

Innovating Together Universities in the North East

On behalf of Durham University

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Prepared for Durham University

Innovating Together – Universities in the North East (In-Tune)

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Executive summary

Introduction and about the report

The North East is home to five leading universities: **Durham; Newcastle; Northumbria; Sunderland and Teesside**. They are key civic actors, generating economic, social, and cultural impacts for their localities and the region.

As key anchor institutions their importance and contribution to the regional economy cannot be understated. They are drivers of economic growth both as major employers and in their role in developing the talent and skilled workforce of the future, together with leading research and innovation to address business and societal challenges such as net zero and health and wellbeing.

Collective economic impact of the North East Universities		
Support more than 34,100 North East jobs through university spend, student spend, and knowledge transfer activities ¹ .	Contribute significant wealth to the North East economy – around £2.2billion per annum ² .	Newcastle, Durham, and Northumbria are ranked in the top 25 of all UK Universities in terms of research power ³ , creating a Northern Research Powerhouse ⁴ .

The five universities have a long history of collaboration to facilitate knowledge exchange, and support innovation, enterprise, and economic growth.

465 projects involving two or more of the five universities have been delivered with a research value of £243m⁵.

¹ This is based on individual economic impact assessments undertaken by Durham, Newcastle, Sunderland and Teesside universities. Durham, Sunderland and Teesside reported GVA and Newcastle GDP and although the EIAs were undertaken during different time periods the figure gives a broad estimate of the scale of their economic contribution. It will also be underestimated as Sunderland reported NELEP impacts rather than the wider region. EIA data for Northumbria University will be added once the EIA is complete.

² Ibid.

³ Research Excellence Framework 2021

⁴ <https://newsroom.northumbria.ac.uk/pressreleases/northumbria-records-biggest-rise-in-research-power-for-second-time-3181685>

⁵ Innovating Together – Universities in the North East (working paper) (May 2022).

Overall, the collective impact of the Universities is notable and contributing to positive results. In 2020/21, the universities collectively supported over **708 trading graduate start-ups⁶ and 59 spin outs⁷**, which have generated⁸:

£296m	£96m	4,037
Turnover	External investment	FTE jobs

Whilst many are trading globally, 79% remain based in the North East to the benefit of the local economy⁹.

This report considers the contribution of the five universities to the innovation and business growth agenda in the region and their potential role in delivering activities which contribute to the Government’s Levelling Up agenda. The report focuses on a review of nine externally funded innovation projects, supplemented by consultations with the five Universities.

The innovation projects

The North East universities secured ERDF and other funding to deliver activities targeting the region’s priority sectors, to stimulate innovation, support business growth, and improve productivity. The nine projects reviewed in this report include:

			
Graduate placements	Accelerator support for spin-outs	Connecting SMEs with academics for research	Providing state of the art facilities and equipment

Impact and effectiveness of the universities’ innovation activity

Evaluation evidence for the nine innovation projects indicates the universities are generating a positive economic impact through their innovation activities in terms of new employment and GVA, as well as more qualitative impacts such as helping strengthen the innovation culture and capability among the workforce and SMEs.

⁶ Start-ups are new companies in the initial stages of business. HEB CIS defines ‘trading graduate start-ups’ as all new businesses started by recent graduates (within two years) regardless of where any IP resides.

⁷ Spin-outs are companies developed from a University’s research / based on IP that has originated from within a University

⁸ HEB CIS – Business and Community Interaction Survey 2020/21 (<https://www.hesa.ac.uk/data-and-analysis/business-community/ip-and-startups>)

⁹ <https://www.northumbria.ac.uk/about-us/news-events/news/north-east-universities-make-an-impact-to-the-regions-economic-recovery/>

Eight of the nine projects, all of which are funded by ERDF, are forecast to **defray £33.3m** and **support 1,524 SMEs**, generate an **increase in employment of 662 FTE jobs**, and help SMEs bring **768 new products/processes to either the market or the firm**. To date, these eight projects have created **500 net new jobs** and **£23m GVA (net)**, with more jobs and GVA expected to be created in the future, as a result of the investment.

