

Dadansoddi ar gyfer Polisi



Analysis for Policy



Llywodraeth Cymru
Welsh Government

SOCIAL RESEARCH NUMBER:

51/2020

PUBLICATION DATE:

06/08/2020

Evaluation of EU Funded Infrastructure: Phase Two

Mae'r ddogfen yma hefyd ar gael yn Gymraeg.

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Evaluation of EU Funded Infrastructure: Phase Two

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Chapman, O; Evans, N (2020). *Evaluation of EU Funded Infrastructure: Phase Two*. Cardiff: Welsh Government, GSR report number 51/2020. Available at: hyperlink: <https://gov.wales/evaluation-eu-funded-infrastructure>

Views expressed in this report are those of the researcher and not necessarily those of the Welsh Government

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Glossary

Acronym/Key word	Definition
BGLZ	Blaenau Gwent Learning Zone
BREEAM	Building Research Establishment Environment Assessment
CCR	Cardiff Capital Region
DDA	Disability Discrimination Act
EAP	Economic Action Plan
ERDF	European Regional Development Fund
FTTC	Fibre to the Cabinet
FTTP	Fibre to the Premise
HPC	High Performance Computing
ICT	Information and Communication Technology
ILS	Institute of Life Sciences
NDF	National Development Framework
NGBW	Next Generation Broadband Wales
ORR	Office for Road and Rail
PDR	Primary Distributor Route
R&I	Research and Innovation
SESIF	Strategic Employment Sites Infrastructure Fund
SFB	Superfast Broadband
TEN-T	Trans European Transport Network
TERC	Tertiary Education and Research Commission
UWTSD	University of Wales Trinity Saint David
WEFO	Welsh European Funding Office
WFGA	Wellbeing of Future Generations Act
WIIP	Wales Infrastructure Investment Plan

1. Introduction

- 1.1 The Welsh European Funding Office (WEFO) has appointed Hatch Regeneris, OB3, Cardiff University and Beaufort Research to undertake an evaluation of EU funded infrastructure in Wales in the 2000-2006 and 2007-2013 programming periods.
- 1.2 The need for this project has arisen because of gaps in WEFO's and the Welsh Government's knowledge of how EU funded infrastructure is being used, how different types of investment have complemented each other and the economic contribution this has made to different parts of Wales.
- 1.3 Having access to more robust evidence on infrastructure investment is particularly important in light of Brexit. It is therefore important that WG understands what works so that this can be factored in to future regional policy and delivery.
- 1.4 The study has three specific aims:
- To investigate the usage and maintenance of the new/improved infrastructure;
 - To investigate whether, and if so how, new and improved infrastructure within the three regions of Wales work together, for the benefit of the region in terms of the local economy, residents and businesses; and
 - To consider the feasibility of undertaking an impact evaluation of infrastructure and set out recommended methods.
- 1.5 The study covers the previous two programme periods:
- the 2000-06 Objective 1¹ and Objective 2² & Transitional Programmes
 - the 2007-13 West Wales and the Valleys Convergence Region³ and East Wales Competitiveness Region⁴ ERDF Programmes.
- 1.6 Both programmes supported infrastructure projects across Wales, although the approach and scale of investment has changed over time (see Section 3). The main types of infrastructure investment in both programmes have included the following (these are referred to as themes in the report):
- Digital infrastructure
 - Learning infrastructure
 - Research and Innovation facilities
 - Sites and premises
 - Tourism infrastructure
 - Transport infrastructure
- 1.7 The study does not consider other types of infrastructure investment including energy infrastructure, flood defences or the public realm.

¹ [West Wales and the Valleys Objective 1 Programme](#)

² [East Wales Objective 2 Programme](#)

³ [Operational Programme 'West Wales and the Valleys'](#)

⁴ [Operational Programme 'East Wales'](#)

1.8 The research is being conducted in a number of phases. The details of each phase are as follows:

- Phase 1: Inception, exploration and design. This phase carried out an initial mapping exercise of investments in infrastructure and reviewed the available monitoring data and evaluation evidence. The findings were used to set out a more detailed approach to the evaluation.
- Phase 2: Evaluating use and maintenance (responding to evaluation aim 1).
- Phase 3: Evaluating the benefits of infrastructure in the regions (responding to evaluation aim 2).
- Phase 4: Assessment of impact evaluation methods and feasibility (responding to evaluation aim 3).
- Phase 5: Finalisation and dissemination. This will bring together the findings from each phase of the research in to a summary report.

Purpose of Report

1.9 The purpose of this report is to present the findings of Phase Two of the research. The main aim of this phase has been to:

- provide a better understanding of how EU funding has been used to invest in infrastructure, including the scale of investment in different themes and the spatial distribution of this investment;
- investigate how the EU funded infrastructure is being used and maintained; and
- identify cluster areas which have received significant investment in a number of different types of infrastructure. These areas will be a key focus of Phase Three which will explore how infrastructure works together for the benefit of local economies.

1.10 The key research tasks have involved:

- A comprehensive review of Welsh Government policies, strategies and legislation to understand the implications for infrastructure investment.
- Mapping of ERDF investment by theme and geography using lists of ERDF funded projects provided by WEFO. This has also explored how the priorities and objectives of infrastructure investment changed between the two programme periods.
- Development of logic chains for different types of infrastructure investment. These have been prepared to help understand the purpose of investment and how infrastructure should be being used today if it was fulfilling the project's original objectives.
- Desk based research on all infrastructure investments with an EU grant over £500,000.⁵ The aim of this was to gather headline information on how the

⁵ This threshold was set as it covers all the projects in the 2007-2013 period and half the projects in the 2000-2006 period. It also captures 90 per cent of total ERDF investment in infrastructure in 2000-2013.

infrastructure is being used today. This involved web searches, analysis of datasets and project evaluation and consultations with grant recipients where contacts could be identified.

- Case studies for 50 projects which were agreed with WEFO. These involved more intensive research into how the infrastructure was being used and maintained. These were based on document reviews, analysis of datasets and consultations with grant recipient organisations.

2. Review of Policy

2.1 This section reviews the policy context which has guided infrastructure investment in Wales over time. The purpose is to understand how priorities have changed and to establish how relevant the infrastructure projects are in light of Welsh Government's current policy objectives. It provides the following:

- A brief review of the overarching policies and strategies which were in place during the 2000-06 and 2007-13 programme periods, and the current policies of Welsh Government.
- A summary of the implications of these policy documents for different types of infrastructure investment. A summary is provided for each of the infrastructure themes covered in this report (digital infrastructure, learning infrastructure, research and innovation, sites and premises, tourism and transport). These summaries also draw upon any other strategies which are relevant to specific themes.
- A summary of the key spatial policies and strategies (e.g. city deals) and their implications for infrastructure investment.

Evolution of the Welsh Government's Economic Development Strategy

2.2 The 2000-06 programme was influenced by a number of policy documents⁶, but the best guide to the Welsh Government's priorities and economic strategy at the time is set out in *A Winning Wales* (Welsh Government, 2002). This established a vision of a Welsh economy which is "*dynamic, inclusive and sustainable, based on successful, innovative businesses with highly skilled, well-motivated people*".

2.3 To achieve this, the strategy identified over 80 separate actions spread across ten different priorities:

- Encouraging innovation
- Encouraging entrepreneurship
- Making Wales a learning country
- Promoting information and communication technologies
- Supporting businesses
- Setting a fresh direction (developing the low carbon economy)
- Establishing Wales in the world
- Improving Transport
- Creating strong communities
- Supporting rural Wales

⁶ This includes *Wales: A Better Country* (Welsh Government, 2003) and the *Wales Spatial Plan* (Welsh Government, 2004)

- 2.4 Although the strategy was ambitious and based on evidence of need, the wide range of action areas meant that the document did not give a clear sense of the key priorities for Welsh Government. In particular, it did not give a clear sense of how these multiple strands of activity will be prioritised given limited resources, or which would have greatest impact. As a result the 2000-06 programme funded a wide range of different activities, and resources were spread quite thinly across a large number of projects.
- 2.5 By the time the 2007-13 programme was designed, the Welsh Government's approach to economic development had evolved, as set out in Economic Renewal: a New Direction (Welsh Government, 2010a). This recognised that Welsh Government could only have a limited influence on economic growth, and therefore resources should be concentrated where they could add most value. Key roles identified for government were to provide high quality sustainable infrastructure, adopt a more targeted sector-based approach to business support and to invest in Wales' distinctive research strengths to stimulate innovation. This more focused approach was reflected in the infrastructure investments made in the 2007-13 programme, which funded a smaller number of larger projects.
- 2.6 Since 2010, the major change in Welsh Government policy has been a move away from 'narrow' economic policies which focus only on growth and a much greater focus on wellbeing. The Well-being of Future Generations (Wales) Act (WFGA) (Welsh Government, 2015) introduced legislation which requires public bodies to put long-term sustainability and quality of life at the forefront of their thinking. Although this was not the first time that policy had prioritised the wellbeing of its citizens, it represents a more far-reaching approach than previous policies.
- 2.7 WFGA provides the principles which underpin the current approach to economic development, set out in the Prosperity for All; Economic Action Plan (EAP) (Welsh Government, 2017a). At the heart of this new approach is the new "economic contract" between businesses and Welsh Government, founded on the principle that delivering improved well-being is a shared responsibility of business and Government, and that support for business should be conditional on a commitment to upholding the principles of fair work, investing in skills, promoting health and reducing their carbon footprint. It also sets out five Calls to Action which relate to future challenges facing Wales⁷; any business seeking support from Welsh Government will be expected to contribute to one of these.
- 2.8 Other important changes in the action plan include:
- a more **regionally focused model of economic development**, which gives more power over decision making to local bodies and aims to build on each region's distinctive strengths and capabilities. In relation to infrastructure, the Action Plan commits to developing Strategic Development Plans for each of the regions and working with regional teams and stakeholders to create integrated transport networks and to identify priority sites for investment.
 - a focus on a **smaller number of cross-cutting, thematic sectors**, marking a move away from narrowly defined priority sectors. This better recognises the

⁷ The five Calls to Action are Decarbonisation; Innovation, Entrepreneurship and Headquarters; Exports and Trade; High Quality Employment, Skills Development and Fair Work; R&D, Automation and Digitalisation

increasingly blurred boundaries between different sectors such as technology and financial services.

- a commitment to **support the foundational economy**, including tourism, food, retail and care sectors which make an important contribution to the well-being of Wales, both as large employers and deliverer of services. The Action Plan does not say anything specific about tourism infrastructure but does commit to working with the sector across a broad range of issues to support its growth.

2.9 The EAP also identifies some familiar and longstanding priorities for the Welsh economy (reducing inactivity, raising productivity and combatting regional inequality). Delivering modern and connected infrastructure is identified as one of several critical building blocks for addressing these priorities, alongside improving skills, supporting businesses and ensuring a stronger regional voice. It recognises that investment in infrastructure can drive economic, social and environmental benefits, all of which contribute to the Welsh Government's well-being objectives.

2.10 Other recent and relevant policy developments include:

- The publication of the UK Industrial Strategy (HM Government, 2017) , which has implications for Wales as the UK government is still responsible for investment in some types of infrastructure. This identifies a number of Grand Challenges⁸ (with some crossover with the Welsh Government's Calls to Action) which will guide the UK Government's approach to infrastructure investment.
- Taking Wales Forward (Welsh Government, 2016), the Welsh Government's programme for the current term (2016 – 2021). The document identifies four cross-cutting strategies to meet its goals. The fourth strategy, 'United and Connected' frames the Government's ambition to strengthen the physical, economic and cultural connections that exist within Wales, as well as its connections with the wider world. This includes a number of priorities for investment in transport and digital infrastructure.
- The National Development Framework (NDF), which will set out where nationally important growth and infrastructure is required and how the planning system can help to deliver it⁹.
- The Wales Infrastructure Investment Plan (WIIP) (Welsh Government, 2012a). This was originally published in 2012 and was designed to prioritise, scope and coordinate delivery of major infrastructure investments. WIIP identified seven high-level investment priorities including improving transport links,

⁸ The Grand Challenges are: Putting the UK at the forefront of the artificial intelligence and data revolution; Maximising the advantages of the shift to green growth; Becoming a world leader in shaping the future of mobility; and Harnessing the power of innovation to help meet the needs of an ageing society

⁹ The Welsh Government will be undertaking a consultation on the Draft National Development Framework in July 2019. The Draft NDF is an important milestone in the NDF preparation process, setting out a spatial strategy for large scale change and nationally important developments for the next 20 years. It also contains policies and spatial direction for Wales's three regions - North Wales, Mid & South West Wales and South East Wales. Following consideration of people's views on the Draft NDF, the National Assembly will consider the NDF in Spring 2020 and the NDF will be published in Autumn 2020.

telecommunications networks, developing Enterprise Zones and improving the quality of the educational estate.

Policy Context for Infrastructure Themes

Digital Infrastructure

- 2.11 Ensuring widespread access to high quality digital infrastructure has been a consistent priority of Welsh Government since the early 2000s:
- A Winning Wales identified a need to improve “*access to a high bandwidth communications infrastructure for businesses, public services, voluntary organisations, individuals and communities in Wales*” although it did not set specific targets for coverage or single out specific technologies.
 - Economic Renewal – A New Direction stated the aspiration that “*all businesses in Wales will have access to next generation broadband¹⁰ by the middle of 2016, and all households by 2020*”. This pointed to evidence that investments in broadband can promote the uptake of technologies which increase productivity and economic growth.
 - Delivering a Digital Wales (Welsh Government, 2010b) was the first Digital Strategy for Wales. This restated the target for ensuring universal access of next generation broadband by 2020. The strategy also set out ambitions to improve mobile and wireless coverage, achieving a digital radio (DAB) upgrade and developing data infrastructure to enable greater take-up of cloud computing.
- 2.12 Current Welsh Government policies continue to prioritise maximising access to high speed broadband. For instance:
- the EAP states that the Welsh Government will “*deliver fast reliable broadband across Wales*”
 - the Draft NDF states it will support “*the delivery of digital infrastructure and helping to achieve WG’s objective of 100% coverage of broadband and telecoms across Wales*”
 - the WIIP prioritises “*improving telecommunications networks and ensuring all parts of Wales have access to adequate broadband facilities for their economic needs*”.
- 2.13 Recent policies recognise the potential for improved digital connectivity to generate economic, social and environmental benefits by improving Wales’s access to international markets, increasing productivity, improving access to education resources, supporting the delivery of services online and reducing the need for commuting. It therefore supports a number of the well-being goals in the WFGA.
- 2.14 Although there has been limited change in the policy aspirations for digital infrastructure over time, the technology itself has evolved rapidly. As a result, broadband networks are now capable of delivering far higher speeds than was the case during the 2000s. The influence of technological change is also reflected in

¹⁰ Next generation broadband referred to download speeds of at least 30 Mbps

recent policies which include a greater focus on mobile networks (eg enabling the market roll-out of 5G) and the need to invest in digital infrastructure along transport networks as well as in commercial and residential premises.

- 2.15 The one area in which policy priorities have evolved since the early 2000s relates to community based ICT facilities. A Winning Wales stated that the Welsh Government would promote ICT by “*ensuring that community based ICT facilities exist that are well used, close, convenient and accessible for everyone*”. As a result, a number of community access facilities were funded in the 2000-06 programme (see Section 3). However these facilities are not prioritised in any later strategy documents, reflecting the fact that access to computers and mobile devices has increased rapidly since then.
- 2.16 Conclusion: expanding coverage of high-speed digital infrastructure has been a longstanding priority of Welsh Government in each of the programmes and remains a key priority in current policies. The only major change has been a diminished focus on community based ICT facilities.

Learning Infrastructure

- 2.17 The need to close the skills-gap with the rest of the UK has been a longstanding challenge for Wales. As such, improving skills and employability have been key priorities of all of the economic development strategies published since the early 2000s:
- A Winning Wales identified the need to tackle the literacy and numeracy deficits in Wales and to ensure that learners acquire the skills that are in demand from employers.
 - Economic Renewal: A New Direction also emphasised the importance of being responsive to the skill needs of business, and to “*support young people to succeed and be ready for the world of work*”.
- 2.18 Recent policies have retained a focus on the core priorities of improving employability and ensuring employers can access the skills they need. *Prosperity for All* identifies skills and employability as one of five areas which make a significant contribution to long term prosperity and well-being. The EAP outlines plans for a new “*employability programme*” and a “*strategic planning system*” which will “*assess and match skills to the needs of the economy*”.
- 2.19 Both the current and earlier economic strategies say little about how investments in learning infrastructure should be prioritised. However the key change has been a move away from a targets based system towards one in which skill needs are identified by local stakeholders, with this labour market intelligence then used to prioritise investments.
- 2.20 Investments in the 2000-06 programme were highly influenced by the targets set out in the Welsh Government’s first comprehensive Education and Lifelong Learning Programme (The Learning Country: A Paving Document (Welsh Government, 2001)). These targets related to the proportion of young people and adults achieving minimum qualification levels, as well as overall increases in participation in education and training. This influenced the 2000-06 programme which funded a number of

facilities for adult and community learning, with the aim of increasing participation in education and training and reducing the number of people with no qualifications.

- 2.21 Skills that Work for Wales (Welsh Government, 2008a) provided the context for the 2007-13 programme. This maintained the Welsh Government's commitment to achieving targets, but also indicated that investment should be focused on providing the right types of skills (ie those demanded by employers): "*where the Assembly does invest, the programmes it funds should meet the needs of employers and individuals in line with our principle of responsiveness*".
- 2.22 Investments in the 2007-13 programme were also influenced by the Webb Review (Webb, 2007) which set out proposals for a reshaped learning network with a smaller number of larger providers. This network would be built around the needs of the learner, and would be made up of high quality institutions with a strong brand image, offering a broader range of curriculum options. This provided the context for the two investments in the 2007-13 programme. These were both large investments, intended to have a transformational impact on local FE provision by expanding provision, improving quality and building a brand which learners and employers would trust.
- 2.23 Current policies and strategy documents do not set any specific targets relating to participation or minimum attainment levels. Instead, the *Economic Action Plan* indicates that investment decisions will be based on their potential to address the needs of employers. It commits to the introduction of "*a strategic planning system for education and skills delivery across post-16 education, working with the Regional Skills Partnerships to align this to our national and foundation sectors*". The system described is based on a skills-matching approach whereby Regional Skills Partnerships (RSPs) will help to identify the current and future skill needs of the economy and work with colleges and local authorities to plan provision around these needs.
- 2.24 The White Paper "*Public Good and a Prosperous Wales*" (Welsh Government, 2017b) recommended the establishment of a Tertiary Education and Research Commission (TERC), which would be responsible for the oversight, strategic direction and leadership of the sector. It states that the evidence being collected by RSPs is "*starting to drive planning decisions for providers and providing a critical evidence base from which to make skills investment decisions*". It proposes that the new Commission should maintain strong relationships with RSPs and should withhold an amount of funding to be used specifically for responding to their recommendations about skill needs. It states "*this could be used for additional provision in priority areas or to risk assure the development of new provision to meet potential future labour market needs*".
- 2.25 While the White Paper proposals have not yet been adopted as policy (they were put out to consultation in 2018), it seems likely that this region-based skills matching approach will be the primary tool for planning and prioritising future investments in learning infrastructure.
- 2.26 Conclusion: improving the skills of residents is a longstanding priority of Welsh Government and investment in learning infrastructure is key to achieving this. The main policy change affecting investments in learning infrastructure has been a move away from a targets based approach towards one in which investments are prioritised

on the basis of the skills needs of the economy. This has resulted in a reduction in the number of investments in community learning facilities.

Research and Innovation

- 2.27 The Welsh Government's approach to investment in research and innovation infrastructure has undergone a major shift since the 2000-06 programme. Although A Winning Wales identified a need to raise levels of innovation, the areas of action were very broad and focused on strengthening the "innovation culture". These included:
- Boosting the number of incubation facilities across Wales (eg Techniums)
 - Establishing a clearer structure of innovation support activity and better communication of the importance of innovation
 - Increasing collaboration between universities and companies in Wales
 - Encouraging and financing more high calibre research and development with commercial potential.
- 2.28 With the publication of Economic Renewal – A New Direction, Welsh Government recognised that previous approaches had spread resources too thinly, and that the performance of some investments had been mixed at best (eg Techniums). It set out a more focused approach in which investment would be targeted in four R&D priority areas where Welsh universities have existing strengths and where there is the opportunity to maximise impact (the digital economy, low carbon, health and biosciences and advanced engineering). As a result there was a clear shift in the types of R&I investments made in the 2000-06 and 2007-13 programmes, with much greater investment in these research strengths and very little in incubation facilities in the later programme.
- 2.29 The focus on smart specialisation was reaffirmed with the publication of Science for Wales (Welsh Government, 2012b) and Innovation Wales (Welsh Government, 2014). Both of these documents place a heavy emphasis on identifying areas where Wales excels, and then focusing investment on exploiting these strengths:
- Science for Wales set out a number of principles or criteria which should be used to identify areas of real strength and opportunity for Wales. It also identified three priority research themes (referred to as grand challenge areas) where Wales's scientific research is strong and aligned with the Welsh Government's priority sectors, namely life sciences, energy and environment and advanced materials and manufacturing¹¹.
 - Innovation Wales states that "*Wales needs to develop a UK and global reputation by building on those areas of research and innovation facilities that are genuinely world class, and target resources at them*". It adopts the same criteria and grand challenges as Science for Wales (adding one more for ICT and the digital economy), and states that investments should be focused on building critical mass in these research strengths.

¹¹ Although as noted above, the Welsh Government's economic development policy, as set out in the Economic Action Plan has moved away from priority sectors.

- 2.30 Recent Welsh Government policy documents suggest continued support for this approach. The EAP recognises that “*research, innovation and the development of the right skills*” forms a cornerstone of the Welsh Government’s ambition to create a prosperous and fair society. Increasing R&D is also one of five Calls to Action set out in the report. These all relate to future challenges facing Wales, which businesses will need to contribute towards if they are seeking financial support from Welsh Government.
- 2.31 As well as seeking to maximise funding for research and innovation, the EAP also recognises the need to invest in new facilities to support new technologies and business development. The Plan suggests investments will be prioritised on the basis of existing research strengths and a strong track record, stating that there will be a focus on “*investments in universities to recognise excellence, reward achievement and prioritise commercialisation*”.
- 2.32 The Welsh Government’s proposal for reform of the post-compulsory education and training system has a number of implications for the way in which research and innovation expenditure will be overseen and coordinated. *Public Good and a Prosperous Wales – the next steps* proposes that the TERC would take responsibility for higher and further education, work based learning, adult learning and research. This new body would replace the current Higher Education Funding Council for Wales (HEFCW) and become the sole funder and regulator for the sector.
- 2.33 The consultation document proposes that the new body would adopt responsibility for all Welsh Government research and innovation funding and that this responsibility would fall under the remit of a new committee, Research and Innovation Wales (RIW) so as to strengthen the strategic approach to meeting Wales’s major economic, industrial, social, well-being and environmental challenges.
- 2.34 In April 2019 the Economy, Infrastructure and Skills Committee undertook an inquiry in to research and innovation in Wales in advance of the proposed Post Compulsory Education, Training and Research Bill (National Assembly for Wales, 2019). This recommended that the legislation establishing RIW should ensure it is an arms-length body and that it has powers to make decisions and adapt to changes in the sector without requiring new legislation. This recommendation has been accepted by Welsh Government.
- 2.35 Conclusion: the Welsh Government’s research and innovation strategy has undergone a major shift since the 2000-06 programme. The very broad approach adopted in the 2000s has been replaced with a more intensive and focused approach since 2010, in which resources are targeted in those areas where Wales has outstanding research strengths. This resulted in a reduction in the number of business incubation facilities and far greater investment in research facilities in Welsh universities in the 2007-13 programme (see Chapter 3).

Sites and Premises

- 2.36 Very few policy documents for the 2000-06 and 2007-13 programmes explicitly identified the need for public intervention in the delivery of sites and premises. The one exception to this was the WIIP (2012), which acknowledged that land and property interventions may be required to support the growth of Wales’s priority

sectors. For instance, in relation to financial and professional services, it states “*availability of good quality office space and access to high quality digital infrastructure, particularly in Cardiff, is important to the development of this sector*”. The WIIP also identified five locations for Enterprise Zones, each with a different sector focus, where the Welsh Government would focus infrastructure investment.

- 2.37 This has received greater attention in more recent policies, particularly the EAP which states the Welsh Government “*will proactively intervene where there is market failure. We will do this by incentivising investment from developers and investors, by creating development consortia.... or by being committed to direct delivery of sites and premises in parts of Wales where the private sector is not prepared to invest*”.
- 2.38 The EAP commits to providing a delivery schedule that focuses on “*regional priority projects for North, Mid and South West Wales and South East Wales*” which will be identified with the support of regional stakeholders. It will also include provision for policy priorities such as the Valleys Taskforce Programme.
- 2.39 Conclusion: although investments in sites and premises have been prominent in the last two Welsh ERDF programmes, the need for public intervention has only recently been a focus of economic strategies. Therefore it is difficult to get a clear sense of how Welsh Government’s priorities have changed.

Tourism Infrastructure

- 2.40 Investments in tourism infrastructure in the 2000-06 programme were guided by ‘Achieving Our Potential – A National Tourism Strategy for Wales’ (Wales Tourist Board, 2000). This strategy presented culture, heritage and the environment as Wales’s key strengths on which to build. It stated capital investment should be prioritised through integrated investment strategies (both national and regional) which identify the greatest opportunities for growth. It noted a range of different types of infrastructure investment including investing in new or existing visitor attractions, providing more opportunities for special interests (adventure sports, cycling, heritage etc) and investing in visitor facilities.
- 2.41 By the late 2000s, Welsh Government had adopted a more theme based approach focused on each of Wales’s key tourism strengths. A number of separate strategies were developed including the Sustainable Tourism Framework (Welsh Government, 2007), the Coastal Tourism Strategy (2008) and the Cultural Tourism Action Plan (2011). These set out plans for how to maximise the economic, social and environmental benefits of Wales’s visitor assets, and including the same types of infrastructure investment (strengthening visitor attractions and improving visitor facilities). This approach informed the investments made in the 2007-13 programme which were structured around each of the themes.
- 2.42 More recent strategies continue to recognise the importance of tourism, and the mutually beneficial relationship which exists between the quality of the environment, the cultural life of Wales and the visitor economy. For example, the WIIP states that investments which improve the environment can “*improve the quality of the visitor experience, in turn increasing the economic benefit from the sector to the Welsh economy*”. It also notes that “*investment in new and existing tourism facilities can raise the overall quality standards of the industry, including new visitor attractions and*

hotels and will add value alongside improvements to our coastal tourism infrastructure”.

- 2.43 Partnership for Growth, the Welsh Government Strategy for Tourism for the period 2013 to 2020 (Welsh Government, 2013b), sets out five priorities which are key to the future growth of tourism in Wales (promoting the brand, product development, people development, profitable performance and place building).
- 2.44 In common with earlier strategies, the document sets out a theme based approach by identifying five “*areas of competitive advantage*” that will help to differentiate Wales from other destinations. These include:
- **Natural environment:** including the three National Parks, five areas of outstanding natural beauty and the 870 mile long Coast Path
 - **Heritage and culture:** Wales has a distinct cultural identity and a number of historical assets including three World Heritage Sites.
 - **Activities and adventure:** Wales’s mountains, coastline, rivers and lakes provide a backdrop for a wide range of outdoor activities.
 - **Events and festivals:** Wales plays host to a number of major sporting events and has a year-round programme of cultural festivals.
 - **Distinctive destinations:** Wales offers a wide variety of locations and choice of activities which appeal to a wide range of tastes and preferences.
- 2.45 Investments in tourism infrastructure should therefore be focused on enhancing these competitive advantages to increase the visitor appeal of tourism destinations in Wales. The Strategy is clear that this should be delivered through a “*partnership approach to managing places*”.
- 2.46 The strategy recognises the critical role that tourism infrastructure plays in place building and creating destinations that people want to visit and recommend: “*Tourism infrastructure such as way-marking, signposting, car parking, beach management, toilets, tourist information and litter collection are often only noticed when they are sub-standard but they can often be the difference between a satisfied and an alienated visitor. Our major destinations, cities and hub towns will require a particularly focussed approach bringing stakeholders together to fully exploit opportunities to maximise economic growth*”.
- 2.47 Conclusion: the policy review has revealed few major changes in the approach to investment in tourism infrastructure. The need for investment in visitor facilities to support Wales’s visitor economy is recognised in all tourism strategies published since the early 2000s. All of these strategies have also recognised that investment should help to build on Wales’s key strengths and competitive advantages, which include the natural environment and coastline and its heritage and culture. Although this theme based approach was more prominent in the 2007-13 programme.

Transport

- 2.48 The Transport Framework for Wales (Welsh Government, 2001) provided the strategic context for the 2000-06 programme. It set out a number of objectives for transport investment, including improving accessibility, supporting economic growth,

improving integration between different modes of transport, promoting efficient use of resources and improving safety.

- 2.49 Measures to take this strategy forward included maintaining and enhancing the strategic transport corridors within Wales, exploiting major ports and encouraging Cardiff International Airport to act as an international gateway. It also supported the development of a sustainable integrated transport network, including improvements to public and community transport to improve accessibility for those who do not have a car.
- 2.50 Although there are some differences in more recent transport strategies, the underlying priorities for transport investment have remained broadly the same. The Wales Transport Strategy, One Wales; Connecting the Nation (Welsh Government, 2008b) distils these into five priorities which guided transport investment in Wales in the 2007-13 programme and continue to this date. The five priorities are listed below.

Reducing greenhouse gas emissions and other environmental impacts from transport

- 2.51 The Transport Strategy sets out a number of actions “*to put transport on to a less carbon intensive path*” including measures which encourage walking and cycling, shifting freight from road to rail and encouraging more people to use public transport instead of private cars. Reducing transport’s carbon footprint and other environmental impacts continues to be a central objective of more recent policies and strategies:
- Improving the quality of the environment and reducing carbon footprints is one of the main goals of the WFGA. The Environment Act has set an ambitious target of reducing greenhouse emissions by at least 80 per cent by 2050.
 - The EAP states “we will decarbonize our transport networks and improve the air quality of the communities they serve”
 - The Issues and Options Paper for the NDF sets an objective “*to support a reduction in travel by private vehicles and a growth in walking, cycling and public transport*”.

Integrating local transport

- 2.52 The Transport Strategy notes the important role that public transport plays for people needing to access jobs, shops and services. However access to these amenities is often poor because different forms of transport do not join up. The Strategy therefore identifies the need to move towards “*a fully integrated system*”.
- 2.53 This continues to be a key goal in Welsh policy. Taking Wales Forward, Prosperity for Wales, the EAP and the WIIP mid-point review all state a commitment to improving and integrating public transport. Welsh Government will achieve this by developing a new rail franchise and delivering a more effective network of bus services once powers have been devolved.

Improving access between key settlements and sites

- 2.54 The Transport Strategy notes that “the most effective way of improving access to essential services will be to improve links within key settlements and links between key settlements and employment sites”. It also identifies a need for stronger north-south links to strengthen economic and social links within Wales. These goals would

be achieved by improving public transport services and investing in road links between major settlements.

2.55 Recent policies continue to identify this as a priority:

- Taking Wales Forward, Prosperity for All and the WIIP mid-point review all commit to creating a South Wales Metro and advancing the development of a North Wales metro system which would create stronger links between settlements and improve access to jobs and services.
- The WIIP mid-point review and the NDF Issues and Options Paper both recognize the importance of improving north-south links. The WIIP mid-point review notes that £15m has been allocated for improvements to the A487 and A470 in 2019/20.
- The earlier WIIP also outlined how it will aim to increase capacity and improve train frequencies throughout Wales, although Welsh Government's powers over rail investments are more limited as funding for rail infrastructure was not devolved.

Enhancing international connectivity

2.56 Wales's connections with the rest of the UK and internationally are vital for business growth, productivity and inward investment. The Transport Strategy notes the need to improve east-west routes by road and rail which provide the main connections to the rest of the UK. It also states that international connectivity will be improved by ensuring better links to Cardiff Airport and road and rail-freight connections to the main freight ports.

2.57 These all continue to be key priorities for Welsh Government:

- Taking Wales Forward, Prosperity for All, the EAP, WIIP and the NDF all recognize the need to invest in the strategic road network to improve access to markets. Key priorities include the M4 relief road and improvements to the A55 and A40.
- The WIIP and the Issues and Options Paper for the NDF both note the need to invest in infrastructure which supports the growth of Cardiff International Airport and the movement of freight through Welsh ports.

Spatial Policies and Strategies

North Wales

2.58 The North Wales Growth Deal bid was prepared by a partnership including six North Wales councils, businesses, colleges and universities and was formally launched in 2017 (North Wales Economic Ambition Board, 2017). The proposals would enable investment of £1.3billion in the North Wales economy from a growth deal investment of £328m capital and £55.4m revenue (totalling £383.4m).

2.59 The bid document identifies 16 projects for which Growth Deal funding is sought. These include a number of infrastructure priorities:

- **Digital:** poor quality digital infrastructure is identified as a key barrier to growth. The bid identifies the need for £60m investment to upgrade this infrastructure which will help north Wales to become more competitive.
- **Learning infrastructure:** the bid identifies the need to invest £50m in new Skills Academies which would be focused on ensuring employers have access to the skills they need to grow.
- **Sites and premises:** bid partners report that property shortages across north Wales have led to concerns that businesses are being held back from growing and creating more jobs. The bid calls on Welsh Government to support the creation of an Arm's Length Property Development entity, to accelerate development of strategic sites and premises.
- **Transport:** the bid identifies the need for significant investment in road and rail infrastructure to strengthen links between North Wales and the rest of the UK, and to improve access to employment and reduce reliance on cars by developing integrated transport hubs. It proposes the creation of a Regional Transport Fund and Regional Transport Body to oversee this. It also calls on Welsh Government to deliver significant investment in trunk roads (specifically the Third Menai Crossing, Deeside Corridor, A483 junctions and the A487 Caernarfon to Bontnewydd By-pass) and the UK Government to deliver the strategic rail investment programme set out in Growth Track 360 (specifically line speed improvements on the North Wales Coast, the Wrexham to Bidston Line improvements and Chester to Wrexham Station Improvement Capacity).

