to meet specific local needs.

The **"no dead end" approach** from Bruntwood is highly effective in bringing new businesses into the innovation ecosystem. Even if businesses are unsuccessful in their application to WMIP, the policy employed by Bruntwood, to ensure that each business is referred on to another suitable business support opportunity, means that businesses are now engaged in the innovation ecosystem. WMIP encourages that first point of contact for businesses to engage in the broader business support in the region. Upon engaging, the businesses do not leave the ecosystem empty-handed. The support provided ensures that there is additional support and benefits to the broader economy beyond WMIP. Bruntwood have used this approach for many years and the extra impetus of engaging with WMIP brings even more businesses into the regional innovation ecosystem.

F. Investment programmes (Products created)

WMIP has supported a **wide portfolio of activities across a range of sectors**, though not all sector intermediary organisations have taken up all funding available to them as they have been able to draw on other sources.

The intermediary body SuperTech is concerned with supporting digital innovation in the region's business services and financial service sector is currently not an independent entity and is part of GBSLEP who funds its activity. Like some other sector bodies represented on the VIT it is a relatively new membership organisation and is building its membership. Generally newer sector bodies have not reached the stage in their development to deliver programmes to the same extent as more established organisations. However, in the case of SuperTech another major funding opportunity arose with the Community Renewal Fund (CRF) and the GBSLEP was able secure obtain significant funding for No_Code project to fund a six-month project to support an accelerator for businesses to develop digital new B2B products and services and fund the piloting of a new curriculum for young people in three colleges within the region to develop business applications. While not originally a WMIP funded project, the programme has contributed £10,000 to fund four additional places on the accelerator strand of the project. In the case of the No-Code project the amount of paperwork required to submit a CRF bid was not considered to be that much greater for £470,000 than that required for a more modestly funded project by WMIP. The level of paperwork involved in developing proposals for funding by WMIP was not a theme that commonly came up in our consultations. This is probably because WMIP is genuinely funding activities where they few other funding sources.

A list of projects supported is shown in Box 5.

Box 5: Projects investments by WMIP

Regional Retrofit Business Case	WMIP funded the development of the business case setting out the potential of the West Midlands to scale and grow programme of whole house retrofit in response to the region's Net Zero Carbon target by 2041.
The GRID	This project involves piloting a virtual innovation incubator for the SME community. The GRID provides an online space enabling the exchange of innovation challenges between the SME community with the aim of forming collaborations of SMEs to provide innovative solutions.
IP Enabler	IP Enabler was jointly established in 2018 by the IPO and GBSLEP to support innovative/creative businesses to maximise the value of their innovation and creative assets by building their confidence in their IP assets and encouraging management of IP, commercialisation, and collaboration through an IP Audit and commercialisation strategy. From 2021, WMIP has provided joint funding with IPO to expand the geography of the scheme to the wider region
Innovation Engine 3 (IE3)	Innovation Engine 3 seeks to increase the cross-sector engagement between the Creative and Low Carbon sectors. Such engagement has been low due to the absence of any appropriate regional mechanism to facilitate meaningful collaboration.
Repurposing to Zero	The Repurposing to Zero (R2Z) initiative focuses on creating sustainable prospects for town and city centres in a post-COVID-19 world. The initiative focuses on triple-bottom-line sustainability, as well as circular economy principles, to deliver a "place-based approach to Net Zero".
PIVOT-CITEC	PIVOT-CITEC project aims to accelerate cross-industry innovation in West Midlands' supply chains. It builds on a model that has already proved successful in the aerospace industry and applies it to stimulating smaller companies to pursue demand-led innovations that cross sector boundaries, pulling technologies from one industry and exploiting them to resolve challenges faced by another.
3D Capture as a Service	A web-based portal for creative business to book slots for the use of motion and volumetric capture and for freelance performers to bid for work being offered by these creative businesses for bespoke animation offered by this new service.
West Midlands Health and Wellbeing Innovation Network	The WMHWIN is an innovation accelerator programme utilising existing incubation programmes and centres within an Innovation Network to drive innovation in the health and wellbeing sectors. It will provide innovation services, business support, expertise, connections, and space with access to all key stakeholders and networks.
Digital Innovation in Public Services (DIPS)	DIPs project is concerned with providing an easily accessible process for public and private sectors to come together to develop new approaches. It tackles complexity by co-developing with users solutions to real needs and fosters a collaborative approach where trust is essential.
Unit 9 Med Tech Incubator	The project aims to overcome immediate barriers to innovation within the region and create opportunities for partnerships between businesses, the Universities of Birmingham and Aston, and potentially the regional NHS to support the rapid adoption of new technologies.
Urban Food Manufacturing	The project will fund the first exploratory stage of a retrofit of an underutilised multi-story car park in the Jewellery Quarter transforming it into an urban farming hub and a cool storage facility that connects hospitality and retail in the city centre with highest quality, locally and sustainably produced food.
No Code supplement	Funding of additional places on the accelerator element of programme.

Our overall assessment is that WMIP has:

- supported a broad portfolio of investments in new products that responded to specific gaps in provision in existing innovation support ecosystem. The products we assessed in greater depth as case studies tended to be well designed and genuinely supported demand-led innovation.
- IE3 and WMHWIN (see case studies) provide examples of how products have effectively used existing local supply chains in delivery of innovation support (linking together expertise both in providing advice and guidance around innovation and access to facilities for businesses to innovate in a wider innovation ecosystem).
- addressed a gap in funding for new innovative innovation support activities.

G. Talent

There is no doubt that **WMIP has created a regional centre of expertise by pooling of talent within the VIT from innovation experts from different sectors.** The value this has created should not be underestimated as networking and collaboration effects of technology officers were identified as a significant factor in the durability and success of the SMART scheme that supports research and development (PACEC 2001)[5]. The creation of such talent pools through serendipity and better organisation contributes towards addressing information and coordination failures. In our consultations we were provided with numerous practical examples of specific instances where the VIT have intervened by convening different parties and assembling disparate information into more accessible forms for businesses and stakeholders.

Funding and the mandate provided by WMIP has enabled VIT members to provide a leadership and convening role. While this assessment did not look at the competencies and skills needed by VIT members it is clear they bring exceptional organisational, convening and facilitation skills and a deep understanding of their sector needs to develop and pilot new initiatives.

Structured approaches, such as the methodology developed to support businesses responding to innovation challenges set by University Hospitals Coventry and Warwickshire (UHCW), have contributed to the development of innovation management skills of assisted businesses (see case study 1). There is good evidence of businesses not only being referred to specific premium support around innovation but also to more generic business support should they need it.

The funding of resources based on mapping of provision in the region has allowed account managers and frontline advisors, who effectively provide triage in partner organisations, with the tools they need to be more productive and effective.

The Virtual Innovation Teams have added creative capacity in a cluster of businesses that would otherwise have a lack of funded capacity for support. For example, in the aerospace industry, the VIT has added a particularly important cross-sector node which was previously lacking for the aerospace sector in the West Midlands. The approach is not transactional; rather it actively develops capacity in a strategic way. The innovation capacity building helps more clearly identify the journey for a company to engage in its individual innovation journey. Working on connecting individual businesses with the ecosystem and stakeholders helps all in the chain to understand what programmes are out there and how they fit in. The VITs then filter the advice and knowledge down into practical information that business facing advisors can use to engage with a business. The benefits of the WMIP networking approach are that there is the additional wrap around support provision rather than higher-level interventions.

The networking events and cross-sector collaborations of the VITs have helped business leaders **"open their eyes to the possible".** There are some challenges faced by businesses in the region which are similar, regardless of sector. For example, the challenges in moving towards zero carbon ways of working. The solutions identified do not therefore have to be limited to one sector. The Zero Carbon events bring different businesses together who, by sharing their proposals and solutions to the problems, can support businesses in the wider region in moving towards zero carbon working practices.

[5] PACEC (2001). Evaluation of Smart (including Spur). DTI Evaluation Report Series No 3. URN 01/1189.

H. Intelligence

In making our assessment of programmes and activities listed under intelligence we considered the extent to which WMIP has:

- identified gaps in the innovation ecosystem.
- increased understanding of drivers of demand for support and how this might be related to how businesses innovate within the region.
- improved responsiveness to emerging needs.
- improved allocation of resources.
- enabled a comprehensive mapping of innovation and entrepreneurial capability in the region.

Based on our analysis of documents and consultations, our overall assessment is that WMIP has made **significant and good progress in its first three years.**

In 2020 a regional partnership of the WMCA and the region's three LEPs was successful in applying for the BEIS supported **MIT Regional Entrepreneurship Accelerator Programme (MIT REAP**). This in involved applying a framework developed by MIT that supported the development of the evidence base on the region's innovation ecosystem. The MIT REAP analysis supported the rationale for need for WMIP by finding that although the West Midlands has a complex and thriving Innovation Ecosystem, it was not being leveraged to its full potential. This is due to the organic nature of how such ecosystems form and the multiple stakeholders involved in delivery but also, more importantly, there was no overall coordinating inclusive Innovation Strategy. The research identified four 'must win battles' that WMIP plays an important role in addressing:

- A More Coherent Regional Funding Strategy: A more coherent strategic approach to attracting and generating funding for strengths or capabilities within the region is needed.
- Coordinated Business Support: More coordinated support is required to help companies with their innovation strategy and their access to regional support activities and the innovation ecosystem.
- Digitisation of Manufacturing: The region's businesses need to leverage the region's assets to enable digitisation of manufacturing and processes.
- Showcasing the Region: We need to work together to redefine the view of the West Midlands within Government. A coordinated voice is required within the region to present the region's assets and capabilities.

I. Culture

The collaborative approach developed and implemented through WMIP through the networks, projects, and activities it has supported has '*opened the eyes of partner organisations to the art of the possible drawing on what is already going on elsewhere in their sector and the region*.' (Virtual Innovation Team member).

To engender culture change within the region, WMIP has ensured that most activities and events it has supported are open to all, with no joining requirements or application process. Interested businesses and actors in the regional innovation ecosystem can register on the website to events and networking

opportunities. The success of these free events has been predicated on their quality and the useful conversations they enable.

The Innovation Support Forum, which is mostly by invitation, has been highly effective at connecting predominantly public funders in the innovation space. The idea behind the forum is to provide a safe space for people to just get together and share best practices. It is supported by a member of the WMCA team who works with the Innovation Alliance to help develop a top-down understanding of the ecosystem and to connect the dots and uses this forum to work with the business facing intermediary organisations. Initially the focus and engagement were with Growth Hubs, but this expanded to include other intermediary stakeholders so that they are able to utilise intelligence being gathered and filter it down to the businesses they are working with to engage them and help them on their own innovation journey.

Outside of events, there is a very good response for interest in projects that WMIP run. Particularly at Bruntwood, a large proportion of projects got good responses for interest from businesses. The experience, contacts and expertise in the sectors that Bruntwood have is ideal for supporting smaller organisations in their business journey. In particular, the principle of "no dead end" is especially effective in supporting the overall quality of businesses in the West Midlands area. This is where businesses who are unsuccessful are still supported in different ways, whether that is through other contacts or business support networks.