The ninth project, **“Northern Accelerator was a game changer for commercialisation in North East England”** significantly increasing the average number of spin-outs over a five-year period from 1.8 per annum pre-project, to an average of more than 8 per annum during the project.¹⁰

The universities are collaborating effectively, adding real value, by delivering activity that would not have happened and could not have been delivered by others. Their unique support, not available from other providers, includes access to:



Innovation infrastructure, high tech research facilities and equipment



Academic expertise, technical skills, and credibility



Students

Wider benefits and impacts of the nine innovation projects include:

<i>Acceleration in efforts to commercialise university research</i>	<i>Improving the technology transfer process</i>	<i>Strengthening relationships and collaboration between universities and the business base</i>
<i>Positive impact on innovation skills, capacity, and culture within SMEs and among graduates / students</i>	<i>Reduced risk of investing in R&D activity and product validation and testing</i>	<i>Helping retain graduates in the region</i>

Support is effective, targeted at the region’s key sectors, well managed and meeting the needs of beneficiaries. Universities have a strong track record of delivering funded projects and have been able to adapt quickly to external challenges such as Covid 19. The innovation activity is making a real difference, helping to create a step-change in the pace and quality of university spin-outs.

There is a strong argument for universities to continue to deliver innovation activity across the region to support future economic growth.

¹⁰ (Interim) Evaluation of the Northern Accelerator Evaluation, Ekos, 2021

Future delivery

The UK government’s flagship policy Levelling Up, places great emphasis on boosting productivity and growth to address geographic inequalities in areas such as the North East. It recognises the importance of innovation in achieving this goal as a key driver of growth. The UK Shared Prosperity Fund is a central pillar to the agenda and provides funding to areas across the UK to deliver local priorities that will address inequalities.

£170m North East UKSPF allocation, which includes £24.5m for Multiply, a new programme to improve numeracy skills

The North of Tyne and Tees Valley Combined Authorities and alongside the four Local Authorities of Durham, Gateshead, South Tyneside, and Sunderland, have each developed local Investment Plans for their area, which detail how UKSPF resource will deliver across the three investment priorities of:



Communities and Place



Supporting Local Businesses



People and Skills

Against this backdrop there is a real opportunity for universities to continue to support regional and national economic policy objectives and continue to contribute to economic growth by delivering innovation activities.

Based on the review, the **following recommendations are proposed** for what the support may look like and what it could include.

Collaborate where possible



Projects such as IIIP and Northern Accelerator, combining expertise across organisations worked well, while projects, such as Arrow, with an effective delivery model led by a single university, offer opportunities for future expansion and collaboration. This provides opportunities to share knowledge across the institutions, enable SMEs to access a wider talent pool and open up access to a wider range of specialist research and testing facilities, as well as offering expertise across the full ‘innovation journey’.

Integrated package of support



Where the support is sufficiently flexible to allow individuals and SMEs to access the support they need across their innovation journey. For example, the integrated, connected support from Northern Accelerator was important, providing expertise, as well as Proof of Concept (PoC) funding. Similarly, initiatives such as Durham and Teesside’s accelerator programmes provide the valuable continuum of support.

Intensive support to accelerate formation of spin-outs



The Northern Accelerator project has delivered a step-change in research commercialisation and creating viable spin outs that contribute to regional prosperity. Connecting academics with commercial expertise early is important for viability and commercial success. This collaborative model could be considered as a priority for future activity.

Feedback loop to improve success rates, particularly regarding funding



Projects, particularly those involving grant support such as PoC/seed funding, should include formalised feedback loops. This is valuable for those academics and institutions that have less experience and expertise in preparing funding applications¹¹.