South East Wales

2.60 The Cardiff Capital Region (CCR) City Deal is a programme agreed in 2016 between the UK Government, the Welsh Government and the ten local authorities in south-east Wales to bring about significant economic growth in the region. This includes £1.2 billion investment in the CCR's infrastructure through a 20-year Investment Fund. The City Deal highlights the following infrastructure priorities:

- **Digital:** the Deal states the CCR will prioritise investment in 4G and 5G mobile infrastructure, increase Wi-Fi services across public transport and explore the case for direct international connectivity.
- **Research and Innovation:** the UK Government is investing £50 million to establish a new Catapult¹² in Wales to help position Cardiff as the European leader in compound semiconductor applications. The new Catapult will complement the work of other organisations in Wales, including the Compound Semiconductor Institute at Cardiff University and the Compound Semiconductor Centre, a joint venture between Cardiff University and IQE. The Deal also states that CCR will seek to accelerate the growth of innovation and R&D through the development of new facilities and employment sites.
- **Transport:** the key priority for investment will be the delivery of the South East Wales Metro, including the Valley Lines Electrification programme. This will

¹² Catapult centres are a network of centres designed to transform the UK's capability for innovation in specific areas and help drive future economic growth.

improve access to employment, reduce reliance on private transport and promote agglomeration effects.

2.61 *Our Valleys Our Future* (Welsh Government, 2018) is the delivery plan for the Valleys Taskforce which aims to deliver improvements in the quality of life of residents in the Valleys. The plan identifies three over-arching priorities (Good quality jobs and the skills to do them, Better public services, and My local community). These highlight a number of priorities for infrastructure investment:

- **Sites and premises:** the delivery plan proposes the creation of a number of strategic hubs which will help to create jobs by providing employment space for businesses to start-up and grow.
- **Transport:** improve public transport services to better reflect the needs of local communities and businesses and create new integrated transport hubs linked to the South Wales Metro.
- **Tourism infrastructure:** the plan states the aim that the Valleys Regional Park “*will be a recognised tourist destination, attracting visitors from across the UK and beyond*”. It proposes to deliver up to ten Discovery Gateway sites across the Valleys which will tell the stories of the Valleys and attract visitors.

2.62 The Vision for Tech Valleys aims to position the south Wales Valleys as a globally recognised centre for the development of new technologies to support cutting edge industry. This will deliver a programme of investment across a number of different infrastructure themes. This includes investments in R&I (eg development and testing of battery and motor technology), complemented by infrastructure needed to attract and grow businesses (investments in sites and premises and transport).

Mid Wales

2.63 Although there is not a Growth Deal or bid covering Mid Wales, a Strategic Economic Priorities paper has been produced on behalf of the Growing Mid Wales Partnership (AECOM, 2018) which is made up of key stakeholders from the private, public and voluntary sector. This highlights a number of infrastructure priorities:

- **Digital:** there are still gaps in coverage of superfast and ultrafast broadband and 4G mobile networks across Mid Wales, and notes that further investment is needed to keep pace with other parts of Wales and the UK. The report also calls for a network of Gigabit Hubs, physical centres that offer a gigabit connection as well as shared and managed workspace, which have been successful in rural Ireland.
- **Research and innovation:** the report notes a number of research strengths and sector specialisms related to agri-tech and bioscience, radio-spectrums, unmanned aerial vehicles and advanced manufacturing. It identifies the need for infrastructure investment in new facilities which can build on these strengths, encourage innovation and support high-value business growth.
- **Sites and premises:** the report notes widespread market failure in the supply of sites and premises in mid Wales. Welsh Government has been the main developer of new business premises but has tended to focus on the development of larger premises for high-end users. This has left a gap in

supply at the lower end and middle of the market which is acting as a constraint on growth and investment. It identifies the need for an investment programme which could bring forward employment sites for these businesses.

- **Tourism infrastructure:** there are opportunities to increase tourism through “*the development of high value, strategic tourism destination attractions*” although it does not provide examples. It also identifies the opportunity to increase tourism through investment in the region’s harbours which are an underutilised asset.
- **Transport:** slow journey times on the main road and rail connections between Mid Wales and the English Midlands exacerbates the challenges imposed by the region’s peripherality from major markets and make it harder to attract investment. The key priority for the region is therefore improving the cross-border strategic transport corridors.

South West Wales

2.64 The Swansea Bay City Deal (Swansea Bay City Region, 2017) is a programme of investment in the Swansea Bay City Region, which is made up of Carmarthenshire, Neath Port Talbot, Swansea and Pembrokeshire. The City Deal is made up of 11 different projects, most of which relate to one of the infrastructure themes in this report. These include the following priorities:

- **Digital:** the Digital Infrastructure project will deliver improved internet coverage in rural areas and advance the rollout of 5G networks.
- **Sites and premises:** two of the projects are related to sites and premises. Canolfan S4C Yr Egin will target businesses in the creative sector through a new facility which will provide an auditorium, offices, post production facilities and networking space. The proposals for the Swansea City and Waterfront Digital District will target digital businesses and start-ups through the creation of a ‘box village’ and innovation precinct.
- **Research and Innovation:** six of the eleven projects in the City Deal relate to investments in research and innovation infrastructure. These include investments in Swansea Bay’s existing research strengths and sector specialisms in engineering, life sciences and steels and metals. The projects include proposals for a Life Science and Well-being Village, a ‘Factory of the Future’ in Neath Port Talbot, a marine energy and engineering fabrication, test and deployment hub in Pembroke Dock and a new National Steel Innovation Centre in Neath Port Talbot.
- **Tourism:** the proposals for the Swansea City and Waterfront Digital District include a new 3,500 seat digital indoor arena which will accommodate music concerts, exhibitions and conference centres.

2.65 The Swansea Bay City Region Economic Regeneration Strategy (Swansea Bay City Region, 2013) also identified the following infrastructure priorities:

- Investment in the new Science and Innovation Campus at Swansea University (the Swansea Bay Campus)

- Continued development of the City Region's strategic employment sites as centres of high value activity, and exploring novel funding mechanisms to unlock stalled developments.
- Increasing capacity on the M4 to improve intra-regional connectivity.
- Supporting investment in port, road, rail and air to enhance strategic connectivity.
- Delivering next generation broadband infrastructure across all parts of the City Region.

3. Mapping Infrastructure Investment

- 3.1 This chapter analyses how ERDF investment in infrastructure has been spent in each of the last two programme periods (2000-06 and 2007-13). The focus is on two main elements:
- Understanding the scale and nature of infrastructure investment, including the resources allocated to different types of infrastructure.
 - Understanding the spatial distribution of investment across Wales. This is valuable in its own right but also provides an important tool for identifying potential investment clusters to target in the research.

Programme Structures

- 3.2 This section provides context on the total scale of ERDF investment in each of the previous two programme periods (2000-06 and 2007-13) and the allocations to different priority axes. Priority axes provide the structure of each programme of investment. Each priority axis is linked to a certain theme (eg encouraging enterprise, increasing innovation) and identifies the priorities for investment, the specific objectives that projects should seek to address and the types of activities that can be funded. It also identifies output and result targets that the programme of investment should deliver.
- 3.3 A definition of the aims of each of the priority axes across the two programmes is included in Appendix A.

2000-06 Programme

- 3.4 Nearly €1.2bn of ERDF was invested in West Wales and the Valleys¹³ in the 2000-06 programme period. Over half of this was allocated to investment in developing SMEs and the knowledge economy (Priority Axes 1 and 2). €217m was allocated to Priority Axis 6 (Strategic Infrastructure Development), although a number of other Priority Axes included some infrastructure investment.

¹³ This includes the following local authorities: Blaenau Gwent, Bridgend, Caerphilly, Carmarthenshire, Ceredigion, Conwy, Denbighshire, Gwynedd, Isle of Anglesey, Merthyr Tydfil, Neath Port Talbot, Pembrokeshire, Swansea, Torfaen

Table 3.1: West Wales and the Valleys Objective One Indicative Allocations, 2000-06

Priority Axis	ERDF (€m)	Proportion
1 Expanding and developing the SME base	342.9	29%
2 Developing innovation and the knowledge based economy	289.3	25%
3 Community Economic Regeneration	156.0	13%
4 Developing People	70.0	6%
5 Rural Development and the Sustainable Use of Natural Resources	67.3	6%
6 Strategic Infrastructure Development	216.6	19%
Technical Assistance	20.9	2%
Total	1,163	100%

Source: [West Wales and the Valleys Objective 1 Programme](#)

- 3.5 €126m was invested in East Wales¹⁴. The split between Priority Axes has been estimated based on the total public contribution, as the split by ERDF is not available for this programme. This shows a large proportion was allocated to Priority 1, which included some infrastructure investment.

Table 3.2: East Wales Objective Two Indicative Allocations, 2000-06

Priority Axis	ERDF* (€m)	Proportion
1 Developing Sustainable & Competitive SMEs	86.4	68%
2 Sustainable rural development	17.4	14%
3 Urban community regeneration	20.0	16%
Technical Assistance	2.6	2%
Total	126.4	100%

Source: [East Wales Objective 2 Programme](#); *Note: split by priority axis is based on the split of total public contribution as split of ERDF is not available.

2007-13 Programme

- 3.6 €1.25bn was invested in West Wales and the Valleys¹⁵ in the 2007-13 programme period. A much larger proportion of this expenditure was allocated to strategic infrastructure (31 per cent compared to 19 per cent in the earlier programme).

¹⁴ This includes Cardiff, Flintshire, Monmouthshire, Newport, Powys, Vale of Glamorgan, Wrexham

¹⁵ Including the local authorities of Blaenau Gwent, Bridgend, Caerphilly, Carmarthenshire, Ceredigion, Conwy, Denbighshire, Gwynedd, Isle of Anglesey, Neath Port Talbot, Merthyr Tydfil, Pembrokeshire, Rhondda Cynon Taf, Swansea Torfaen

Table 3.3: West Wales and the Valleys Indicative Allocations, 2007-13

Priority Axis	ERDF (€m)	Proportion
1 Building the knowledge based economy	€ 313.9	25%
2 Improving Business Competitiveness	€ 144.8	12%
3 Developing strategic Infrastructure for a modern economy	€ 390.0	31%
4 Creating an attractive business environment	€ 330.0	18%
5 Building Sustainable Communities	€ 159.0	13%
Technical assistance	€ 13.0	1%
Total	€ 1,250.4	100%

Source: [Operational Programme 'West Wales and the Valleys'](#)

- 3.7 €72.5m was invested in East Wales, with around half of this allocated to Priority One (Knowledge Innovation and Growth). This included £8.5m infrastructure investment in broadband.

Table 3.4: East Wales Indicative Allocations, 2007-13

Priority Axis	ERDF (€m)	Proportion
1 Knowledge and Innovation for growth	€ 32.2	44%
2 Business competitiveness and growth	€ 14.1	19%
3 Tackling climate change	€ 14.1	19%
4 Regeneration for growth	€ 10.6	15%
Technical assistance	€ 1.5	2%
Total	€ 72.5	100%

Source: [Operational Programme 'East Wales'](#)

Cross Cutting Themes

- 3.8 The Cross Cutting Themes must be embedded into every EU-funded project in Wales to ensure that the benefits of the funds are shared inclusively by people and communities in Wales - improving both the quality and legacy of each EU project. They are mandated by the EU Commission and reported on annually.
- 3.9 The Cross Cutting Themes for the programming period 2000-2006 were Environmental Sustainability, ICT and Equal Opportunities and Gender Mainstreaming.
- 3.10 For the programming period 2007-2013, the ICT CCT had been mainstreamed into the design of the Structural Fund Programmes and there were only two CCTs which were Environmental Sustainability and Equal Opportunities and Gender Mainstreaming.

Scale and Nature of Infrastructure Investment

Investment by Theme

- 3.11 The scale of investment allocated to different infrastructure themes has been identified by reviewing the project descriptions and making a judgment on whether the project had invested in new infrastructure. In some cases this is unclear and infrastructure investment may have only made up a small proportion of the project activities.
- 3.12 Table 3.5 compares the infrastructure investment by theme in each of the two programmes. There has been a clear shift in focus between the two programme periods with significantly less being spent on sites and premises and learning infrastructure in the more recent programme period, with greater investment in transport, tourism and digital infrastructure.
- 3.13 This in part reflects a general shift by the Welsh Government towards larger and more strategic projects for the 2007-2013 Structural Funds programmes. For instance, a large proportion of the investment in sites and premises in the earlier programme had been thinly spread on a large number of small schemes with little evidence that this was addressing the strategic needs of local economies. The increase in digital infrastructure spending also reflected the fact that the public rollout of superfast broadband only began in 2010.

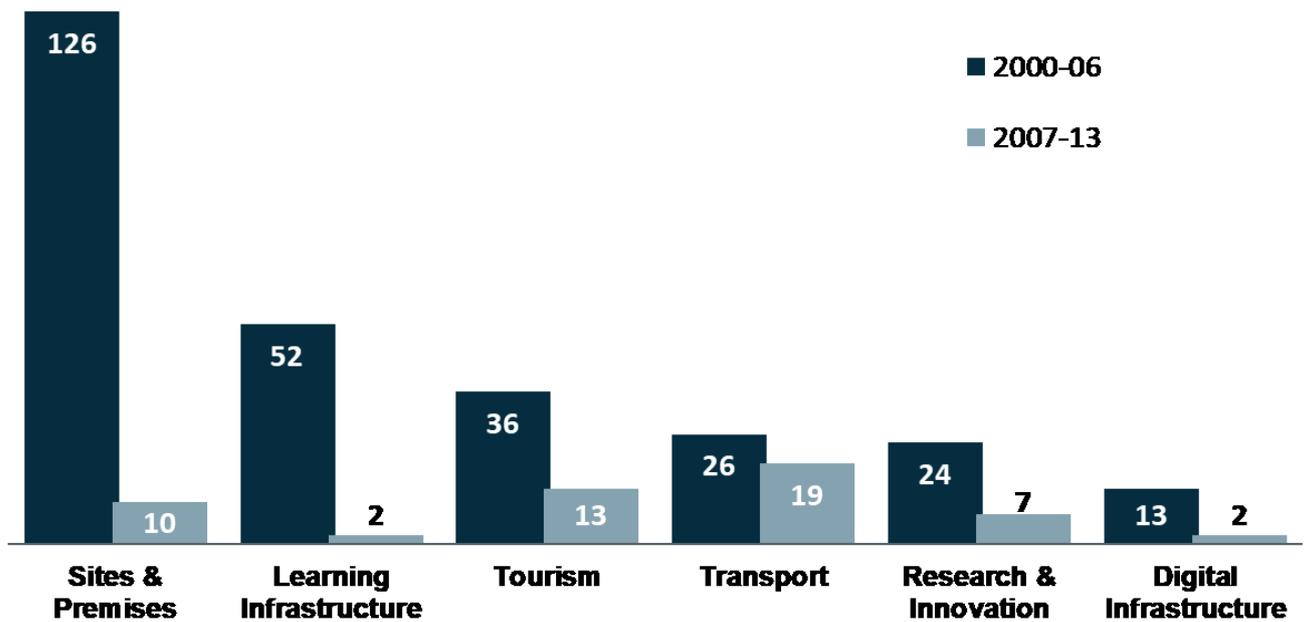
Table 3.5: Total expenditure on infrastructure projects by infrastructure theme

	2000-06			2007-13		
	ERDF Grant (£m)	Total Value	Intervention Rate	ERDF Grant (£m)	Total Value	Intervention Rate
Digital	14	32	45%	71	131	54%
Learning	39	83	47%	14	70	20%
Research & Innovation	53	117	45%	81	139	58%
Sites & Premises	108	351	32%	34	64	53%
Tourism	20	50	34%	64	128	50%
Transport	64	212	30%	235	423	56%
Total	299	843	35%	498	954	52%

Source: WEFO, Project Data

- 3.14 Figure 3.1 shows the shift in strategy in the 2007-13 programme period, with a focus on a small number of large projects. In total there were 277 infrastructure projects funded in the 2000-06 programme compared to only 52 in the 2007-13 period. The change in investment approach is particularly stark for sites and premises and learning infrastructure. The move to larger projects in 2007-13 was a considered response to the 2000-06 programme, and a reflection of the Welsh Government's desire to focus its resources in order to increase its economic impact.

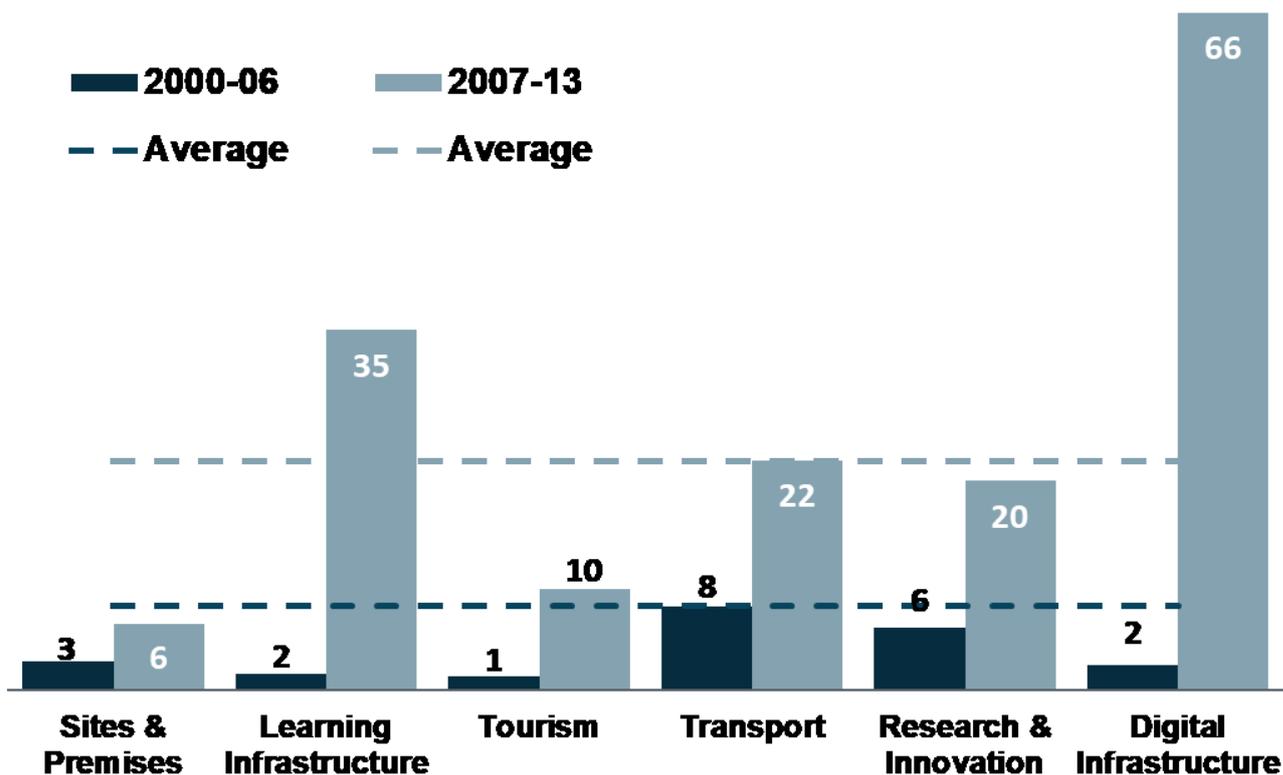
Figure 3.1: Number of projects by infrastructure theme



Source: WEFO, Project Data

- 3.15 The average value of projects rose from £3 million in the 2000-06 programme period to £18 million in the 2007-13 programme period (although there was substantial variation in the average size of project for different themes in the later programme). 42% of projects funded in the 2000-06 programme had a total value of less than £1m compared to just two projects in the 2007-13 programme. In contrast, over half of the projects funded in 2007-13 had a value over £10m compared to only 8% of projects in 2000-06.
- 3.16 Average project value has increased for all infrastructure themes. The largest increase was for broadband/ICT because this was all invested through a pan-Wales intervention resulting in a single project in each programme area.

Figure 3.2: Average size of project by infrastructure theme (£m)



Source: WEFO, Project Data

Type of Infrastructure Investment

- 3.17 This section reviews in more detail how ERDF has been used to invest in infrastructure over the two programmes. For each theme the analysis considers the specific types of projects funded and how this has changed over time.
- 3.18 Annex C presents logic chains for the main types of investment. These graphically illustrate the rationale for investment, the types of activities funded and the outcomes and impacts that they were intended to generate.

Digital Infrastructure

- 3.19 A number of projects in the 2000-06 programme aimed to increase coverage of broadband, however these were all quite small and local projects addressing gaps in basic broadband coverage¹⁶. Other project types included data centres (e.g. the WASP project) and initiatives to give local communities access to information technology and broadband connections which were not widely available at the time. A large proportion of the digital infrastructure funded in the earlier programme is now likely to be out of date and been superceded by newer technology, although there are exception to this (eg the fibrespeed project whose technology is not out of date and still in use). The 2007-13 programme coincided with the publicly funded national roll-out of superfast broadband (Superfast Cymru). This resulted in a large increase in

¹⁶ Examples include the Regional Innovative Broadband Support project which addressed gaps in coverage of basic broadband networks (speeds up to 2 Mbps)

ERDF investment in ICT infrastructure in just two large-scale projects (one in East Wales and one in West Wales and the Valleys).

Table 3.6: Type of investment in digital infrastructure

	2000-06		2007-13	
	Projects	EU Grant (£m)	Projects	EU Grant (£m)
Widening broadband coverage	8	6.6	2	71.2
Community access to ICT	3	1.2		
Data centres	2	6.7		
Total	13	14.5	2	71.2

Source: Hatch Regeneris analysis of WEFO project data

Learning Infrastructure

- 3.20 There has been a sharp fall in investment in learning infrastructure. The 2007-13 programme took a more strategic approach, investing in two projects to complement other infrastructure investment in the local area (Blaenau Gwent Learning Zone and Coleg Morgannwg). The earlier programme included a large number of new facilities all over Wales which included community based learning hubs as well as investments in the FE estate.

Table 3.7: Type of investment in learning infrastructure

	2000-06		2007-13	
	Projects	EU Grant (£m)	Projects	EU Grant (£m)
ICT infrastructure	6	1.5	-	-
New facilities	41	36.8	2	14.0
Refurbishment	5	0.4	-	-
Total	52	38.9	2	14.0

Source: Hatch Regeneris analysis of WEFO project data

Research and Innovation

- 3.21 The main change in approach for research and innovation infrastructure has been a move away from Techniums (business incubation facilities) in the 2000-06 programme towards investment in industrially linked university R&D facilities in 2007-13. This followed from the review of the Technium programme and a move towards smart specialisation, which encouraged investment in Wales's existing and growing areas of excellence.

Table 3.8: Type of investment in research and innovation infrastructure

	2000-06		2007-13	
	Projects	EU Grant (£m)	Projects	EU Grant (£m)
Other innovation or business support facility	6	6.3	1	15.4
Technium	6	19.6		
University R&D facility	8	26.4	5	65.2
Total	20	52.3	6	80.6

Source: Hatch Regeneris analysis of WEFO project data

Sites and Premises

- 3.22 Total investment in sites and premises fell from over £110m in the 2000-06 programme to £33m in 2007-13. The later programme focused on a smaller number of larger sites, with investment guided by spatial frameworks and a stricter process for prioritising sites.

Table 3.9: Type of investment in sites and premises

	2000-06		2007-13	
	Projects	EU Grant (£m)	Projects	EU Grant (£m)
Environmental improvements	6	0.8	-	-
Grants project	2	1.1	-	-
Mini programme	10	22.4	4	15.9
Property development	89	65.3	4	4.1
Site preparation	18	18.6	2	13.6
Total	125	108.2	10	33.5

Source: Hatch Regeneris analysis of WEFO project data

Note: Mini programmes refer to funded projects which made multiple investments across different sites.

Tourism

- 3.23 The 2000-06 programme invested in a large number of small schemes, many of which aimed to use tourism to promote rural regeneration. The 2007-13 programme took a more strategic approach, funding a number of mini-programmes focused on particular strengths of Wales's tourism offer (heritage, coastal tourism etc).

Table 3.10: Type of investment in tourism infrastructure

	2000-06		2007-13	
	Projects	EU Grant (£m)	Projects	EU Grant (£m)
Mini Programme	-	-	1	11.8
Sustainable tourism	4	3.4	2	11.9
Grants scheme	2	0.2	-	-
Outdoors/sports	7	3.2	1	4.3
Heritage	12	5.1	6	19.6
Conference/exhibition facilities	2	1.2	-	-
Coastal	4	1.6	3	15.9
Canals	5	2.0	-	-
Total	36	16.6	13	63.6

Source: Hatch Regeneris analysis of WEFO project data

Transport

- 3.24 The main shift in transport investment between the two programmes has been a much greater focus on investment in strategic road infrastructure. This increased from £13m in 2000-06 to £165m in 2007-13. This was in line with European strategic objectives in the later programme which was focused on strengthening the Trans European Transport Network (TEN-T).

Table 3.11: Types of investment in transport infrastructure

	2000-06		2007-13	
	Projects	EU Grant (£m)	Projects	EU Grant (£m)
Cycling/walking routes	6	3.1	1	3.3
Integrated transport project	2	3.2	-	-
Passenger interchange	3	2.6	3	13.9
Port expansion	1	3.4	-	-
Public transport access improvement	3	2.3	1	1.6
Rail improvements	3	21.2	5	35.3
Road investment - access	6	15.3	3	16.3
Road investment - trunk	2	13.2	6	164.5
Total	26	64.4	19	234.9

Source: Hatch Regeneris analysis of WEFO project data

Spatial Distribution of Investment

- 3.25 The spatial mapping has been based on project information provided by WEFO. For the 2000-06 programme this only included basic information, including a project name, project description and the scale of the investment. More detailed information was available for the 2007-13 programme including business cases and project evaluations for a large number of projects.
- 3.26 For each project the specific location of the infrastructure investment has been identified and mapped based on the information available. Where projects have delivered infrastructure in multiple local authorities, the study has sought to map the location of each individual site which has received investment. However, it has not been possible to do this for all multi-site projects, either because the information is not available or because the investment covered large parts of Wales (e.g. broadband programmes).

Expenditure by Region

- 3.27 Table 3.12 shows the scale of infrastructure investment in the four regions of Wales in the 2000-06 programme. £24m of this investment cannot be allocated to a specific region because the projects provided infrastructure in more than one region, and the breakdown of investment by geography was not available.
- 3.28 The analysis shows that, if pan-Wales and multiple region investments are excluded, the Swansea City Region was the main beneficiary of infrastructure investment in the 2000-06 programme, receiving close to £100m of ERDF investment (£148 per capita)¹⁷. North Wales was the second largest beneficiary with £80.5m investment (£119 per capita). A breakdown of this expenditure by local authority area is provided in Annex B.

Table 3.12: Infrastructure investment by region in 2000-06 programme (£m)

	Cardiff Capital Region	Mid Wales	North Wales	Swansea Bay CR	Pan Wales/ multi- region	Unknown	Wales Total
Digital	1.1	-	5.5	0.2	7.1	0.7	14.5
Learning infrastructure	13.4	1.0	13.2	11.3	-	-	38.9
Research & Innovation	0.2	5.9	14.8	29.4	2.3	-	52.6
Sites & Premises	29.5	8.1	27.2	28.9	9.9	4.5	108.2
Tourism	0.9	1.1	4.6	9.4	2.4	1.9	20.3
Transport	27.5	-	15.3	19.6	2.0	-	64.4
Total	72.7	16.1	80.5	98.8	23.6	7.1	298.8
Total investment per capita (£)	50.6	78.2	119.1	148.2			100.1

Source: Hatch Regeneris analysis of WEFO project data

¹⁷ This may be expected given that SBCR is the only region to fall fully within the WWV Convergence area where ERDF can be used to fund a wider range of infrastructure than is permitted in East Wales (eg transport infrastructure).

- 3.29 The move towards a more strategic approach to investment in the 2007-13 programme means a higher share of investment was in large projects covering multiple regions (£105m or 21 per cent). This includes very large investments in digital infrastructure through the Next Generation Broadband Programme (£63m) and mini programmes for Coastal, Sustainable and Heritage Tourism.
- 3.30 Again the largest beneficiary of ERDF investment was the Swansea Bay City Region (£185m or £264 per capita), followed by the Cardiff Capital Region which benefited from major investment in transport infrastructure (a large proportion of which was for the Head of the Valleys Dualling Scheme). North and Mid Wales received a much lower level of investment than the earlier programme, both in absolute terms and per capita. A breakdown of investment by local authority area is provided in Annex B.

Table 3.13: Infrastructure investment by region in the 2007-13 programme (£m)

	Cardiff Capital Region	Mid Wales	North Wales	Swansea Bay CR	Pan Wales/ Multi-region	Wales Total
Digital	-	-	-	-	71.2	62.7
Learning	14.0	-	-	-	-	14.0
Research & Innovation	15.4	-	4.8	60.4	-	80.7
Sites & Premises	3.3	-	3.3	24.7	2.2	33.5
Tourism	14.8	4.2	10.7	1.8	32.0	63.6
Transport	108.0	-	21.1	98.2	7.6	234.9
Total	155.7	4.2	39.9	185.1	113.0	497.9
Total investment per capita (£)	101.5	20.4	57.1	263.7		155.9

Source: Hatch Regeneris analysis of WEFO project data

- 3.31 Table 3.14 shows the combined value of investment in each of the regions across the two programmes. In per capita terms SBCR has received more than twice as much investment as any of the other regions.
- 3.32 The local authority of Swansea has been the largest beneficiary of infrastructure funding, receiving £112.5m across the two programmes. This is followed by Neath Port Talbot (£77.9m) and Gwynedd (£59.2m)¹⁸.

Table 3.14: Combined infrastructure investment by region

	Total investment (£m)	Per capita (£)
Cardiff Capital Region	228.3	149
Mid Wales	20.3	99
North Wales	120.4	172
Swansea Bay City Region	283.9	404

Source: Hatch Regeneris

¹⁸ See Annex B

Clusters of Investment

3.33 Geographical clusters of infrastructure investment have been identified by mapping all projects in Wales. The main clusters are in Swansea, Port Talbot, Ebbw Vale, Anglesey/Bangor and the North Wales coast. For the first three of these, it is clear that ERDF investments have complemented each other as part of an integrated development strategy for the area. For the two clusters in North Wales, although there are a number of projects, there is less evidence that these have been part of an integrated strategy or planned in a coordinated way. While these projects may have complemented each other, the links are not likely to be as strong as they are in Swansea, Port Talbot and Ebbw Vale.

Swansea

3.34 A substantial proportion of ERDF investment in Swansea in the 2000-06 programme was linked to the regeneration of the former docks, now known as SA1. In total it is estimated that around £17.5m of ERDF was invested in redeveloping the area or improving links with the city centre. Major strategic infrastructure works included:

- Fabian Way Gateway, which received £1.7m of ERDF, and provided improved transport links from Fabian Way to SA1 Swansea Waterfront, opening up the site.
- £1m of sites infrastructure works to provide serviced land for development of offices and other uses.
- Development of the first two Techniums. Technium 1 was intended to be the flagship project for the regeneration of the Swansea Docks and became the first development of SA1 Swansea Waterfront in 2001. Technium 2 was built on the adjacent site in 2004. Both buildings still exist although they now provide general office space for the University of Wales, Trinity Saint David (UWTSD) and a number of small businesses rather than offering incubation space.
- Development of the ETHOS building (ERDF grant of £2.4m) which is fully let to 15 SMEs, most of which are in knowledge based sectors (IT and professional services).

3.35 A number of other developments have come forward at SA1 since the original investment took place. These include a number of office developments; the Ellipse Building (4,000 sq m), Langdon House (3,800 sq m) and Admiral Group House (formerly Cyprium) which is occupied by Admiral Insurance. Most of these developments are fully let, and are occupied by a mix of public sector organisations and SMEs working in professional services. There is also a hotel and new retail and residential development. UWTSD also bought 23 acres of land to develop its new SA1 Swansea Waterfront Campus which opened in 2018. There are also plans for a Box Village for start-up businesses on vacant land to be funded by the UK Government and Welsh Government as part of the Swansea Bay City Deal, although this has not been secured yet.

3.36 ERDF funding was also used to link the city centre with the Waterfront. The National Waterfront Museum provided a new landmark visitor attraction, which was linked to SA1 via a footbridge and the city centre by the improved Princess Way link. This

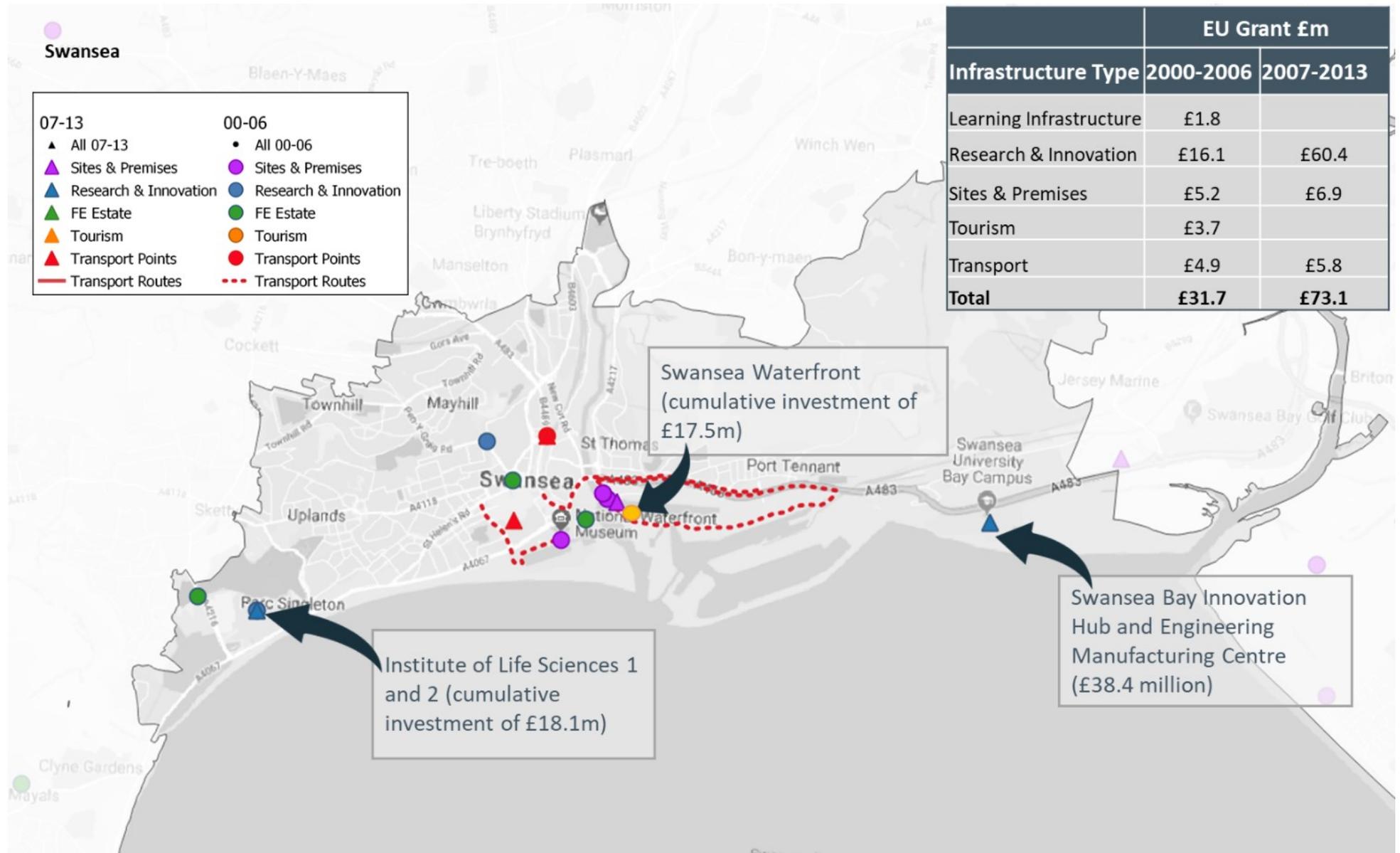
development received £3.7m of ERDF investment and is still well used by visitors, attracting around 250,000 visits per annum. Other schemes linking the Waterfront with the city centre included:

- Improved pedestrian and cycle access between Swansea Waterfront, the National Waterfront Museum and the public interchange facilities in the City Centre (£1m ERDF). The passenger interchange facilities also received investment of £1.5 m.
- A new Express Bus Route linking Fabian Way Park and Ride with the City Centre.