Enabling businesses to embark on a journey to successful business innovations is as important a success criterion as an end product. The role of WMIP in supporting the journey of getting stakeholders to collaborate and uncover information is important when building an innovation ecosystem in the West Midlands. For example, with Create Central the WMIP helped align the strategic collaborations between with University of Birmingham, STEAMHouse, and the broader innovation ecosystem. Although many companies who work with the WMIP have a good idea about the business support in the region, WMIP is helping the other organisations to embark on their business support journey.

WMIP funds a lead person responsible for developing the idea of innovation with a first stage of raising innovation awareness – i.e. getting companies to understand innovation. This is where the innovation tracker comes in, providing a showcase of how what innovation looks like in their sector, cluster, or industry. This first stage is seen as an important precursor to the second stage of innovation capacity building and helping businesses engage in the innovation journey. This is seen as needing a "top down, bottom up" approach: 'bottom up' in that it involves working on connecting with the ecosystem and stakeholders to understand what programmes are out there and how they fit together, and then 'top down' by filtering this down into practical information that business facing advisors can use to engage a business.

Assessment against principles

J. Accepting that varied and diverse approaches are needed

Building a shared understanding amongst stakeholders of a wider definition of innovation was required to support the development of interventions and sense of shared purpose. This has been achieved by bringing together sectors and organisations at different stages of development. Some of these were well established, such as the Midlands Aerospace Alliance (MAA), who have extensive experience in supporting firms in their sector with innovation and building collaborations. So, the MAA has supported R&D and commercialisation, whole more recently established organisations, such SuperTech, which supports innovation in Professional Business and Financial Services (PBFS) sector, bring different perspectives reflecting the needs of their membership. Broadening the scope of what constituted innovation meant businesses realised the importance of what has been called by some as 'everyday innovation', which is more incremental and smaller scale in nature, but importantly supports continuous improvement, building an innovation culture and adaptation of business models. It is just as important as the R&D linked to developing new products, that is more commonly associated with innovation. It can be as important as a large new product.

VentureFest has been successful in supporting networks and linkages through attracting a variety of businesses to come together. The annual event has attracted significant corporate sponsorship which, as well as moving towards becoming self-sustainable in the future, is also a real sign of the value that the private sector places on an annual event that identifies and celebrates innovation in the region.

K. Collaboration and communication

WMIP has funded new collaborations in delivering innovation support within the region that have genuinely created collaborative advantage[6].

WMIP and the VIT have been successful in sharing best practice across and within sectors, through projects such as VentureFest and the Policy, Practice Network and Innovation Support Forum. The success of the sharing of knowledge has been through the VIT members and network coordinators. These people have had the background knowledge, expertise, and contacts to identify synergies and common themes to also build connections between businesses and/or at the policy level.

L. Willingness to take (calculated) risks and experiment

The value of WMIP has shown that innovation encompasses variety, ideas and a willingness to take (calculated) risks as much as capital investment. Having a well-connected team can join up and support businesses to be more innovative can be effective. Whilst WMIP is unique in the business support approach, it does take lots of time and human resources and contacts to build.

[6] Huxham C and Vangen, S (2005). Managing to Collaborate: The Theory and Practice of Collaborative Advantage. Abingdon: Routledge.

It was observed that by having a portfolio of projects that WMIP was spreading and reducing the risk associated with innovation activities. This has been traditionally the approach adopted by national programmes such as Smart from 1980s. On this basis one would expect 20 per cent of projects to generate 80 per cent of economic impacts but not necessarily be able to identify which 20 per cent of projects that create the most benefits[7]. Similarly, if there are a portfolio of projects then the risk is lower. This means there is more space to take risks with the other projects to help give space for the innovative ideas that WMIP produces. Even though one aspect of the WMIP may be risky, the risk over the whole programme is reduced because there is a portfolio of diverse projects available. This adds to the culture of building, promoting, and celebrating good business innovation.

[7] PACEC (2001). Evaluation of Smart (including Spur). DTI Evaluation Report Series No 3. URN 01/1189

Case Study 1: Supporting innovation in the health sector

The VIT sector specialist is based within the West Midlands Health Technologies Cluster, a relatively recently established membership-based organisation that provides a platform, a voice, and spotlight for organizations and businesses in the sector within the West Midlands. Through WMIP funding the VIT has been able to support:

- **increased coordination between existing providers of support for MedTech.** There is a good fit with the cluster work.
- **showcasing**: shining a spotlight on some of health innovations that would be otherwise hidden. Promoting companies and organizations, showcasing them as case study and social media, presentations at monthly working groups meetings. These are topical and bite-sized, being limited to 45 minutes when delivered on online. They draw on a range of organisations within the cluster who can contribute insights and advice. They can include organizations that provide support.
- **webinars** which are more focused on learning outcomes for those businesses trying to support them every step of the way, covering topics such as: accessing finance (business angels, funding, grants), how to write a business case, how to know how to be innovation ready, what support is available
- **improved signposting of businesses to experts and bridging gaps between business and health care commissioners**. This could include for businesses up with the West Midlands Academic Health Science Network.
- Increased awareness of changes in regulations that specifically affect the sector. Early education around regulations for innovative entrepreneurs can be an afterthought. This is important if a business has an innovation that represents a potential product of value.
- **supporting businesses explore their ideas** by speaking to clinicians that will be using the product and whether they have a value proposition. Incubators can provide a safe space to develop a product by providing access to expertise and facilities.

Example of supported linkages between businesses

Smallfry based in Warwickshire, is an industrial product design company and worked on a project with Quanta based in Alcester. They have adapted technology from the food sector (fruit juice) to develop a compact home dialysis machine. This won a UK Engineering award. (see Box 6),

Box 6: Example of award winning innovative West Midlands business collaboration

One example of how networking opportunities created through coordination and celebration of innovators in the West Midlands is between Smallfry based in Warwickshire, an industrial product design company, and a project they did with Quanta, which involved adapting technology from food sector (fruit juice) to develop a compact home dialysis machine.

Issue innovation addressed

Dialysis removes waste products and excess fluid from the blood when the kidneys stop working properly. This typically involves diverting blood to a machine, around the size of a fridge-freezer, where it is passed through a complex system of mechanical valves, pumps and mixing chambers before being returned to the body. Patients would usually have the procedure three times each week for four hours at a time. Of the

30,000 dialysis patients in the UK, only about 5 per cent use home devices because these have worked less efficiently than hospital systems, meaning that patients need to be hooked up for longer periods.

Approach

Smallfry worked with Quanta DT to develop the industrial design and usability of their medical device for home dialysis machine inspired by technology used in fruit juice dispensers. Smallfry helped design the device to have the following features sought by potential users:

- easy access to components and significantly quicker maintenance.
- smaller and more compact - Quanta's SC+ is a quarter of existing machines.
- can be configured to be used at home or clinical environment.
- patients to have much greater freedom to control their own medication.

Smallfry focused on creating a compact non-intrusive medical product that could be used in a domestic environment as well as professional clinical spaces.

The innovation

The technology used was originally developed to reconstitute orange juice from concentrate, but the team behind the invention saw its potential medical applications and formed Quanta. Their SC+ medical device replaces the pistons and valve system found in hospital-based dialysis unites with a more convenient disposable cartridge which is squeezed and released using pressure changes inside the machine to control the flow of dialysis fluid. The resulting table top machine is far smaller, does not require specialised training to use and works as efficiently as the conventional version.

Impact

The device, made by Quanta, is currently used by about 50 patients in the UK, but more than a dozen NHS trusts are planning to offer the technology to patients and experts say it could transform the lives of kidney disease patients. The device won Royal Academy of Engineering MacRobert award for how it could transform lives of kidney disease patients. An article in about the award in The Guardian provided the example of Lewis aged 21, from Wolverhampton who has been on dialysis for two years after developing an auto-immune kidney condition, but said that hospital dialysis was not frequent enough to keep him "really well" and that travelling alone to hospital was exhausting. After switching to the Quanta device, he has dialysis five times a week for three hours, which has improved his health and improved the quality of life through being able spend the time with family or playing video games at home.

Sources:

- Smallfry website: https://smallfry.com/our-work/quanta/
- The Guardian https://www.theguardian.com/technology/2022/jul/12/dialysis-machine-inspired-by-juice-dispenser-wins-uk-engineering-prize

West Midlands Health and Wellbeing Innovation Network

The network is delivered by the Innovation Hub at Warwick Manufacturing Group in partnership with the Innovation Lab in UHCW (see Box 7) and Bruntwood SciTech. It is run by experienced innovation managers who describe their approach as being more scientific (see methodology below) than that usually deployed for networks to support innovation. The role of WMHWIN is not really convening as that is undertaken by the VIT lead through working groups. The innovation managers are supported by Entrepreneur in Residence Sam Alsop Hall, a co-founder of Mprove - the UK's first "system-flow consultancy" for the healthcare sector, delivering new, innovative and cost-effective solutions to improve health and social care delivery.

WMHWIN is concerned with the identification of challenges faced by the health service with the innovation hub in the University Hospital Coventry and Warwickshire Trust and agreeing on highest priorities and scouting for businesses with technologies with proven efficacy that might be used in response to the challenge. A product development approach is used to respond the challenges identified. This takes the form of the trust commissioning promising solutions through the procurement route rather than providing grants to businesses as is the case in some of the challenges identified by Create Challenge through IE3 (see case study 5).

Box 7: How Innovation Lab differs from NHS R&D units and AHSNs

Innovation lab is different from a typical NHS R&D unit which tends to be more involved in securing funding for research and is more concerned about developing an innovation culture (more akin to service innovation). The Innovation Lab, in partnership with the innovation hub at the University of Warwick convenes a panel of clinicians and non-clinical staff to define and breakdown the challenge, along the lines of the components of the patient journey, so resulting in a specification of the challenge that businesses with existing solutions with proven efficacy can respond to. The focus is not on developing new technologies but the innovative application of proven technologies to resolve specific challenges. The Innovation Lab differs an approach to AHSN which is more concerned with technology diffusion and does not always take the same demand-led challenge approach to innovation.

Rationale

The rationale for the creation of WMHWIN includes:

- **Health and wellbeing are a key priority:** in the industrial strategy developed by WMCA for the region. It is also identified as a vital part of the economic and social redevelopment of the region post Covid.
- **Challenge led innovation is essential:** well governed multi-disciplinary innovation communities are an opportunity to create productivity and growth.
- **The West Midlands is a health leader:** from corporates, hospitals, public health, innovation networks, academic institutions, life sciences and an innovative SME and entrepreneur community.

Demand-led approach to innovation

> *"Demand-led innovation is a way of ensuring that there is a value exchange built into the innovation programme. Typically, from a large organisation with access to more resources setting challenges to which smaller, more nimble suppliers can respond."*

Aims

The WMHWIN sees its mission as '*Making a difference to the health and wellbeing of the West Midlands'*. It came about as result of challenges faced nationally in terms of wellbeing, as well as health. It aims to:

- help address real-world health led challenges through fostering and developing innovation.
- seek to encourage interested businesses and SMEs to create the solutions, and support their development through the provision of support, space, networks, and mentoring.
- support creation and commercialisation of innovative solutions for the benefit of the health and economy of the region and beyond.