Pre-start-up / accelerator awareness raising



The projects are helping to lead a culture change across the universities, but more could be done to embed this across all schools/departments. Raising awareness of the opportunities for commercialisation and entrepreneurship among students and academics will create a pipeline of ideas and people to support at the next stage of the innovation journey.

Start-ups and spin-outs need grow on / follow on space



As spin-outs grow, they need move-on space and supporting infrastructure. The region has key assets such as Middlesbrough's Boho Zone, NETPark, Orbit, Durham City Incubator and Newcastle Helix. Connecting support and maintaining good links to these facilities will be important, as well as linking to future facilities that may come on stream.

A region wide graduate placement scheme



Graduate placement schemes reduce the risk for SMEs to invest in research projects, develop innovation capacity and create employment. They also improve the skills of graduates and help retain talent in the region. Partners could consider a region wide scheme with a mix of short-term placements and longer-term internships; or cross-referring SMEs and graduates to each other's schemes as appropriate.

¹¹ Northern Accelerator evaluation

Need medium/long-term commitment rather than short-term funding



Funded projects are inevitably short-medium term, driven by funders' frameworks and timescales, but this can cause confusion and uncertainty in the business support market place. The universities are well placed to maintain consistency as they are a constant in an evolving landscape. If funders could extend timescales, more ambitious and longer-term projects could be supported, delivering greater benefits.

Adequate project management resource



For projects to be successful it is important they have good project management systems in place, including adequate resources. This is particularly the case for more complex projects involving multiple delivery partners.

1 Introduction

1.1 About the universities

The North East is home to five leading universities: Durham; Newcastle; Northumbria; Sunderland and Teesside. They are key civic actors, generating economic, social, and cultural impacts for their localities and the region.

The universities are key anchor institutions and their importance and contribution to the local and regional economies cannot be understated. They are drivers of economic growth both as major employers and in their role in developing the talent and skilled workforce of the future, together with leading research and innovation to address business and societal challenges such as net zero and health and wellbeing.

Collective economic impact of the region's Universities

- Collectively the universities support in excess of **34,100 jobs** in the North East as a result of their spending; student spending and through knowledge transfer activities¹².
- The universities contribute significant wealth to the North East economy – in the region of **£2.2billion per annum**¹³.
- Three of the five universities (Newcastle, Durham, and Northumbria) are ranked in the top 25 of all UK Universities in terms of research power¹⁴, creating a **Northern Research Powerhouse**¹⁵.

Each university delivers a broad curriculum, alongside core specialisms in key sectors. For example, Newcastle has strengths in engineering, the electrification of vehicles, medicine, and health. Sunderland is well positioned to support advanced manufacturing and process improvement. Durham has strengths related to net zero, computing, maths, data science and fintech. Northumbria is well positioned in terms of space and satellites, the built environment, engineering; and creative/cultural sectors. Teesside and Sunderland have a strong digital and software offer and are particularly effective at widening participation and attracting local students.

¹² This is based on individual economic impact assessments undertaken by Durham, Newcastle, Sunderland and Teesside universities. Durham, Sunderland and Teesside reported GVA and Newcastle GDP and although the EIAs were undertaken during different time periods the figure gives a broad estimate of the scale of their economic contribution. It will also be underestimated as Sunderland reported NELEP impacts rather than the wider region. EIA data for Northumbria University will be added once the EIA is complete.

¹³ Ibid.

¹⁴ Research Excellence Framework 2021

¹⁵ <https://newsroom.northumbria.ac.uk/pressreleases/northumbria-records-biggest-rise-in-research-power-for-second-time-3181685>

Collectively, the universities play a key role in cutting edge research and commercialising this through spin-outs¹⁶, boosting productivity; raising aspirations for local students; supporting regional SMEs; and providing a route to high skilled, high paid jobs for local graduates. Overall, the collective impact is notable and contributing to positive results. For example, in 202/21 the universities have collectively supported **708 trading graduate start-ups¹⁷ and 59 spin outs**, which have **generated £296m in turnover, over £96m in external investment, and 4,037 full-time equivalent jobs¹⁸**. Whilst many are trading globally, 79% remain based in the North East to the benefit of the local economy¹⁹.