3.37 The other major type of ERDF investment in Swansea has been in research infrastructure, specifically at Swansea University which has received £70m over the two programmes, with £60m of this coming in the 2007-13 programme. Major investments have included:

- The Institute of Life Sciences 1 (£6.0m) and 2 (£12.1m) which aims to position the University as a leading institution for life sciences research and establish Swansea as a key life sciences cluster. The Centre for Nanohealth is also located in ILS2 and received a further £9.9m in the 2007-13 programme.
- Institute of Advanced Telecommunications (£5.3m in the 2000-06 programme) which was intended to be a world class hub for R&D and technology transfer in the telecommunications sector.
- The Innovation Hub (£18.6m) and Engineering Manufacturing Centre (£19.8m), both located at the new Swansea Bay Campus. Both investments seek to build on Swansea University's existing research and innovation strengths in advanced manufacturing.

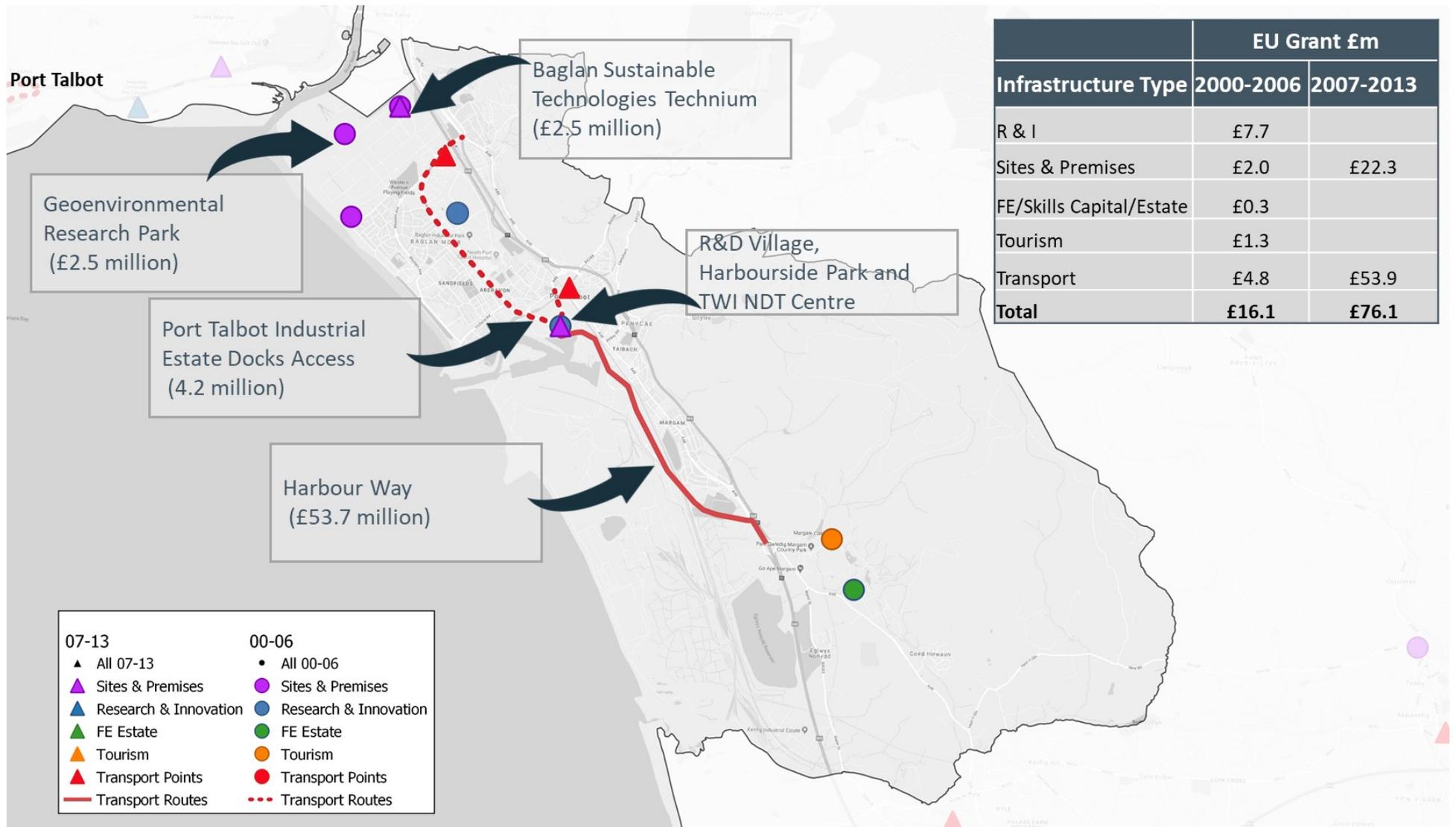
Figure 3.3: Location of ERDF investments in the Swansea Cluster



Port Talbot

- 3.38 The town of Port Talbot has received just over £77m in infrastructure investment, with £56.7m of this coming in the 2007-13 programme. Transport schemes have accounted for over 80 per cent of infrastructure investment. These have all been part of a long-term programme of transport improvements which have sought to unlock up to 250 ha of brownfield land with development potential and provide improved access between the Deep Water Harbour and Junction 38 of the M4, providing a key enhancement to the TEN-T network. Phase 1b and 1c were funded under the 2000-06 programme, while Phase 2 (Harbour Way) was funded in the 2007-13 programme.
- 3.39 This transport investment has formed part of an integrated regeneration strategy for Port Talbot which has aimed to provide new employment opportunities for the town, linked to increased activity at the port and inward investment into the new development areas. ERDF investment during the 2007-13 programme was also used to gap-fund development of the new R&D Village located at Harbourside Park. This is on land which has been unlocked by the transport improvements and is home to Tata Steel and TWI UK Ltd. TWI UK Ltd also received funding during the 2000-06 programme for a new Non Destructive Testing Validation Centre which was originally on a different site but has been relocated to the R&D Village.
- 3.40 Other infrastructure investments in Port Talbot took place in the 2000-06 programme and do not appear to directly benefit from the transport investment (although there could be indirect benefits). These include a number of investments in sites and premises or R&I facilities at Baglan Energy Park, including the Sustainable Technologies Technium (now the Baglan Bay Innovation Centre), the Geoenvironmental Research Park (also based at the Innovation Centre) and a number of business units which are still occupied.

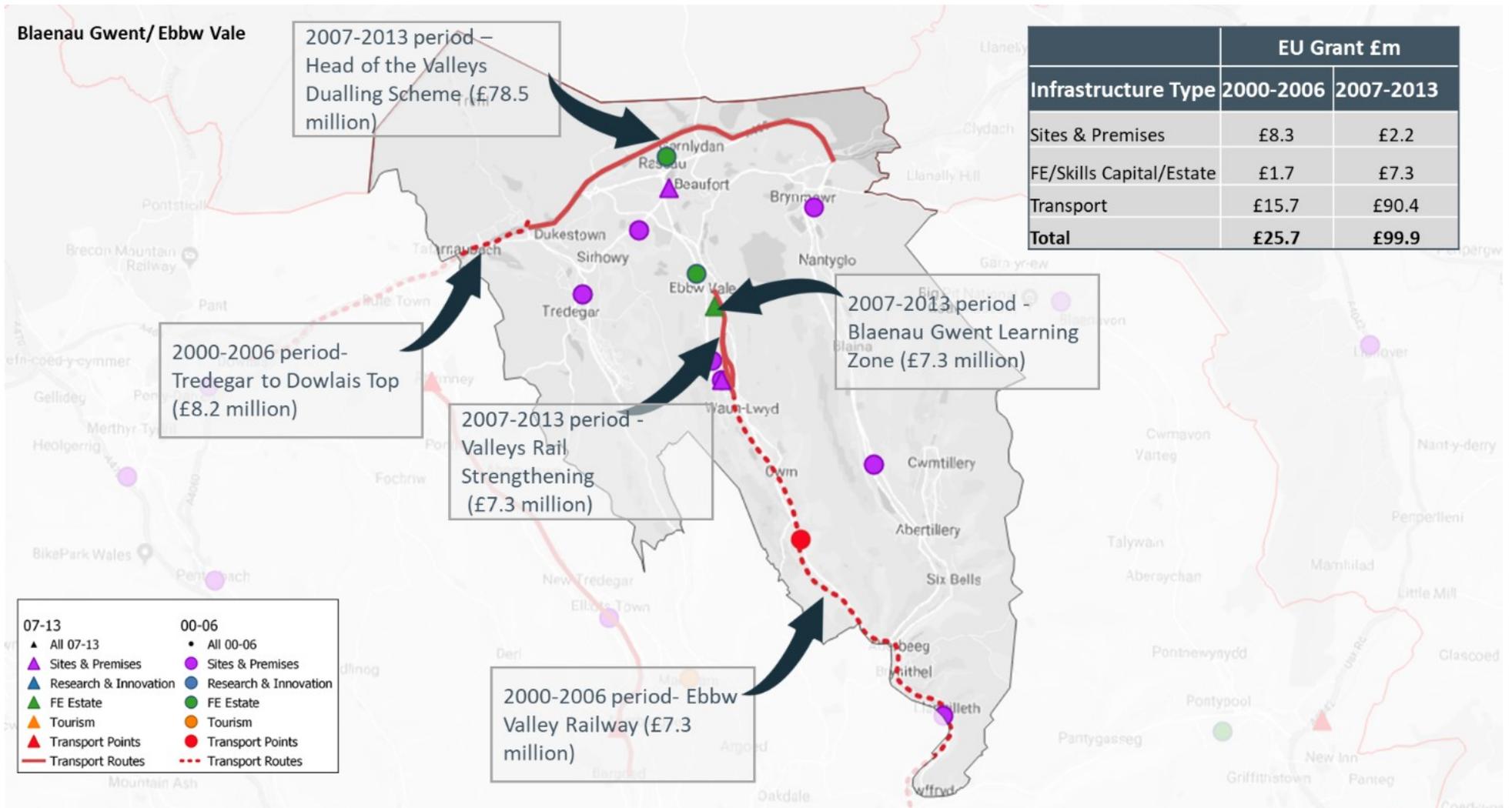
Figure 3.4: Location of ERDF investments in the Port Talbot Cluster



Ebbw Vale

- 3.41 Infrastructure investments in Ebbw Vale have all been linked to the regeneration of the town following the closure of the former steelworks plant which resulted in significant job losses. Welsh Government and Blaenau Gwent Council committed to the transformation of the town through a £300m project ('The Works') which would help to draw in private investment and create new jobs. ERDF has been used to fund the following projects:
- Improvements to the Ebbw Valley Railway which allowed passenger services to reopen on the route, improving access to jobs in Cardiff. Initial works were carried out during the 2000-06 programme with £7.3m of ERDF support. The works were completed in the 2007-13 programme as part of the Valleys Rail Strengthening project.
 - Creation of a new north-south route through Ebbw Vale (the Primary Distributor Route (PDR)) which would provide access to the Works facilities for local communities. The PDR also provides a link between the Works and the A465 (part of the TEN-T network).
 - Construction of a new state of the art further education campus for Coleg Gwent. This was part of a rationalisation of post-16 learning in Blaenau Gwent and aimed to create a culture of lifelong learning among Ebbw Vale residents.
- 3.42 Other investments in Ebbw Vale (although not part of the Works) included two sites and premises projects which were also intended to stimulate job creation. These included investment in site preparation and infrastructure for the Rhyd-y-Blew site which lies to the north-west of the town (one of three sites in the Strategic Employment Sites Investment Fund (SESIF) programme) and the development of the Ebbw Vale Innovation Centre, which provided office and workshop space for SMEs (total ERDF investment of £2.5m).

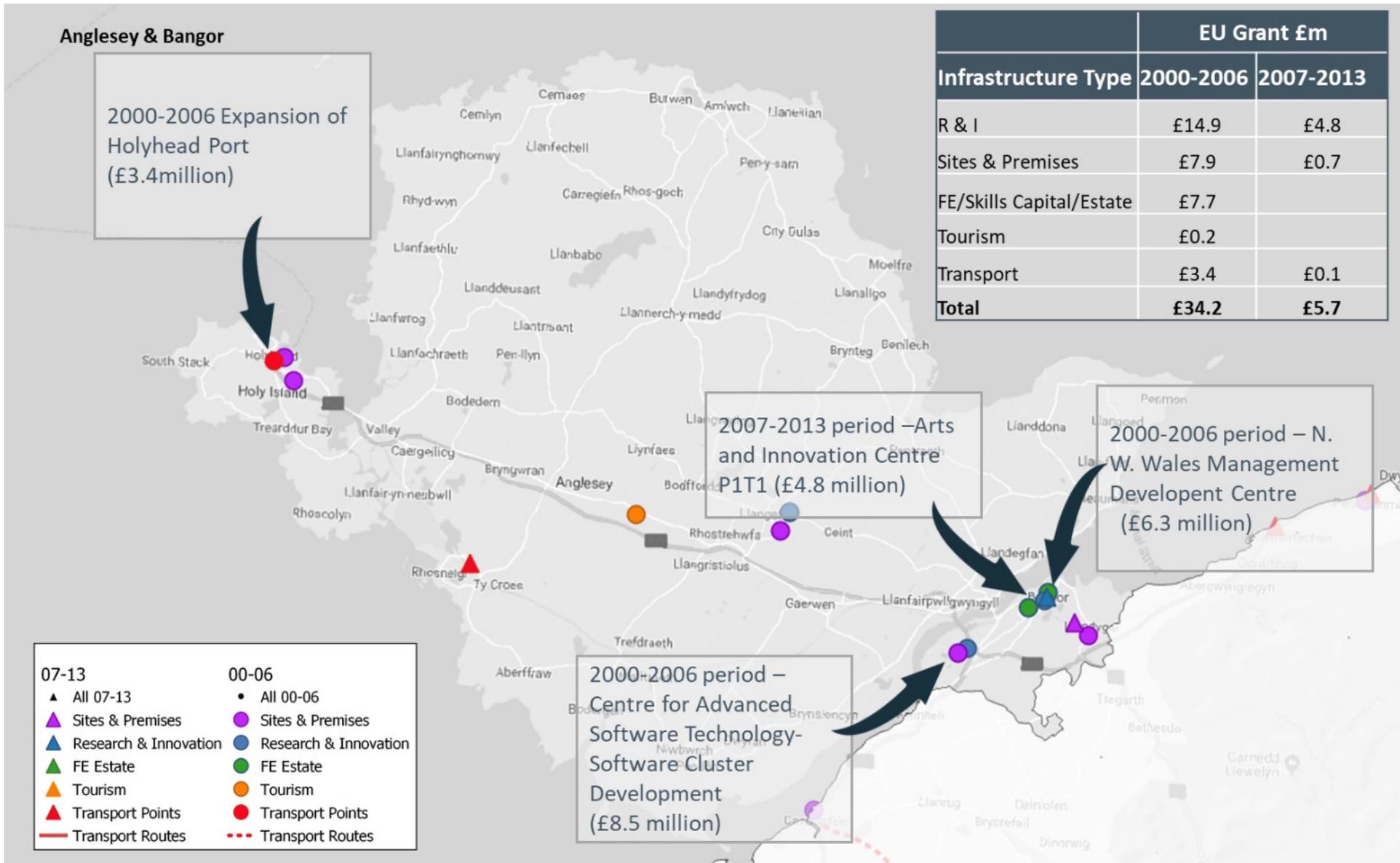
Figure 3.5 Location of ERDF investments in the Ebbw Vale cluster



Anglesey/Bangor

- 3.43 Although there is some evidence of a cluster of investments in Anglesey and Bangor, a number of these projects are very small and do not appear to have formed part of an integrated development strategy for the area. The only major transport investment was the expansion of Holyhead Port in the 2000-06 programme. This was complemented by two nearby projects which prepared sites to encourage future development, the largest of which was Ty Mawr (now known as Parc Cybi) which received £5.5m of ERDF.
- 3.44 In Bangor there have been a number of investments in R&I infrastructure, including:
- The Wales Institute for Sustainable Environments, which continues to be operated by the Centre for Alternative Technology, an educational charity which aims to help combat climate change.
 - A new arts and innovation centre at Bangor University (Pontio) which provides high end workshops, equipment and incubation facilities for design businesses (£4.8m in the 2007-13 programme).
 - The Centre for Advanced Software Technology which was originally a Technium, but is now part of Parc Menai, a business park which continues to offer some facilities for small and start up businesses.

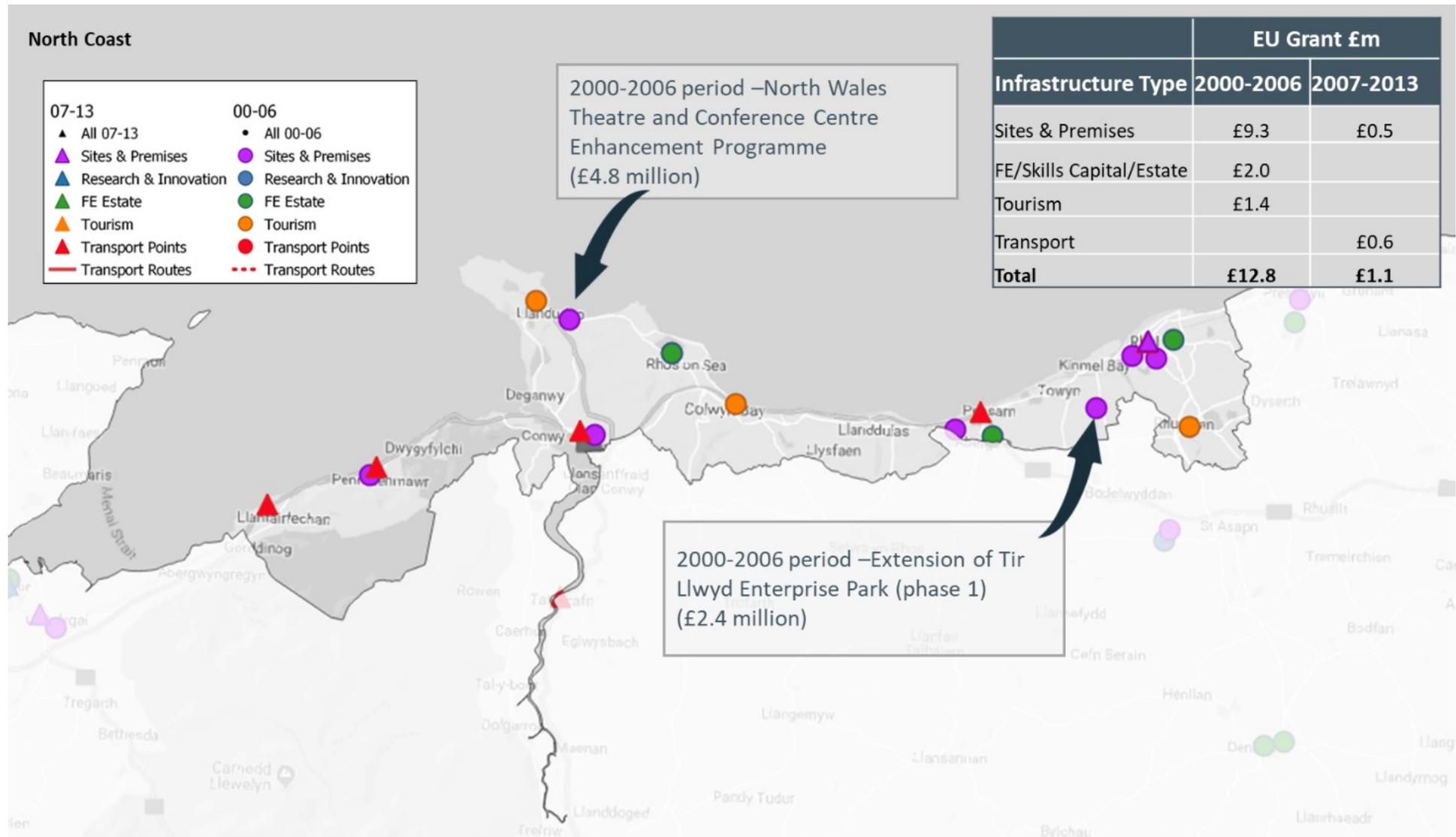
Figure 3.6: Map of investments in the Anglesey/Bangor cluster



North Wales

- 3.45 There have been a number of investments along the north coast of Wales, however the overall scale of investment is quite limited. Most of the projects have been quite small and again there is not a clear sense of how these investments might have complemented each other. However it should be noted that the programmes of investment in tourism infrastructure made a number of investments in North Wales which are not shown on the map because of insufficient information about the locations of investment.

Figure 3.7: Map of investments in the north Wales coast cluster



4. Review of Usage and Maintenance of Infrastructure

4.1 This section provides a review of how infrastructure funded under the 2000-06 and 2007-13 programmes is being used today and whether this is in line with the original objectives of the programme and the specific projects.

4.2 The section draws upon the following:

- In depth reviews of 50 projects, based on consultations with project officers, data analysis and document reviews (e.g. business cases and project evaluations). These reviews established the original rationale and objectives of the project and investigated
 - whether the infrastructure still exists;
 - whether it has received further investment since completion of the project;
 - how the infrastructure is being used today and whether this is in line with the original objectives;
 - the arrangements for maintaining the infrastructure
 - And extent to which it contributes to cross-cutting themes
- Desk based research on all projects with an EU grant over £500,000 (covering 90 per cent of the ERDF investment in infrastructure across the two programmes). This involved a lighter touch review of whether the infrastructure still exists today and whether it is still being used for its original intended purpose. This involved web searches, analysis of business and commercial property databases and emails/telephone consultations where project contacts could be identified. The threshold of £500,000 was agreed with the steering group during the scoping phase of the study.

4.3 The next phase of the study (Phase 3) will continue to investigate usage and maintenance through surveys of users.

4.4 The chapter is structured around each of the six types of infrastructure investment.

Digital Infrastructure

4.5 £85.7m of ERDF funds have been invested in digital infrastructure across the two programmes. The review of usage and maintenance has focused only on the infrastructure that was funded in the 2007-13 programme, which accounted for £71.2m of this investment.

4.6 All of the investment in the 2007-13 programme was through the Next Generation Broadband Wales (NGBW) programme which aimed to extend coverage of superfast broadband (SFB) to those areas which would not receive access through the private sector rollout. This was delivered by providing gap funding to BT Openreach. This project has continued in to the 2014-20 programme period.

4.7 At the start of the project 48 per cent of premises in Wales were able to access speeds of at least 24 Mbps compared to 73 per cent across the UK as a whole (SQW, 2016). By the end of the delivery period in 2016, coverage had increased to 85 per cent (Ofcom, 2016) and now stands at 93 per cent (Ofcom, 2019).

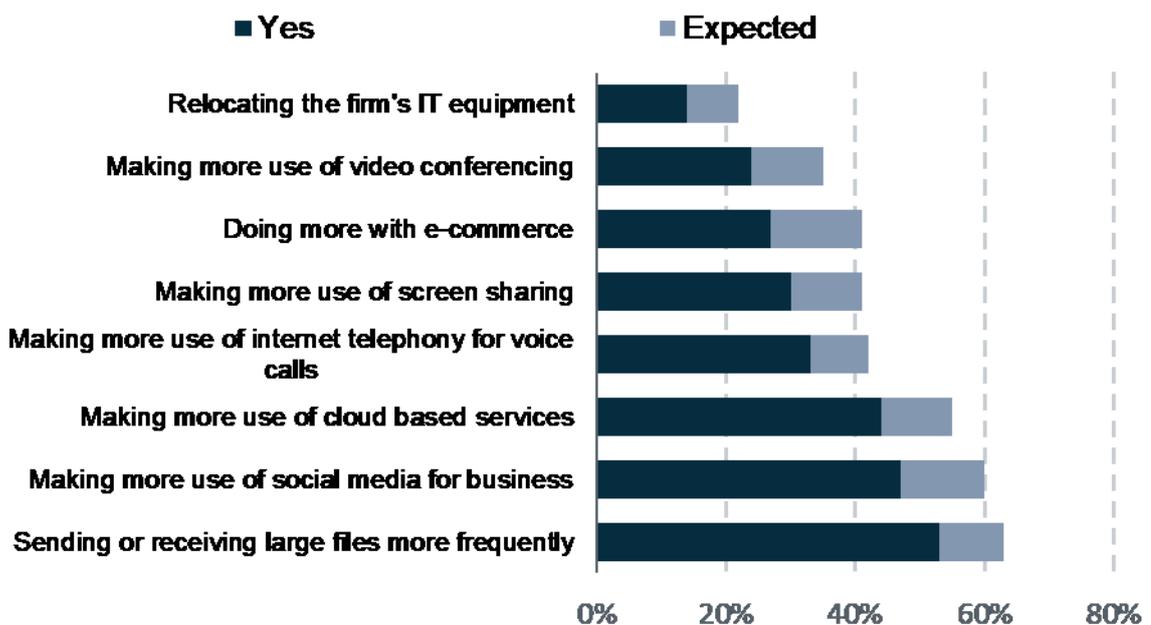
- 4.8 This review has focused on how this infrastructure is being used and maintained. The most relevant indicators of usage are:
- Percentage of premises subscribing to superfast broadband
 - Percentage of businesses subscribing to superfast broadband
 - Percentage of businesses using internet applications which could increase efficiency, turnover or profitability (e.g. cloud computing, selling online etc.).
- 4.9 It is also important to consider the likely continued usage of digital infrastructure given expected obsolescence rates for this technology. Digital infrastructure is likely to have a higher obsolescence rate than other types of infrastructure because of the rapid rate of advancement in telecommunications technologies which continue to offer faster upload and download speeds. However it is difficult to be precise about the economic life of the ERDF funded infrastructure because it depends on the nature of future applications which are developed and their data requirements.
- 4.10 The digital infrastructure provided by NGBW was based on fibre to the cabinet technology (FTTC). This means the fibre optic cable is in place from the local telephone exchange to a distribution point (commonly called a roadside cabinet) but the final connection between the cabinet and the premise is via a copper cable. BT currently report that FTTC can deliver download speeds of up to 80 Mbps. This is much slower than a full fibre connection (fibre to the premise or FTTP) which can deliver speeds of over 100 Mbps. It is also substantially lower than the speeds which will be offered by 5G mobile networks when these are rolled out, which some technology companies claim could provide download speeds over 1 Gbps (gigabit per second = 1,000 Mbps).
- 4.11 The speeds offered by FTTC are therefore already low compared to alternative technologies. However, these speeds are still likely to be more than adequate for the majority of businesses' needs for the foreseeable future. For instance, research carried out for the Broadband Stakeholder Group which modelled the bandwidth requirements of small businesses found that downstream demand for small business premises will rise from 5 Mbps in 2015 to 8.1 Mbps in 2025 (Communications Chambers, 2015). At the upper end, it was estimated that 95th percentile demand would increase from 12.9 Mbps to 41.1 Mbps by 2025, which is within the capacity of FTTC.
- 4.12 It should also be noted that the infrastructure funded by ERDF would not be redundant if businesses wished to upgrade to a full fibre connection since it would continue to provide the connection between the cabinet and the exchange. Upgrades from FTTC and FTTP are already being made through the private sector roll-out and the Access Broadband Cymru and Ultrafast Voucher Connectivity schemes which provide financial support to make the final connection between the cabinet and the premises.
- 4.13 This suggests that the FTTC infrastructure funded by NGBW will have a useful economic life for at least the next ten years, and could be considerably longer with further investment to upgrade to FTTC. Nevertheless, given the uncertainty about future data requirements and evolutions in telecommunications networks, it is not possible to be more specific than this and there is a risk that it could be shorter.

Usage of Infrastructure

4.14 The main source of information on how households and businesses are using the ERDF funded digital infrastructure is from the project evaluation which was published in September 2016 based on data from 2015 (SQW, 2016). The key findings in relation to usage were as follows:

- 23 per cent of premises (including households and businesses) subscribed to SFB compared to a target of 21 per cent
- Take-up among businesses was 28 per cent which was broadly in line with the rest of the UK.
- There was strong evidence that adopting businesses were making greater use of internet applications: 53 per cent sent/received more large files; 47 per cent had increased their use of social media for business purposes; and 44 per cent were making more use of cloud computing (see Figure 4.1)

Figure 4.1: Percentage of firms who had made changes in their business as a result of improved broadband connection



Source: SQW (2016): Final Evaluation of the Next Generation Broadband Wales Programme

4.15 The evaluation of the next phase of the Next Generation Broadband Wales Programme (2015-18) (Miller Research, 2019) found that as of September 2018, 38 per cent of premises across Wales had taken up superfast broadband but that the rate of take-up was substantially higher in areas that had received access through the NGBW programme¹⁹ (50 per cent). The higher rate of take-up was attributed to a number of factors including marketing of the programme and the fact that premises in the intervention area tended to be those with lower existing broadband speeds and

¹⁹ This includes premises that gained access through NGBW from the 2014-20 ERDF programme

so had a greater incentive to upgrade than those areas with “adequate” pre-existing broadband speeds.

- 4.16 The 2019 evaluation of NGBW did not carry out a business survey. Therefore it is not known how the rate of take-up by businesses has changed since 2015. The only information source available on recent take-up rates among businesses is from Cardiff University’s annual survey of SMEs which explores how they are using digital technologies (Cardiff University, 2018). The 2018 survey shows that 53 per cent of SMEs have now adopted SFB, up from 35 per cent in 2016. It should be noted that this includes SMEs across Wales and not just in the intervention area (the total sample size is roughly 500). However, if the take-up rate among SMEs in the intervention area mirrors the pattern for premises described above (ie it is higher than the Wales average), then it is reasonable to assume that the take-up rate in the intervention area is at least as high as 53 per cent. This would need to be confirmed through further research.
- 4.17 The Cardiff University survey also shows growing use of broadband-enabled internet applications which could deliver business benefits:
- 72 per cent of SMEs are now using at least one form of ‘advanced’ cloud computing service²⁰, up from 60 per cent in 2017
 - 74 per cent of SMEs report they have made sales online, up from 67 per cent in 2017.
- 4.18 This provides evidence of growing levels of usage of digital infrastructure more generally across Wales, although it is not possible to determine the equivalent figures for the intervention area. This increase has been driven by the growing number of applications and online services which have become available in the last few years and therefore cannot be attributed solely to improved digital infrastructure. Nevertheless, it can be argued that the increased availability and growing use of many of these applications has been supported by the improved infrastructure and the faster speeds that it offers.
- 4.19 This is particularly true for the faster upload speeds provided by superfast broadband. Prior to the NGBW intervention, the vast majority of premises in the intervention area relied on standard broadband, typically delivered by ADSL²¹ technology over conventional copper exchange lines. While ADSL offers theoretical download speeds of up to 24 Mbps (which is sufficient for a wide range of business applications), upload speeds are substantially lower than this. Ofcom’s most recent review of home broadband performance found the 24-hour average upload speed for ADSL services was only 0.8 Mbps (Ofcom, 2019).
- 4.20 While these upload speeds would be sufficient for a number of basic web applications, it is likely to constrain businesses’ use of more advanced applications. For instance, a report on behalf of the Broadband Stakeholder Group found: “*given only a 1 Mbps upstream capability for ADSL, even limited use of video calling, file*

²⁰ Advanced cloud computing services include accounting and bookkeeping; data back-up; Voice over Internet Protocol; electronic payment; video conferencing; customer relationship management; project management software; computing power to run business software; human resource management software ; and enterprise resource planning

²¹ Aysymmetric digital subscriber lines.

transfers and so on can push a small business' upstream need above this capability. This suggests that many small businesses using ADSL today may (for instance) be limited to less than HD quality video calling, seeing slower uploads for cloud storage and so on. In some cases, business-critical applications may simply not function" (Communications Chambers, 2015).

- 4.21 Therefore, while the increase in use of broadband enabled applications cannot be solely attributed to improved digital infrastructure, it has been a supporting factor. In the NGBW intervention area, where pre-existing speeds were slower than the Wales average, it is likely that businesses' use of these advanced applications would have been constrained were it not for the investment in digital infrastructure.
- 4.22 For these reasons, if businesses use of digital infrastructure within the NGBW area has increased in line with the Wales average, it is reasonable to assume that this can at least partly be attributed to the ERDF investment. It is possible that this usage could have occurred at a later date (eg through the private sector rollout), however it is beyond the scope of this report to assess whether or when this might have occurred. The 2016 evaluation did not carry out a counterfactual assessment of what would have occurred without the ERDF project, making it difficult to draw firm conclusions.
- 4.23 Nevertheless, it is reasonable to assume that coverage of superfast broadband would have been lower because of the large number of premises in rural locations in Wales where private sector roll out is not commercially viable.