The network is funded by WMIP and is delivered by the University of Warwick in partnership with University Hospitals Coventry and Warwickshire (UHCW) NHS Trust and Bruntwood SciTech.

The three partners work to bring together businesses in the region who have the potential capabilities to develop commercial solutions for challenges faced by health service providers. Each bring to the network the following:

- Identification of challenges being faced by the NHS - initially undertaken by the Innovation Lab in UHCW who act as the challenge stakeholder.
- Access to the Innovation Hub at the University of Warwick which provides structured support around product development and the innovation process including scoping of challenge.
- Bruntwood SciTech providing business support activities drawing on their Serendip programme.

The WMHWIN vision is creating an ecosystem built on core value exchange, as set out in

Figure 4, which pulls together available resources, networks and knowledge sources in the region.

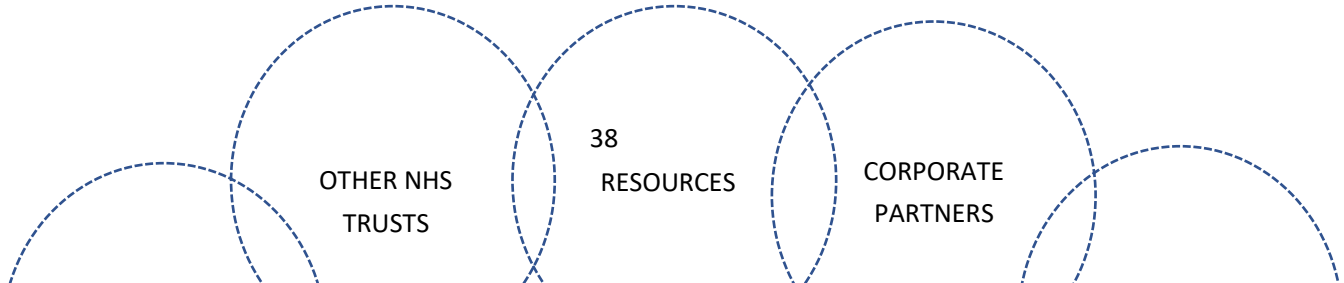

Figure 4: Conceptualisation of how the WMHWIN ecosystem operates

Figure 5 below is taken from the discovery webinar that WMHWIN delivered to interested businesses, and sets out how the network and wider innovation ecosystem is conceptualised in terms of a core team, knowledge, and networks. WMHWIN works closely with other networks and knowledge centres and draws on wider resources for supporting innovation by businesses in the region.

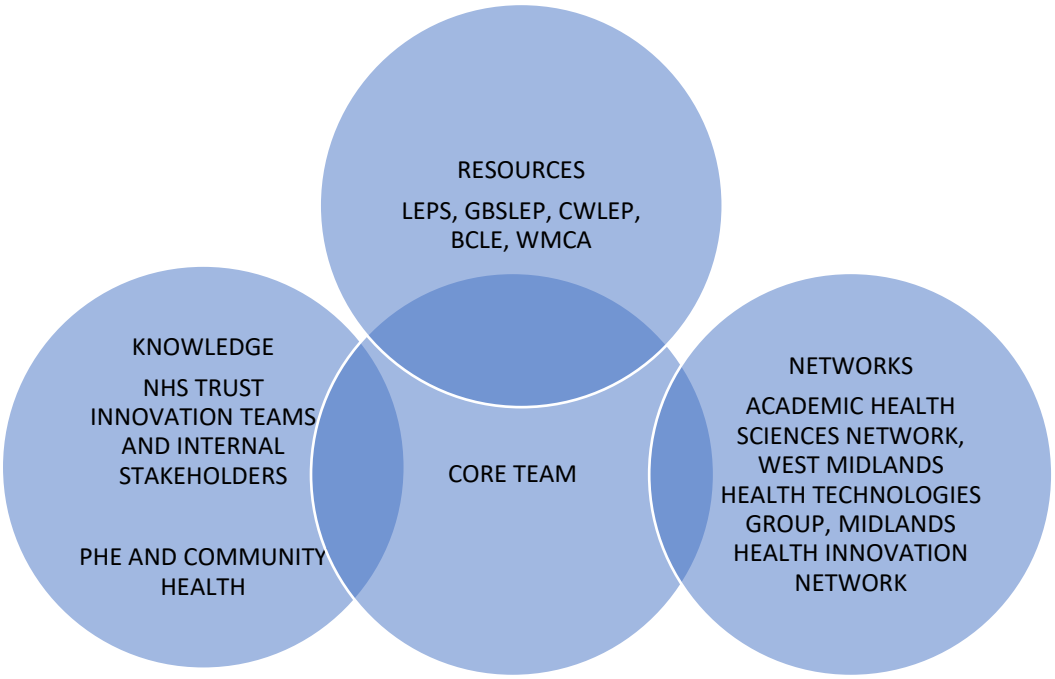

Figure 5: Linkages to other resources to support innovation in the West Midlands

Challenge sponsor

Central to WMHWIN is having a challenge sponsor who sets out problems to be addressed and has a commitment to procuring viable solutions. UHCW has invested in an Innovation Lab which is a multidisciplinary innovation team including a clinical lead, innovation lead, innovation facilitator and

implementation lead. This team is the principal partner in the network identifying the challenges faced by the hospital trust and the wider NHS.

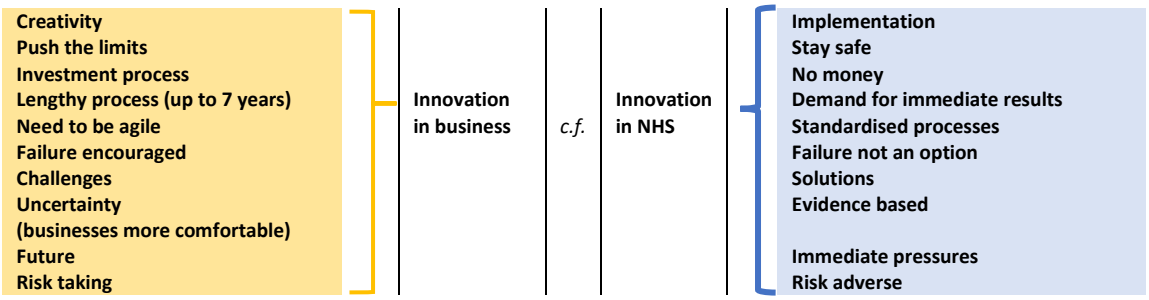

Figure 6: Innovation Balance

The innovation team manages what they refer to as the innovation balance in the NHS (see Figure 6). The NHS is slower than other sectors in the adoption and application of new technologies and therefore can potentially learn from other sectors that used new technologies in resolving similar challenges. The UHCW Trust, where possible, wishes to be at the forefront of the adoption of new innovations that lead to improved care, services and enable their staff deal with pressures they face. Being part of the WMHWIN enables the innovation team to respond to specific challenges they have identified by providing a methodology and access to wider resources within the ecosystem the network is creating.

The Trust innovation team role involves balancing what is needed to innovate within constraints faced by the Trust and this has been achieved by:

- Having a clear definition of innovation. The Trust has a R&D unit that is concerned with undertaking innovative research. The team sees their focus as being at the beginning and the end of the innovation journey - namely idea generation and implementation.
- Generating small wins alongside larger projects.
- Having a diverse team with end user involvement.
- Ensuring there are clear links to the Trust and investing time only in areas they have identified as a strategic imperative.
- Developing and deploying unique KPIs for projects.
- Having a well-defined innovation pipeline and adoption process.
- Providing leadership, credibility, and consistency.
- Developing creative approaches to funding and collaboration.
- Being well networked to be able to match a challenge.

Initial set of challenges

The webinar for interested business sets out four challenges identified by the Trust which have been refined over the course of the programme. WMHWIN develops the challenge specification with the UHCW procurement team before publishing on the Network webpage. At the time of interviewing, the Network was delivering three of the four challenges.

Box 8: The WMHWIN challenges

Waste management: how might a collaboration ensure patient and staff safety and comfort by monitoring and responding to levels of waste across the hospital?

Overview

Waste management has a high impact on patient care and operation of the hospital. It involves the tracking and segregation of waste and affects patient safety and creates significant financial challenge. The disposal of sharps was identified as a challenge for the Trust and involves the provision, collection and replacement of sharps bins which need to be cleaned between use. Responsibility for this fell to a single porter who was effectively the problem owner who knows the issues that needed to be addressed and how they arise. These included clinical areas running out of sharps bins leading to procedures involving sharps to be cancelled. Prior to the identification of the challenge there was no visibility of the problem. If there were issues, staff had a hot desk to call which did not necessarily lead to resolution of the problem.

Cohort 1 – Sharp Smart Challenge

Developing the challenge specification involved shadowing a single porter who was responsible for collecting and changing Sharpsmart containers across the hospital, to better understand the issues that needed to be addressed before creating a consortium of interested businesses who could address specific aspects of the solution space shown in Figure 7, including for example:

- Medisharp who focused on building a system that centralized health data from different practitioners on a single platform, identifying which wards were above and below capacity.
- Needlesmart - whose technology heats collected used needles to be disposed of to over 1300 °C to kill potential harmful pathogens, virus and bacteria and melts them into a safe sphere of metal, thereby allowing them to be disposed of more safely with considerable cost savings.
- Medishout -whose "one-stop" app for staff to instantly resolve any operational task or issue, so improving efficiency and patient care.

Moving people and equipment: how might the Trust ensure staff are in the right location with the right equipment to better serve our patients?

The Trust has two sites and there can be incidences where surgery is planned, for example, to take place in Rugby and the necessary equipment, device or implant needed for that surgery is located at the Walsgrave site in Coventry. Similarly, the Trust identified the current arrangement of samples from patients being batched at the Rugby site before being sent to Coventry for analysis was delaying test results. Managing the availability of high value equipment such as syringe drivers being available at the right time for the right person was also identified as part of this challenge.

Patient flow: how might we optimise the handover of patients between wards as they progress through their care to be more efficient?

When the challenge was set staff were using a paper-based system for handover of patients between different medical teams and units. The KPO team who is responsible for introducing lean processes discovered a lot of staff time and resource was being used, resulting in unnecessary delays during handover that could be avoided to reduce pressures on staffing and to improve patient outcomes.

Cohort 2 – patient flow

This involved adopting a patient journey approach, breaking it down into interventions including referrals, triage in A&E, portering, communication technology and discharge. Businesses that had proven solutions to different aspects of the journey were approached, though not necessarily in the particular applications set out in the challenge. Solutions sought included:

- Tracking and reporting the location of patients and their route plan through the hospital using, for example, indoor geo positioning technologies.
- Connecting and assigning records and details to patients for instant retrieval, using for example proximity based data retrieval systems.

Patient status visibility: How might we ensure that patients have maximum visibility of next steps in their care in the hospital?

Improved visibility of the patient journey is also valuable for patients who, for instance, often do not know how long they'll be waiting for the next touchpoint and the successive steps they can expect. This could be whilst in A&E or whilst on a ward. This knowledge would improve the patient experience and making it visible to friends and family would also be beneficial.