Understanding the role of universities in driving innovation and supporting growth is critical for regional economic policy. The five institutions individually and collectively must be major partners in achieving regional and national objectives, particularly in relation to Levelling Up the North and supporting UK Shared Prosperity Fund Investment Plans.

The five universities have a long history of collaboration to facilitate knowledge exchange, support innovation, enterprise, and economic growth. For example, approximately **465 projects involving two or more of the five universities with a research value of £243m have been delivered²⁰**. This has translated further, particularly in recent years, into collaboration on innovation and business growth projects. for example:

Creative Fuse	A unique partnership between the five universities which has supported small businesses, helped boost innovation, create jobs, and attract additional funding.
Insights North East	A partnership between the NHS, North of Tyne Combined Authority, Newcastle City Council, and the Universities of Newcastle and Northumbria, which aims to improve the links between research and policy.
Northern Accelerator	A collaboration between Durham, Newcastle, Northumbria Sunderland and Teesside ²¹ providing support across the innovation journey to help increase the number and quality of spin-out companies.
Intensive Industrial Innovation Programme (IIIP)	Durham, Newcastle, Northumbria and Teesside Universities worked collaboratively, providing long-term research support to SMEs to help develop new products and processes.

¹⁶ Spin-outs are companies developed from a University's research / based on IP that has originated from within a University

¹⁷ Start-ups are new companies in the initial stages of business. HEBCIS defines 'trading graduate start-ups' as all new businesses started by recent graduates (within two years) regardless of where any IP resides.

¹⁸ HEBCIS – Business and Community Interaction Survey 2020/21 (<https://www.hesa.ac.uk/data-and-analysis/business-community/ip-and-startups>)

¹⁹ <https://www.northumbria.ac.uk/about-us/news-events/news/north-east-universities-make-an-impact-to-the-regions-economic-recovery/>

²⁰ Innovating Together – Universities in the North East (working paper) (May 2022).

²¹ Teesside University joined Phase 2 of the project.

Institute of Electrification and Sustainable Advanced Manufacturing	A consortium approach to planned industry demand from companies such as Britishvolt and Nissan
Collaborative Newcastle	Bringing together the world leading expertise and collective 'power' of Newcastle and Northumbria Universities – more than 10,000 staff and 50,000 students – to support the health, wealth and wellbeing of people living in Newcastle and the wider region.

The universities have an excellent track record of working with industry, from large corporations to SMEs, and through their funded projects are in a strong position to support business growth, attract venture capital and position the North East as a testbed for innovation.

1.2 About the report

The purpose of this report is to consider the contribution of the five universities to the innovation and business growth agenda in the region, and their potential role in delivering activities which contribute to the Government's Levelling Up agenda.

The innovation activity considered in this report includes:

- Provision of productivity and research services, either through consultancy, contract/collaborative research, continuing professional development or facilities hire, to local companies seeking to innovate.
- Licensing new technologies and approaches to existing companies.
- Supporting/enabling the creation of new spin-out or start-up businesses directly out of innovative ideas generated at the universities.
- Placing students, including Knowledge Transfer Partnership students, within companies to enable them to directly benefit from university knowledge.

The report has focused on a review of nine externally funded innovation projects, rather than all university research and innovation activity. The following projects have been reviewed:

- Northern Accelerator (Phases 1 and 2)
- Intensive Industrial Innovation Programme (IIIP)
- Arrow
- DICE (Durham Internships and Collaborative Enterprise)
- Graduates for Growth
- Innovate Tees Valley
- Internships and Enterprise (Sunderland University)
- NEBS (Northumbria Enterprise and Business Support)
- SAM (Sustainable Advanced Manufacturing)

(NB: Some ERDF projects are still in delivery)

An overview of the projects is provided in section 2 / Appendix B.