User Satisfaction

- 4.24 The only evidence available on user satisfaction is from the 2016 project evaluation. The survey which was carried out showed that 76 per cent of adopters were satisfied or very satisfied with their SFB connection, compared with 40 per cent of non-adopters. However, the small number of superfast adopters who were unsatisfied with their current internet connection clearly considered this to be an important issue: 73 per cent of them said that this was having a major impact on their business productivity.
- 4.25 Amongst households, adopters of superfast broadband were also more satisfied with their current internet connection than non-adopters – 77 per cent of adopters were either satisfied or very satisfied with their internet connection, in contrast to 60 per cent of non-adopters.

Maintenance of the Infrastructure

- 4.26 The infrastructure was delivered through a gap-funded model so the infrastructure is owned and maintained by BT. No data are available on the type of maintenance works that have been carried out or how much has been spent on maintenance. However BT have a commercial obligation to ensure the network continues to offer a fast and reliable service.

Cross-cutting Themes

- 4.27 There are no data available on take-up of broadband for different groups including different ethnicities or people with physical impairments. There are no restrictions on access to SFB and some evidence suggests it provides or enables a number of benefits for older and disabled people, including remote health monitoring applications, mentoring and social networking, teleworking and life long learning initiatives which can all promote independent living so that older and disabled people can lead healthier, more fulfilling lives.
- 4.28 With regard to environmental sustainability, the SFB network has delivered a number of environmental benefits which are identified in the project evaluation including
- reducing car usage by increased telecommuting and video conferencing
 - reducing energy usage by making greater use of cloud computing which reduces the need for servers operating 24 hours a day at very low levels of utilisation
- 4.29 The evaluation models these impacts and estimates that the Superfast Cymru intervention will account for approximately 33 tonnes p.a. in carbon dioxide equivalent (CO₂e) savings by 2024.

Key gaps in the evidence

- 4.30 There are a number of gaps in the evidence for usage of digital infrastructure. Most notably, there is a lack of evidence on recent rates of business take-up of superfast broadband and advanced broadband enabled applications in the NGBW intervention area. Nevertheless, given that this has already been the subject of a large business survey in 2015, further survey work is not considered to be justified as it would be resource intensive and would provide limited additional insight.

Summary for Digital Infrastructure

- ERDF investment in digital infrastructure has helped to secure a substantial increase in coverage of SFB across the country.
- Take-up of the ERDF funded infrastructure has more than doubled in three years; the proportion of premises with an SFB subscription has increased from 23 per cent in 2015 to 50 per cent in 2018. This is 12 percentage points higher than the Wales average.
- Recent data on business take-up in the intervention area is not available, however national survey evidence indicates that business adoption is growing rapidly. Given that premises in the intervention area are more likely to subscribe to SFB, there is a high likelihood that levels of business take-up in the intervention area are also increasing, although this would need to be confirmed through further research.
- The 2016 evaluation found the improved infrastructure had enabled subscribing businesses in the intervention area to make greater use of web-based applications, which can deliver business benefits. More recent national

survey evidence indicates use of these applications has continued to grow, although this data is not available for the intervention area.

- The infrastructure is owned and maintained by BT which has a commercial obligation and incentive to ensure that the infrastructure continues to offer a fast and reliable service.
- There are a number of gaps in the evidence of usage of digital infrastructure, however these are not considered to be great enough to warrant further research in Phase Three.

Learning Infrastructure

- 4.31 In total, £52.9m of ERDF has been invested in learning infrastructure across the two programmes (54 projects), with a large proportion of this invested in the further education estate. Case studies were carried out for the five projects shown in **Error! Reference source not found..**

Table 4.1: List of case study projects for learning infrastructure

Programme	Operation Title	ERDF grant (£m)	Total value (£m)
2000-06	North West Wales Management Development Centre	6.3	12.6
2000-06	New training facilities at Pencoed College	1	2
2000-06	Engineering for the Future, Coleg Menai	0.7	1.5
2007-13	Blaenau Gwent Learning Zone (BGLZ)	7.3	31
2007-13	Nantgarw 3	6.7	38.8

- 4.32 In addition to the case study projects evidence has been gathered on how the facilities funded in the 2000-06 programmes are being used (where the grant value was over £500,000). It has proven difficult to access information on learner numbers using the specific facilities funded through ERDF, and in some cases it has not been possible to establish whether the facilities are still being used for their intended purpose. Therefore it is only possible to present headline information.
- 4.33 The following types of usage have been investigated:
- Numbers of learners using the new or improved facilities
 - Improvements in learner achievement rates
 - Learner satisfaction with the new facilities
 - Increases in employer engagement and employer investment in training as a result of the facilities.
- 4.34 Given that the majority of investment in learning infrastructure has been in buildings, most of the assets funded by ERDF should have a long economic life (given suitable levels of maintenance) and will therefore continue to be used for their intended purpose for a long period of time. The exceptions to this are where ERDF has

funded ICT or other equipment, where the economic life will be much shorter (five to ten years). It is not possible to be more specific than this because of a lack of knowledge about the specific equipment that was funded and the economic life that was stated in contracts.

Current status of facilities

- 4.35 There have been 26 investments in learner infrastructure with an ERDF grant exceeding £500,000, with a cumulative ERDF investment of £47.7m. Of these 15 are still being used for their original intended purpose. These account for roughly 70 per cent of ERDF investment since 2000. A further three are still partly being used for their original purpose. For example, the Pembrokeshire Technology Innovation Centre is still used to teach courses in design, engineering, media, photography, construction and music but no longer offers start-up business units as per the project description.
- 4.36 The facilities which are no longer used for their intended purpose include:
- Valleys Information Technology and Communication Centre at Tredegar Business Park. This was intended to provide ICT training to businesses but is now used as general business space.
 - Denbigh Learning Centre. This provided a facility in Denbigh town centre to promote and provide adult learning. It was closed in 2018 due to small class sizes and lack of funding to support its continued operation.
 - The engineering and marine training centre of excellence at Hafan Marina in Pwllheli. This was developed by Coleg Meirion-Dwyfor which has since become part of Grwp Llandrillo Menai. The reasons for the closure are unclear but may have been a result of the merger. In 2010 the college group spent £8.2 million on a Marine and Built Environment Centre at Coleg Llandrillo’s Rhos-on-Sea Campus which appears to offer similar facilities.
- 4.37 In addition there are four projects where the current status is unknown. It is likely that a number of these projects are no longer in operation or have changed uses but it has not been possible to confirm this.

Table 4.2: Status of investments in learning infrastructure

	ERDF grant (£m)	No projects
No longer in use for intended purpose	3.8	4
Partly being used for intended purpose	2.8	3
Still being used for intended purpose	33.6	15
Unknown	7.6	4
Grand Total	47.7	26

Source: Hatch Regeneris

- 4.38 Five of the projects reported that the facilities which were still in operation had received further investment. Three of these had invested in new technology and equipment as opposed to the premises (e.g. engineering centres at Coleg Llandrillo and Coleg Menai). A new composites/advanced materials centre was opened at the

BGLZ in 2018 in response to local employer need. This only required minor adaptation of the existing classroom space and investment in new kit. The capital costs were met by Welsh Government. The other project was the Gorseinon Centre which is a mixed use facility but includes training facilities. The Centre has been extended since the original project completed but this is to provide additional office space rather than learning facilities.

Learner Numbers

4.39 It has not been possible to determine learner numbers for a large number of the facilities. However, where the facilities were still in operation, most consultees reported that the facilities were operating at, or close to, full utilisation. Key findings from the case study projects were as follows:

- The Nantgarw campus is now used by 2,400 full time students and a similar number of part time students, which exceeded the original target. There has also been strong growth in the number of students on courses related to Welsh Government's priority sectors including financial services, construction and engineering. The building is now approaching full occupancy.
- The BGLZ currently has 1,400 full time students and the college anticipates that this will grow to over 1,600 over the next year. There has also been an increase in the number of learners pursuing foundation degrees with a view to progressing to higher education. A further benefit of the investment is that it has enabled the college to offer a wider range of subjects than would otherwise be possible. This was because the college's location next to a train station means it is easily accessible for students studying at Coleg Gwent's other campuses. This has increased the total pool of students who can attend courses at BGLZ, meaning more specialised provision is now financially viable (since demand is higher).
- The investment in the Pencoed campus of Bridgend College provided a new teaching block for the delivery of land based²² classroom teaching and to house a new campus reception facility. Around 100 students now use the facility day to day which has increased over time. This includes land based provision, but it is also now used to deliver courses in sports and construction. The college reported that the investment had helped the college to grow the number of students using the Pencoed campus.
- Coleg Menai reported that the ERDF investment in new engineering facilities had been the catalyst for the growth in the number of engineering students at the college, which continues to this day. The facility has now been fully utilised for several years and has resulted in the College investing in new engineering facilities.

4.40 Although the case studies suggest that facilities funded by ERDF are being well used, in a number of cases there is not clear evidence that these have led to an increase in learner numbers overall. For example, data from Stats Wales shows that

²² This relates to farming and industries connected to the land and environment eg horticulture, food production, forestry, conservation and landscaping

learner numbers for Coleg Gwent and Coleg y Cymoedd have fallen since 2013 when the BGLZ and Nantgarw campuses opened²³. This suggests there may have been some displacement of learners from other campuses. There is evidence for this from the Nantgarw case study which describes how a neighbouring FE institution, Coleg Ystrad Mynach, had foreseen a “*haemorrhaging of students to the new Nantgarw facility*” and therefore approached Coleg Morgannwg about a possible merger of the two colleges. This merger happened in 2013.

- 4.41 Reductions in funding for adult learning is also likely to explain why learner numbers have fallen overall. This has particularly affected the numbers of part time learners; with Coleg Gwent reporting there had been a large fall in the number of part time learners but an increase in full time learners.

Other Learner Benefits

- 4.42 A number of the case studies and feedback from other projects point to an improvement in the quality of learning as a result of ERDF investment. Several consultees stated that the ERDF grant had enabled them to provide industry standard equipment and recreate “*real work environments*” for learners which had improved the student experience.
- 4.43 There is evidence from both Nantgarw and the BGLZ that the new facilities have improved student retention and student behaviour, which was attributed to the “*inspirational environment*” and the high quality training facilities by consultees. Coleg y Cymoedd reported that Nantgarw had also helped them to attract higher quality staff who in turn have helped to inspire students.
- 4.44 There is also evidence that student attainment has improved at the BGLZ. The proportion of students attaining good A Level results has improved steadily since the Learning Zone replaced local sixth forms. It has also consistently outperformed all of the other Coleg Gwent campuses²⁴. Attainment levels at Nantgarw have also improved over the last three years (there was an initial fall in attainment following the merger of the two colleges) and now stands at 95 per cent.

Employer Engagement

- 4.45 A number of the case studies suggest that the investment in new facilities has led to an increase in employer engagement, particularly at Nantgarw and BGLZ. In 2017/18 the BGLZ turned over in excess of £100,000 in fees for delivering training for local companies. This has increased from £5,000 in 2012/13. A number of sector forums have been established which invite businesses in to the Learning Zone once a month to discuss how the college’s offer suits their needs and what the college can do to serve them. This led to the development of a new composites/advanced materials centre in 2018 which allows the college to better meet the needs of a

²³ [Provider learners by provider and mode of study](#)

²⁴ Although consultees reported that the new facilities had helped to improve attainment, it is difficult to robustly attribute this to the infrastructure investment without further research. A range of other factors could influence the difference in attainment between campuses (eg the socio-economic profile of the relative intake areas)

number of key employers in south east Wales e.g. GKN, Zodiac Aerospace and Tilon.

- 4.46 At Nantgarw the college reported that the location of the new facility (next to an industrial park) and the quality of the training facilities has led to a large increase in employer engagement, with many employers reported to be “*coming to us rather than us going to them*”. This had led to an increase in the number of employers offering students work placement opportunities, although data for this was not available.
- 4.47 Coleg y Cymoedd also reported that the success of the Nantgarw investment had been instrumental in the approach by Welsh Government and Railtrack to develop a new Centre of Excellence for Rail Training at the Nantgarw campus. This opened in 2017 and will be used to meet the skill needs generated by the multi-billion pound programme of investment to expand and upgrade the rail network in South East Wales.

Maintenance of the Infrastructure

- 4.48 The 18 learning infrastructure projects which are still in operation are still owned and maintained by the grant recipient (the FE college or HEI), although there have been a number of mergers or changes in the organisation since the original investment took place. All of the buildings were described by consultees as being in a good condition and have been maintained by estates teams over the years. As noted above there has been a need to invest in new equipment and technology at a number of the facilities to replace outdated kit.

Cross-cutting themes

- 4.49 Both of the recent investments at Nantgarw and BGLZ continue to address the cross-cutting themes of sustainability and equal opportunities. Evidence for this is as follows:
- Both buildings achieved a BREEAM rating of excellent and included a number of energy generation and water saving technologies including photovoltaic cells, rainwater harvesting and biomass boilers. Nantgarw has gone on to achieve a Green Dragon Level 4 award which indicates high levels of effective environmental management.
 - Energy consumption at Nantgarw has reduced by some 40kw/h/m² compared to the old Rhydyfelin campus. BGLZ is aiming for a 60 per cent reduction in carbon emissions through the use of the biomass energy centre.
 - Both buildings were designed to be accessible to all, although data were not available on the number of students with protected characteristics who use the facilities. Nantgarw noted a sustained increase in the number of female students pursuing STEM related courses which was attributed by the consultee to the college being able to offer higher specification science labs.

Key gaps in the evidence

4.50 The case studies and desk based research have been based on the perceptions of key stakeholders from the college. The main information gaps therefore relate to the perceptions of learners themselves and employers, particularly the following:

- Student satisfaction with the new facilities and how these have helped to improve their learning experience. Ideally this would compare the new facilities with the previous campus, however it is likely that this would be difficult as most of the students who would be able to compare the two campuses will have left the college.
- Employer awareness and impressions of the college, whether the new facilities have led them to engage with the college or the reasons why not. While a number of the case studies reported increased levels of employer engagement this was mainly anecdotal and was not supported by data.

4.51 Further research would also be required to explore issues of displacement and additionality more fully than has been possible here. This would need to understand the extent to which investment in new facilities has attracted learners who would otherwise have studied in a different location.

Summary for Learning Infrastructure

- Roughly 70 per cent of the ERDF investment in learning infrastructure has been spent on buildings which are still being used for their intended purpose.
- The case studies suggest most facilities funded by ERDF are well utilised; all are operating at or close to full capacity. Some of these show it has helped colleges to increase the number of students in priority sector areas such as engineering.
- There is some evidence that ERDF investment has also helped to improve the quality of teaching in FE colleges. Some of the case studies reported an increase in attainment levels which were attributed to the investment, although this would need to be tested through further research. Nantgarw and BGLZ both reported that it has improved employer engagement and helped to ensure that provision is more responsive to the needs of employers.
- However there is not clear evidence that the investments have led to an increase in learner numbers overall. In some cases the number of learners at college groups has decreased, which may indicate high levels of displacement or be due to the effects of funding cuts for adult education.
- Most of the infrastructure funded by ERDF is still owned and maintained by the original grant recipients. Where evidence was available it appears the infrastructure is still in good condition and in a number of cases has received further investment.
- There are a number of gaps in the evidence relating to learner and employer satisfaction with the new facilities which could be addressed in Phase Three.

Research and Innovation

4.52 In total, £134m has been invested in R&I infrastructure across the two programmes. As noted in Chapter 3, the focus of R&I investment shifted from investments in business incubation facilities (particularly Techniums) in the 2000-06 programme towards investments in Wales's research and development assets in the 2007-13 programme as part of the 'smart specialisation' agenda.

4.53 The research focused on the following measures of usage:

Type of project	Measure of usage
Incubation facilities	<ul style="list-style-type: none"> • Occupancy rates • Percentage of tenants in target sectors • Tenant satisfaction with facilities
Research facilities	<ul style="list-style-type: none"> • Occupancy rates of research facilities • Number of research staff • Research income generated through projects in new facilities • Number of publications and citations of research carried out at facility (quality measure) • Number of collaborations with business.

4.54 Given that the majority of investment in R&I infrastructure has been in buildings, most of the assets funded by ERDF should have a long economic life (given suitable levels of maintenance) and will therefore continue to be used for their intended purpose for a long period of time. The exceptions to this are where ERDF has funded ICT or other equipment, where the economic life will be much shorter (five to ten years). It is not possible to be more specific than this because of a lack of knowledge about the specific equipment that was funded and the economic life which was stated in contracts.

4.55 Table 4.3 lists the case study projects. Cumulatively these projects have received just over £100m of ERDF funding (77 per cent of total investment in R&I infrastructure).

Table 4.3: Case study projects for investment in research and innovation infrastructure

Programme	Operation Title	Type of project	ERDF grant (£m)	Total value (£m)
2000-06	Optic Technium	Incubation facility	5.1	13.8
2000-06	Baglan Sustainable Technologies Technium	Incubation facility	2.1	8.3
2000-06	Institute for Life Sciences 1	University R&D	6.1	16.6
2000-06	Centre for Data Visualisation	University R&D	3.9	8.4
2000-06	R&D services to the Welsh agri-food industry	Incubation facility	4.3	2.2
2007-13	Institute For Life Sciences 2	University R&D	12.1	27.9
2007-13	Centre For Nanohealth	University R&D	9.9	21.2
2007-13	Arts and Innovation Centre	University R&D	4.8	8.2
2007-13	Swansea Bay Innovation Hub	University R&D	18.6	23.2
2007-13	Engineering Manufacturing Centre	University R&D	19.8	25.7
2007-13	High Performance Computing Wales	University R&D	15.5	33.2

4.56 These case studies have been supplemented with a desk based review of projects with an ERDF investment over £500,000. The quality of evidence available for R&I projects is mixed. It has been possible to identify the current status of most of the investments with a grant value over £500,000 and to access occupancy rates and tenant information for all of the projects which continue to operate as incubation facilities (using data provided by consultees or accessed from CoStar and Companies House). However, it has only been possible to access limited data on usage for a number of the research facilities.

Incubation Facilities

Current Status of Incubation Facilities

4.57 ERDF has been used to fund eight business incubation facilities with a grant value over £500,000. Seven of these were in the Technium programme. The other project

(‘R&D services to the Welsh agri-food industry’) provided four incubation units at the Food Centre Wales in Ceredigion to support starter food companies and enable them to develop new, innovative food products. These incubation units still exist and have been in continual use by food businesses since they were constructed.

- 4.58 The Technium programme was closed down in 2010. An evaluation carried out by DTZ found that it had failed to meet a number of its targets in relation to new business starts, job creation and turnover growth (DTZ, n.d.). In addition, the occupancy rates in some Techniums was as low as four per cent. Since the programme was closed down, a number of the buildings have changed uses and are now used as general office space (highlighted in red in Table 4.4). However three of the buildings have continued to offer incubation facilities and support to encourage innovation (highlighted in green). The former CAST Technium in Bangor (now Ty Menai) no longer provides onsite support but does offer small units available on flexible terms and access to very high speed broadband. As such it is still used by a number of digital businesses and has some of the characteristics of an incubation facility (highlighted in amber).

Table 4.4: Current uses of former Techniums

Name	Original focus	Current use
Baglan Bay Sustainable Technologies	Sustainable technologies and low carbon	Now named the Baglan Bay Innovation Centre, it continues to provide space for high tech, sustainable technology led businesses. The facilities include 32 incubator units. Tenants are supported by the Neath Port Talbot CBC business team and are signposted to business support programmes including Business Wales.
OpTIC Technology Centre	Opto-electronics sector	Now owned by Glyndwr University. The OpTIC centre combines lab and business incubation facilities to assist new companies serving the aerospace and defence, space sciences, medical and astronomy markets. Innovation expertise includes engineering design, optical fabrication, surface metrology, and build and integration.
Pembrokeshire	Renewable and sustainable resources	This is now known as the Bridge Innovation Centre and is owned and managed by Pembrokeshire County Council. It no longer has a focus on energy related businesses but does offer incubation facilities for small and start-up businesses, including onsite business advice and access to academic technical support.

CAST, Bangor	Advanced software such as visualisation and communication technologies	This is now Ty Menai (part of Parc Menai business park). It offers general business space, conferencing facilities and access to the high performance computing network. The facility is used by a range of different sectors, including a small number of digital businesses. Although the marketing material still refers to incubation suites, these are actually small office units available on flexible terms. However there is no onsite business support for digital businesses.
Technium 2, Swansea	No sectoral focus	This is now a general business centre and no longer offers incubation facilities. It is used by NHS Wales, UWTSD and a number of small businesses.
Auto-technium, Carmarthenshire	Performance engineering technologies in the automotive, motorsport, aerospace and marine industry	This is now operated by Carmarthenshire County Council as a general business centre accommodating SMEs from a wide range of sectors. There is no longer an automotive focus
Aberystwyth	Pre-start and very early stage technology related businesses	This building now offers general office space and accommodates businesses from a range of sectors including IT, finance and construction

4.59 Based on the case studies and desk based research it does not appear that any of the facilities have received further investment or been expanded since they were first constructed.

Occupancy rates

4.60 Occupancy rates at each of the premises which continue to operate as incubation facilities have been high:

- Food Centre Wales reported that the four units have been well occupied since they were first constructed. Although one unit is sometimes empty, this is due to churn and is occupied quickly. They have never had two units vacant.
- Incubation Units at the OpTIC centre are at close to full capacity. There are currently 27 businesses on site and a further five 'virtual clients'. Occupancy rates were reported to be have been consistently high over time, despite a high rate of churn.

- Baglan Bay Innovation Centre has only one vacant office.
- The office space and workshop units in the Bridge Innovation Centre are at close to full capacity (c. 95 per cent).

Types of Users

- 4.61 In most cases the types of users are broadly consistent with the original aims of the projects. Food Centre Wales has been used exclusively by food related start-ups. The consultee reported that a large number of businesses have gone on to flourish as highly successful businesses including a number which export overseas.
- 4.62 The OpTIC centre is now used by a range of different technology sectors and no longer focuses solely on opto-electronics. Current tenants include businesses from the biotechnology, digital, energy and advanced materials sectors. The consultee reported that the OpTIC centre has helped a large number of businesses to grow, some of which have gone on to create a large number of jobs. Key success stories of businesses which have achieved high rates of growth include:
- View Holographics, now a 'world leader' in full parallax holographic and 3D imaging solutions
 - Kent Periscopes, a leading international supplier of periscopes and vehicle sighting solutions
 - MC Diagnostics, which specialises in the design and development of molecular diagnostics
 - Zeeko Ltd, a market leader in ultra-precision polishing solutions for optics and other complex surfaces.
- 4.63 Baglan Bay Innovation Centre is still used by a number of energy and engineering businesses. However, the facility is also used by academics and is the location of a number of high profile research projects. This includes the SPECIFIC project, led by Swansea University with Tata Steel as the main industrial partner. This project (part funded by ERDF as well as Innovate UK) aims to develop functional coated steel and glass products that will transform the roofs and walls of buildings into surfaces that will generate, store and release energy. The Innovation Centre is also the main base of Cardiff University's Geo-environmental Research Centre which carries out cutting edge research at the site.
- 4.64 The Bridge Innovation Centre no longer has a specific sector focus and is used by a wide range of different sectors. Current tenants include engineering companies, consulting and digital businesses.

User Satisfaction

- 4.65 None of the case study projects undertook user satisfaction surveys so any evidence was anecdotal. All of the consultees reported that businesses and other users of the facilities were happy with the facilities, and no tenants had reported any major issues.

Maintenance of the Infrastructure

- 4.66 The following maintenance arrangements have been put in place for the three case study projects:
- Food Centre Wales is owned and maintained by Ceredigion Council. Maintenance costs were reported to be minimal, although there is a periodic need to update equipment and facilities. The incubation units were reported to still be in good condition.
 - The commercial arm of the University of Glyndwr (Glyndwr Innovations Ltd) manages and maintains the OpTIC centre. This is run as a commercial entity, generating revenue by providing design, integration and commissioning services to a wide range of industry sectors including aerospace, defence and automotive. This revenue is used to cover the costs of maintaining the OpTIC centre with any losses being underwritten by the University. Although the building is still in a good condition and is visually striking, the consultee felt that it had been poorly designed and was very expensive to maintain.
 - Baglan Bay Innovation Centre is owned and maintained by Neath Port Talbot CBC, and is funded by rental income from tenants. Maintenance works have included the replacement of the roof, refurbishment of the exterior of the building and upgrading the broadband infrastructure. The buildings are reported to be in a good condition.

Cross Cutting Themes

- 4.67 All of the Technium buildings achieved a BREEAM rating of excellent and are fully compliant with DDA regulations, ensuring access for all groups including people with protected characteristics. However none of the consultees were able to provide any information on the extent to which premises are used by people with protected characteristics as they do not monitor this information.
- 4.68 The OpTIC centre also includes a 1,000 sq m photovoltaic wall which harvests rainwater as well as generating electricity for the building. Despite this, the consultee reported that the building was actually highly energy inefficient for a modern building, which resulted in high running costs. Addressing this would be prohibitively expensive for the University.
- 4.69 The types of uses undertaken at Baglan Bay Innovation Centre are also helping to address cross cutting themes through the research which is being carried out in to new energy generation and storage technologies.

Research Facilities

Current Status of Research Facilities

- 4.70 ERDF has funded 11 research facilities where the grant was over £500,000. Nine of these are still operational and being used for their original intended purpose. Cumulatively these projects received ERDF funding of £96m. These include:
- The Geoenvironmental Research Park, which is run by Cardiff University but is based at the Baglan Bay Innovation Centre (ERDF Grant of £2.5m)

- The Creative Industries Research and Innovation Centre (CIRIC) at UWTSO (£1.5m)
- The Institute of Advanced Telecommunications at Swansea University (£5.3m)
- The Institute of Life Sciences 1 and 2 at Swansea University (combined grant of £18.2m)
- Centre for Nanohealth at Swansea University (£9.9m)
- The Arts and Innovation Centre (Pontio) at Bangor University (£4.8m)
- Swansea Bay Innovation Hub at Swansea University (£18.6m)
- Engineering Manufacturing Centre at Swansea University (£19.8m)
- High Performance Computing Network, which is run across several universities (£15.4m)

4.71 One facility is no longer used for its intended purpose²⁵. This is the Centre of Excellence for Visualisation at Aberystwyth University (£3.9m). This was intended to provide a world class virtual reality environment which will be used by SMEs to solve complex problems and create new products. However it is no longer used for this purpose. The building is named the Visualisation Centre, but it is now used to accommodate a number of administrative functions including the Office of the Vice Chancellor and the University's Research, Business & Innovation team.

Evidence of Usage of Infrastructure

4.72 Where it has been possible to access relevant data and information, the research has found that the infrastructure funded by ERDF is being well used. In particular, there is good evidence that the investments at Swansea University (with a combined ERDF investment of £7.2m) have led to a large increase in the quantity and quality of research carried out at the institution and increased the number of collaborations with business.

4.73 The Institute of Life Science (ILS) is now well established as Wales's premier medical research facility. ILS carries out multi- and interdisciplinary research and innovation for the benefit of human health and is at the centre of a vibrant community of tenant and affiliate partner companies, including spin-outs, inward-investors and other organisations. The University has provided the following evidence in relation to the quantity and quality of research undertaken at ILS:

- The facilities house 500 specialists in medical science research, business development and technology transfer. These jobs are all net additional to the school of medicine. The buildings are said to be fully utilised.
- The facilities at ILS1 helped Swansea University Medical School to be ranked 1st in the UK for its research environment and 2nd for overall research quality in the Research Excellence Framework 2014.

²⁵ There was one other small project from the 2000-06 programme where it was not possible to establish whether the infrastructure is still in use

- Example innovations which have been brought to market which were developed at ILS include world leading LVAD heart pump technology, a novel insulin patch pump for diabetes management and technology for imaging of fine structures to support research and diagnosis of diseases.

4.74 The University reported that the usage above could not have occurred without the investment in ILS. Therefore all of these claimed activities are additional. The University also reported business incubation units were at close to full capacity and that the ILS had been highly successful at increasing the number of collaborations between business and academia. They pointed to a UK Science Park Association award which identified ILS as an example of best practice for science parks. It stated: *“ILS is an exemplar of what the science park movement can achieve when industry, academia and government work in partnership to transform a region. Seen to be setting the pace in the development of a Life Sciences and Health cluster, the ILS has so far created over 800 high value jobs, 35+ new businesses and scores of major collaborations”*.

4.75 Swansea University’s College of Engineering also provided evidence that the Innovation Hub and Engineering Manufacturing Centre had led to an increase in the quantity and quality of research:

- Both buildings are at full utilisation. The College of Engineering is now investing in additional facilities at the Swansea Bay Campus to provide additional capacity (the £35m IMPACT research centre, also part funded by ERDF).
- Staff numbers in the College of Engineering at the Bay Campus have increased by nearly 400 since the Innovation Hub and Manufacturing Centre opened (the breakdown by individual buildings is not available). A high proportion of these are research staff. The University also reports that the new facilities have enabled them to attract researchers including some high calibre international staff.
- The Engineering College has received c. £52m in funding for research carried out at the Innovation Hub, spread across 120 research projects. This has exceeded the targets set out in the original business plans for the projects.
- The University has not been able to provide comprehensive data on the number of business collaborations, however it has provided details of 13 collaborations with business which have been carried out through the Innovation Hub. These include a number of large or multinational companies in the engineering sector including BT, British Airways and Airbus.
- The College of Engineering has seen a large increase in the number of publications and citations since the Innovation Hub opened. Research publications increased from around 400 p.a. between 2008 and 2012 to around 500 p.a. between 2015 and 2018. There has also been a sharp increase in the number of outputs in the Top 10 citation profile and in the number of publications in the top 10 journal percentiles, indicating an increase in research quality since the opening of the Innovation Hub and EMC.

- 4.76 The High Performance Computing (HPC) project built state of the art high performance computing capability across six universities to enable academics and businesses to carry out research requiring very large data loads. The consultee estimated that the HPC facility has consistently been at 80 to 85% capacity (higher than anticipated) and has been used on over 100 research projects, a large proportion of which have been collaborations with business.

User Satisfaction

- 4.77 None of the organisations consulted conduct any user satisfaction ratings for their facilities so any evidence provided was anecdotal. All of the new buildings funded by ERDF were said to be in a good condition and can still be considered to be state of the art facilities. They therefore continue to provide a high quality work environment for researchers, which should mean user satisfaction is high, although it is not possible to confirm this without further research. .
- 4.78 A business survey carried out as part of the evaluation for the HPC project found that 80 per cent of businesses reported that the support they had received was useful or very useful.

Maintenance of the Infrastructure

- 4.79 All of the research infrastructure funded by ERDF is maintained by the original grant recipient. The only exception to this was the HPC project where responsibility is split between Fujitsu (the operator) and the university consortium depending on the location/type of infrastructure. IT university staff are able to access support from Fujitsu.
- 4.80 The following arrangements are in place for maintenance of the other research infrastructure:
- All of the facilities at Swansea University are maintained by the Estate and Facilities management team. The University has a full economic costing model which includes a levy to pay for maintenance. This includes maintenance and testing of all of the equipment and landscaping etc. All buildings were reported to be in good condition.
 - Bangor University's estates team maintains the buildings at the arts and innovation centre. Some of the highly technical machines are maintained by their manufacturers through good relationships with the University. Both buildings and equipment were reported to be in good condition.

Cross-cutting Themes

- 4.81 All of the case study projects could demonstrate how they are addressing cross-cutting themes. Evidence for this was as follows:
- All of the new buildings in the 2007-13 programme achieved a BREEAM score of excellent or higher (ILS2 achieved a BREEAM rating of Bespoke Excellent, with the highest recorded score for a healthcare building in Wales in 2011). The arrangements put in place for maintenance ensure that the buildings continue to meet the highest standards for energy efficiency.

- All buildings were fully compliant with DDA regulations and consulted widely to ensure it was accessible for all groups, including those with physical impairments. There are a number of examples of best practice. For example, the evaluation for the Swansea University's Innovation Hub concluded that the University has gone "*over and above DDA compliance and had ensured equality and diversity was fully embedded throughout the building*".
- Swansea University has monitoring procedures in place to ensure that the Hub continues to meet equality and diversity requirements. There are several working groups covering race and religion, disability equality and gender and sexuality which provide feedback and report progress on equality and diversity on an ongoing basis.

Key gaps in the evidence

- 4.82 The main information gaps relate to the benefits that incubation facilities have provided for current and past tenants and whether these could have been achieved without the ERDF investment, and their overall satisfaction with the incubation facilities.
- 4.83 For research facilities, the study would benefit from more robust and comprehensive information on the number of collaborations with business, although a number of the case studies reported that this information is not always available for the specific infrastructure which has been funded. Other gaps include:
- The perceptions of businesses that have collaborated with academics as a result of the research infrastructure, and the extent to which the facilities have delivered benefits.
 - User satisfaction of research staff who use the new facilities, and how it has affected the quality of their research.

Summary for Research and Innovation

- Most of the ERDF investment in business incubation facilities was spent on the Technium programme. Most of these investments were not successful and a number of Techniums had very low levels of occupancy.
- Since the Technium programme was closed down, several of the buildings are now used as general office space. However a number of them have retained their original focus, maintained strong links with academia and continue to be used by hi-tech, technology based businesses.
- The ERDF investments in research infrastructure have helped to establish some of Wales's premier research assets, including ILS1 and 2, the Centre for Nanohealth and the engineering facilities at the University of Swansea's Bay Campus. There is clear evidence that this has led to an increase in the quantity and quality of research and the number of collaborations with business. It has also helped to reinforce the University's reputation as one of the UK's leading universities for life science and engineering research and acted as a catalyst for further investment.

- There are a number of gaps in the evidence which could be addressed through further research. This includes the benefits that research and incubation facilities have delivered for businesses and the user satisfaction of research staff.

Sites and Premises

4.84 £141m has been invested in sites and premises projects, with the majority of this committed in the 2000-06 programme. These have been split between projects which prepare sites for future development by installing infrastructure etc and property development projects.

4.85 The research has investigated the following types of usage:

- Percentage of land developed on prepared sites
- Occupancy rates of business parks/industrial estates
- Percentage of occupiers in target sectors
- Business growth since moving to new premises
- Percentage of tenants that relocated from elsewhere in Wales (for assessing displacement)
- Tenant satisfaction with premises

4.86 Investments in sites and premises has all been in utilities or buildings. Given suitable levels of maintenance, the assets should all have a long economic life, that is they should continue to be used for their intended purpose for a long period of time.

Case studies were carried out for the projects in

4.87 Table 4.5. These had a total ERDF grant of £50m. Projects were selected to provide a good mix by geography and type of project.