Cohort 2 - Patient status visibility

The Trust was interested in whether a consortium of businesses with a base in the West Midlands could develop digital tools that supported an app which would allow a patient to know where they are in their treatment and care pathway, as waiting and not knowing causes high levels of patient anxiety. The challenge included the development of solutions that:

- Surface the next steps in patient care to their devices, for example notification systems.
- Enable patients to share their status and next steps with family members by secure messaging platforms.

WMHWIN provides value exchange and access to expertise, including details on specific challenges and expertise in product development. Having a demand-led approach means that the innovation process can be lean and focused, so saving time and resources for all parties and maximising the value created.

Methodology developed to support demand-led approach to innovation

WMHWIN has piloted a methodology to support demand or challenge-led innovation that includes several stages and stakeholders. The Network has been using Wazoka, a well-established Enterprise Innovation Platform to support the delivery of challenges and is in the process of moving to a new platform. The platform comprises a suite of products covering internal insights and fostering an innovation culture within the business, working with suppliers, customers, scouting (horizon scanning and connecting) and collaborating on challenges.

Each challenge has multiple solution spaces which helps shape how WMHWIN scouts for suitable businesses capable of responding to that challenge. An example of the solution space for waste management is shown in Figure 7. It sets out the different areas which individual businesses can contribute to the overall solution, as part of a collaboration or business partnership to meet the challenge set by the innovation team.

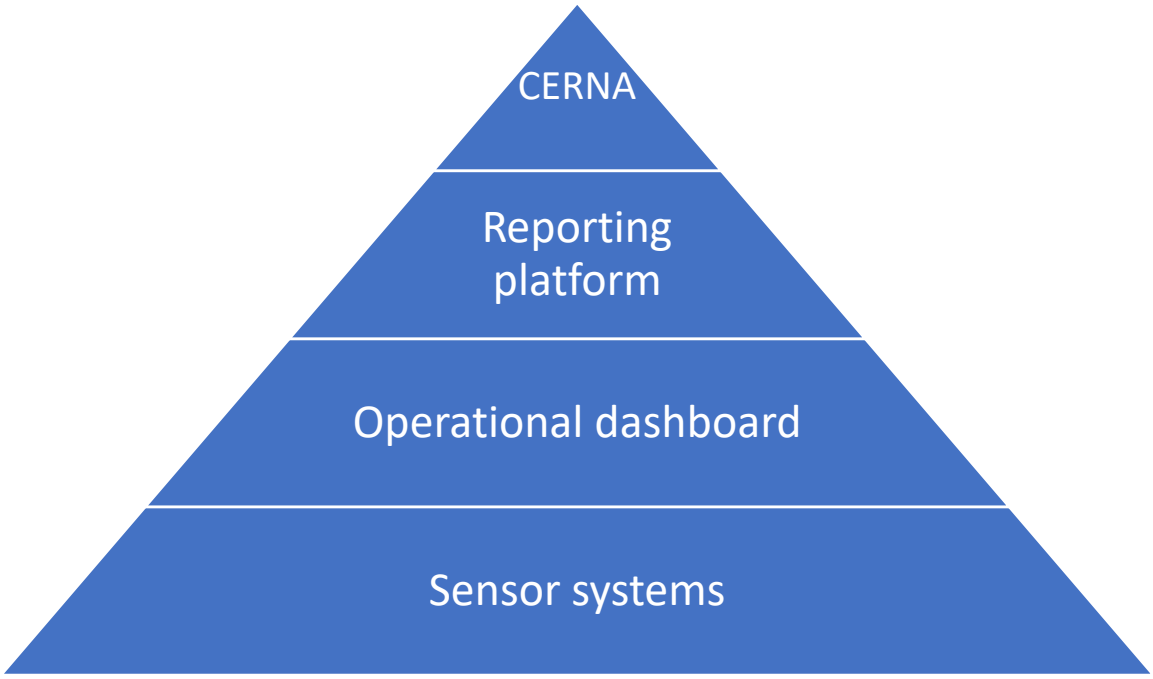

Figure 7: Example of solution space for waste management

In some cases, there may be already solutions procured for some spaces. For each solution space there could be a simple problem solution fit between the NHS and one supplier, but to fully resolve the challenge could require collaboration between multiple suppliers to fulfil the end solution.

Recruiting businesses onto the programme

Two strategies are used for recruiting businesses. The first is direct outreach and scouting. This involves refining the challenge and developing criteria for what kind of businesses to look for and who might meet the need of the challenge and can provide a product solution fit. Scouting involves using a range of

methodologies, including horizon scanning to find companies with appropriate technologies/solutions with regional presence and proximity. The second is open calls which are developed with the procurement unit of the Trust that go out to the wider network and which are publicised through events, webinars, and through partners distributing information packs to generate applications. To be eligible, businesses need to have some resources based in the West Midlands to participate but not necessarily be headquartered there.

Proposals are assessed on product solution fit and a commercial contract is awarded to successful proposals. Selection criteria for participating businesses are:

- **Willingness and capability to collaborate with others** – to enable the development of a full problem solution fit and maximise opportunity to contribute to the ecosystem.
- **Problem solution fit** – the degree to which the solution solves the problem and whether the business has the capability to pivot to maximise the opportunity.
- **Business stability and ability to be procured** – evidence that the business is stable with enough financial runway, along with current or projected milestones for procurement.

Once businesses are selected there is structured methodology (Box 9) to develop the collaboration to a viable proposition to meet the challenge, which is adapted to the needs of the businesses taking part in the response to the challenge.

Box 9: Methodology for intra-firm collaboration to resolve challenges

Phase 1: Discovery – five weeks structured research tasks to inform a prototype

- Week 1: Programme introduction and challenge areas ideation sessions
- Weeks 2 and 3: Two-day bootcamp with first day covering innovation and product development and customer centricity. The second day covers how to prototype and measure success.
- Week 3: Stakeholder interviews.
- Week 4: Customer research.
- Week 5: MVP / prototype development.

Phase 2: Prototyping and incubation

- Week 6: Intellectual property workshop / prototype status check in.
- Week 7: Business modelling and partnership workshop / prototype check in.
- Week 8: Access to funding workshop / prototype check in.
- Week 9: Raising investment workshop / prototype check in.
- Week 10: Continuous innovation workshop / prototype check in.
- Week 11: Pitching workshop.

Phase 3: Data and preparing to demonstrate outcomes to a panel of potential investors and initial customers

- Week 12: Customer testing.
- Week 13: Data analytics and insight and presentation preparation.
- Week 14: Midpoint presentation.
- Weeks 15 to 18: Pivot, test and iterate. Pivot proposition where customer testing suggests need to change solutions to meet needs of customer, then perform. Test where meets the needs to gather more data to substantiate. Improve where testing reveals conclusively that solution works in current state by identifying a roadmap of improvements and begin to enact them (i.e., iterate).

Provision of support to businesses developing and commercialising solutions to challenges

The business support element is provided by Bruntwood, a commercial provider of specialist innovation space including the Innovation Birmingham and Birmingham Health Innovation Campus. Bruntwood has developed the Serendip healthcare programme which provides physical space to co-design, learn and share, support and accelerate growth, host investor showcase events (twice yearly) and a range of mentors who matchmake clinicians, hospitals, investors and how to do business – key connectors who make the difference on their campus. The programme was developed with initial funding from the NHS, and has supported over 120 companies since it was founded.

Funding of challenges

WMIP only funds resources needed to deliver WMHWIN so businesses can access expertise. Participating businesses in the challenge receive no direct funding but do receive signposting to grants, help with pitching, and the University of Warwick facilitated access to potential investors.

Good practice developed

- Challenge-led innovation is the best way of value extraction for businesses and the NHS.
- Businesses benefit from co-creation, user centred dialogue.
- Systems-led approach to find potential collaborations between businesses.
- Model is efficient for both businesses and the NHS.
- Having a flexible modular approach.
- The trust is committed to using regional agile suppliers and so are involved in pre-procurement exercises that gather data to support better procurement.
- Challenges have contributed to developing the local supply chain through the development of collaborations of businesses that have good interoperability of data that enables provision of a single solution for the challenge.
- It is critical to be onsite to co-create challenges with the problem handler(s) and adopt human centred design principles.
- Small scale so able to disrupt incumbents in massive multiple year procurement frameworks.

Case Study 2: Supporting innovation in the energy / low carbon sectors

WMIP has funded Sustainability West Midlands (SWM) who are represented on the VIT to build and connect the innovative low carbon ecosystem of the West Midlands. Low carbon technology, energy and clean growth, future mobility, and sustainable construction have been identified as regional sector strengths in the West Midlands Local Industrial Strategy.

Drawing on documents provided by the WMIP team and interviews, we identify that the following impacts have been achieved through WMIP funding:

- Establishing the Innovative Zero/Low Carbon Working Group (ILCWG) which meets quarterly and has met expectations for numbers of attendees at meetings. The Group has assisted with the development of linkages and initiatives for the low carbon sector with projects being developed by other VIT members, relating to the priority themes of WMIP and the WM LEPs.
- WMIP funding has allowed adaptation of the Innovation Engine 3 (IE3) project methodology by SWM for use with its members in collaboration with Create Central (see case study 5). SWM has been able to identify and connect SMEs with zero carbon innovative products and services to four challenges posed by Wolverhampton Wanderers Football Club and National Express WM. The challenge from National Express was generating creative solutions to encouraging people who had stopped using buses during the pandemic to return to public transport or adopt alternative low or zero carbon modes of transport, such as cycling or walking.
- Networking to recruit SMEs into the programme and broader Steering Group, thereby building capacity for a transition to zero carbon in the region.
- Catalysed – and supported – the development of current and future EU, Innovate UK, WMCA, LEP and other innovation focused funding proposals concerning low carbon for the WM region.
- SWM has used WMIP funding to assist 64 businesses to date with eight businesses receiving intensive assistance in the form of grant funding (four businesses each receiving £5,000 in grant

funding) and a further four businesses have received targeted premium business support. The businesses supported included start-up businesses, businesses relocating to the West Midlands, anchor institutions such as University Hospitals Birmingham and education providers (including Fircroft College and Birmingham City University). Organisations supported are from the energy and manufacturing sectors and so support the growth of the sector in the region.