Table 4.5: Case study projects for sites and premises investments

Programme	Project Title	Type of project	ERDF grant (£m)	Total value (£m)
2000-06	Ty Mawr	Site preparation	4	10.9
2000-06	Denbighshire Strategic Industrial Sites	Property development	1.5	3.6
2000-06	Swansea Vale	Site preparation	1.1	2.8
2000-06	Dyfatty Park, Burry Port	Site preparation/ Property development	2.3	4.8
2000-06	Oakdale Strategic Business Park	Property development	5.1	13.7
2000-06	Tredomen Business Park and Innovation Centre (2 projects)	Property development	3.4	8.6
2007-13	Ebbw Vale Innovation Centre Phase 2	Property development	1.5	3.75
2007-13	South West Wales Property Development Fund	Property development	11.1	22.8
2007-13	Cross Hands East Strategic Employment Site	Site preparation	6.7	10.4
2007-13	Strategic Infrastructure on Anglesey Sites and Premises	Property development	2.1	3.6
2007-13	Denbighshire High Quality Business Accommodation	Property development	0.5	1.1
2007-13	Parc Busnes Treorci	Property development	1.8	3.7
2007-13	Felindre Strategic Business Park	Site preparation	6.9	10.8
2007-13	Strategic Employment Sites Infrastructure Fund	Site preparation	2.2	6.2

- 4.88 The case studies were supplemented with a desk based review of all projects with an ERDF investment of over £500,000. This included 59 projects with a total value of £127m.
- 4.89 The quality of evidence available for sites and premises projects was better than a number of the other themes. It was possible to identify the location of the infrastructure for the majority of projects, although this was not possible where the project description was vague or where it was one of a number of sites covered by a programme (this was particularly the case for the 2000-06 programme where limited information was available for projects). Data on usage has been based on

information provided by project contacts (where these could be identified), analysis of commercial property databases and Companies House records.

Site Preparation Projects

Development Rates

- 4.90 15 site preparation projects with an ERDF grant over £500,000 were identified. Of these, eight of the sites have been either fully or part developed while six have not seen any development activity. Most of the sites which have been developed were from the 2000-06 programme (see Table 4.6) and preceded the economic downturn. A number of these were projects where the grant recipient was the site owner or a private sector developer as opposed to the public sector. This includes North Wales Business Park, Bocam Park in Bridgend and Dragon Studios in Rhondda Cynon Taff.
- 4.91 The table shows a large proportion of ERDF funding allocated to site preparation projects has been in sites which have yet to be developed for their intended purpose (£24m or 72per cent). These include Ty Mawr (now Parc Cybi) in Anglesey²⁶, Felindre in Swansea and Cross Hands East in Carmarthenshire, although it should be noted that development is anticipated at both Felindre and Cross Hands East in the near future (see below).

Table 4.6: Status of site preparation projects

	Number of projects			ERDF Grant (£m)		
	2000-06	2007-13	Total	2000-06	2007-13	Total
Fully developed	5		5	3.7	0.0	3.7
Part developed	2	1	3	3.0	2.2	5.2
Undeveloped	4	2	6	10.4	13.6	24.0
Unidentified	1		1	0.6	0.0	0.6
Total	12	3	15	17.7	15.8	33.5

Source: Analysis by Hatch Regeneris

- 4.92 Of the site preparation projects that were used as case studies, Swansea Vale was the only site which has been developed since the infrastructure works were carried out. This has delivered two business parks, completed just before the economic downturn (Riverside Business Park and Central Business Park) cumulatively providing around 22,000 sq m of office space and 10,000 sq m of industrial space. This has helped to establish Swansea Vale as a successful out of town business park, offering excellent access to the M4. There is still 4 ha of land with development potential at the site which is allocated in Swansea's Local Plan.
- 4.93 All of the other site preparation projects have yet to be developed, although development is anticipated at Felindre, Cross Hands East and Rhyd-y-Blew (one of the SESIF sites) in the near future. The main reason given for the lack of development was challenging market conditions. There has been very limited rental

²⁶ Part of this site has been developed but not for B class uses which was the original aim of the investment. Two parcels of land have been sold off to a developer who has built a hotel and a truckstop facility for lorry drivers on their way to the Port of Holyhead

growth in most parts of the Convergence area over the last ten years which has made developers reluctant to invest in new schemes, particularly office development where the costs of development still outweigh the market value of commercial premises (despite the sites having the infrastructure in place)²⁷. The premises which are being delivered at Cross Hands East are only coming forward as a result of grant funding from Carmarthenshire County Council which is helping to bridge the viability gap. Speculative development of a 6,000 sq m industrial unit is also being planned at the Rhyd-y-Blew site in Ebbw Vale, however this is being funded by Welsh Government.

- 4.94 While market conditions have been a significant factor explaining the lack of development, there are also questions about the market attractiveness of a number of sites. Ty Mawr, Dyfatty Park and Bryn Cegin (one of the sites in the SESIF project) are all quite distant from major markets and highly skilled labour markets, making it harder to attract strategic inward investment. Consultees for these projects noted that grant assistance had been offered to developers to bring forward these sites, however this has still not been sufficient to stimulate new development.
- 4.95 Other developments such as Felindre are well connected to the strategic road network but have been targeted specifically at high value office uses. However the appeal of this site may be limited by the lack of amenities and the poor rail connections, both of which are increasingly important to high value office occupiers. Planning permission has now been granted for a distribution warehouse to generate some momentum for the site. However, Swansea Council intends to revert back to the original strategy of targeting B1 uses once this is developed.
- 4.96 While the above analysis raises questions about the market demand evidence underpinning investments in some sites, it is recognised that there are other criteria which these investments need to meet (eg improving access to employment). If all investment was based purely on the market demand criteria, it could be argued that many parts of Wales would see very little investment at all. This is one of the reasons why a regional approach (in which regional stakeholders prioritise sites) has now been adopted by Welsh Government. Moreover, investment in sites in more deprived areas should not be made in isolation, but as part of an integrated package of support for an area in order to succeed.

Types of Users

- 4.97 The sites which have been developed are mostly being used for their intended purpose (B class²⁸ development in most cases). A large number of these sites are now operating as successful business parks, mostly accommodating SMEs across a range of sectors. The only exception to this is the former Hotpoint site in Llandudno Junction where part of the site is now being used as offices for the Welsh Government and the remainder of the site is used by car dealerships.

²⁷ Consultees from Welsh Government also observed that the passive/reactive approach of Welsh Government to intervention in the property market may also have contributed to the lack of activity during this period, although this has now been addressed through the EAP

²⁸ This is a planning use class which covers many common business activities including B1a (offices), B1b (premises for R&D), B1c (light industrial), B2 (general industrial uses) and B8 (storage or distribution)

4.98 The sites which have been developed include the following types of users:

- **Swansea Vale:** Riverside Business Park is mostly SMEs in office accommodation, and includes a number of professional services firms, construction businesses and business services. Central Business Park includes a mix of industrial and office occupiers, including insurance firms (ERS and Equity Insurance Group) and manufacturers (eg Perpetuus Carbon Technologies).
- **Roseheyworth North, Blaenau Gwent:** occupied by four engineering companies.
- **North Wales Business Park, Abergelle:** this business park includes a wide range of occupiers from the private and public sector. These include the Wales Audit Office, a housing association, a mental health charity, architects firms, environmental consultants, and a private healthcare company.
- **Bocam Business Park, Bridgend:** 175 companies are registered at this business park, including a high concentration of SMEs in professional services and ICT.
- **Llanilid Film Studios:** this is Dragon International Film Studios, a complex of film and television studios and has been used to produce a number of programmes.

Maintenance of the Infrastructure

4.99 While it has not been possible to establish how the premises are being maintained for all of the projects with a grant over £500,000, most appear to be in a good condition. CoStar's quality rating shows that 78 per cent of the premises achieve a star rating of 3, indicating that they are in a good condition.

4.100 All of the case study sites are still owned and maintained by the original grant recipient organisations (mostly local authorities or Welsh Government). Given that most of the sites have not been developed, maintenance works have been limited to general landscaping and adhering to any environmental commitments which apply to each site. For example, the Rhyd-y-Blew site is home to ground nesting birds and reptiles whose habitats need to be protected. Maintenance of the Swansea Vale site is funded through a combination of rents paid by tenants and local authority budgets.

Property Development Projects

Occupancy Rates

4.101 There have been 44 property development projects with a value over £500,000. Cumulatively these have delivered just under 150,000 sq m of new commercial space over the two programmes. This includes a mix of office and industrial space, although it has not been possible to provide a breakdown.

4.102 The location of 37 of these projects has been identified and data on occupancy has been accessed for 34. This shows that the majority of new developments funded using ERDF are well occupied, with occupancy rates of over 90 per cent.

Table 4.7: Occupancy rates of premises funded by ERDF (both programmes)

	Number	ERDF grant (£m)
Less than 50%	2	2.4
50 to 75%	1	1.5
75 to 90%	2	3.7
90% and above	29	48.3
Occupancy data not available	3	3.3
Not identified	7	6.2

Source: Analysis by Hatch Regeneris

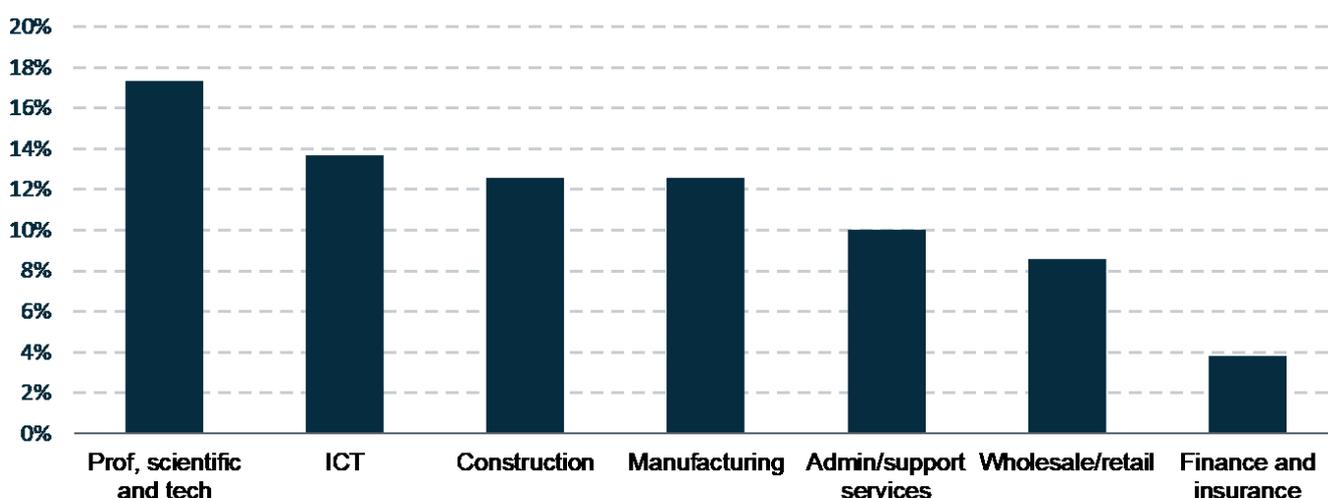
4.103 All of the case study projects achieved high occupancy rates. A number of consultees noted that demand was suppressed in the years following the economic downturn, which led several developments to let space to the public sector (eg Oakdale and Tredomen Business Park) but demand from businesses had increased significantly in the last few years. Several developments have waiting lists and a number of consultees reported that they were planning further rounds of development which already had tenants in place, including further schemes in Anglesey and Carmarthenshire.

Types of Use

4.104 Businesses in ERDF funded premises are spread across a wide range of sectors (see Figure 4.2). This has been based on matching the postcodes of funded premises to Companies Houserecords. A number of projects were targeted at specific sectors (e.g. advanced manufacturing, creative and digital and professional services). The analysis in Figure 4.2 suggests that this has been reasonably successful, with a large proportion of tenants operating in professional services, ICT or manufacturing.

4.105 There are also still a number of public sector occupiers in some of the developments including Oakdale and Tredomen Business Parks, which are not captured in the Companies House data.

Figure 4.2: Sector profile of businesses in ERDF funded premises



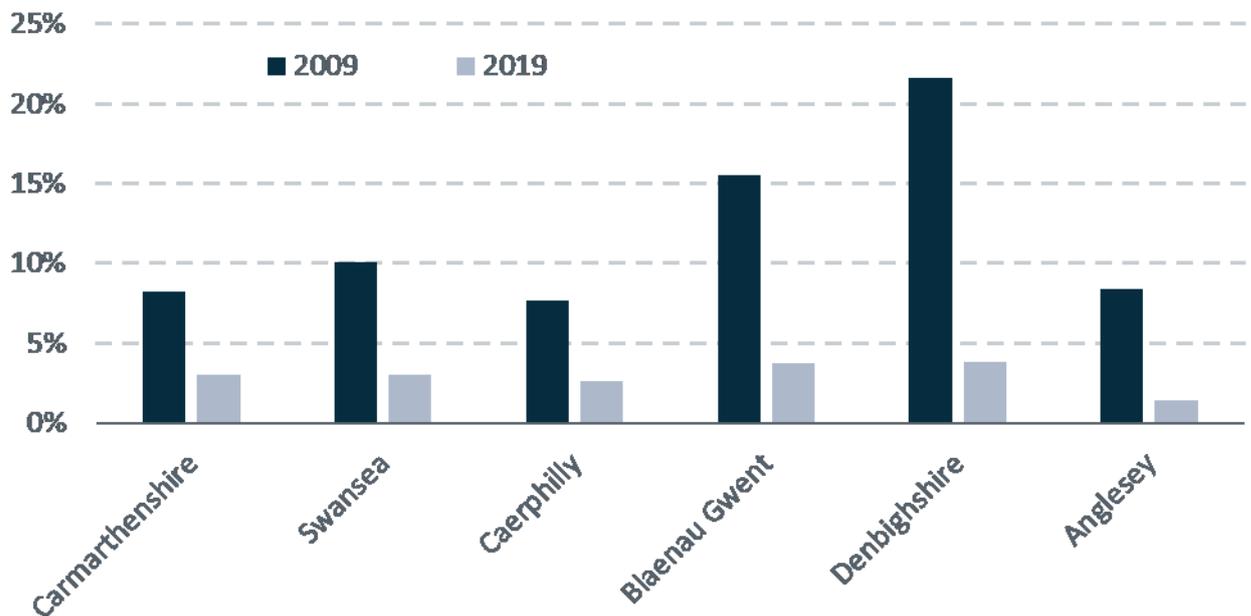
Source: Companies House (analysis by Hatch Regeneris)

- 4.106 Although a number of developments aimed to attract inward investors, only a small number of examples where this had been successful were identified (eg Oakdale Business Park which attracted General Dynamics, an American advanced manufacturing company as the anchor tenant). Most of the premises are occupied by SMEs, and the case studies confirmed that a large proportion of these were local businesses which had relocated from premises in the same area.
- 4.107 Although this would suggest that a large proportion of occupied space is a result of displacement, almost all of the projects reported that developments had attracted businesses which had outgrown their existing premises and were looking to expand further. This suggests projects have played an important role in facilitating the growth of small businesses, although it has not been possible to quantify these benefits.
- 4.108 It is also necessary to view these projects in the context of wider commercial property market trends in the Convergence Area. Figure 4.3 shows that vacancy rates are at historically low levels in all of the areas which have received investment in sites and premises, with vacancy rates below 5 per cent in all areas²⁹. Employment land reviews tend to assume that a vacancy rate below 7.5 per cent is an indication that the commercial property market is undersupplied. This would suggest there is an undersupply of space in all areas, which could be acting as a barrier to growth and inward investment.
- 4.109 Yet, despite this tightening in the property market, there is still little evidence of rents increasing to a point where new development is likely to be delivered by the private sector. ERDF funded projects have therefore played a vital role in mitigating the impact of this market failure by expanding the stock and choice of commercial premises available to businesses. Although most new space from ERDF projects has been occupied by businesses which have relocated from within the same area, these moves have freed up space for other businesses to occupy (eg by smaller businesses and start-ups) in a market where supply is constrained. Viewed in this

²⁹ This is also true for most parts of Wales including districts outside the Convergence area

context, the additionality of ERDF investment can be considered to be high because it has facilitated growth in occupied space across local market areas as a whole.

Figure 4.3: Vacancy rates for commercial premises (office and industrial), 2009-2019



Source: CoStar

User Satisfaction

4.110 Most of the evidence related to user satisfaction with ERDF funded premises was anecdotal since none of the projects conducted user satisfaction surveys on an ongoing basis. Some survey evidence was provided in the project evaluations. For example, the evaluation of the South West Wales Property Development Fund (which supported 15 projects and delivered 20,000 sq m of commercial space) showed businesses were highly satisfied with the new premises and that it had delivered a number of business benefits including increased efficiency and improved retention of staff (ERS, n.d.). Other projects reported anecdotally that tenants are generally happy with the premises, and that any issues with the property are dealt with swiftly by the maintenance teams.

Maintenance of Infrastructure

4.111 Most of the property development projects are still owned and maintained by the grant recipient organisation. The only exception to this is the South West Wales Property Development Fund projects, where the premises are maintained by the developers which received grant funding. However developers are required to maintain the premises to a high standard for a period of five years as part of the legal agreement with the council. Council officers carry out occasional site visits to ensure that developers are keeping to this agreement.

4.112 For the other projects, the sites and premises are maintained by the local authorities' estates team. Maintenance works are funded either by a dedicated estate maintenance budget (this is the case for Tredomen and Oakdale business parks) or

by ringfencing the rental income received from tenants (as is the case in Denbighshire and Anglesey). All of the premises were reported to be in a good condition by consultees and this has been verified through analysis of CoStar. The only major maintenance works reported by consultees was the need for a replacement passive drainage system at Tredomen Business Park at a cost of £130,000 which was met out of Caerphilly CBC's budget.

Cross Cutting Themes

- 4.113 All of the case study projects which developed new business premises were able to demonstrate that they are contributing to cross-cutting themes. All of the premises were designed to be fully compliant with Disability Discrimination Act (DDA) regulations and all but one achieved a BREEAM rating of excellent at the time of construction. Some schemes had also implemented other measures including rainwater harvesting, solar PV panels and air source heat pumps. The measures put in place for maintenance ensure that these high standards for sustainability and equal opportunities continue to be met. Some consultees also demonstrated that they encourage tenants to adopt high environmental standards. For example, tenants at Tredomen Business Park are encouraged to sign up to the environmental standard "Green Dragon" which demonstrates a commitment to reducing environmental impacts. Caerphilly CBC also intends to install charging ports for electric vehicles at the business park in the near future.
- 4.114 None of the consultees were able to provide any information on the extent to which premises are used by people with protected characteristics as they do not monitor this information.

Key gaps in the evidence

- 4.115 Overall the quality of evidence available for sites and premises is good. However there are a number of gaps which could be addressed through further research:
- User satisfaction of current and past occupiers. This information has not been monitored by grant recipients.
 - Information on the benefits of occupation for businesses compared to the available alternatives. Although consultees reported that the premises have facilitated business expansion, the study would benefit from being able to access data from businesses themselves in order to provide a more robust assessment of additionality.
 - A more fine grained understanding of the dynamics of the local property markets where investments have taken place. For instance, it would be useful to understand what has happened to previous occupants of the ERDF funded premises and where they moved to, and, if current or past occupiers have moved within the new area, what happened to the space which they vacated (eg the characteristics of businesses that took up the space). This would allow the study to understand the specific role that ERDF investment has played in supporting the functioning of the local property market and encouraging business growth. However there would be a number of practical challenges in carrying out this types of research.

Summary for Sites and Premises

- The investments in sites infrastructure over the two programmes have yet to lead to a substantial increase in new commercial development. Only a small number of sites have been brought forward and all of these were developed prior to the economic downturn.
- The main reasons for the lack of development are challenging market conditions and low rental values. This has made it difficult to attract private sector investment without additional gap funding. New development which is coming forward is mostly being delivered with public sector support. Until there is clear evidence of a recovery in rental values, all sites infrastructure projects should consider potential sources of gap funding in the design stage.
- Some sites have been vacant for a long period of time and there appears to be very limited prospects of these sites being developed, even with additional public sector support. This stresses the importance of carrying out robust market demand evidence at the project approval stage.
- When ERDF has been used to fund the development of new premises this has generally been successful. The vast majority of new premises are well occupied, and have attracted a large concentration of firms in high-value sectors including professional services, ICT and manufacturing.
- There is limited evidence that the investments in sites and premises have attracted inward investment. Most of the increase in occupancy has been driven by local SMEs which need additional space to grow.
- ERDF investment has helped to increase the supply of new commercial premises available to businesses in the Convergence Area at a time when their choice is very restricted. With vacancy rates at a historical low and limited prospects of new private sector development, it has played a vital role in building the capacity needed to support the growth of local businesses.
- Further research is needed to understand the user satisfaction of current and past occupiers of funded premises, the benefits that the premises delivered for businesses and to explore issues around displacement and additionality more fully.

Tourism Infrastructure

A total of £80m has been invested in tourism infrastructure across the two programmes. The main change between 2000-06 and 2007-13 was a larger proportion of funding was spent on mini-programmes linked to Wales's key tourism strengths (e.g. coastal, heritage and sustainable tourism), while the earlier programme was weighted more towards investments in specific visitor attractions. Both types of projects were included as case studies (see

4.116 Table 4.8).

Table 4.8: Case study projects for investment in tourism infrastructure

Programme	Operation Title	Type of project	ERDF (£m)	Total value (£m)
2000-06	National Waterfront Museum Swansea	Investment in visitor attraction	3.7	23.3
2000-06	Redevelopment of Margam Park	Investment in visitor attraction	1.3	5
2007-13	Heritage Tourism	Mini-programme	7.7	17.1
2007-13	Sustainable Tourism	Mini-programme	8.1	18.7
2007-13	Coastal Tourism	Mini-programme	8.7	18.8
2007-13	Valleys Regional Park	Mini-programme	11.8	17.8

- 4.117 These case studies were supplemented with desk based research for all projects with an ERDF grant over £500,000. This included 24 projects in total (including the case study projects) with a cumulative ERDF investment of £78.1m (97 per cent of the total investment).
- 4.118 The quality of data available for tourism investment was mixed. While it has been possible to identify current visitor numbers for a large number of the projects, in many cases it has been difficult to attribute these to the original investment because of a lack of baseline data or because the visitor facilities have received investment from a number of sources over the years. A further challenge for the mini-programmes was that the investment was highly fragmented and spread across a large number of locations. In many cases grant recipients for these programmes have not continued to monitor visitor numbers, and where they have it is not fine-grained enough to attribute any change in visitor numbers to the ERDF investment.
- 4.119 Given the wide range of tourism infrastructure which has been funded by ERDF, it is not possible to comment in detail on the economic life of assets. Where ERDF has funded buildings, footpaths and cyclepaths, way-marking, signposting, car parking, and toilets, it is expected that these will be in continued use for a long period of time given appropriate levels of maintenance. Where ERDF has also funded technology (eg for museums) this is likely to be much shorter.

Investments in visitor attractions

Current status

- 4.120 Of the projects with grant over £500,000, 14 were investments in specific visitor attractions. All but one of these continue to operate as visitor attractions. The only exception was a project which aimed to renovate and refurbish Glynllifon Mansion (Plas Glynllifon), near Caernarfon as a residential management and training centre. This project received an ERDF grant of £576,000, but never successfully operated as a training centre. The house is now in private ownership and there are plans to turn it in to a luxury hotel.

Visitor numbers and visitor satisfaction

- 4.121 Data on annual visitor numbers has been accessed for 10 of the 14 projects (shown in Table 4.9). This shows that all of the facilities continue to attract large numbers of visitors. For each of these projects it can be argued that these visits can be attributed to the ERDF funded project. This is because ERDF was used to help develop the facility (eg National Waterfront Museum, National Sailing Academy, Nant Gwrtheyrn) or to carry out essential restoration works which enabled the attraction to reopen or avoid closing down (Great Orme Tramway, Pontcysyllte Aqueduct, Pontypridd Lido). It should also be noted that other sources of funding were also used as match for ERDF.
- 4.122 The table also shows that each of the facilities achieves a minimum average rating of 4 out of 5 on Tripadvisor, indicating a high level of visitor satisfaction, and that a large number of these visitor attractions have received awards or feature in the top ten visitor attractions in Wales. This suggests that ERDF has generally been invested in high quality visitor assets.

Table 4.9: Current performance visitor attractions receiving EU investment

Project Title	EU Grant (£m)	Visitor numbers p.a.	Trip advisor rating	Awards/achievements
National Waterfront Museum Swansea	3.7	270,000	4	Winner of several design and regeneration awards
Great Orme Tramway	1.1	205,000	4.5	In the top ten paid attractions in Wales, 2017
Pontcysyllte Aqueduct - The Canal in the Sky	0.7	333,363	4.5	In the top ten free visitor attractions in Wales, 2017
TRAC Project	1.5	60,000	5	Top prize in the Tourism and the Environment category at the Anglesey Tourism Awards 2009
The Redevelopment of Margam Park & Castle	1.3	250,000	4.5	
Nant Gwrtheyrn	2.8	50,000	5	Winner of 'Best Cultural Heritage Project in Europe' in the Regiostars Awards, 2018
Stackpole Rediscovered	1.8	25,000	4	
National Sailing Academy and Events Centre, Pwllheli	4.3	40,000	n/a	Winner of the RTPI Wales Planning Award 2016
Cardigan Castle	4.2	30,000	4	Winner of the Channel 4 restoration of the year, 2017
Regeneration of Pontypridd Lido	3.0	91,000	4.5	Winner of 'Best Cultural Heritage Project in Wales in the EU Funds Awards

Source: Numerous (Tripadvisor, National Museums Wales, Visits to Tourist Attractions in Wales 2017 (Welsh Government), grant recipients)

- 4.123 A large number of these visits are likely to be local people as opposed to overnight visitors. Therefore a large proportion of the economic benefits (through visitor expenditure etc) are unlikely to be net-additional to the local economy. This was the case for both of the case study projects (National Waterfront Museum and Margam Park) which both mainly attract visits from within an hour's drive time.
- 4.124 Nevertheless there is some evidence that facilities have delivered additional economic benefits for their area and for Wales more generally. According to survey evidence from 2015 (Strategic Marketing, 2015), 32 per cent of visits to the National Waterfront Museum were from outside Wales, indicating roughly a third of economic benefits from these visits would be additional to Wales. The same survey (in which 60 per cent of respondents were overnight visitors) found that 57 per cent of visitors reported that the National Waterfront Museum had influenced their decision to visit the area. This was much higher than any other visitor attraction in the Swansea Bay.
- 4.125 While this provides some evidence that the Museum has incentivised visits to Wales which otherwise would not have occurred, further research would be required to understand the full extent to which these visits are net-additional.

Maintenance of the infrastructure

- 4.126 All of the visitor attractions which are still operational are owned by the original grant recipient organisations, which are responsible for maintaining the infrastructure. Maintenance costs are funded through a number of different sources including donations, revenue generation and public sector grants. For the two case study projects:
- The National Waterfront Museum is maintained by National Museums Wales which operates seven museums. This generates income through a wide range of sources including retail and catering sales, venue and corporate hire, car parking, corporate sponsorships and donations which are used to cover general maintenance costs. While the displays have been updated there has been no significant new investment in the facilities.
 - Margam Country Park is still owned and maintained by Neath Port Talbot Council, with the main costs relating to upkeep of the historic buildings and parkland. For many years the park has been subsidised by the Council. However cuts to local authority budgets have meant a reduction in funding and led to a much greater focus on exploiting all commercial opportunities to ensure that the park is self sufficient in the long term. This has led to a much greater range of commercial activities on site including weddings, TV and film production, deer safaris etc.
- 4.127 Although both sites are reported to be in a good condition there is some evidence that the National Waterfront Museum is in need of modernisation. An independent review of National Museums Wales on behalf of Welsh Government reported that “*although less than 15 years old the National Waterfront Museum is showing its age*” (Thurley, 2017). The review was critical of the confusing layout and lack of “*knock out artefacts*”.

Cross Cutting Themes

- 4.128 Both case study projects demonstrated a clear contribution to the cross-cutting themes of sustainability and equal opportunities.
- 4.129 Although not BREEAM certified, the National Waterfront Museum incorporated a number of energy and water efficiency features, including solar heating, use of water from the marina for air conditioning, use of rain water for flushing toilets, electric vehicle charging points and a technology based building management system, which controls the displays plus temperature, lighting and humidity. This helps to reduce the carbon footprint and energy use of the building.
- 4.130 Significant effort was put into accessibility for the museum, and is one of the first museums in the United Kingdom to feature multilingual voiceovers, as well as British Sign Language captioning on all interactive content. The museum won awards from a number of bodies for its design including the Civic Trust and RIBA and was shortlisted for the Guardian Family Friendly Museum Award. It was also given a special award in recognition of its aim to be inclusive and accessible to all.

Mini-programmes

- 4.131 Mini-programmes refer to funded projects which made multiple investments across different sites, in this case related to a specific tourism theme (eg heritage tourism). ERDF has funded eight such programmes. The study has been reliant on information for the four case study projects as it was not possible to access much information from desk based research on the other schemes.

Visitor numbers

- 4.132 The evidence for whether investment in tourism mini-programmes has led to an increase in visitor numbers is inconclusive. This is due to inconsistencies in the way visitor data was collected when the projects were operational, a lack of ongoing monitoring data and uncertainty about the extent to which increases in visitor numbers can be attributed to the original investment. Consultees noted that some of the investments were only small scale improvements and could not be described as transformational. Therefore changes in visitor numbers could be explained by other factors.
- 4.133 The key points from the case studies are as follows:
- **Heritage Tourism:** this project invested across 25 heritage sites but some of the individual investments were very modest. Visitor data is only available for eight of these sites (all Cadw sites). The number of visitors has increased at seven of these sites since the project completed in 2015. Overall the number of visitors across the eight sites increased from 684,600 to 768,300 (12 per cent), although the extent to which this can be attributed to the ERDF investment is highly uncertain.
 - **Valleys Regional Park:** this project invested in 40 capital improvement schemes, some of which were very minor. The project evaluation (undertaken in 2012) reported that an estimated 400,000 additional visitors had come to the area as a result of the investments against a target of 100,000 visits.

However no further monitoring data has been collected since the evaluation was undertaken.

- **Sustainable Tourism:** this project invested in 12 projects across four Centres of Excellence. The project claimed to have generated an additional 1.7m visits during the life of the project. However the project evaluation questioned the validity of this, as it was not clear whether these were total visits or additional visits. Visitor data are available for five of the sites supported by the project. This shows that three of the sites have experienced an increase in visitor numbers while two sites have experienced a decrease since the project completed in 2015. Overall there has been a slight fall in visitor numbers.
- **Coastal Tourism:** this project invested in four Centres of Excellence and the Green Sea Programme. This included investment in water sports centres, visitor centres, pontoons and visitor facilities. The project evaluation could not conclude whether it had met its target for visitor numbers because of inconsistencies in the way data was collected and uncertainty about whether the increase in visits was additional. Since the project completed there has been no further monitoring of visitor numbers.

4.134 A recurring theme for consultees was that investment had been spread too thinly amongst too many partners and sites. They felt the impact of investment on visitor numbers would have been greater if the programmes had concentrated on a smaller number of larger investments.

Visitor Satisfaction

4.135 Consultees were unable to share any information on visitor satisfaction with the improved facilities as this was not monitored at the time and has not been included in visitor surveys since the projects completed. Visit Wales has taken this on board and now includes questions on perceptions of the facilities as part of its visitor surveys.

4.136 Anecdotal evidence from consultees was as follows:

- The nature of investment for many projects has improved the visitor experience (eg new or improved interpretation at many sites) and improved accessibility for many visitors.
- The Coastal Tourism project delivered an increase in the number of beaches with Blue Flag which is likely to increase visitor satisfaction.

Maintenance of the Infrastructure

4.137 To the best of consultees' knowledge, all of the sites that received investment through the mini-programmes are still in the same ownership (mostly local authorities, but also Cadw, Sustrans and a number of private operators e.g. Bike Park Wales). These organisations have responsibility for maintaining the infrastructure, but the number of different sites and investments meant that consultees were unable to provide specific details about maintenance or whether the visitor attractions had received further investment.

4.138 The key points from the case studies were as follows:

- **Heritage Tourism:** The evaluation for this project (Old Bell 3, 2016) found that the sites were being maintained but some elements of the investment had not stood the test of time (e.g. technical touch screen displays, functional issues). Caernarfon Castle is the only site which has received further investment since the project completed (to the consultee's knowledge). This was a £3.2m EU/Cadw funded project to improve accessibility.
- **Sustainable and Coastal Tourism:** the evaluation for these projects (Regeneris Consulting, 2017) concluded it was not clear how the improvements would translate into new sources of income or long-term investment to maintain and further enhance the offer. The consultee reported that the Eryri Centre of Excellence in Snowdonia was one example of a project which had received further investment; in this case expanding/improving the range and quality of outdoor sports. This has been led by private companies e.g. Velocity and Surf Snowdonia. Where sites have been owned by local authorities, it is likely that these have received limited further investment due to funding cuts.

Cross-cutting Themes

4.139 The case studies suggest that all of the mini-programmes fully embraced environmental sustainability and equality objectives, and this was also noted in each of the project evaluations. However, the lack of any systematic approach to monitoring cross-cutting themes for a number of the projects means again that most of the evidence is qualitative and anecdotal.

4.140 For a number of the programmes, one of the underpinning objectives was to improve the environmental landscape and Wales's natural assets (e.g. Valleys Regional Park, Coastal and Sustainable Tourism). Therefore environmental sustainability was at the very heart of these projects. Examples of how the projects contributed to the cross-cutting themes are as follows:

- Any projects involving new buildings were built to BREEAM excellent standards (e.g. Coppet Hall in the Coastal Tourism project). All new builds also had to ensure they obtain at least 10 per cent of their value of materials from sustainable sources.
- All investments followed best practice in terms of sustainable procurement, using local supply chains wherever possible.
- All projects ensured that any new facilities were consistent with DDA legislation, and there were a number of examples of how the improvements have improved access for people with physical impairments.

4.141 None of the consultees were able to provide monitoring data on the number of visitors with protected characteristics who use the improved facilities, or any data on environmental indicators.