- The innovation lead is embedded in SWM and has actively engaged with a wider VIT to create new opportunities for SWM and its members. This has been achieved by collaborating with VIT sector specialists in construction, manufacturing, transport, and health. Tangible outcomes of these collaborations include working with public sector organisations such as local authorities and hospitals to support innovation in procurement and low carbon transport.
- SWM and Create Central have secured 10 commissions from Unboxed 2022 to work on the development, monitoring and evaluation of its sustainability and environmental strand of work. The connections that the VIT has helped nurture the relationship between Sustainability West Midlands and Create Central and has been remarked as “only being possible because of the VIT”.
- The gathering and sharing of intelligence, information, and best practice with respect to innovation funding (local, national, and European) has helped quickly identify opportunities for developing collaborative projects. SWM and WMG are exploring a potential project on utilisation of waste heat in manufacturing. Discussions are underway with partners on intelligence gathering and a possible link to a SWM project supporting the manufacturing sector in Telford and Wrekin.
- Through WMIP funding of sector innovation specialists SWM is better positioned to contribute to building up expertise to deliver further innovation programmes.
- Bringing together collaboration of regional centres of expertise to develop and deliver 'Repurposing to Zero', including the University of Wolverhampton, IAWM, Mott MacDonald and Aston University with the focus on looking at how to repurpose buildings in a sustainable way, rather than build new ones. Similarly, SWM and Warwick Manufacturing Group are working together on exploring a potential project on utilisation of waste heat in manufacturing.
- The networking element of the group has continued beyond the scope of the WMIP and into other sustainability and low carbon working groups across the West Midlands. SWM is part of the WMCA Circular Economy Taskforce and is helping develop an action plan and potential projects arising from the publication of the Circular Economy Roadmap in September 2021. Examples include the 'Circular Repurposing Programme’ which is closely aligned to the WMIP funded 'Repurposing to Zero' project.
- Supporting the low carbon community to contribute to and benefit from the innovation opportunities emerging regionally and nationally. SWM was also part of the WMCA COP26 Working Group in supporting and maximising the opportunities for the West Midlands.

Case Study 3: Supporting innovation in the construction sector

The University of Wolverhampton has hosted several ERDF part-funded centres (Brownfield Research and Innovation Centre (BRIC), Sustainability and Construction Futures Research and Innovation Centre), concerned with supporting SMEs in the construction sector and innovation within the sector. It was therefore a logical choice to have a member of its staff on the Virtual Innovation Team. The University provided 50 percent match funding for the sector specialist on construction on the team. The focus of the sector specialist was to support the construction sector in the West Midlands and align with the WM Local Industrial Strategy by drawing on identified sector strengths. Working within the wider VIT business-led feedback has been used to identify gaps in the current system which prevents development of novel products, processes and business models that could be developed for construction.

There is significant opportunity for the region in terms of developing its innovation capability because of construction and infrastructure expertise in both university research centres and the presence of large civil engineering firms, as well-developed supply chains in the region makes it well positioned to develop and test innovative construction and infrastructure approaches. The support is underpinned by the surrounding ecosystem, led by the School of Architecture and Built Environment, University of Wolverhampton.

Drawing on documents provided by the WMIP team and interviews, the following impacts have been achieved through WMIP funding:

- Contributed to the provision of targeted and integrated business and innovation support.
- 30 businesses assisted to identify a new market opportunity. Of these, 15 have developed a new product, process, or service.
- Over the course of the programme, two innovation proposals and funding bids have been developed and co-developed with other VIT members, emphasising the success in connecting the construction sector with the wider innovation ecosystem.
- Contributing to upskilling the sector through developing a Level 5 Diploma in Smart Collaboration for Construction. Regional and national funding is being sought to deliver this. Exploring with stakeholders the development of qualifications at Level 3, Level 4, and Continued Professional Development.
- ‘Repurposing to Zero' group producing a business case setting out their proposed activities.
- The sector specialist in VIT has expanded the reach of WMIP to include regional, national, and international commercial and public sector partners. Whilst the WMIP intends to support businesses in the West Midlands, the positive reputational impacts stretch much further. As current partners are in a range of industries and sectors, this supports the aim for connecting a range of businesses from different sectors together, which may not normally be included in the construction sector. These include asset management, electric vehicles, circular economy redistribution and data analytics.
- Working with partners has helped to identify new sources of public and private investment for the region. The construction VIT has leveraged match funding for WMIP of £50k over 18 months, agreed by the University of Wolverhampton to cover VIT constructing, hosting and the role of a Knowledge Transfer Manager.

Case study 4: Supporting innovation in the manufacturing and transport sector

The Warwick Manufacturing Group match funded a sector innovation specialist in the Virtual Innovation Team whose role was to support experimental innovative manufacturing and the transport sector in the West Midlands, which is aligned with sector strengths identified in the WM Local Industrial Strategy.

Drawing on documents provided by the WMIP team and interviews, the following impacts have been achieved through WMIP funding:

- Promoted innovation activity and best practices to develop innovation within the High Value Manufacturing and Transport supply chains.
- Diagnosed, with partners, gaps in the existing ecosystem and developed and delivered market-driven and challenge-led innovation initiatives.
- Collaborated with other sector specialists in the VIT and beyond to share and seek synergies across sectors.
- Identified new funding and investment for innovation in the sector.
- Understand stakeholder and industry engagement and partnership management, engaging with relevant existing networks and developing a new High Value Manufacturing and Transport innovation Working Group.
- Contributed to aspects of delivery of WMIP 1.0 with the VIT and IAWM teams and to preparation for and delivery of phase two of WMIP.
- Project managed WMG's role in the new initiative and showcase best practice and new technologies.
- The Innovative Manufacturing Working Group has held five events (see Box 10) covering working across sectors, digitalisation, adopting low carbon practices and additive manufacturing, as well information on specific opportunities and support available.

Box 10: Events held by Innovative Manufacturing Working Group

June 2021 – First Innovative Manufacturing Working Group meeting covered support for innovative businesses, considering opportunities in the rail sector provided by BCCRE DIGIRAIL project, working with Innovate UK, net zero funding, Aerospace Unlocking Potential and West Midlands Made Smarter Adoption Programme (50 attendees).
September 2021 – event focused on capturing and using data in manufacturing. Also covered how a knowledge transfer programme could be used to support this by a business that used the programme for this purpose (45 attendees).
December 2021 – event focused on how manufacturing companies can benefit from adopting low carbon practices (34 attendees).
February 2022 - additive manufacturing and its potential applications (30 attendees).
April 2022 – case studies of digitalisation projects in smaller manufacturers and sources of support and funding available.

Case study 5: Supporting innovation in the creative sector

The sector specialist for the creative sector within the VIT is the innovation lead for Create Central. The role is very much along the lines of promoting cross-sector innovation within the region. The aim is to bring to bear skills within the creative sector to enable other sectors to meet their challenges by using skills and expertise of creative businesses, as well as providing opportunities for creative businesses to become innovative. The role involves promoting networking and collaboration to deliver specific projects. As noted earlier in the case study on the energy / low carbon sector, one of these projects is Innovation Engine 3. The work being undertaken by Create Central in relation to developing CreateTech has received considerable interest from the Department of International Trade and along with sector bodies Create Central was invited to take part in UK House held at The Exchange during the Commonwealth Games, which was similar to an Expo event promoting exports and inward investment opportunities in the region.

Box 11: Innovation Engine 3

Innovation Engine 3

IE3 builds on Innovation Engine 1 and 2 which were delivered by Bruntwood (who operate the Birmingham Innovation Park) using ERDF funds, which had significantly greater level funding.

WMIP provided £150,000 of funding for an adaptation of the methodology developed by IE1 and IE2 to which Create Centre was able secure a further £100,000 of match funding from Challenge leaders, who also provided significant benefit in kind support. The approach used reflected the demand-led innovation aims of WMIP. It involved a challenge leader setting out an issue they needed resolving and developing a call for creative SMEs within the region to respond with a potential solution. Unlike WMHWIN (see case study 1 above) the resulting project is funded, and the creative businesses receive a grant to deliver it. IE3 importantly provides opportunities for creative SMEs to work with large corporate bodies and the public sector that they would not otherwise have had.

The project methodology involved Create Central working with challenge leaders to develop challenges and these are published and publicised within the sector. The Challenge leader then holds an event at which they present the challenge they have developed – usually lasting an hour – to interested creative small businesses.

The application process was designed to be proportionate to the resources of interested creative SMEs and less burdensome than applications to Innovate UK or local public bodies procurement opportunities. Considerable thought went into the design of the application form in terms of wording of questions and the number of questions and to ensure should only take a day to complete.

Like other effective schemes to support innovation since the pandemic, such as Pivot and Prosper, there was an emphasis on applicants having sufficient information and support to respond to the challenge with a shorter application and notification timetable to maintain momentum. Interested creative SMEs have two weeks to respond to the call after the presentation of the challenge. Because they have been informed of the challenge before the challenge event, they tend to have ideas in development and have been able to respond to the call within this timescale. The volume of fundable ideas was high compared to the actual number funded, with typically 25 applicants for every win. Applications were judged by an independent panel who selected the best 3 or 4 proposals.

Support was also provided for unsuccessful applications as they were of good quality. This support included providing innovation workshops for which Bruntwood offered the space on a pro-bono basis. Typically attended by 10-20 companies, these covered opportunities for funding, collaborations, access to support and grants and accelerator support. Feedback on these sessions has been favourable.

The IE3 project was overseen by a monthly steering group.

IE3 supported four calls that have linked the creative sector with both public and private sector organisations concerned with the delivery of the Commonwealth Games festival, use of public transport, reduction of plastic waste in the NHS and reducing congestion. Three of these have been delivered, or are well advanced at the time of writing. There are plans to use the lessons learnt from IE3 to inform IE4 to support a proposal for two regional innovation accelerators to support the emerging MedTech and Cleantech sectors.

Birmingham 2022 responsible for delivery of the festival being held around the Commonwealth Games identified the challenge of engaging young people aged 14–16-years.
Create Central as lead partner was able to match funding and double investment by WMIP to provide £100,000 in grant funding that supported four successful proposals from the creative sector, each receiving grants of £25,000. These included an augmented reality app for statues in the city, as there was concern the civic leaders being honoured could be linked with slavery and therefore, they may become an area of negative focus during the games. The app allows people to find out more about the history and issues related to that history by pointing their phone camera. Also supported were the development of dance bots and the use of a digital agency in promotion of the festival.

Create Central partnered up with Sustainability West Midlands and identified National Express as a Challenge leader (see case study 3) to develop a challenge as to how you get people back on public transport and continue to use alternatives to using cars, as restrictions related to the pandemic were relaxed. The solution commissioned was an educational game. The West Midlands creative sector includes a strong computer games cluster based around Leamington Spa.

Create Central has teamed up with Bruntwood and West Midlands Academic Health Science Network (AHSN) to deliver Serendip® Green Innovation Challenge Competition 2022 (still open at time of writing) with the following challenge:
What digital or creative innovation could you apply to reduce the impact of single-use items on the environment from the healthcare sector? How can we make use of digital or creative tools for better data or technology which:

- Supports enhanced understanding on re-purposing or recyclable items.
- Highlights the difference between incineration and re-purposing items.
- Increases knowledge around re-purposing or recyclable items.
- Communicates effective ways of sustainability.
- Helps streamline traditional models of approaches within the Healthcare sector.

The expectation is to be able to support innovations proposed by eight SMEs. The support provided to include:

- Up to £25,000 grant to support your business growth
- 4 months of bespoke business support
- Access to our partner network and expertise
- Free collaborative space at Innovation Birmingham
- Mentorship and full access to events and workshops
- Real-world validation
- Funding support available

Conclusions and Recommendations

Our overall assessment is that **WMIP has provided good value for money in terms of achieving the objectives it set out to achieve**. It has been successful in marshalling and leveraging resources within the region to support a step change in the coordination of the development of the region's innovation support ecosystem. This has been achieved by creating a strong infrastructure that has allowed the programme to be responsive to changing circumstances and new opportunities. The pooling and funding of expertise in innovation in different sectors has created a much-needed centre of expertise to support the development of the region's innovation ecosystem.

The rationale or strategic case for WMIP still holds true and the activities funded have contributed to addressing specific manifestations of market, information and coordination failures identified. The rationale for WMIP shares many common features with other innovation support packages but its distinctiveness rests on:

- Specificities around how different failures and opportunities manifest and interact within a regional innovation ecosystem.
- The need for flexible innovation support that is both responsive and adaptable to changing contexts.

While this early assessment did not aim to provide an assessment of the economic impacts – because it is too early for them to materialise – using a similar methodology to that used in the original business case over the 3 years to date WMIP has generated economic benefits in the order of £29,109,177 in total net additional GVA effects (cumulative).

Separately to this assessment SQW was commissioned to provide training in developing business cases for innovation programmes by WMREDI using the development of WMIP 2 – a future possible iteration of current WMIP – as the focus. This has resulted in what SQW has referred to as early thinking on WMIP2 and what that might look like. Central to WMIP2 is the continuation of the provision of innovation leadership, capacity, and capability development through:

- Promoting and demonstrating the impact of demand-led innovation on productivity growth.
- Dynamic and strategic analysis that provides regional insights and intelligence to identify and support emerging clusters.
- Improved partnership working and co-ordination of regional intermediaries.
- A single coordinated voice for the region when interacting with national bodies operating in the innovation ecosystem.

In terms of the overarching questions set out for the early assessment.

- **How do the different activities fit together? Are there any gaps in achieving the set targets? Are functions duplicated?**

The general assessment of WMIP is that the different activities do fit together well though beneficiaries and partners delivering the programme may not be aware of all of them. Activities are not necessarily

branded as being supported by WMIP funding so it would be difficult to ask the business community to what extent they have benefitted from activities and interventions supported. The reason why activities fit together is because of the governance structures and infrastructure that had been put in place early in the programme. We found no evidence of duplication of functions and there were good examples of partners bringing together specific expertise and capabilities to projects and activities delivered.

- **Have the capabilities to implement a successful phase 2 been developed? What is missing? Can we be more ambitious with phase 2?**

As indicated earlier, our view is that capabilities have been developed to deliver a successful phase 2 but like all programmes there is some reliance on key individuals to deliver some aspects. The collaborative team based, and partnership approach has resulted in important synergies and learning. It is important to increase resilience to potential staff changes going forward. In terms of additional ambition there is potential scope for the programme to help shape national policies and interventions based on its intelligence functions and willingness to pilot new initiatives and adapt them to new contexts.

Recommendations

1. WMIP continues to operate as a flexible regional fund that supports intermediaries to continue to innovate in their provision in response to insights and intelligence on the regional innovation ecosystem. Future phases of WMIP need to retain agility demonstrated in phase 1 to undertake rapid prototyping of new approaches in one sector and their transferral to other sectors.
2. That funding and support is maintained for the Virtual Innovation Team to allow cross-fertilisation of ideas across sectors.
3. WMIP should continue to fund a portfolio of projects. This should continue to support new initiatives with a view to scaling up more successful interventions.

Appendix A: Lines of enquiry

This assessment follows a set of lines of enquiry.

Aim	Potential related line of enquiry
A. Develop a more integrated innovation support offer to help more businesses to be innovative within the region	The extent to which WMIP has: • Enabled the identification and exploitation of synergies in existing provision to best effect to produce more tailored (aka premium) business support packages. • Supported the development of innovative business support solutions by business support providers in the region. • Resulted in more relevant packages of support from the perspectives of businesses, their advisors, and main providers of support in the region. • Enabled businesses and their advisors to navigate better existing provision. • Developed infrastructure and systems to support the delivery of the programme.
B. Provision of targeted support to businesses to help them access national innovation funding – investment projects	• What kind of practical support is being provided by the region's providers to assist in application processes? • How has provision been targeted and marketed? • What kind of intermediate support has been provided to businesses to develop fundable propositions? • What data do we have on businesses supported? • SWOT analysis of support provided to date. • Who has been best placed to provide this support? • What has been the success rate to date? • What has been the key learning for businesses supported? And for their advisors?
C. Build up expertise to deliver large scale innovation programme in the region of £30 million	• Indication of potential demand. • Potential barriers to scaling. • Capacity to scale. • Good practices and learning that needs to be shared – what is the expertise that has been developed? • Based on learning so far where should resources be deployed?
D. Communication of innovation opportunities within the region = links to intel and culture	• What changes to communications have made since the introduction of WMIP? The introduction of new channels, promotion and advertisement, referral mechanisms, outreach through third parties? • Use of events and social media. • Which form of communication seems to have worked best? • Has awareness increased?
Pillar	**Potential related line of enquiry**
E. Networks and linkage:	• Have the networks that have been supported/established: ○ Addressed a specific potential information or coordination failure?

	○ Resulted in participants spotting new opportunities, adopting new technologies? ○ Created linkages? ○ Resulted in collaborations? ○ Supported exchange of know-how and transfer of technologies across sectors? ○ Acted as a mechanism to support supply chain development / cluster development?
F. Investment programmes (Products created)	• Nature and scope of pilot support programmes • Extent to which pilots take account of local supply chains in delivery of innovation support (linking together expertise both in providing advice and guidance around innovation and access to facilities for businesses, to innovative and wider innovation ecosystems). • Level of novelty in approaches adopted. • The extent to which learning from elsewhere has been successfully translated into relative support for West Midlands businesses. Or builds on existing ideas within the region. • Scalability based on potential demand or mainstreaming provision vs. very specific specialised support.
G. Talent	• Supported the development of leadership skills required in introducing new innovations. • Developed management capabilities of assisted businesses. • Resulted in schemes that address specific and subtle market or coordination failures / needs that are also attractive and relevant to targeted businesses. • Resulted in organisational culture change in participating organisations. • Identification of high growth potential businesses.
H. Intelligence	• Extent to which improved foresight capabilities. • Gaps identified in innovation ecosystem. • Understanding drivers of demand for support and how this might be related to how businesses innovate within the region. • Ability to be more responsive to emerging needs. • Improved allocation of resources. • Perceived coverage and comprehensiveness of mapping of innovation and entrepreneurial capability in the region.
I. Culture	• Celebration of innovation and innovative businesses – e.g., number of showcase events, workshops. • Willingness of SME community to innovate.

Since the original WMIP business case was developed a set of principles have been established which also provide useful lines of enquiry for the evaluation.

Principles	**Potential related line of enquiry**

J. Accepting varied and diverse approaches are needed avoiding a single one size fits all approach	• How have providers of support been able to use WMIP to provide more differentiated support from existing provision in the region? • The extent to which businesses report support being customised/ relevant to their needs.
K. Collaboration + communication	• Examples of collaborative advantage. • Creation of new collaborations across the region. • Change in quality and nature of communication.
L. Willingness to take (calculated) risks and experiment	• Willingness of support providers to try new approaches with customers. • Examples of providers adopting a test, learn and adapt approach in the delivery of support for innovation. • Value of feasibility and pilot funding.

Appendix B: Achievement against planned activities and outputs

Table 2: Overview of activities and outputs

	Business case	Reported in Midterm report	November 2022
Leveraged resources		Over £8 m leveraged	£10,748,352
Attendants at networking events	3600+,	1996	5936
New innovation collaborations	200	61	244
Businesses assisted	280	365	676
Jobs created	75	24	81
Spend	£3m	£2m committed	£2,949,639
Projects		2 delivered	9 delivered
		7 in delivery	6 in delivery
		2 in development	0 in development

Table 2: Overview of partnerships formed

WMIP Innovation Team - Sector Specialist	In Partnership with	Activity
Innovation Alliance West Midlands	WM Innovation Programme	The Innovation Alliance for the West Midlands is an alliance of organisations active or interested in science and technology-based innovation across the West Midlands. IAWM's two principal objectives are to build and maintain a thriving innovation ecosystem and stimulate and catalyse a pipeline of innovation activity.
Zero Carbon	Sustainability WM	Running the Innovative Zero Carbon Working Group (Previously Low Carbon WG) and working on project development, particular focus on sustainable construction.
Creative Content	Create Central	Supporting new project development, funding applications, and helping to establish pilot projects which could be cross sector and generate new outputs.
Construction	Wolverhampton University	Work out best hosting and partnership arrangements and explore potential pilot projects.
Health Technologies	WM Health Technology Cluster	Running the Innovative Health WG and support project development in line with HTC objectives.
Manufacturing and Transport Technology	University of Warwick	Running the Innovative Manufacturing Working Group Identifying potential networks and organizations to support ecosystem around automotive and specifically low carbon mobility with a view to promoting funding opportunities across them.
Manufacturing/Rail	University of Birmingham	Focus on the innovation theme, engaging with manufacturing industry across sectors and with the rail industry (including the Rail Alliance) in support of the Virtual Innovation Team to help build and connect the innovative manufacturing and transport sector in the West Midlands.
Aerospace	Midlands Aerospace Alliance	The role will focus on the innovation theme, engaging with manufacturing industry across sectors and with the aerospace industry in support of the Virtual Innovation Team to help build and connect the innovative manufacturing and transport sector in the West Midlands
Business and Professional Services	GBSLEP/SuperTech	Supporting digital innovation in the PBFS sector

Table 3: Overview of Networks formed

Activity	Outputs to date (September 2022)	
1. **Venturefest**	A keynote event within the CA supported by the LEPs, Universities and is SME relevant. it celebrates innovation successes and will aim to showcase elements of the WM Innovation Programme.	First virtual event was held on 28th January with a keynote, 4 panel sessions, the Minerva Pitch Up competition and informal breakout sessions. 500 attendees were registered, 364 attended with very good initial feedback. Next in person event is planned for in March-22.
2. **Innovation Support Forums**	The forum exists to enable regional innovation programmes to better understand each other's offers and those of innovation support mechanisms from the wider ecosystem. The forum gives delivery partners the opportunity to understand what other support programmes are available, how they can connect with them, and to create pathways between their offers to help meet both their own outputs and the needs of SMEs to help them grow and thrive.	7 Meetings/Events held do date with 121 attendees.
3. **Smart Places Working Group** .	Smart Places Working Group is a cross-sector network whose membership includes practitioners from universities, local authorities, businesses, voluntary organisations and SMEs from across the whole West Midlands region. The meetings improve pathways, maximise access to and reduce fragmentation of innovation support across the innovation ecosystem. Thematic workshops also look to drive collaborative activity in response to current opportunities.	So far 11 Meetings/Events have been held with 292 attendees joined the sessions.
4. **Innovation Policy and Practice**	These events stimulate discussion and networking across those actively involved in innovation in the West Midlands from any sector or type of organisation	9 Meetings/Events have been joined by 346 attendees so far.
5. **Challenge Identification Events**	Supporting challenge identification events.	
6. **Supporting an Innovation Culture**	Development of a pool of good business innovation case studies that can be offered to business events/ publications to inspire other businesses - can be developed building on IAWM networks. These should impact on the culture of innovation in the SME community.	Innovation tracker has 54 case studies with 25 plus Covid case studies.
7. **Innovative Zero Carbon Working Group**	SWM in partnership with IAWM convenes the Innovative Low Carbon Working Group (ILCWG) and its associated quarterly meetings, where a cross-sector of stakeholders come together to share good practice and build collaborative opportunities around low carbon innovation.	So far 204 attendees from public/universities and private sector have attended the working group sessions.
8. **Innovation Health Working Group**	The Innovative Health Working Group (IHWG) is a cross-sector network whose membership consists of practitioners from universities, local authorities, businesses, voluntary organisations, and SMEs from across the West Midlands. Meeting on a quarterly basis, the group works on topics such as healthy ageing, digital health solutions, medical devices, translational medicine, and education in health technologies, and also explores and creates opportunities for new and existing healthcare markets. Members also work together to influence ways in which all sectors can collaborate to create the strategies, policies and operational ingredients needed to maximise health outcomes and impacts for all.	So far 184 attendees have joined the IHWG sessions.
9. **Innovative Manufacturing Working Group**	The outline for an Innovative Manufacturing Working Group is to: • Promote innovation in manufacturing and in manufacturers • Bringing together manufacturers, academic partners, funding bodies and others to look at how we can promote and support manufacturing innovation across the region • Space for inspiration, discussion and sharing ideas and aiming to build collaborative innovation activity.	First IMWG event was held virtually on 29th June-21 with 54 attendees from public and private sector