Key gaps in the evidence

- 4.142 There are a number of gaps in the evidence of usage of tourism infrastructure. In particular there is a lack of robust data on visitor numbers for a number of the mini-programmes. However, it is not immediately clear how this could be addressed through further research. Each of the tourism programmes funded through the 2007-13 programme have already been the focus of major evaluations which were unable to address this due to a lack of consistent or reliable baseline data. There is little scope for this study to add value or update this existing evaluation activity, given the limited budget available.
- 4.143 One gap in the evidence which could be addressed through further survey work is understanding tourism business perceptions of how infrastructure investment has benefited their business and the area where they operate. This would need to focus on areas where investment in tourism infrastructure has been spatially concentrated, such as the North Wales Coast or the Valleys Regional Park.
- 4.144 Where increases in visitors can be attributed to ERDF funded projects, there would also be value in exploring the extent to which these visits (and the associated economic benefits) are additional to the area or to Wales as a whole.

Summary for Tourism Infrastructure

- Although there are notable gaps in the evidence base, the research suggests the tourism infrastructure which has been funded by ERDF continues to be well used. The ten visitor attractions for which robust data is available cumulatively attract around 1.3m visitors per annum. A high proportion of these can be attributed to the ERDF funded projects because they helped to develop or restore essential infrastructure. The total number of visits attributable to ERDF is likely to be higher than this (if the programmes supported in 2007-13 are included), however a lack of monitoring data means it is not possible to provide a robust estimate.
- It also appears that ERDF has invested in high quality tourism assets which are well valued by visitors. This is exemplified by the high Tripadvisor ratings and a number of awards for funded facilities. There is also a wealth of qualitative evidence from the mini-programmes about how ERDF investment has improved the visitor experience.
- The mini-programmes, which made multiple investments across a number of different sites, have experienced mixed success in terms of increasing visitor numbers. A key lesson from these programmes is that future investment in tourism infrastructure should focus on a small number of truly transformational and ambitious projects rather than spread resources too thinly across a large number of sites.
- The experience of the mini-programmes also shows the importance of establishing robust systems for monitoring the number of visits that can be attributed to future investment. In many cases it is difficult to tell whether the infrastructure investment has been successful or delivered value for money.

- There is limited scope to address the gaps in data on visitor numbers. However, further research could explore business perceptions on whether infrastructure investment has delivered benefits for their area.

Transport Infrastructure

4.145 A total of £299m of ERDF has been invested in transport infrastructure, with a large proportion of this occurring in the 2007-13 programme. This investment has been spread across a wide range of different types of projects including investments in public transport infrastructure (particularly rail), strategic road infrastructure, access roads, passenger and freight interchanges and pedestrian/cycle routes. As such, the research has included a wide range of different measures of usage which are set out in the sections below.

4.146 Most types of transport infrastructure have a long economic life. For example, WebTAG³⁰ uses a 60 year period for appraising transport investments. In the vast majority of cases, the assets funded by ERDF will therefore be expected to be in continued use for a long period of time given appropriate levels of maintenance. .

Case studies were carried out for the projects in

³⁰ WebTAG refers to the UK Department for Transport's web-based multimodal guidance on appraising transport projects and proposals

4.147 Table 4.10 which were supplemented with a desk based review for projects over £500,000. It has proven difficult to access up to date information on usage for a large number of the transport infrastructure projects funded by ERDF, even for the case study projects. This is because Welsh Government does not routinely monitor the relevant indicators on an ongoing basis. A number of consultees stated that it may be possible to access this data via a bespoke data request (e.g. Traffic Master data) but this information was not readily available for the Phase Two report (this will be requested in Phase Three). There are therefore a number of gaps in the evidence and the case studies have been largely reliant on project evaluations (now a few years out of date) and anecdotal evidence provided by consultees. The research has also drawn upon relevant publicly available datasets where this is available (e.g. tonnage of ports, station usage statistics).

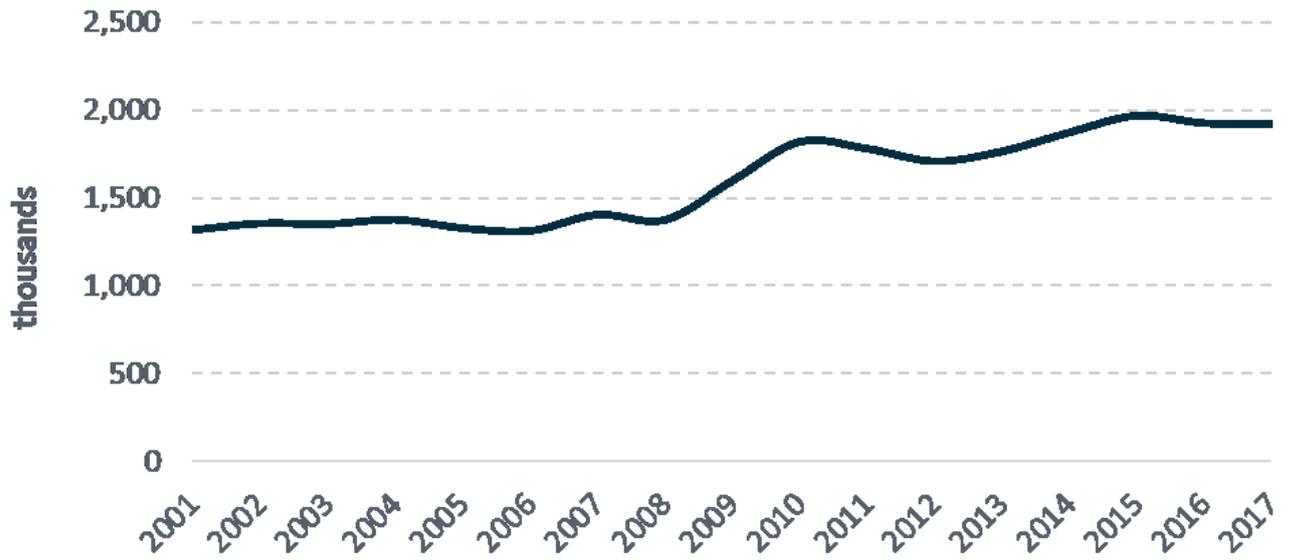
Table 4.10: Case study projects for transport investment

Programme	Operation Title	Type of project	ERDF (£m)	Total value (£m)
2000-06	Expansion of Port of Holyhead	Port expansion	3.4	12
2000-06	Ebbw Valley Railway	Rail	7.3	25.8
2000-06	Port Talbot Ind Estate & Docks Access	Access road	4.2	12.4
2000-06	Port Talbot Regeneration – Westside Access Infrastructure	Access road	5.1	20.1
2007-13	Quadrant Transport Interchange	Interchange	5.8	10.7
2007-13	Harbour Way	Access road	53.7	92.7
2007-13	Bargoed to Rhymney	Rail	5.7	10.5
2007-13	A470 Blaenau Ffestiniog	Strategic road	7	12.5
2007-13	A465 Head of the Valleys Dualling Scheme	Strategic road	78.5	138.5
2007-13	Wales Station Improvement Programme	Rail	7.6	11.1
2007-13	Works Primary Distributor Route	Access road	3.4	8.9
2007-13	Gowerton Redoubling	Rail	13	24.2

Ports Projects

- 4.148 The rationale for investment in ports has been to increase the number of passengers and volume of freight which passes through Welsh ports. The expansion at the Port of Holyhead was the only ERDF funded project which invested in the physical infrastructure at the port. However the Harbour Way project also aimed to increase use of Port Talbot by improving road connections to the port.
- 4.149 The Holyhead project invested in new infrastructure to allow the deployment of new, larger Ro-Pax passenger ferries on the route between Holyhead and Dublin. This project was complete by 2005, and Stena deployed the new ferries from 2007 onwards. Figure 4.4 shows that this coincided with a large increase in passenger numbers at the port from 2008 onwards, which the consultee attributed to the infrastructure investment. The infrastructure is still in use today and is maintained by Stena Line Ports Ltd.

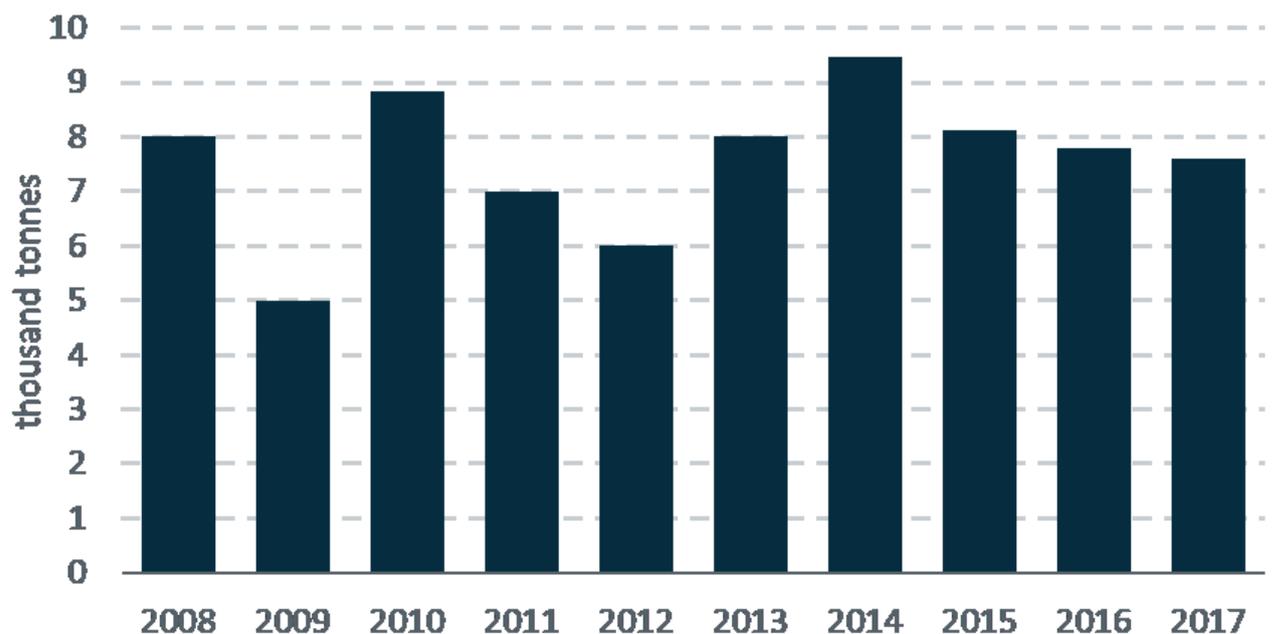
Figure 4.4: Number of passengers per annum between Holyhead and Dublin, 2001-2017



Source: Stats Wales

4.150 There is less evidence that the Harbour Way investment has led to increased use of Port Talbot for freight movements. Figure 4.5 shows the total tonnage of freight movements increased in the first year that the scheme was open (2014), when 9,500 tonnes passed through Port Talbot. However this has fallen back to around 8,000 tonnes p.a. since 2015. If 2009 is excluded as an outlier (due to the economic downturn), this is broadly in line with the average annual tonnage at Port Talbot before the scheme opened (7,800 tonnes). Therefore there is not yet clear evidence that the investment had led to an increase in the use of the port.

Figure 4.5: Freight traffic at Port Talbot (thousand tonnes)



Source: Stats Wales

Rail Projects

Usage of rail stations

- 4.151 The main dataset available to measure usage of new transport infrastructure is the Office of Road and Rail (ORR)'s Estimates of Station Usage dataset³¹, which measures the number of entries and exits at rail stations. It has not been possible to access other datasets which measure passenger numbers on specific routes.
- 4.152 In general the ORR data indicate there has been a large increase in station usage on lines which have received ERDF investment. Key findings from the case studies are as follows:
- The Central Valleys Rail Package delivered a new railway station at Energlyn. The ORR data shows that usage of the station has risen consistently from 53,400 in 2014/15 (the first full year of opening) to 101,400 in 2017/18.
 - The Gowerton Re-doubling project upgraded an 8km single section of track and reinstatement of a disused eastbound platform at Gowerton Station. The data indicates usage of Gowerton has risen from 84,000 in 2012/13 up to 174,000 in 2017/18.
 - The Ebbw Valley Railway reopened passenger services on the freight railway line between the South Wales mainline and Ebbw Vale. This involved the construction of six new stations during the 2000-06 programme. The 2007-13 programme extended the service to Ebbw Vale Town. Cumulatively these stations had 650,000 entries/exits in the first full year of opening (2008/9). This has since risen steadily to 830,000.
- 4.153 In each case the rate of growth has exceeded the average for all Welsh rail stations and the average rate of local population growth. This may suggest that the increase in usage can be attributed to the rail investments and could suggest that the projects have encouraged modal shift. This is supported by surveys which were undertaken as part of the project evaluations (AECOM, 2015a; Peter Brett Associates, n.d.) , which showed a high proportion of trips would previously have been made by car (the rates varied from 8 to 73 per cent). Nevertheless, there are other factors which could explain the change in use (eg housing growth in the local area) and these would need to be explored through further research.
- 4.154 A number of other stations which received investment have seen little change in passenger numbers. This includes Swansea and Llandudno stations which were the main beneficiaries of the Wales Station Improvement programme (accounting for 73 per cent of the overall scheme costs). The rail statistics indicate there has been no substantial change in usage at either station.
- 4.155 It should be noted that both of these stations are large hub stations, and it is unlikely that the stations would experience a statistically significant increase in passenger numbers without the addition of new platforms and services, which was outside the scope of the ERDF intervention. A more appropriate measure for these hub stations would be whether accessibility has improved. The project evaluation (AECOM, 2015b) found some evidence that this was the case; in a user survey 45 per cent of

³¹ [Estimates of station usage](#)

respondents at Swansea and 44 per cent of respondents at Llandudno station agreed that accessibility had improved.

User satisfaction

4.156 Consultees were unable to provide any information on user satisfaction beyond that which is provided in the evaluations for the 2007-13 projects. These are now a few years out of date but generally show high levels of satisfaction:

- A very limited survey was undertaken at EnergyIn station (only 12 respondents) which showed positive responses to the new station facilities.
- User surveys identified that the improvements delivered by the Station Improvement project have been viewed positively by passengers, although perceptions vary from station to station (AECOM, 2015b). The levels of satisfaction were highest at the two stations with major improvements (Swansea and Llandudno), suggesting that the smaller improvements may be too small to positively affect station users' attitudes and perceptions or that they are not as noticeable as the major works.
- Passenger satisfaction surveys indicated that that nearly 60 per cent were very satisfied with changes made to timetabled service from Gowerton, with only 2 per cent dissatisfied (AECOM, 2015a).

Maintenance of the Infrastructure

4.157 Maintenance of the track and associated infrastructure is the responsibility of Network Rail. Station maintenance is the responsibility of the Train Operating Companies, on behalf of Network Rail. Consultees were unable to report whether the infrastructure was still in a good condition, however it is understood that it is all fully operational. They were also unaware of any further investment since the projects completed.

Access Road Projects

4.158 ERDF has been used to improve road access to strategic sites as part of area-based regeneration strategies. The main examples are:

- The Fabian Way Gateway in Swansea (£1.7m of ERDF investment in the 2000-06 programme), which provided a primary gateway in to the 40 ha SA1 development on Swansea Waterfront.
- A programme of transport improvements in Port Talbot which have sought to unlock up to 250 ha of brownfield land with development potential and provide improved access between the Deep Water Harbour and Junction 38 of the M4 (£9.4m ERDF investment in 2000-06 and £53.7m investment in 2007-13).
- The Primary Distributor Route (PDR) in Ebbw Vale which provided access to the facilities planned as part of The Works regeneration programme (£3.4m of ERDF in 2007-13).

4.159 Given the rationale for these projects, the most relevant measure of usage is the extent to which there has been new development on the land they were intended to unlock. All three investments have been successful in this regard:

- Although there is still a large quantity of land with development potential, there has been extensive development at SA1, including new offices (over 20,000 sq m), retail, leisure and residential development. UWTSD has also developed its new waterfront campus on a 10 ha plot.
- In total it is estimated that 12,750 sq m of new development has been brought forward along the route of the Harbour Way investment in Port Talbot. This includes waste wood storage buildings at Margam Green Energy Park, a biomass plant and associated infrastructure, Port Talbot Justice Centre and the new Harbourside R&D campus. There is also outstanding planning permission for a new sixth form college and three new business units for office space which have yet to be built. All of this development can be attributed to the road investment.
- The PDR has helped to realise the full benefits of the Ebbw Vale Regeneration Strategy by providing access to the new facilities at the Works. This has helped to enable development of 22 ha of land including a new hospital, FE college (the BGLZ), new schools, offices, leisure and residential development.

4.160 Although other factors have contributed to this development (eg other types of public sector investment), none of this development could have occurred without the investment in transport infrastructure.

4.161 All of these roads have been adopted by the local councils as part of the highway network and are maintained through council budgets.

Strategic Road Investments

4.162 Investment in the strategic road network has been a major focus of ERDF funding, particularly in the 2007-13 programme. The aim of these projects is to improve connectivity between Wales and national/international markets. The most relevant measures of usage are levels of congestion on trunk roads, average journey times and changes in journey time reliability.

4.163 Unfortunately it has not been possible to establish whether investments have led to a change in any of these indicators. Consultees from Welsh Government were unable to provide any monitoring data to show current levels of congestion or journey time reliability. It has also not been possible to access any of the project evaluations for major road investments. In some cases consultees stated that evaluations had been undertaken but they were still in draft. These draft reports have not been shared with the evaluators.

4.164 Given the scale of ERDF investment in strategic road infrastructure, this is a significant gap in the evidence base. The study will address this in Phase Three of the research by requesting Traffic Master data for the roads which have benefitted from ERDF investment.

4.165 Responsibility for managing, maintaining and improving the strategic road network lies with regional trunk road agencies (eg the South Wales Trunk Road Agent).

Maintenance is fully funded through the Welsh Government road maintenance budget. Consultees reported that the roads were still in good condition and had not required any significant investment since the projects completed.

Key gaps in the evidence

- 4.166 The main gap in the evidence relates to the strategic road investments and the effect these have had on volumes of journeys, congestion and journey time savings. As stated above, this will be addressed through data requests for bespoke analysis of Traffic Master data for each of the major road schemes in the next phase. There may also be scope to access more quantitative data on the number of rail users on affected lines and the origins/destinations of users. This could provide additional insights in to the purpose of journeys.
- 4.167 The main gap in the evidence for investment in access roads relates to displacement i.e. understanding the origin of businesses which have moved to the new developments and whether these business activities are net additional to the area.
- 4.168 There are also a number of other gaps which could potentially be addressed through further survey work. These include user satisfaction with rail services and passenger interchanges and the extent to which this has led to modal shift or improved access to employment. This was covered in some of the project evaluations, but the growth in station usage since then means there may be merit in bringing this up to date.

Summary

- Although there are a number of gaps, there is generally good evidence that most of the transport infrastructure funded through ERDF is being used for its intended purpose.
- Based on the case study evidence, most of the investments in new rail infrastructure have led to an increase in station entries and exists, which is a proxy for rail usage. The increase in usage at stations that have received investment has been greater than the national average and the rate of local population growth. This indicates there has been some modal shift, which is supported by the project evaluation evidence.
- Investments in new access roads have led to new commercial, residential and leisure development in a number of locations, particularly regeneration areas such as Port Talbot, Swansea and Ebbw Vale. Although in each case there is still significant undeveloped land remaining.
- There is limited evidence that ERDF has increased the tonnage passing through Welsh ports. Only one project has aimed to do this (Harbour Way) but the evidence that this has been successful is inconclusive. The one project which aimed to increase passenger numbers at a Welsh port was successful (Holyhead).
- It is not clear whether strategic road investment has led to improved journey times and reliability. This is a significant gap in the evidence which will be addressed in Phase Three.

5. Implications for Phase Three

5.1 This section presents emerging thoughts on the research to be undertaken in Phase 3 based on the gaps in evidence identified in the previous chapter.

5.2 The main phase three tasks include:

- Analysis of economic performance
- Stakeholder Consultation
- Beneficiary and general surveys
- Analysis and Workshop.

Analysis of Economic Performance

5.3 Cardiff University will update their previous economic analysis of the performance of all Wales and sub-regions which was undertaken as part of the ex-post evaluation for the 2007-13 ERDF programme. It will focus on the evidence of convergence or divergence nationally, regionally and locally. It will also include analysis of the four cluster case study area economies – that is, how they have fared compared to benchmarks and comparators, whether relative performance gaps closed both within Wales and against comparators outside Wales.

Stakeholder Consultation

5.4 The consultation undertaken in Phase Two will be supplemented by consultation focused on the cluster case studies. This will include a mix of local and strategic stakeholders, economic partnerships, sector bodies, investors and community groups. These will explore general performance issues and range of influences, role of ERDF investments and economic benefits, displacement and substitution issues, etc. These will fill any gaps in local case studies.

Occupier, User and General Surveys

5.5 The primary research with users and beneficiaries is an important way of establishing information on: the nature and reasons for use; range and scale of benefits secured; experiences of use (alongside other infrastructure); and changes in behaviour in order to explore issues such as displacement and deadweight.

5.6 Given the cost of undertaking primary research and the potential burdens it places on respondents, it must add significant value in its own right and to the other strands of the evaluation. Where surveys are merited, the survey methods will need to be tailored to the nature of the beneficiaries or users. These methods may in practice vary to reflect the nature of assets and their users, as well as the availability of user/beneficiary details. Whilst grant recipients may hold beneficiary contact details for research facilities, they may not for some sites and premises projects, and are unlikely to for transport infrastructure.

5.7 The potential merit of undertaking user surveys has been considered for the following users of different types of infrastructure:

- Broadband - users of high speed broadband
- Further education - users and beneficiaries of FE facilities

- Research facilities and incubators - both occupiers of incubators and users of facilities
- Sites and premises - owner occupiers and leasehold occupiers of offices and industrial premises
- Tourism - users and other beneficiaries of tourism attractions, facilities and related infrastructure
- Transport - users of road and rail infrastructure, as well as transport interchanges.

5.8 In addition, the potential to survey businesses and adult residents in areas which have benefited from a significant cluster of ERDF funded infrastructure investments has also been considered (i.e. Swansea, Port Talbot, Ebbw Vale, and Anglesey and Bangor).

Broadband Users

5.9 The combination of limited beneficiary data for the projects funded through the 2000-06 programme and out of date technology, means there is little merit in undertaking a survey of beneficiaries. Whilst two substantial projects were funded through the 2007-13 programme, these have already been the focus of large-scale surveys as part of the project evaluations. There is therefore little merit in undertaking surveys as part of this evaluation and this is not proposed for Phase 3.

Site and Premises Occupiers

5.10 Overall the quality of evaluation evidence available for sites and premises is good. However, there are a number of gaps which could be addressed through further primary research with occupiers of the ERDF grant funded premises:

- The satisfaction of current and past occupiers with these premises
- The business benefits of occupation compared to the available alternatives, and hence the potential to provide local economic benefit through higher productivity and growth.

5.11 The intention would be to focus the survey on occupiers of ERDF grant funded sites and premises developed through both programme periods. The purpose of these surveys would be to cover:

- type, background and growth ambitious of business
- general perceptions of area as a business location, including strengths and weaknesses, and changes over time
- the positioning of the premises as part of the wider property offer locally
- the competitiveness of property based on various choice, quality and cost criteria
- the benefits of occupation for the business compared to the available alternatives locally, and

- the extent to which property / site has helped to attract or retain business locally, etc.

5.12 The survey would cover all premises which are still being used as intended, whilst the sample of occupiers could include both current and previous occupiers (subject to the availability of information on this later group). The sample of occupiers would be gathered in two main ways:

- collecting contact information and company details on current and past occupiers from the grant recipient - whilst feasible in some instances, this would be subject to the willingness of the grant recipient to provide this data (and subject to GDPR considerations)
- collecting information on the company details of current occupiers from open sources - company details have already been collected for around 1,000 occupiers from Companies House, although this does not include a named contact. The details of some occupiers could also be accessed through commercial property databases such as CoStar, although this also does not include a named contact.

5.13 The proposal is to conduct the survey through telephone interviewing as this would provide the benefit of targeting the interview to the most appropriate person in the organisation, as well as the potential to collect more in-depth qualitative information. An average interview length of 15 minutes has been assumed.

5.14 It is not clear what the size of the population group may be, given the uncertainty about the number of occupiers during the current lifespan of the properties. With this in mind an indicative sample size of 300 is proposed (assuming that the population of SMEs from which the sample is drawn can be expanded to at least 1,500), which would enable reasonable sub-sample analysis by size and sector of business, local/inward investors, broad location etc.

Research and Incubation Facilities

5.15 The main information gaps relate to the benefits that incubation facilities have provided for current and past occupiers (including access to related research facilities and academic expertise), whether these could have been achieved without the ERDF investment, and their overall satisfaction with the incubation facilities.

5.16 There is considerable merit in undertaking a survey of the current and past occupiers of the incubator facilities for the investments made under the 2007-13 programme, whilst those under the earlier programme would be included on a selective basis given the time elapsed and the change in use for some of the former Techniums.

5.17 The proposed approach is outlined below:

- Use of a telephone survey lasting an average of 15 minutes.
- A target of 150 completed interviews which will allow some limited scope for sub-sample analysis by programme period, broad sector, research intensity of the business and whether a current or previous occupier (again, it is worth noting that we do not have information on the size of the population of occupiers)

- The contact details for the businesses would be collected in the same manner as set out above for occupiers for generic sites and premises projects.

5.18 There is another category of SMEs which could be a focus of a business survey. That is, businesses which use ERDF funded research facilities within HEIs but are not occupiers of incubation space. These businesses could be accessing these facilities as part of a revenue grant funded ERDF R&I project, or through some other form of collaboration with the university. The first category of businesses are outside the scope of this evaluation, whilst the universities are under no obligation to provide the details of the SMEs in the latter category to us. At this stage, the study has not set out any proposals to survey these businesses.

FE Students and Employer Surveys

5.19 The main information gaps relate to the perceptions of learners themselves and employers, particularly the following:

- Student satisfaction with the new facilities and how these have helped to improve their learning experience.
- Employer awareness and impressions of the college, whether the new facilities have led them to engage with the college or the reasons why not. While a number of the case studies reported increased levels of employer engagement this was mainly anecdotal and was not supported by data.

5.20 In terms of the student experience, it is believed there would only be value in conducting a student survey if it was possible to interview students who could compare the new facilities with the earlier facilities. This would be challenging because of the time which has elapsed since these investments were made, which means many of the students have since left the college. Practically, it would therefore be very difficult to access contact details and achieve a large enough sample size. However, it might be possible to use existing student satisfaction data from surveys undertaken by the institutions themselves (although it is doubtful it will provide much relevant information relating to premises and related learning infrastructure before and after the ERDF backed investments).

5.21 There may be greater value in conducting a local employer survey for the two most recent investments (BGLZ and Nantgarw 3). This could include a general survey of local employers to test awareness and perceptions of the college and the benefits it has delivered for the area (compared to the earlier campus), or a survey of employers who have engaged with and benefited directly (eg from recruiting students) from the college to elicit their views on the quality of the facilities and the extent to which it has enabled the college to better meet their needs.

5.22 Of these two options, the latter is preferred. However, it is not believed that a survey is merited in this instance due to:

- the challenges of identifying a suitable sample of SMEs which have directly engaged with the colleges or benefited from the changes in learning infrastructure and relate course provision
- the ability of these businesses to comment knowledgeably about the changes which have occurred as a consequence of ERDF capital investment (as

opposed to other changes in funding and the impact on facilities on offer and learning outcomes)

- the overall level of ERDF funding being fairly modest (although it is heavily concentrated in just two colleges).

Transport User Surveys

- 5.23 One of the main gaps in the evidence (and the largest area of ERDF transport related investment) relates to the strategic road investments. This will be addressed in Phase 3 with Welsh Government's assistance, through data requests for bespoke analysis of Traffic Master data for each of the major road schemes (esp the A470 and A465), including volume journeys, types of vehicles, average speeds, accidents and reliability. This should provide some insight into the associated welfare user benefits of these benefits. However, it is understood that specific user survey data is not available and the challenges of surveying road users as part of this evaluation make it impractical for the study's purposes. For this reason, it is not proposed that further survey work is undertaken.
- 5.24 There may also be scope to access more quantitative data on the number of rail users on affected lines and the origins/destinations of users. This could provide additional insights into the purpose of journeys. This will be explored further in phase three.
- 5.25 There are also a number of other gaps which could potentially be addressed through further survey work. These include user satisfaction with rail services and related facilities such as stations and interchanges and the extent to which this has led to modal shift, improved access to employment and the attraction of workers to residential locations served by new services. There is existing baseline survey data available for a number of these investments, although it is unlikely to be identical to the data collected as part of this exercise as the survey instruments will differ to some extent.
- 5.26 It is therefore the intention to undertake a survey of the beneficiaries of railway station, capacity and service improvements. The format for the survey will be:
- A focus on rail users benefiting from improved services and stations to the Ebbw Vale; Bargoed to Rhymney; and Gowerton lines (a number of stations on these stretches of railway will have also benefited from station improvements funded through the Wales Station Improvement Programme)
 - The use of self-completion questionnaires issued and completed by adults on peak train services (covering 20-30 questions), with the completed questionnaires either returned during the journey or by post using a free post envelope
 - Exploration of the potential benefits of the improved services including changes in travel options, service frequency and reliability, cost, safety, modal shift, access to employment and attractiveness of areas served by improved services (as employment and residential locations)
 - A target of 600-900 split between these three lines, although this will be subject to further analysis of passenger numbers and budgetary issues.

- 5.27 In terms of other types of transport related infrastructure investments, the approach is as follows:
- access roads - further evidence of the economic benefits of the access roads will be picked up in the occupier surveys covered above.
 - ports - the main investment has been in the Port of Holyhead and whilst this may have been important in economic terms, there is little value in surveying beneficiaries given timing of the investment over 15 years ago (but also, arguably, the focus on passengers rather than freight).

Tourism User Surveys

- 5.28 The tourism programmes funded through the 2007-13 programme have already been the focus of major evaluations including extensive users surveys. As such, there is little scope for this particular evaluation, given the limited budget available, to add value or update this existing user evidence.
- 5.29 Whilst there could merit in undertaking a survey of visitors or tourism related businesses focused on particular locations which have benefited from a clustering of tourism investments, it is believed this is outside the scope and available budget for this evaluation. Besides, there is a challenge of undertaking visitors surveys in order to identify changes in the visitor offer and experience over time and the contribution made by the ERDF programme.
- 5.30 No primary surveys of users or beneficiaries are proposed for this investment theme.

Cluster Surveys

- 5.31 There is merit in undertaking general surveys of businesses and residents (i.e. those active in the labour market) in addition to thematic surveys of users/beneficiaries. The preferred approach to this aspect of the evaluation is to focus on specific localities which have benefited from a major clustering of investments across the two programmes. The mapping of the ERDF investments has clearly indicated the localities which have received the greatest level of infrastructure funding, namely:
- Swansea
 - Port Talbot
 - Ebbw Vale
 - Anglesey / Bangor.
- 5.32 The surveys would enable the study to capture the views of businesses and residents about the merits of the locality as a place to do business, to invest, and to live and work, the extent to which this has changed over the past decade, and the difference which key infrastructure investments including ERDF may have made.
- 5.33 One of the main challenges relates to the development of the survey tool itself. In particular, whether it is seeking (i) general perceptions of the change in the benefits/disbenefits of the locality as a place to live work and do business, and the contribution of infrastructure investments to this, or (ii) views about a specific mix of ERDF infrastructure investments made within the locality. In the opinion of the

evaluation team, it will not be practical to distinguish between ERDF and non-ERDF funded investments (and would be counterproductive given the current progress with Brexit), as well as the contribution that some non-infrastructure related investments may make to the attractiveness and success of these areas as business locations. Hence (i) above is the preferred approach.

5.34 The suggested approach is:

- A telephone survey of 800 businesses across the four selected cluster areas, with each area being defined as the local authority district. The businesses would be stratified by broad size and sector categories. The businesses would be sourced from commercial databases (such as Experian or Market Location) and would exclude any included in the sites and premises surveys. An average interview of 10-12 minutes is assumed.
- A telephone survey of 800 adult residents across the four cluster areas (broadly defined as the local authority area). The sample would only include people who are active in the labour market (i.e. they are in employment or seeking work), with an indicative target split between these groups and broad age groups and gender being sought. An average interview length of 10-12 minutes is assumed.

Use of Omnibus Surveys

5.35 The Welsh Government has suggested using omnibus surveys and the National Survey Re-contact list to gather general perceptions of infrastructure investments across Wales and potential targeting upon areas with the highest level of ERDF funding.

5.36 It is unlikely that the Wales Omnibus survey which interviews 1,000 adults across Wales would provide sufficient numbers for robust analysis of the areas with the highest level of ERDF funding. Based on the four areas identified above and the local authority definitions used for survey purposes then it is expected the Wales Omnibus to provide around 60-120 respondents per cluster area. The National Survey has a larger target per local authority (approx. 600) but once those do not agree to be re-contacted and those who do not agree to take part / cannot be contacted for the follow up survey are taken into account, sample size would be significantly reduced and below the levels suggested by the ad-hoc survey outlined above.

5.37 Whilst both the Omnibus and the National Survey re-contacts could deliver a Wales-level perception of infrastructure investments, with limited budget it is felt that the targeted cluster surveys are a more appropriate use of resource.

6. Summary and Conclusions

6.1 This report has provided the findings from Phase Two of the evaluation of EU funded infrastructure in Wales. The aims of Phase Two were to

- provide a better understanding of how EU funding has been used to invest in infrastructure in the two previous programmes (2000-06 and 2007-13), including the scale of investment in different themes and the spatial distribution of this investment.
- investigate how the infrastructure which has been funded is being used and maintained.
- identify cluster areas which have received significant investment in a number of different types of infrastructure.

6.2 This section provides a summary of our key findings and conclusions in relation to each of these.

How has EU funding been used to invest in infrastructure?

6.3 In total it is estimated that just over £800m of EU funding has been invested in infrastructure in Wales over the two programmes, on projects with a total value of £1.8bn. This includes:

- **£299m in transport infrastructure**, including £177m spent improving Wales's strategic road network,
- **£142m in sites and premises** to attract inward investment and encourage the growth of Welsh businesses,
- **£139m in research and innovation infrastructure**, including over £90m on new R&D facilities at Welsh universities,
- **£85m in digital infrastructure**, including over £70m in widening access to superfast broadband,
- **£80m in tourism infrastructure**, including visitor attractions and improved visitor facilities, and
- **£53m in learning infrastructure**, including significant investment in the further education estate.

6.4 This investment has been widely distributed across Wales, but with particular concentrations in a number of local authority areas, including Swansea (£113m), Neath Port Talbot (£78m), Gwynedd (£59m) and Pembrokeshire (£40m)

How is EU funded infrastructure being used?

6.5 Overall the research has found that a high proportion of EU funded infrastructure is still being used for its original purpose. In particular, it has identified the following successes:

- The vast majority of new business premises funded by ERDF are well occupied, and have attracted a large concentration of firms in high value

sectors including professional services, ICT and manufacturing. ERDF has played an important role in increasing the supply of new commercial space which has supported the growth of Welsh businesses.

- Take-up of superfast broadband funded by ERDF has more than doubled between 2015 and 2018 (from 23 to over 50 per cent) and there is good evidence that businesses are using the enhanced digital infrastructure to adopt applications which are delivering business benefits.
- ERDF investments in research infrastructure have helped to establish some of Wales's premier research assets, including ILS1 and 2, the Centre for Nanohealth and the engineering facilities at the University of Swansea's Bay Campus. There is evidence that this has led to an increase in the quantity and quality of research and the number of collaborations with business. It has also helped to reinforce the University's reputation as one of the UK's leading universities for life science and engineering research and acted as a catalyst for further investment.
- ERDF has been used to restore or develop some of Wales's most popular visitor attractions. The ten visitor attractions for which robust data is available cumulatively attract around 1.3m visitors p.a. Given that ERDF has been used to develop these facilities or carry out essential restoration works, a large proportion of these visits can be attributed to ERDF investment. The total number of visits attributable to ERDF could be higher than this (if the 2007-13 projects are also included), however a lack of robust data means it is not possible to quantify the increase in visits for these projects.
- Investments in the rail network have led to a large increase in rail usage on certain lines, as evidenced by the increase in entries and exits at stations which have received investment. Investments in new access roads have also helped to unlock substantial new development, contributing to regeneration in a number of locations including Swansea, Port Talbot and Ebbw Vale.

6.6 However there are also examples of investment in infrastructure has not generated the benefits that were intended. Examples include:

- A large proportion of the employment sites which received infrastructure investment (new roads, utilities etc) have not yet been developed. In some cases this is due to ongoing challenging market conditions, however it is also clear that some projects were approved despite a lack of evidence of market demand.
- Investments in incubation facilities through the Technium programme failed to deliver on most of their targets. Although a number of these facilities are still used by hi-tech businesses, others are now used as general office space.
- There is mixed and inconclusive evidence about the impact of investments in tourism infrastructure through the mini-programmes. While a number of facilities have seen increases in visitor numbers, others have experienced a decline. A recurring theme was that investment had been spread too thinly across too many sites which meant several programmes did not meet their full potential.

- While the FE facilities funded by ERDF are being well used, there is no evidence that these investments have led to an increase in learner numbers overall, with many college groups experiencing a fall in visitor numbers. In some cases there was evidence of high levels of displacement from other campuses. Government funding cuts for adult learning have also led to a reduction in learner numbers in some cases.

6.7 In some cases it has not been possible to conclude whether the EU funded infrastructure is being used as intended. This particularly relates to investments in the strategic road network where it has not been possible to establish whether the investments have led to reduced congestion and increased reliability of journey times. This will be addressed in the next phase of research.

How is EU funded infrastructure being maintained?

6.8 Overall it appears that the EU funded infrastructure is still in a good condition and there are a number of examples of where infrastructure has received further investment. The vast majority of facilities are still owned and maintained by the original grant recipient organisation. These organisations have put in place a wide range of measures to ensure that infrastructure is maintained to a high standard. These include:

- The digital infrastructure funded by ERDF is owned and maintained by BT. It has a commercial obligation and incentive to ensure the infrastructure continues to offer a fast and reliable service.
- Learning infrastructure, research and innovation facilities and sites and premises are maintained by estates teams within FE colleges, universities or local authorities. In some cases the income from tenants, learners or research helps to cover the costs of maintenance, or there is a ringfenced maintenance budget.
- Tourism infrastructure is maintained through a number of different sources including revenue from commercial activities, visitor donations, sponsorships and local authority subsidies.
- Responsibility for maintaining transport infrastructure lies with a number of bodies with dedicated budgets including trunk road agencies, Network Rail or local authorities.

Clusters of Investment

6.9 Clusters of investment have been identified in Swansea, Port Talbot, Ebbw Vale, Anglesey/Bangor and the North Wales coast. For the first three of these, it is clear that ERDF investments have complemented each other as part of an integrated development strategy for the area. For the two clusters in North Wales, although there are a number of projects, there is less evidence that these have been part of an integrated strategy or that the investments complement each other. In the case of the North Wales coast, the overall scale of investment is also quite limited meaning awareness of the investments among local residents and businesses may be quite limited.

6.10 However it is also recognised that at least one cluster from North Wales is needed to ensure a geographical balance. It is therefore recommended that the Phase Three research includes the Anglesey/Bangor cluster in addition to the clusters in Swansea, Port Talbot and Ebbw Vale.

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Annex A Aims of Priority Axes

Aims of Priority Axes in West Wales and the Valleys Objective 1 Programme, 2000-06

Priority Axis	Overall aim
1 Expanding and developing the SME base	To generate wealth and employment for Wales by supporting the growth of the SME sector
2 Developing innovation and the knowledge based economy	To improve the competitiveness of the region through the acquisition and use of knowledge and new technologies
3 Community Economic Regeneration	To combat social exclusion by targeting local, community based action on the most deprived communities, to increase skills and employability, provide greater access to more diverse opportunities and to improve conditions for business.
4 Developing People	To reduce and prevent long term unemployment and inactivity, increase skill levels and reduce the impact of disadvantage on labour market outcomes.
5 Rural Development and the Sustainable Use of Natural Resources	To combine a healthy well-managed environment with economic productivity and viability.
6 Strategic Infrastructure Development	To secure additional investment and employment for the less developed parts of the region by promoting area based business investment, supported by key infrastructure improvements.

Source: WEFO: West Wales and the Valleys Objective 1 Programme Complement

Aims of Priority Axes in East Wales Objective 2 Programme, 2000-06

Priority Axis	Overall aim
1 Developing Sustainable & Competitive SMEs	To encourage the development of SMEs through financial support, support for innovation and development of sites and premises.
2 Sustainable rural development	To develop the sustainable economic development of the region's rural areas and encouraging local communities to establish rural networks.
3 Urban community regeneration	To build the capacity of urban communities and develop the social economy

Source: [East Wales Objective 2 Programme](#)

Aims of Priority Axes in West Wales and the Valleys Operational Programme for ERDF, 2007-13

Priority Axis	Overall aim
1 Building the knowledge based economy	To improve knowledge and encourage innovation by fostering the commercial exploitation and take-up of research and development, innovation and technology and increasing access to and take up of ICT.
2 Improving Business Competitiveness	To strengthen the economy by increasing the size and widening the range of business stock and tackling market failures in relation to business advice, information and finance
3 Developing strategic Infrastructure for a modern economy	To equip the region with the physical infrastructure necessary for the development of a modern competitive economy, and to promote agglomeration effects and sustainable integrated urban regeneration.
4 Creating an attractive business environment	To promote sustainable business growth and new business opportunities in relation to environmental challenges and opportunities.
5 Building Sustainable Communities	To support integrated approaches to regeneration which will benefit the region's most deprived communities and support the development of vibrant local economies.

Aims of Priority Axes in East Wales Operational Programme for ERDF, 2007-13

Priority Axis	Overall aim
1 Knowledge and Innovation for growth	To promote a high value added economy by fostering R&D, Innovation ICT usage for growth.
2 Business competitiveness and growth	To assist the growth and expansion of new and existing business ventures, particularly enterprises with the capacity for high growth.
3 Tackling climate change	To support the development of clean and renewable energy, promote resource efficiency and manage environmental risks.
4 Regeneration for growth	To provide carefully targeted support for the physical regeneration of the most deprived communities.

Annex B ERDF Investment by Local Authority

Infrastructure investment by local authority in 2000-06 programme (£m)

Authority	Digital	Learn- ing	R&I	Sites & Premises	Tourism	Trans -port	Total
Pan Wales/ Multiple	11.8	0.7	2.3	12.8	2.4	15.2	50.1
Swansea		5.3	16.1	8.2	3.7	6.1	39.4
Gwynedd		8.8	9.6	6.1	1.4	4.6	30.5
Neath Port Talbot	0.2	2.8	7.7	2.1	1.9	9.4	24.2
Caerphilly		1.3		9.4	0.7	9.8	21.1
Carmarthenshire		1.6	4.9	6.6	1.2	4.1	18.4
Blaenau Gwent		1.7		6.4		7.7	15.8
Pembrokeshire		1.6	0.6	9.2	2.6		13.9
Isle of Anglesey	0.5			7.2	0.2	5.5	13.3
Denbighshire	0.2	1.6	5.2	4.6	1.1	0.2	12.8
Conwy		1.9		9.0	1.2		12.1
Ceredigion		1.0	4.7	2.9	0.5		9.2
Rhondda Cynon Taf	0.8	5.9		1.5			8.1
Unknown	0.7			4.5	1.9		7.1
Powys			1.2	5.2	0.6		7.0
Torfaen	0.3	2.1		3.1		1.0	6.6
Bridgend		1.2	0.2	2.8		0.6	4.8
Newport		1.2		3.4	0.0		4.6
Merthyr Tydfil				1.4		0.2	1.6
Wrexham		0.2		0.4	0.7		1.3
Cardiff				0.8			0.8
Vale of Glamorgan				0.6			0.6
Monmouthshire				0.2	0.2	0.1	0.4
Total	14.5	38.9	52.6	108.2	20.3	64.4	303.6

Infrastructure investment by local authority in 2007-13 programme (£m)

	Digital	Learnin g	R&I	Sites & Premises	Tourism	Trans- port	Total
Pan Wales/ Multiple Authorities	62.7			13.3	43.9	116.9	236.8
Swansea			60.4	6.9		5.8	73.1
Neath Port Talbot						53.7	53.7
Gwynedd			4.8	0.7	7.2	16.0	28.7
Pembrokeshire					1.8	24.0	25.9
Cardiff			15.4				15.4
Blaenau Gwent		7.3		1.5		3.4	12.2
Rhondda Cynon Taf		6.7		1.8	3.0		11.6
Carmarthenshire				6.7		1.6	8.3
Caerphilly						8.3	8.3
Isle of Anglesey				2.1	3.5		5.6
Ceredigion					4.2		4.2
Denbighshire				0.5		2.5	3.0
Conwy						2.6	2.6
Total	62.7	14.0	80.7	33.5	63.6	234.9	489.4

Annex C Logic Models

- i. The purpose of presenting logic models is twofold:
 - to provide greater clarity about the different types of infrastructure investment funded by ERDF (see Chapter 3), and what they were seeking to achieve.
 - to investigate the range of outcomes or changes in behaviour that different types of investment were intended to generate. This helps to understand relevant measures of usage which is the focus of Chapter 4.
- ii. Logic models are presented for the following types of project. The vast majority of projects from the two programmes fall in to one of these categories.

Theme	Type of project
Digital infrastructure	<ul style="list-style-type: none"> • Expanding coverage of superfast broadband
Learning infrastructure	<ul style="list-style-type: none"> • FE college estate • Adult or community learning facilities
Research and innovation	<ul style="list-style-type: none"> • Incubation facilities • Research facilities
Sites and premises	<ul style="list-style-type: none"> • Site preparation and infrastructure • Property development
Tourism	<ul style="list-style-type: none"> • Visitor facilities and expansion or improvement of other tourism infrastructure
Transport	<ul style="list-style-type: none"> • Strategic transport infrastructure • Access roads • Public transport and sustainable travel

- iii. For each type of project the logic model sets out:
 - The **rationale for intervention**, including the challenges or opportunities that investments were intended to address, and the types of market failure which justify the case for intervention.
 - The **objectives** of different types of project. These provide a clear statement about the changes that projects intended to bring about.
 - The types of **activities** that have been undertaken to achieve these objectives.
 - The **outputs** of projects. These provide a direct and tangible measure of what projects delivered.
 - The intended **outcomes** of projects. These relate to the changes in behaviour that projects intended to bring about, and which are necessary to achieve projects' objectives.
 - The **impacts** of projects. These represent the measurable, longer-term changes in economic conditions that projects intended to bring about, and relate clearly to the objectives.
- iv. The logic models have been produced by Hatch Regeneris based on a review of information available for the two programmes. The starting point for each logic model was the operational programme documents for both programmes. This set out the

strategic rationale for different types of infrastructure investment and the main ERDF output and result targets that projects were expected to contribute towards.

- v. In most cases, the ERDF indicators do not adequately capture the full range of intended outcomes from infrastructure investment and provide a poor framework for understanding how infrastructure should be being used today (the focus of this report). Therefore Hatch Regeneris identified additional outcomes that describe the types of changes that projects intended to bring about (described as outcomes in the logic models). These have been identified through a review of project level information from a range of documents including:
- the business cases for different types of project, although these are only available for the 2007-13 programme
 - the project evaluations, although these are also only available for some of the 2007-13 programme
 - project descriptions and the output and result indicators for projects (available for both programmes)
 - consultations undertaken as part of the project reviews
- vi. Given the gaps in information for the 2000-06 programme (and to a lesser extent the 2007-13 programme) and the need to group projects in to broad categories, the logic models are presented at a high level. It is not possible to quantify the output and result targets which relate specifically to infrastructure investment as this information is not available at project level. The programmes do identify output and result targets for some types of infrastructure, but in most cases the targets are for the priority axis as a whole and include both capital and revenue projects. It is therefore not possible to differentiate the targets for each. For this reason the logic models should be treated as a broad guide for understanding the purpose and aims of different types of infrastructure investment rather than a quantitative assessment of what they intended to deliver.
- vii. Separate logic models have not been produced for the 2000-06 and 2007-13 programmes. Although there has been change in the specific rationale and output/result targets between the two programmes, overall the underpinning logic for the different types of infrastructure has remained broadly consistent over time. The key differences between the two programmes are described in the accompanying text.

Digital Infrastructure

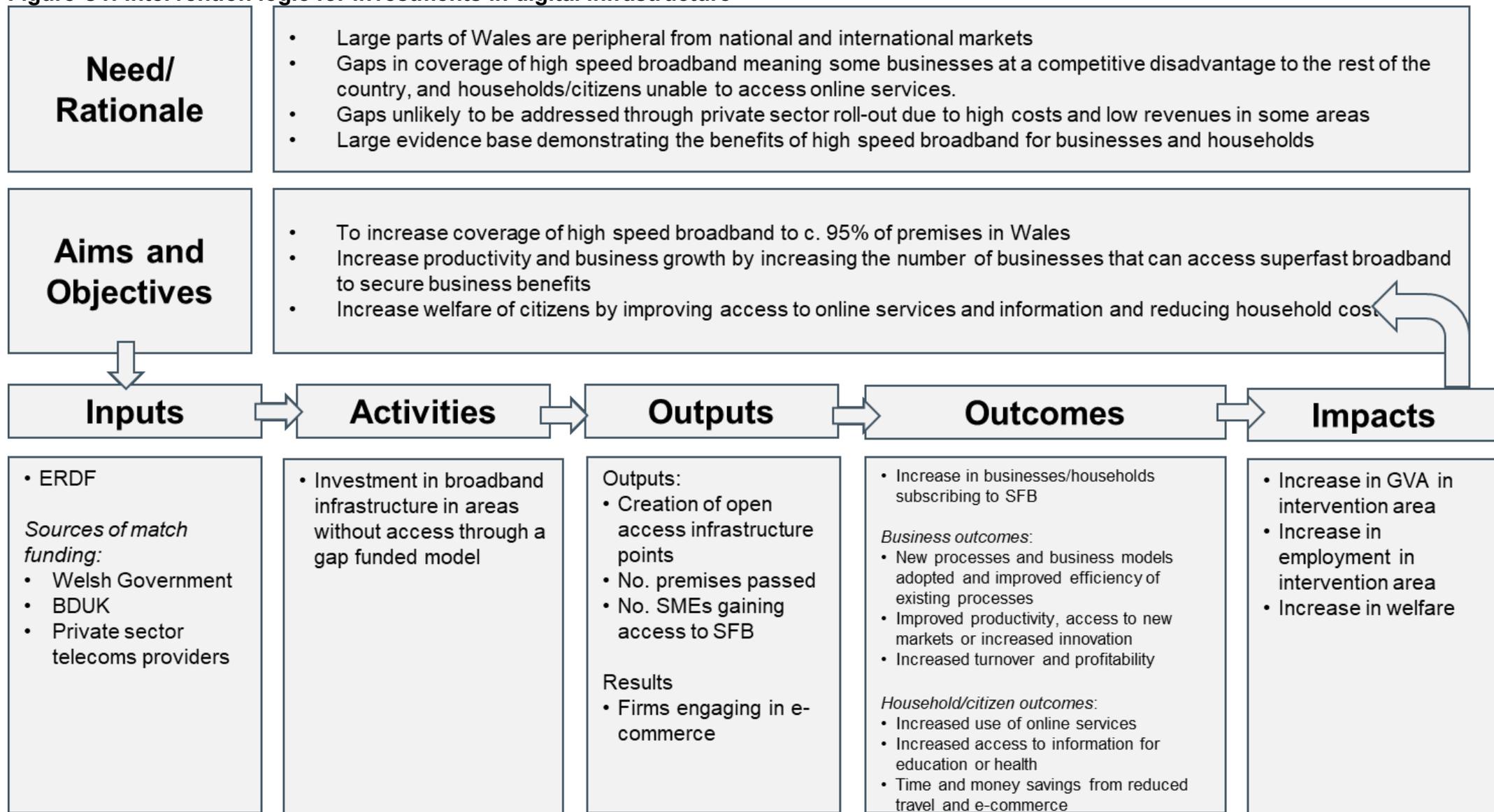
- viii. Interventions in this theme have all been investments in broadband infrastructure. In the 2000-06 programme, this aimed to increase coverage of higher bandwidth services (defined as 128 kbits/s and above), while the 2007-13 programme aimed for speeds of over 30 Mbps.
- ix. The rationale for investment in both programmes was that large numbers of SMEs and households in Wales were unable to access fast and reliable internet connections as they were located in areas which have been deemed commercially unviable by private sector telecoms providers. For businesses this means they cannot secure the business benefits from faster broadband (increased productivity,

access to markets etc), putting them at a competitive disadvantage to businesses which are able to access superfast broadband. While for households, this means they are not able to secure access to online services (online shopping, educational resources etc) and the benefits that flow from this.

- x. The specific output and result indicators and targets changed between the two programmes:
- The Programme Complement for 2000-06 identified one relevant output target (increasing connections of users to higher bandwidth services by 70,000). It also identified one relevant result target which was to increase the number of firms engaging in e-commerce activities by 200 per cent from the level of 9 per cent at the time. However this target did not relate solely to investments in digital infrastructure, as a number of revenue projects were included in the same measure which could also contribute to the result target (eg business support activities).
 - The OP for 2007-13 identified one relevant output target (350 open access points). The Evaluation of Next Generation Broadband Wales Programme noted that open access points was not a sufficient output indicator and recommended that premises passed³² should be used instead.
- xi. The outputs and result indicators in the original programme documents do not adequately capture the full range of intended outcomes from digital infrastructure investment and provide a poor framework for assessing the performance of investments. For this reason, the diagram identifies a number of other outcomes which would be expected to occur if the investments met their objectives. These have been defined based on a review of project level information.
- xii. The main outcomes for businesses are an increase in businesses subscribing to superfast broadband and adopting new applications and business processes (e.g. cloud computing). This would lead to business benefits including increased turnover, productivity and profitability. For citizens and households, an increase in subscriptions would be expected to lead to increased use of the internet for online shopping, education, social media and access to public services and telecommuting (working from home). In turn these could lead to a range of benefits including time and money savings and increased earnings potential.
- xiii. The intended impacts include:
- an increase in GVA which represents the cumulative effect of the business benefits cited above, and the change in employment which is generated due to business growth.
 - an increase in welfare or quality of life, due to the combined effect of the social outcomes that access to broadband can generate

³² This measures the number of premises with access to broadband speeds over 30 Mbps

Figure C1: Intervention logic for investments in digital infrastructure

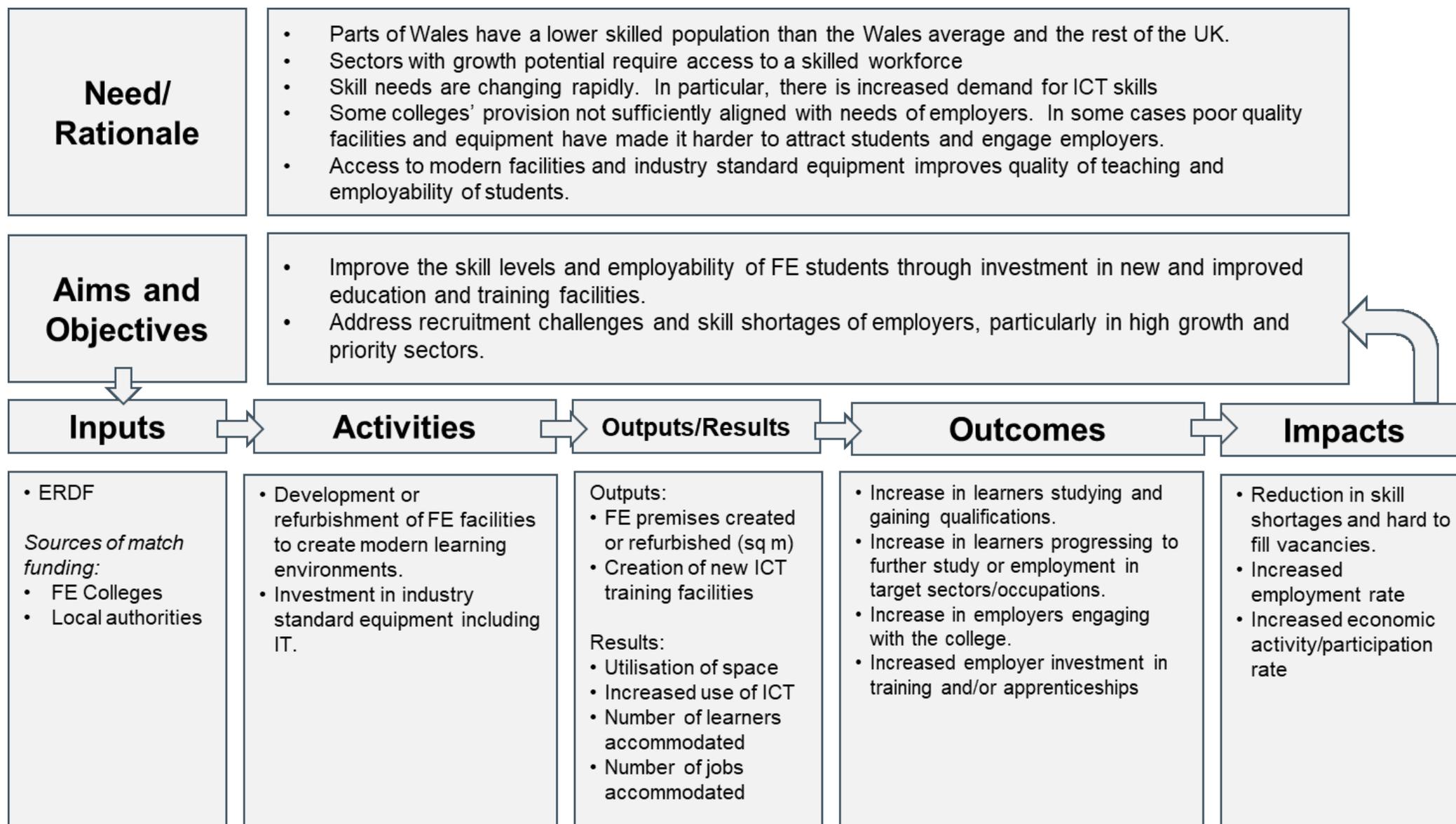


Learning Infrastructure

Investments in FE Colleges

- xiv. Investments in FE colleges have aimed to provide modern learning environments and equipment for students. The main rationale for these projects is the need to improve skills and employability by improving the quality of FE teaching facilities and its responsiveness to the needs of employers. A number of projects in this category have a specific sector focus (e.g. new workshops and equipment which prepare learners for employment in the construction sector).
- xv. Both of the programmes covered by this study have funded these types of projects, with a similar rationale in both cases, although there was a particular focus on improving ICT facilities in the 2000-06 programme and on a small number of “high impact” projects in the 2007-13 programme.
- xvi. Investments in the 2000-06 programme were funded under Priority 4, Measure 4 (Improving the Learning System). The relevant output targets were to create 3,000 training places and 100 new ICT training facilities. The programme document also identified a number of result indicators (improvements in space utilisation rates, increased use of ICT based learning) but did not set specific targets.
- xvii. Investments in the 2007-13 programme were funded under Priority 3, Theme 2 (Strategic Infrastructure), which included a number of other types of infrastructure (eg sites and premises). The relevant output and result indicators were land developed (Ha), premises created or refurbished (sq m), number of jobs accommodated and the number of participants (learners) accommodated. However, the specific targets for investments in FE colleges are unclear because a number of these targets also applied to investments in sites and premises and the OP did not distinguish between different types of projects.
- xviii. Again, it has been necessary to add a number of other outcome indicators to the logic model to better reflect the changes in behaviour that the investments were intended to generate (based on a review of project level information). These include increases in learners gaining qualifications, improvements in rates of progression, employer engagement and employer investment in training.
- xix. The impact indicators were poorly defined in both programme documents and did not reflect the intended impacts of projects. The target for 2000-06 was simply to make “progress against the National Education and Training Targets” and to ensure that FE and HE institutions are upgraded to Grade B in terms of functional suitability of accommodation. These targets were not quantified. The target indicators for the 2007-13 programme were to increase occupancy rates and net jobs created, but again these targets were not quantified.
- xx. Based on a review of the project level information, the range of intended impacts also include an increased employment and/or economic activity rate and a reduction in skill shortages and hard to fill vacancies. Although it would be challenging to assess these impacts in practice.

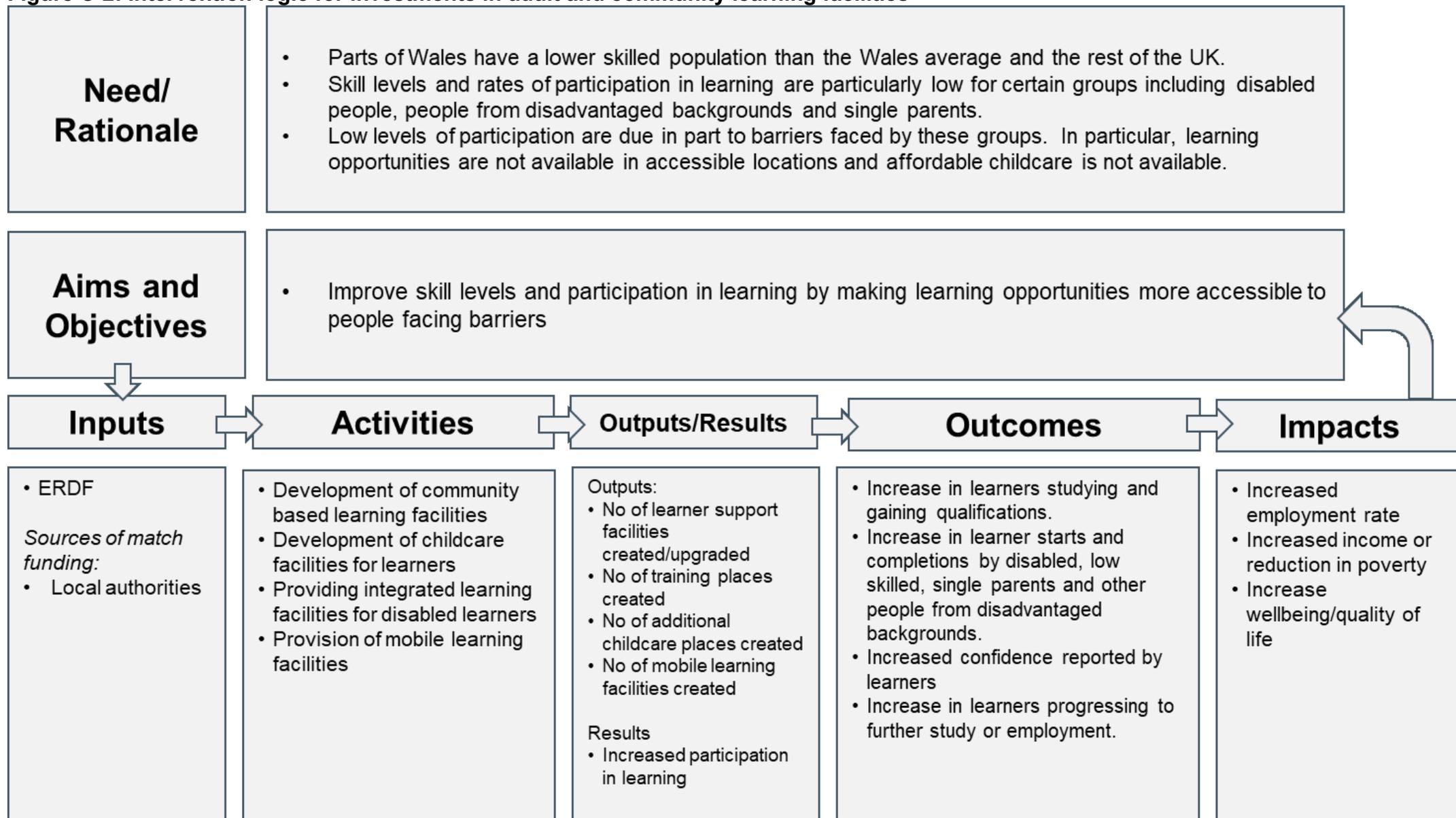
Figure C-2: Intervention logic for investments in FE colleges



Investments in adult/community learning facilities

- xxi. Investments in adult/community learning facilities were only funded in the 2000-06 programme. These projects were responding to the need to widen access to learning opportunities, particularly for people with low skill levels or who face particular barriers to work and learning (e.g. single parents and people with disabilities). These funded a number of lifelong learning centres and training facilities in accessible locations, but also invested in childcare facilities to help address some of the barriers to learning faced by some people.
- xxii. These projects were also funded under Priority 4, Measure 4. Relevant output targets were as follows:
- No. of additional childcare places created – 2,800
 - No. of learner/learner support facilities created/upgraded – 100
 - No. of mobile learning/guidance facilities created – 50
- xxiii. No specific result or impact targets were identified, but the programme document indicates that projects should lead to wider participation in learning and that they should contribute to progress towards the National Education and Training Targets which were in place at the time.
- xxiv. Based on a review of project level information, a number of additional outcome indicators have been identified including increased numbers of learners who face barriers to learning (disabled people, people from deprived backgrounds and single parents), increased confidence among learners and an increase in rates of progression to higher study or employment.
- xxv. The main intended impacts of these projects were to increase economic activity and employment rates but also to improve wellbeing and reduce poverty. Again, it should be noted that it would be challenging to assess these impacts in practice.

Figure C-2: Intervention logic for investments in adult and community learning facilities



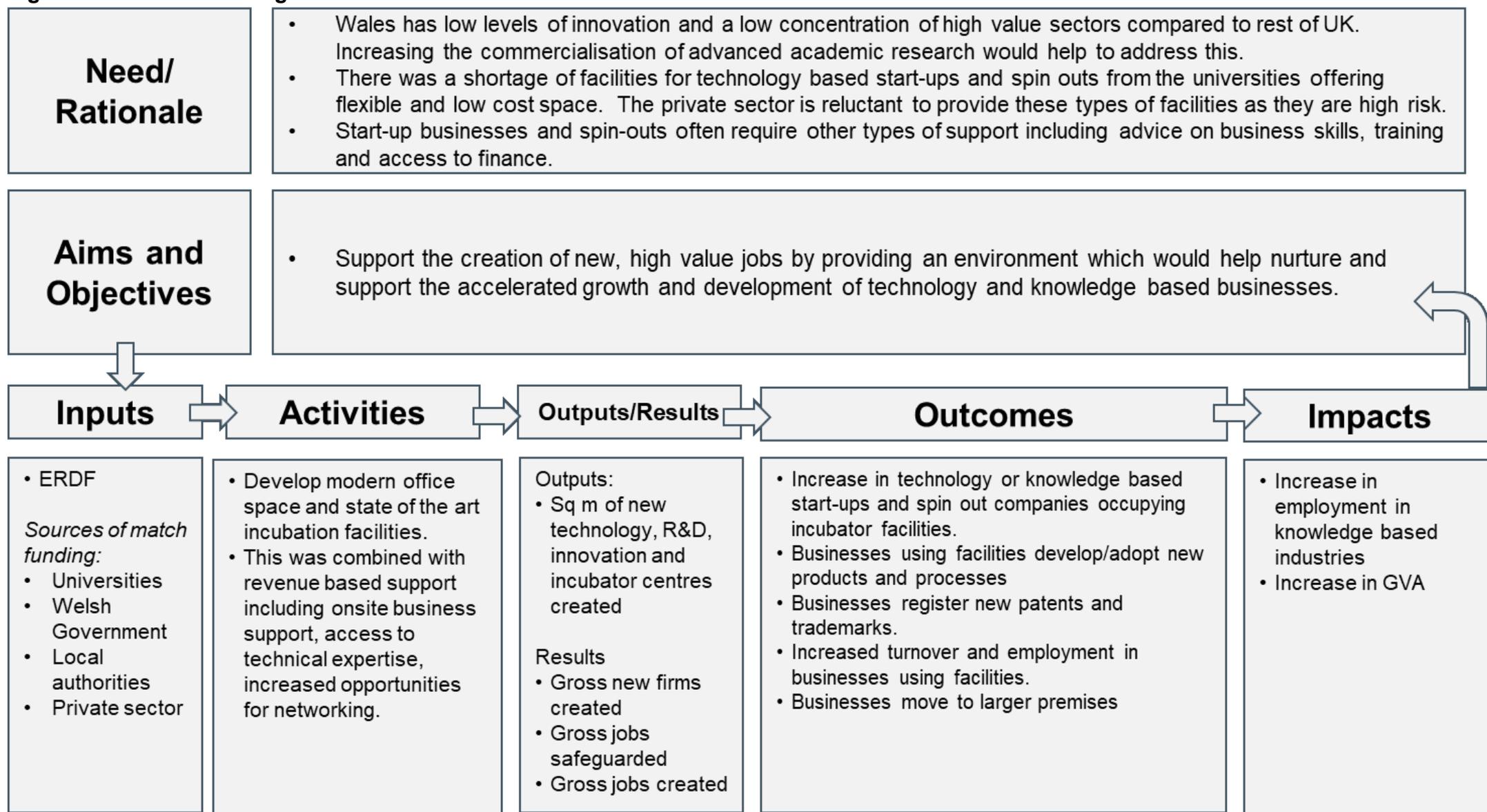
Research and Innovation Infrastructure

- xxvi. Investments in research and innovation infrastructure fall into two categories:
- Development of incubation facilities. These were a major focus of the 2000-06 programme through the development of Techniums.
 - Investment in new research facilities, linked to research strengths at Welsh universities. These types of projects were funded in both programmes but became the principal focus of the 2007-13 programme.