Table 5: Overview of projects funded

-		Description	Status	Partners	Current Status / Outputs to date (September 2022)
1.	PIVOT (CITEC)	An innovation project that will accelerate cross-industry innovation in West Midlands supply chains. It builds on a model that has already proved successful in the aerospace industry and applies it to stimulating smaller companies to pursue demand-led innovations that cross sector boundaries, pulling technologies from one industry and exploiting them to resolve challenges faced by another.	In Progress	Midlands Aerospace Alliance	4 SMEs have shown EOI's (expressions of interest) and are writing full applications: • 2 applicants are new technology companies just getting into commercialisation, one is a by-product of the now-closed Energy Technologies Institute. Both companies are transferring technology from the sustainable energy sector (energy from waste) to aviation (Sustainable Aviation Fuel). • 1 applicant is from automotive manufacturing - innovative manufacturing method is already adopted in automotive that can make them greener and lighter. Aerospace Alliance Team will match them with interested existing aerospace suppliers if their parts can be made by the new method. • 1 applicant is from industrial/automotive (transferring manufacturing automation techniques into their backward aerospace lines with customer support) – Its more about productivity gain and not so much about green. Team (MMA) will advise/help the firm to learn far more than their actual project e.g. I4.0, digitalisation, additive.
2.	Enabler	Assists Small and Medium Enterprises ("SMEs") within the West Midlands to build confidence with their IP assets and encourage management of IP, commercialization, and collaboration through an IP Audit and commercialization Strategy.	In Progress	IPO, GBSLEP	In Quarter 1, 5 applications were received for reviews:
3.	The GRID	A Virtual Incubator for the SME community. The GRID provides a place where innovation challenges can be presented, and the SME community can collaborate in developing solutions.	Delivered	Aston University	The Grid (virtual innovation platform) MVP has launched, connecting innovators, and providing a central resource on available support.
4.	Regional Retrofit Business Case	The WMIP provided funds to Energy Capital to explore the potential of the West Midlands Region to undertake an ambitious scale and grow programme of whole house retrofit, following the confirmation of the region's Net Zero Carbon target by 2041.	Delivered	Energy Capital	**Fuel Poverty Implementation Plan:** • Supported delivery of two work packages • Attracted more than £3m in grants and awards to the region • Helped secure commitment of £5.1m from WMCA Board to deliver its first Climate Change Five-Year Delivery Plan, with £3.3m specifically for retrofit and energy. • Created 8 new roles, and safeguarded 1.6 FTE's across several existing jobs
5.	Innovation Engine 3	Innovation Engine 3 seeks to increase the cross-sector engagement between the Creative and Low Carbon sectors. Such engagement has been low mainly due to the absence of any appropriate regional mechanism to facilitate meaningful collaboration.	In Progress	Create Central/Innovation Birmingham	**Project Steering Group:** Group has been established and has met twice - monthly meetings have been established. **Project Challenge Holders Meeting and key challenges identified:** The Challenge holders' group has been set up and the first Challenge holder identified. Working with partners to firm up the 4 key challenge holders - formal agreements are currently being sought - this will be complete in the next 4 weeks. **Project Marketing to SMEs Commences:** On schedule for the first competition **Challenge Holder Competitions launched:** On schedule for the first competition **10 SMEs identified with support delivered across multiple challenges:** on schedule

-		Description	Status	Partners	Current Status / Outputs to date (September 2022)
6.	E4f New Start	This 12-month project will provide the opportunity for 150 early stage creative and tech digital innovators to shape their business plans within the Innovation Birmingham Campus community. They will receive business support and account management to optimally position their business as they start out on their commercial journey; so, providing confidence in their plans for growth and success in their chosen sector.	In Progress	Innovation Birmingham Ltd	**Launch of first cohort call:** Due to delay in contractual agreement project set off at the end of April-21. **Cohort 1 interviews:** The review of the applications was undertaken. Due to short time span available for promotion (2 weeks) 25 businesses from across the WMCA area were successfully recruited. The businesses/founders were diverse with a variety of business proposals on various stages. Overall, very satisfied with the quality of the businesses who applied. **Cohort 1 Gateway:** The gateway presentations have been finished and it has been concluded by panel members that the quality of the businesses is much higher than expected. The panel is yet to decide which businesses will be invited to carry on with the Programme. Required elements of presentations were: Elevator Pitch (30 sec intro) • Their Typical Customer • Value Proposition (pains/gains and how their service helps customers) • First draft Business Model Canvas Completion of first cohort: First cohort will stretch until Sept-21 as accounted for summer break in August.
7.	West Midlands Health and Wellbeing Innovation Network (WMHWIN)	The WMHWIN is an innovation accelerator programme utilising existing incubation programmes and centres within an Innovation NETWORK to drive innovation in the health and wellbeing sectors. It will provide innovation services, business support, expertise, connections, and space with access to all key stakeholders and networks.	In Progress	Warwick University, Bruntwood Scitech, UHCW	**Appointment of staff:** Successful appointment of Innovation Hub Manager role. Starting in August due to 3-month notice period. Appointed Entrepreneur in Residence- starting Mid-August – 21. **Delivery of first challenge:** Postponement due to Innovation Hub Manager role 3-month notice period - wanting to utilise his current network to boost cohort recruitment and ensuring the programme content is in place. **Delivery of 2nd Challenge:** Postponement of second cohort due to cohort 1 delay. Possible cohort start date in November 2021. **End of fund report:** Potential delay to end of fund report due to delays above. Forecasted end date May-22.
8.	DIAGCOMM	This project will bring together the region's, currently fragmented, capabilities in diagnostics and to create a collaborative community focused on innovation that will support business growth and market access. The community will be industry-led and comprise business, NHS, academic, investors, regulators and policy makers and will be enabled by the new WM Health Technologies Cluster (WMHTC).	In Progress	West Midlands Health Technologies Cluster	**Project launch:** Project live now, started in June due to delay in legal and procurement processes.
9.	Digital Innovation in Procurement Services (DIPS)	The project will stimulate more demand for innovation by providing an easily accessible process for public and private sectors to come together to develop new approaches. It tackles complexity by codeveloping with users' solutions to real needs and fosters a collaborative approach where trust is essential.	In Progress	Innovation Birmingham Ltd/ IAWM	Business Justification Case was endorsed by Innovation Board and approved by WMCA Senior Leadership

-	Description	Status	Partners	Current Status / Outputs to date (September 2022)
10.	3D Capture as a Service	In progress	Hollywood Gaming	Underway, too soon to provide outputs yet
11.	Repurposing to Zero	In progress	Circular Economy Team, WMCA	Underway
12.	Med Tech Incubator	In progress	GBSLEP, University of Birmingham	Underway, SMEs already supported!
13.	Urban Farming	About to begin	BCC	About to launch

Appendix C: Additionality Assessment

Output Targets

The table below compares the forecasted outputs against the actual outputs of WMIP (phase 1). As can be seen WMIP has been very successful in achieving its target outputs, achieving all 5 main critical success factors that were set out at the beginning of this project.

Table 4: Forecasted vs Actual Outputs

Output Target (Phase 1)	Forecasted Output Target	Actual Output	Difference from target	Percentage difference from target	Target Achieved
Leverage resources	£1,600,000	£10,748,352	£9,148,352	572%	✓
Networking event attendees	3,600	5,936	2,336	65%	✓
Innovation collaborations between businesses	200	244	44	22%	✓
Businesses Assisted	280	676	396	141%	✓
Jobs Created	75	81	6	8%	✓

It was anticipated that £1.6m would be achieved in leveraged resources, however the actual leveraged resources were £10.7m, this is 572% higher than had been anticipated. There were 65% more than anticipated attendees to networking events. Plus, there were 22% more collaborations than anticipated and 141% more businesses assisted than anticipated. Also, 81 jobs were created, this is 6% above the expected target. This means that the critical success factor set out at the beginning of this project have all been achieved. With the WMIP project achieving above the expected targets.

Methodology for additionality calculations

Additionality monetizable benefits have been calculated by using the HCA Additionality Guidance methodology for calculating additionality.

Tables 5 and 6 below shows how the above GVA methodology guidance was applied to additionality calculations for this project.