Incubation facilities

- xxvii. Figure C3 shows the intervention logic for incubation facilities. These projects were responding to the low levels of R&D and innovation in Wales. They were developed to try and increase the number of jobs in technology and knowledge based sectors by providing an environment for start-up businesses to grow, including access to high quality, flexible office space combined with onsite business support and advice.
- xxviii. These projects were funded under Priority 2, Measure 3 of the 2000-06 programme. This included a mix of capital and revenue projects to support the development of innovation and R&D. The relevant output targets were to:
- Create 15 new technology, R&D, innovation and incubation centres
 - Construction of 30,000 sq m of floorspace in innovation centres and R&D facilities.
- xxix. The intended results of the infrastructure investment itself are not clear as this measure funded a mix of capital and revenue projects which all contributed to the result targets. These included:
- 3,000 gross new firms created in high tech sectors
 - 7,230 gross jobs safeguarded
 - 15,600 gross jobs created of which 3,000 in high tech sectors.
- xxx. A number of additional outcome indicators have been defined based on the review of project level information. Key outcomes for these projects relate to technology-based businesses occupying the facilities and developing/adopting new products or processes which allow them to grow and move on to larger premises.
- 6.11 The intended impacts include a net increase in GVA and an increase in employment in knowledge-based industries.

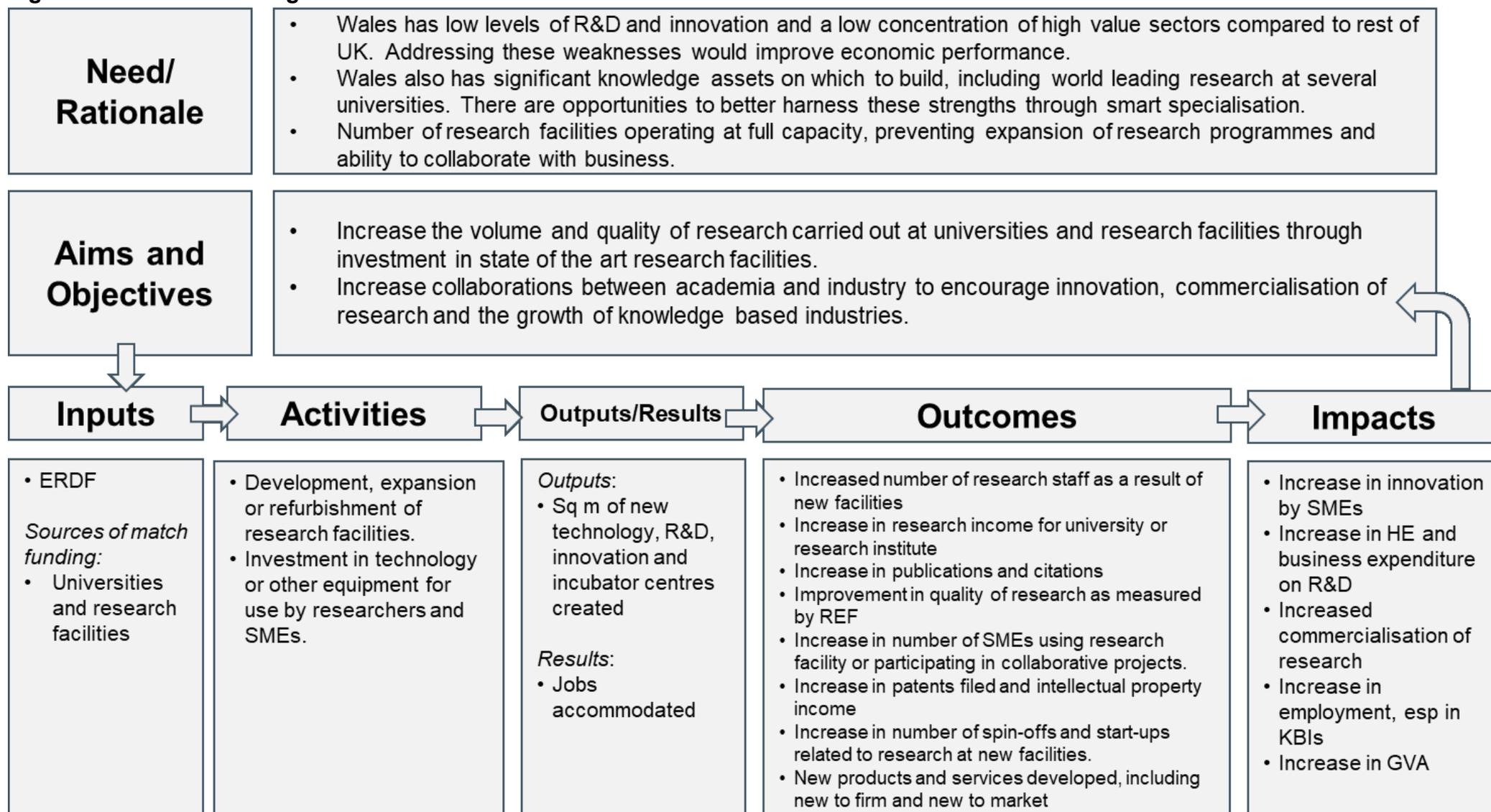
Figure C3: Intervention logic for investments in incubation facilities



Research Facilities

- xxxi. The rationale for investments in research facilities was similar (addressing the low levels of innovation and low concentration of knowledge based industries in Wales). However these projects have been more focused on increasing the quantity and quality of research carried out at Welsh universities in areas where they have specialisms, and using this as a platform to increase collaboration with business. Some of these projects have also included some incubation space.
- xxxii. These investments were also funded under Priority 2, Measure 3 of the 2000-06 programme and therefore had the same output and result targets as above. Investments in 2007-13 were funded under Priority 1, Theme 1 (Research and Development, innovation and technology) which again included a mix of capital and revenue support. The relevant output target was to develop 7,500 sq m of space in innovation centres and R&D facilities and the result target was to accommodate 150 jobs.
- xxxiii. A number of additional outcome indicators have been defined based on the review of project level information. These relate to growth in the number of research staff at the universities who use the new facilities to carry out new research projects, secure additional research income and improve the quality of research. It was also anticipated that investments would increase collaborations between universities and SMEs through joint research projects or increased business use of the facility. Over time this usage was expected to lead to increased rates of commercialisation of research (evidenced by patents filed, new spin-offs and start ups, and new products and services developed).
- xxxiv. There were also a wide range of intended impacts including increased expenditure on R&D and innovation, which potentially can lead to an increase in GVA and employment in knowledge based industries.

Figure C4: Intervention logic for investments in research facilities



Sites and Premises

- xxxv. The logic model for sites and premises projects distinguishes between two types of projects, which have a similar underlying rationale:
- Site preparation: these projects provide employment sites with the infrastructure and services needed to support development at a later date (e.g. tackling contamination and dereliction, new roads, utilities, landscaping etc.). This helps to de-risk development of the sites.
 - Property development: these projects either physically develop new business premises or provide grants for developers to provide new premises.
- xxxvi. Both types of project have been funded in each of the programme periods, although they accounted for a far greater share of investment in the 2000-06 programme. Both types of project aim to stimulate economic growth and job creation by providing sites and accommodation for inward investors and growing indigenous businesses. A large number of projects have had a focus on attracting or supporting the growth of key economic sectors. Public sector intervention is necessary to overcome the commercial viability issues in Wales, which disincentivises private development and results in an undersupply of employment space. These infrastructure interventions are intended to complement other policy levers such as business support.
- xxxvii. Sites and premises interventions were funded under two different priorities in the 2000-06 programme:
- Priority 1, Measure 5 (Providing sites and premises for SMEs). This had the following output and result targets:
 - 180,000 sq m of employment premises made available
 - 70 Ha of land developed
 - 100 per cent of new premises built to BRESCU standards
 - 100 per cent of new premises built with disabled access
 - 80 per cent of new premises built with childcare facilities
 - Occupation rates for supported sites and premises of 75 per cent after 3 years
 - 32,00 gross jobs created
 - 1,260 gross jobs safeguarded
 - Priority 6, Measure 3 (Strategic employment sites). This had the following output and result targets:
 - 300,000 sq m of constructed or refurbished floorspace
 - 212 Ha of land developed
 - 75 buildings occupied within 3 years
 - 50 per cent of sites occupied within 3 years
 - 13,720 gross new jobs
 - 10,000 gross safeguarded jobs

- xxxviii. Interventions were funded under Priority 3, Theme 2 in the 2007-13 programme (Strategic Infrastructure). This included the following output/result targets, although it is noted that a number of these also included the outputs/results associated with investments in learning infrastructure which were in the same theme:
- 35 ha of land developed
 - 27,500 sq m of premises created or refurbished
 - 825 jobs accommodated
 - 150 SMEs accommodated
 - 1,000 gross jobs created
- xxxix. Figure C5 shows a number of other outcomes for these investments. For site preparation projects, the initial outcome was development of new business space on site. Then for both types of projects, it was anticipated that this would be followed by growth in the number of businesses and jobs occupying space on site, both as a result of inward investment and the expansion of indigenous businesses. The intended impacts were an increase in employment in the area (particularly in key economic sectors), an increased employment rate (reflecting the fact that a number of these projects aim to increase local access to employment) and an increase in GVA.
- xl. It should be noted that a number of other factors will influence the achievement of these outcomes and impacts, including the strength of market demand and the extent to which economic benefits are displaced (e.g. jobs being relocated to new premises from within the local area rather than being net-additional). The issue of displacement is considered in the section on sites and premises in Chapter 4.

Figure C5: Intervention logic for investments in site preparation projects

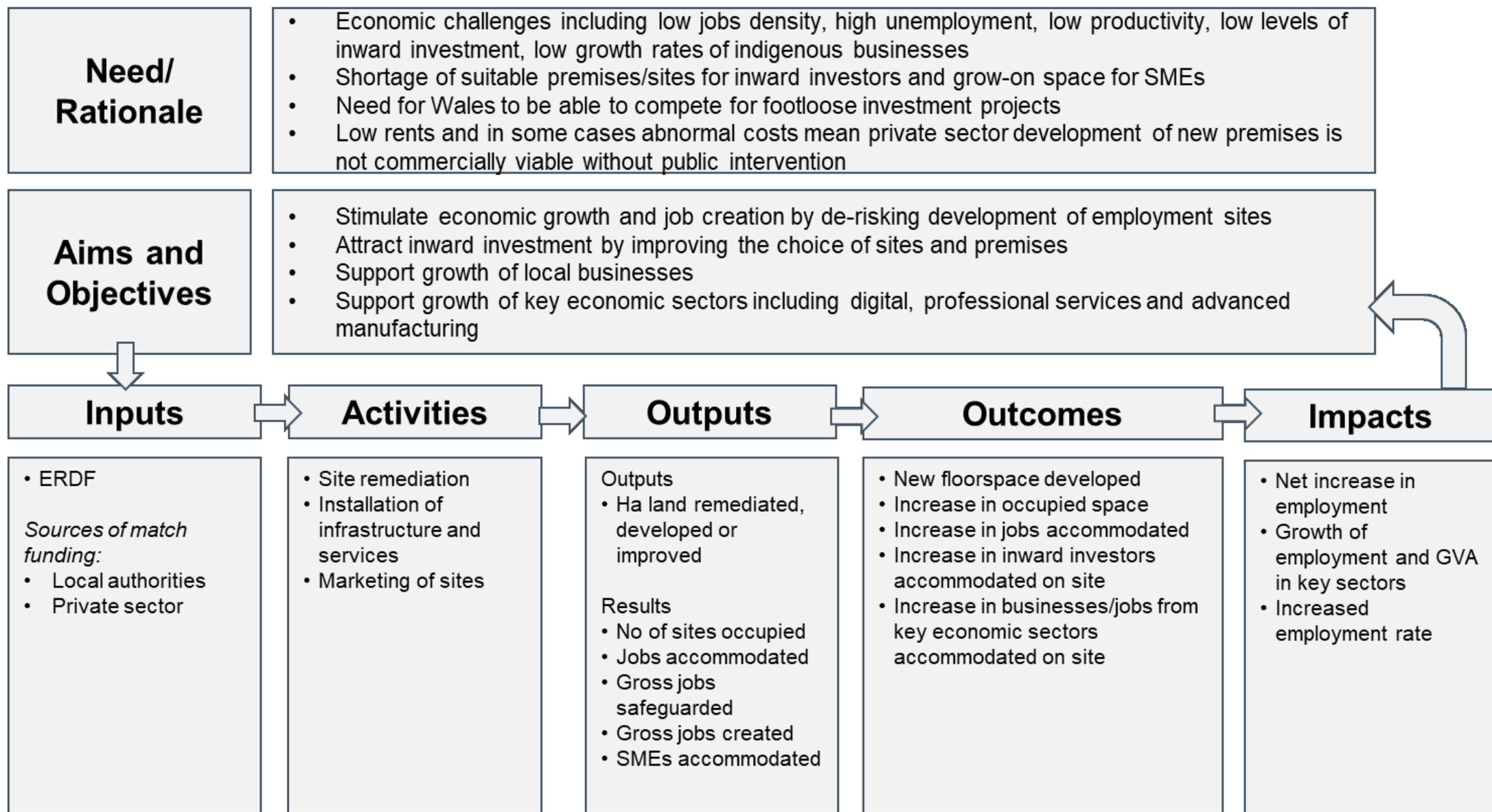
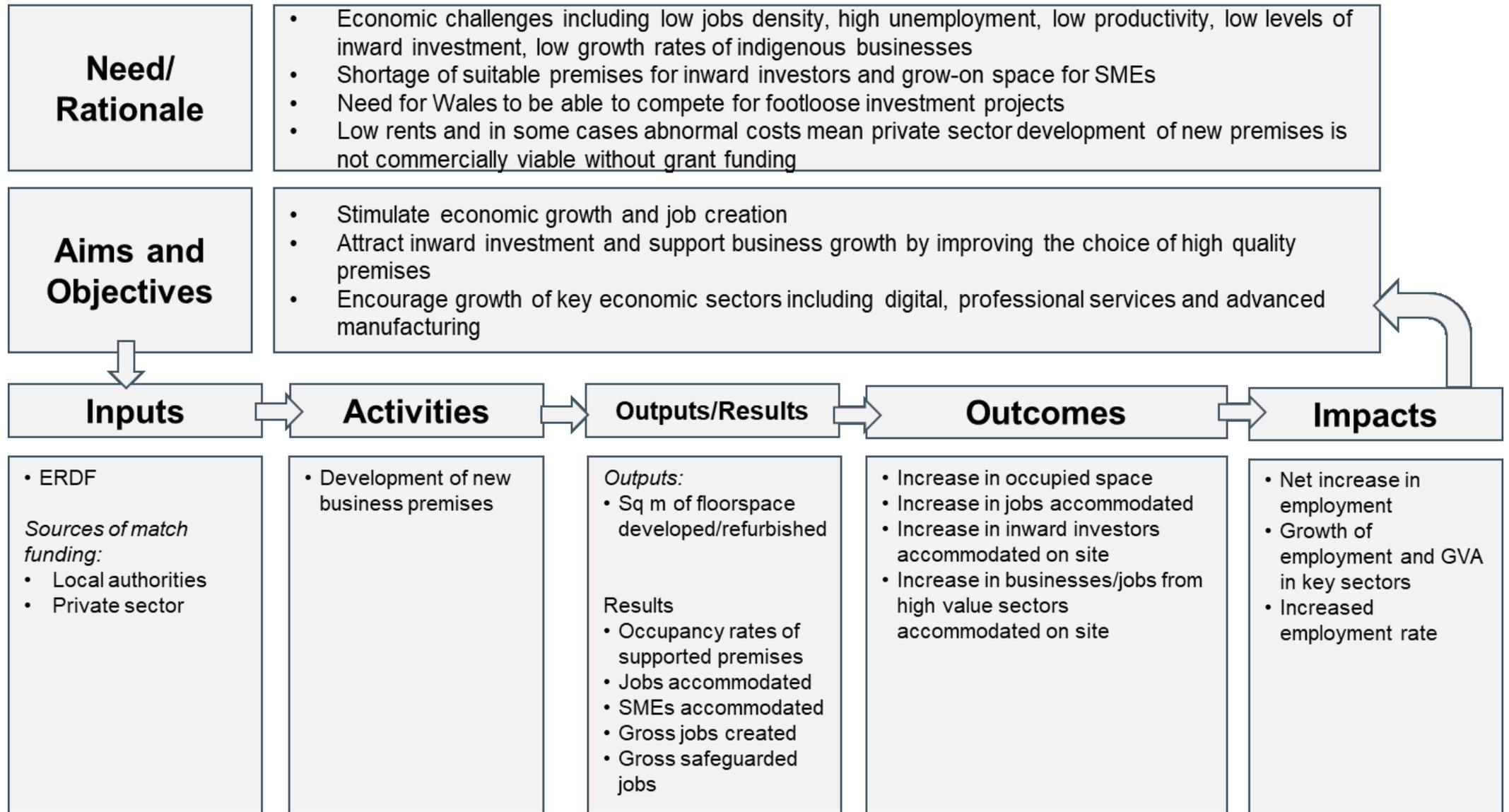


Figure C6: Intervention logic for investments in property development projects



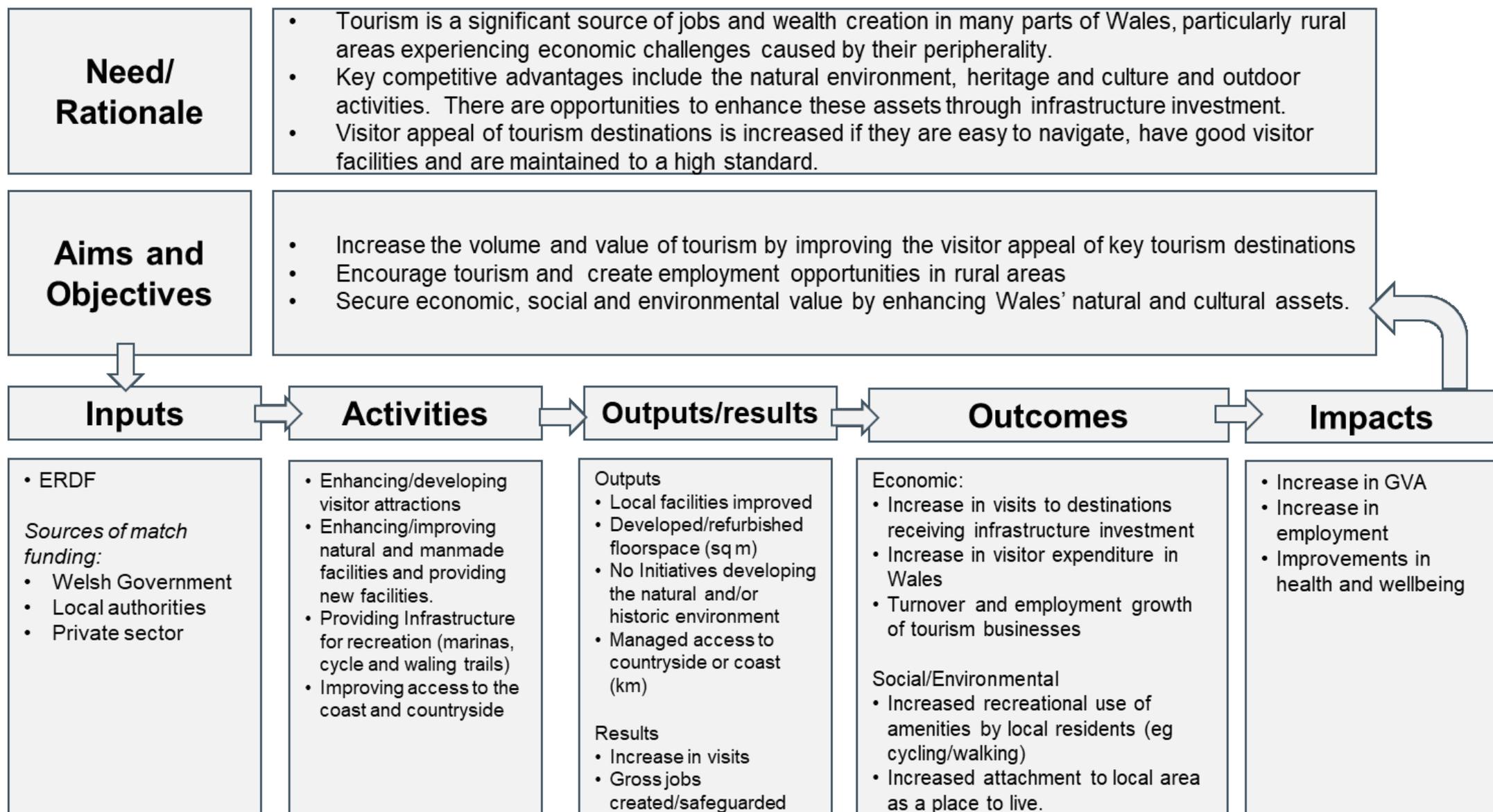
Tourism Infrastructure

- xli. Investments in tourism infrastructure aim to derive greater economic and environmental value from Wales's natural, historical and cultural assets. Investment in infrastructure is necessary to improve access to, and interpretation of, these assets and to provide facilities to ensure it is a pleasant and memorable experience for visitors.
- xlii. There was a change in the rationale for these investments across the two programmes. The majority of investments in the 2000-06 programme were funded under Priority 5 in the Objective One area or Priority 2 in the Objective Two area, which both aimed to support rural development. As such, the rationale for a large number of projects was to help overcome economic problems caused by peripherality. Although a number of tourism investments were also funded under Priority 6 in the Objective One area (Strategic Infrastructure) which included projects in urban areas. There was therefore a wide range of relevant output and result targets³³ including:
- 20 local facilities improved
 - 300,000 sq m of developed or refurbished floorspace
 - 15 per cent increase in number of average visitors per day to the region
 - 4,500 gross jobs created
 - 990 gross jobs safeguarded
- xliii. All investments in tourism infrastructure in 2007-13 were funded under Priority 4, Theme 3 which aimed to support growth by realising the economic potential of the natural environment.
- xliv. The relevant output and result targets were as follows:
- Initiatives developing the natural and/or historic environment – 21
 - Managed access to countryside or coast – 100 km
 - Visits – 750,000
- xlvi. The result indicators capture the main economic outcomes from these types of investments which include an increase in visitor numbers, but also the value associated with these visits (expenditure of visitors and turnover of tourism businesses). In turn this leads to a net increase in GVA and employment in Wales. This is after accounting for displacement which is a key issue when assessing the performance of tourism investments (since an increase in visitor expenditure at one site could be a result of reduced expenditure in other parts of the local area). This is explored in the relevant section of Chapter 4.
- xlvii. There were also a range of social and environmental benefits associated with investment in natural and cultural assets. These investments were also intended to provide increased opportunities for recreation for local communities and to improve

³³ A number of these targets relate to both capital and revenue projects which were both funded under Priority 5. The target for developed or refurbished space also included other investments in strategic infrastructure including sites and premises

Wales as a place to live. In turn this can deliver improvements in people's health and wellbeing.

Figure C7: Intervention logic for investments in tourism infrastructure



Transport Infrastructure

- xlvi. Separate logic models have been provided for the following types of transport projects, each of which has a different rationale for investment:
- Investments in strategic transport network (including road and rail)
 - Investments in access roads
 - Investments in sustainable transport infrastructure
- xlvii. All transport investments in the 2000-06 programme were funded under Priority 6, Measure 1 (Accessibility and Transport). This identified the following output targets:
- 15km of transport route built or upgraded (this could include any of the above types of projects)
 - 4 public transport schemes improved
 - 5 multi-modal centres receiving support
- xlviii. The programme documents identified the following result indicators, although it did not set specific targets for a number of these:
- Number of users served by improved facilities
 - Increase of 30 per cent in passenger journeys by public transport in supported projects
 - Time saved (journey time x number of users)
- l. Projects in the 2007-13 programme were funded under Priority 3, Theme 1 (Sustainable Transport) which set the following output targets:
- Public transport services created or improved – 2.5 million vehicle km
 - Intermodal facilities created or improved – 100
 - Railroads created or reconstructed – 30km
 - Access route created or reconstructed – 50km
- li. The OP identified only one result target which was to deliver 400 million gross passenger kilometres on public transport.

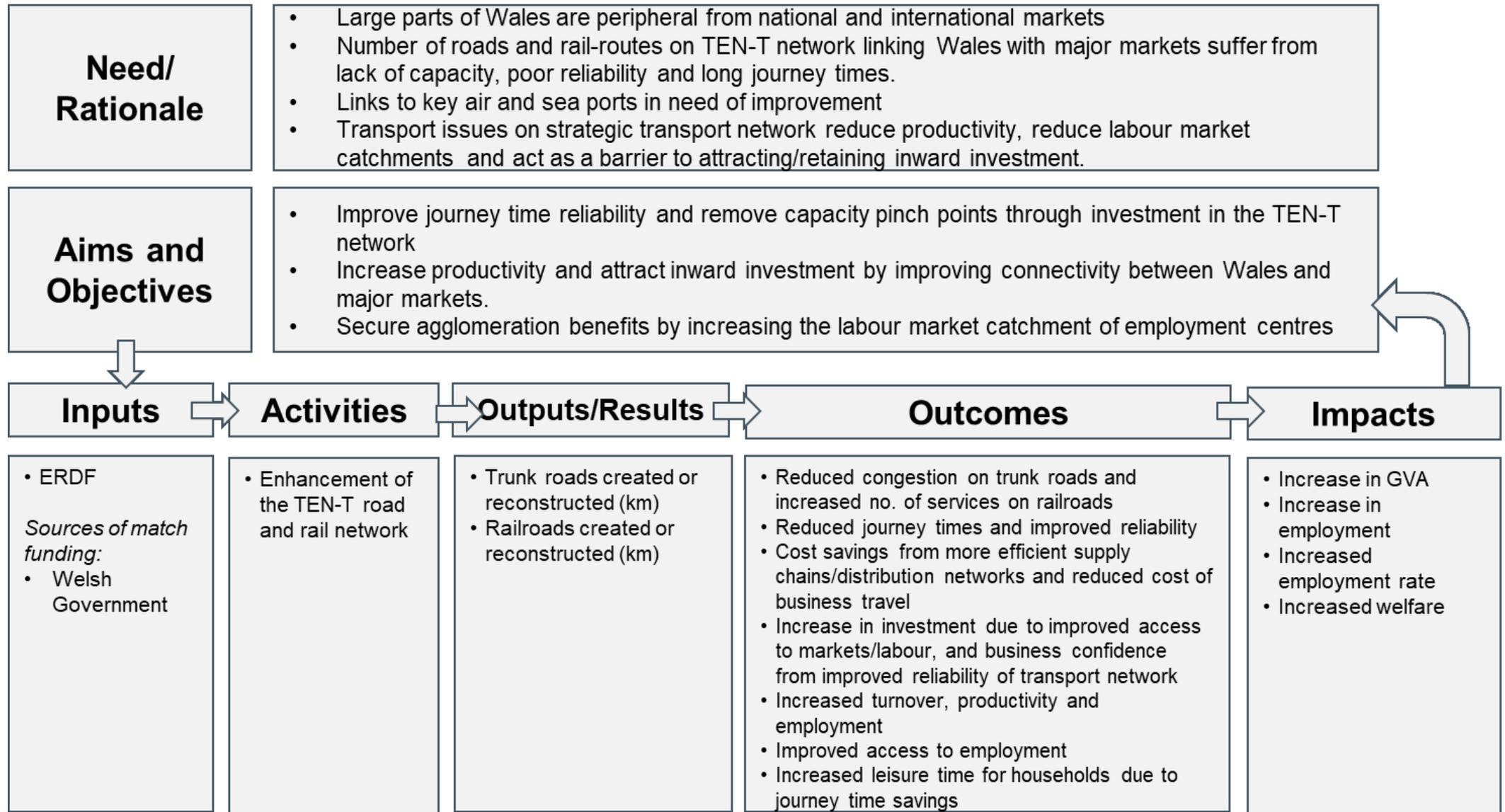
Strategic transport investment

- lii. Investments in the strategic transport network seek to improve connectivity between Wales and national/international markets, improve access to employment and secure labour market agglomeration effects by increasing the labour market catchments of major employment centres. This includes investments in the TEN-T road and rail network. Both programmes have funded these types of intervention, although they accounted for a far greater share of investment in the 2007-13 programme
- liii. Key outcomes include a reduction in congestion on trunk roads, an increase in services on affected rail roads and improvements in journey time reliability. This should have translated in to a number of business benefits resulting from a reduction in costs, improved access to labour and an increase in investment. Welsh residents should also have benefited through improved access to employment and increased leisure time.

liv. Intended impacts include:

- an increase in GVA due to improved firm level and labour market efficiency
- an increase in the employment rate due to improved access to employment
- an increase in welfare due to journey time savings and increased leisure time.

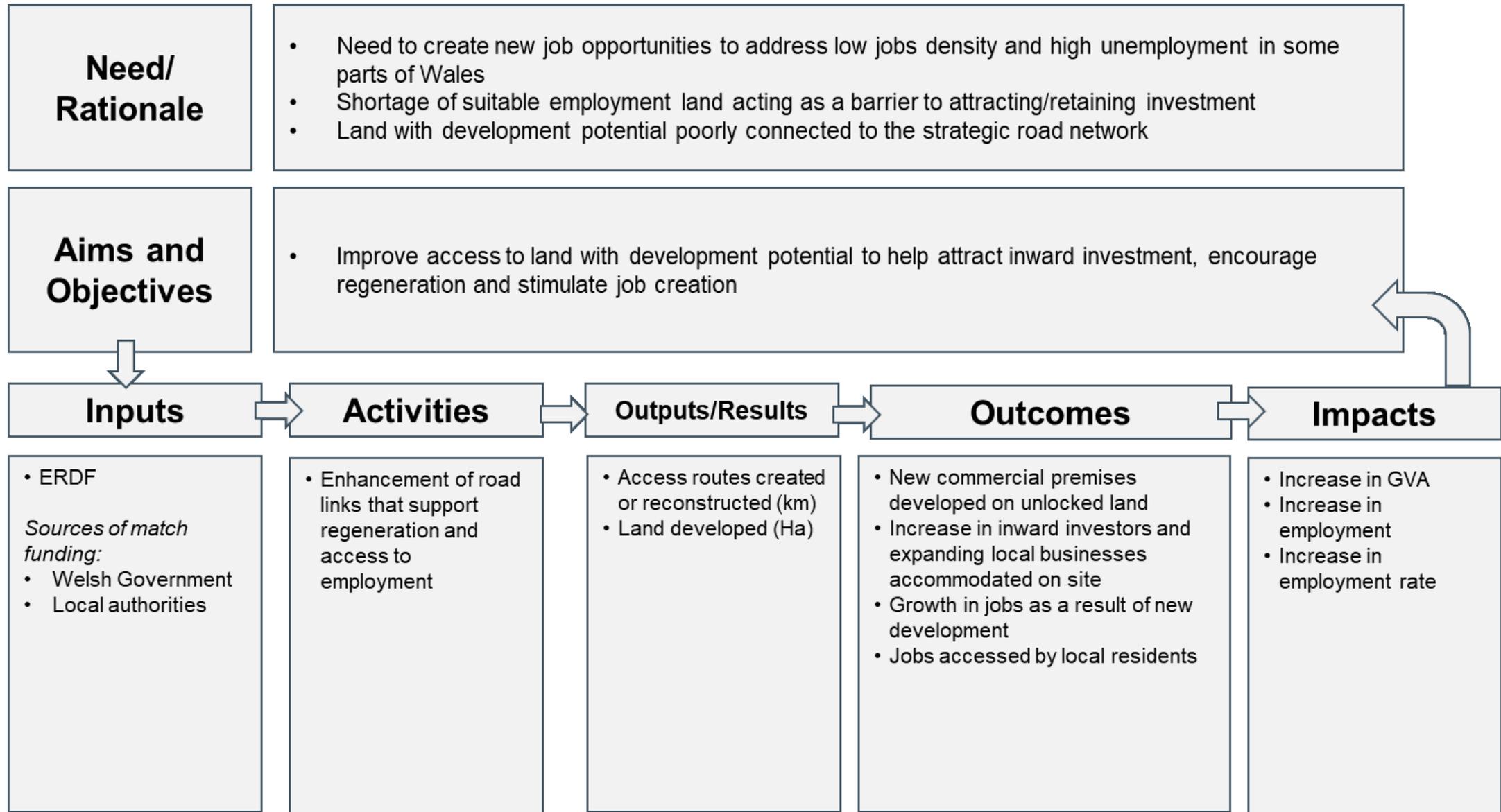
Figure C8: Intervention logic for investments in strategic transport infrastructure



Access roads

- iv. Investments in access roads share a similar rationale to investments in sites infrastructure. The main aim of these projects was to stimulate economic growth and job creation in areas with high unemployment or in need of regeneration. Projects have sought to address this by 'unlocking' land with development potential by improving road access.
- lvi. Key outcomes include the development of new commercial premises, which attracts inward investors and expanding businesses and creates new employment opportunities for local people. Any assessment of the performance of these investments would need to consider the extent to which these benefits have been displaced from within the local area.
- lvii. After accounting for this, the key impacts include an increase in GVA, an increase in the number of local jobs and an increase in the local employment rate.

Figure C9: Intervention logic for investments in access roads



Sustainable transport

- lviii. Figure C9 shows the intervention logic for investments in sustainable transport. These projects aim to both improve accessibility of employment and local services and reduce reliance on cars through investment in sustainable transport infrastructure, including rail and bus services and measures which encourage walking and cycling.
- lix. Key outcomes include an increase in usage of public transport, cycle routes and footpaths and reduced use of cars, resulting in a reduction in CO₂ emissions. There should also have been a reduction in journey times to key employment and service centres, leading to an increased area of search for jobseekers and an increase in the employment rate. Investments in cycling and walking infrastructure were also intended to increase levels of active travel which are shown to deliver improvements in health and wellbeing.

Figure C10: Intervention logic for investment in sustainable transport infrastructure