Table 5: Businesses Assisted GVA calculation in detail

Total Net Additional Effects of Businesses Assisted					
Year		0	1	2	3
No. of Businesses per year	223	0	223	223	223
Turnover per business	£738,141	£738,141	£738,141	£738,141	£738,141
Turnover Uplift (%)	10.00%	Turnover uplift value =turnover per business * expected turnover uplift (10%)			
Gross Direct Effect		Gross Direct Effect =turnover uplift value * number of businesses per year			
Leakages	10.30%	Total Leakages Value =Gross Direct Effect * leakages			
Displacement	24.50%	Total Displacement Value =Gross Direct Effect * Displacement			
Substitution	3.40%	Total Substitution Value =Gross Direct Effect * Substitution			
Net Local Effect		Net Local Effect =Gross Direct Effect- (Total Leakages Value) – (Total Displacement Value) – (Total Substitution Value)			
Multiplier	1.56	=Net local Effect * multiplier			
Total Net Local Effect		=Above row			
Deadweight	50%	Deadweight value =Total Net Local Effect * deadweight			
Total Net Additional Effects		=Total Net Local Effect – Deadweight Value			
Cumulative Total Net Additional Effects		=total net additional effects of each year added together			

Table 6: Jobs Created GVA calculation in detail

Total Net Additional Effects of Jobs created					
Year		0	1	2	3
No. of Jobs per year	27	0	27	54	81
GVA per Job		£57,000	£57,000	£57,000	£57,000
Gross Direct Effect		=GVA per Job *number of jobs created per year			
Leakages	7.50%	Total Leakages Value =Gross Direct Effect * leakages			
Displacement	17.90%	Total Displacement Value =Gross Direct Effect * Displacement			
Substitution	4.40%	Total Substitution Value =Gross Direct Effect * Substitution			
Net Local Effect		Net Local Effect =Gross Direct Effect- (Total Leakages Value) – (Total Displacement Value) – (Total Substitution Value)			
Multiplier	1.56	=Net local Effect * multiplier			
Total Net Local Effect		=Above row			
Deadweight	50%	Deadweight value =Total Net Local Effect * deadweight			
Total Net Additional Effects		=Total Net Local Effect – Deadweight Value			
Cumulative Total Net Additional Effects		=total net additional effects of each year added together			

Businesses Assisted

GVA calculation methodology

GVA for businesses assisted was calculated through an uplift in turnover, per business in the year following the receipt of WMIP support. Over the duration of the 3-year project 676 businesses (around 225 per year) were assisted towards the development of new products and services leading to growth and productivity gains. The average turnover for an SME in the West Midlands, according to ONS figures on Business Population estimates (2021), is around £738,141 per year. Based on previous evaluation evidence from previous innovation programmes 7 below shows the previous innovation programmes which were reviewed), it is estimated that the businesses assisted will have seen a 10% uplift in turnover, in the year following the receipt of the WMIP support.

Table 7: Reviewed examples of economic impact from similar intervention programmes

Intervention	Economic Impact
Small Business Research Initiative (SBRI)	A 2015 evaluation found that turnover increased by c13% as a result of a firm's engagement with SBRI and estimated the scheme's BCR as 1:2.4. *A Review of the SBRI (2015) Manchester Institute of Innovation Research*
TSB's Collaborative R&D Programmes	A 2011 evaluation for the Technology Strategy Board (now Innovate UK) found that each £1 of collaborative R&D grant would lead to an increase in GVA of £6.71. *Evaluation of the Collaborative Research and Development Programmes (2011) PACEC*
Knowledge Transfer Partnership	A 2010 review found that for every £1 of public money invested, £4.70 - £5.20 of net additional GVA was created. *Knowledge Transfer Partnerships Strategic Review (2010) Regeneris*
KTP Programme in Scotland	A 2015 evaluation found that for every £1 invested, £7.30 in net additional GVA had been generated to date and that £6.60 was expected in the future. *Impact Evaluation: Knowledge Transfer Partnership Programme in Scotland (2015) Ekos*
National Aerospace Technology Exploitation Programme	For every £1 of public money invested there has been a £3.90 return to date, which could rise to a return of £26 by 2022. *Evaluation of the National Aerospace Technology Exploitation Programme (2017) Regeneris*
Smart	A 2015 interim evaluation for every £1 of public investment there has been a return of £2.8-£5.1 to date *Evaluation of Smart: Impact and Process Evaluation (2015) SQW*
Small Business Innovation Research / Small Business Technology Transfer – US Air Force	A 2014 economic impact study found that $4bn investment in 1,750 companies over 2000-2013 resulted in $14.7bn sales, the creation of 16.8k full-time jobs, and the founding of 125 spin-out companies. The total GVA was estimated as $24.7bn. *The Air Force Impact to the Economy via SBIR/STTR (2014) TechLink*
Small Business Innovation Research / Small Business Technology Transfer – Department of Energy	In FY2012, the Department of Energy awarded $202m to SBIR/STTR projects. The 2016 review is based on a sample of 269 recipients of funding from 2001-2010 but does not state the amount of funding these projects received. Nearly half of the 269 respondents reported some sales, and a further 23% anticipated future sales. Of those respondents reporting some sales, 25% had sales less than $100k, 6% had sales over $10m, and an additional 26% had sales over $1m. *SBIR/ STTR at the Department of Energy (2016) The National Academies Press*
Small Business Innovation Research / Small Business Technology Transfer – National Institute of Health	In FY2014, the Department of Health and Human Services awarded $774m to 1,134 SBIR/STTR projects. The 2015 review is based on a sample of 726 recipients of funding from 2001-2010 but does not state the amount of funding these projects received.

Intervention	Economic Impact
	Of the 726 responses, 49% had made commercial sales to date and a further 25% expect sales in the future (e.g. because the drug was still in clinical trials). Of those who had made sales to date, 65% were valued at less than $0.5m whilst 12% were over $5m. *SBIR/STTR at the National Institutes of Health (2015) The National Academies Press*
Small Business Innovation Research / Small Business Technology Transfer – National Science Foundation	In FY 2014, National Science Foundation made 411 SBIR/STTR awards amounting to $130m. The 2015 review is based on a sample of 600 recipients of funding from 1998-2007 but does not state the amount of funding these projects received. According to the responses to the 2011 Survey, 70% of Phase II projects reported some sales and an additional 19% anticipated future sales. Of those who reported sales, 36% reported sales revenue of over $1m with 9% at $5m or above. *SBIR/STTR at the National Science Foundation (2015) The National Academies Press*

In terms of additionality factors the figures applied followed the guidance as set out by HM Treasury in the Green Book (2022) and the HCA Guidance (2014). The additionality figures applied when calculating the economic Impact of this output can be seen below:

Table 8: Additionality factors applied to GVA estimations for Businesses Assisted

Additionality Factor	Assumption	Justification
Leakage (%)	**10.3%**	Consistent with regional level leakage ready reckoners. Whilst the consortium partners will be WM based organisations, their supply chains may include some firms based outside of the WM.
Displacement (%)	**24.5%**	Consistent with guidance, it is assumed that a proportion of the WMIP outputs/outcomes will reduce outputs/outcomes elsewhere in the WM, e.g. firms supported by the LIS related interventions may take market share from those that do not receive support.
Substitution (%)	**3.4%**	A low level of substitution has been applied, consistent with BEIS research, as it is assumed firms are unlikely to substitute 'core' business activity to take part in higher risk pilot, feasibility and demonstrator projects.
Multiplier (e.g. 1.1)	**1.56**	Consistent with the regional multiplier for the promotion & development of science, R&D and innovation infrastructure.

GVA Calculation

Over the 3 years to date therefore, this will have generated £24,053,007 in total net additional GVA effects (cumulative), as shown in table 9 below. Based on each firm seeing a 10% uplift in turnover in the following year of receiving WMIP assistance.

Table 9: Total Net Additional Effects of Businesses Assisted

Total Net Additional Effects of Businesses Assisted					
Year		0	1	2	3
No. of Businesses per year	225	0	225	225	225
Turnover per business	£738,141	£738,141	£738,141	£738,141	£738,141
Turnover Uplift (%)	10.00%	£73,814	£73,814	£73,814	£73,814
Gross Direct Effect		£0	£16,632,788	£16,632,788	£16,632,788
Leakages	10.30%	£0	£1,713,177	£1,713,177	£1,713,177
Displacement	24.50%	£0	£4,075,033	£4,075,033	£4,075,033
Substitution	3.40%	£0	£565,515	£565,515	£565,515
Net Local Effect		£0	£10,279,063	£10,279,063	£10,279,063
Multiplier	1.56	£0	£16,035,338	£16,035,338	£16,035,338
Total Net Local Effect		£0	£16,035,338	£16,035,338	£16,035,338
Deadweight	50%	£0	£8,017,669	£8,017,669	£8,017,669
Total Net Additional Effects		£0	£8,017,669	£8,017,669	£8,017,669
Cumulative Total Net Additional Effects		**£0**	**£8,017,669**	**£16,035,338**	**£24,053,007**

The GVA impact for this project is partially so large, so early on in the project, due to the project vastly overachieving on its target number of firms to be assisted through this intervention, as seen in the output target table above. It was anticipated that WMIP interventions would assist 280 firms, at an average of 93 firms per year, however the WMIP interventions assisted 676 businesses, at an average of 225 firms per year. If this rate was to continue over the 15 years, £120.3 million will be generated in additional net GVA placing them well on the way to meeting the targets set out in the business case.

Jobs Created

GVA calculation methodology

The net additionality for this output was calculated by multiplying the number of jobs created by the average GVA per job. 81 jobs were directly created throughout the various interventions under this programme, at a rate of around 27 jobs per year. GVA per job was set at the WMCA average for GVA per job of £57,000, calculated by dividing the total GVA for the region by the number of people employed. Figures for GVA were from the ONS' Regional gross value added (balanced) by industry: all ITL regions (2022) and employee jobs figures were from the Business Register and Employment Survey (2022).

For additionality factors the figures applied followed the guidance as set out by HM Treasury in the Green Book (2022) and the HCA Guidance (2014). The additionality figures applied when calculating the economic impact of this output can be seen below:

Table 10: Additionality factors applied to GVA estimations for Jobs created

Additionality Factor	Assumption	Justification
Leakage (%)	**7.5%**	Leakages for this output were expected to be low given that those employed by projects were employed based on their residential geography. Therefore, leakages was set within the recommended boundaries between 0-10% as set out in the referenced guidance.
Displacement (%)	**17.9%**	Consistent with guidance, it is assumed that a proportion of the WMIP outputs/outcomes will reduce outputs/outcomes elsewhere in the WM.
Substitution (%)	**4.4%**	A low level of substitution has been applied, consistent with BEIS research, as it is assumed firms are unlikely to substitute 'core' business activity to take part in higher risk pilot, feasibility and demonstrator projects.
Multiplier (e.g. 1.1)	**1.56**	Consistent with the regional multiplier for the promotion & development of science, R&D and innovation infrastructure.

GVA Calculation

The table below shows the GVA output for jobs created so far. At a rate of 27 jobs created per year this (equalling the total 81 jobs over the 3-year period) will have generated £5,056,169 in total net additional GVA effects (cumulative over the three years). This includes the application of additionality factors, plus deadweight.

Table 11: Total Net Additional Effects of Jobs created

Total Net Additional Effects of Jobs created					
Year		0	1	2	3
No. of Jobs per year	27	0	27	54	81
GVA per Job		£57,000	£57,000	£57,000	£57,000
Gross Direct Effect		£0	£1,539,000	£3,078,000	£4,617,000
Leakages	7.50%	£0	£115,425	£230,850	£346,275
Displacement	17.90%	£0	£275,481	£550,962	£826,443
Substitution	4.40%	£0	£67,716	£135,432	£203,148
Net Local Effect		£0	£1,080,378	£2,160,756	£3,241,134
Multiplier	1.56	£0	£1,685,390	£3,370,779	£5,056,169
Total Net Local Effect		£0	£1,685,390	£3,370,779	£5,056,169
Deadweight	50%	£0	£842,695	£1,685,390	£2,528,085
Total Net Additional Effects		£0	£842,695	£1,685,390	£2,528,085
Cumulative Total Net Additional Effects		**£0**	**£842,695**	**£2,528,085**	**£5,056,169**

If the rate of jobs created was to continue at the current pace of around 27 new jobs per year, over the next 15 years this would generate around £101.1 million in GVA (cumulative over the 15 years) over the duration of the entire 15-year programme.