1.3 Study method

The review has primarily been a 'light touch', desk-based assessment, drawing upon:

- Project funding applications, which are primarily ERDF, and Project Change Requests (PCR).
- Independent mid-term and final summative assessments.
- Wider data such as university economic impact assessments.
- Analysis of published data sets such as ONS UK expenditure on R&D.
- Analysis of local, regional, and national economic policy.

The desk-based analysis has been supplemented with telephone consultations with representatives of the five universities. Appendix A provides a list of consultees.

1.4 Report structure

The report is structured as follows:

Section 2 provides an overview of the nine innovation projects.

Section 3 examines the performance and impact of the innovation activity.

Section 4 considers what future innovation activity may look like and how it can contribute to economic policy objectives.

Section 5 provides a summary of key messages and concluding remarks.

2 Summary of innovation projects

This section provides an overview of the innovation projects delivered by the universities and reviewed in this report. The projects, which are primarily funded by ERDF, have focused on innovation support to the region's entrepreneurs and SME base, rather than the more fundamental research undertaken by universities. It begins by considering the rationale for investment in innovation in its broadest sense.

2.1 Rationale for investment and economic context

The North East lags behind other regions in terms of economic performance and growth. Tees Valley Combined Authority, the North East LEP and the North of Tyne Combined Authority have ambitions to strengthen the regional economy, particularly by stimulating innovation activity. The North East LEP, for example, has an ambition to make the area an innovation hotspot in Europe and for the region to become a test hub for the commercialisation of new innovation.

Innovation is a key driver of growth. It is well accepted that increasing innovation activity within the region's business community will narrow the innovation gap between the North East and other areas of the UK, and will support sustainable growth. For example, the North East LEP states innovation is central to the aim of building a more productive North East, fostering a competitive and embedded business base, and solving social and economic challenges in the region and beyond. Latest data on innovation activity, published by the North East LEP²² notes:

- About 47% of businesses in the North East LEP area were **innovation active** in 2018-20, a higher percentage than nationally (46%) and an increase from the rate in the previous three-year period (41%).
- However, the number of **patents granted** in the North East region in 2020 was equivalent to 30.9 per million adults. This is a much lower rate than that of England excluding London (83.5 per million adults), but is higher than in 2019 (24.2 per million adults).
- Almost 33% of North East businesses were engaged in **wider innovation** in 2018-20. This was a slightly lower percentage than in England as a whole (35%), but a higher rate than in the previous period (26% in 2016-18).

Increasing innovation among the existing base, as well as increasing business start-up rates and conversion to high growth businesses, is crucial. There are barriers and opportunities, for example, universities have a high number of UK based students who could be encouraged to undertake entrepreneurial activity and stay in the region to develop start-up businesses²³. At present this is not happening at scale and projects reported that those who do start businesses are not sufficiently supported or monitored. Market failures exist which stifle entrepreneurship and innovation activity. Projects are also needed to support students, graduates, academics, and staff to start-up, especially in key growth sectors. More could be done to improve the technology transfer process, better exploiting technical research capabilities. Information and other market failures limit SMEs' ability and willingness to invest in R&D and other innovative activity.

²² <https://evidencehub.northeastlep.co.uk/report/innovation-key-indicators>

²³ Interim Summative Assessment of the DICE Project, Ideas for Change 2021

The universities have therefore sought to respond to these challenges and opportunities through innovation projects reviewed in this report.

Encouraging a culture of innovation also has broader benefits to a business, with innovators more likely to export, employ science and engineering graduates, and employ other graduates²⁴.

2.2 The innovation projects

In response to specific local and regional barriers to innovation, the universities secured funding to deliver nine innovation projects. A summary of all nine²⁵ projects is provided in Appendix B. Key highlights include:

Two are collaborative projects between at least two universities - the Intensive Industrial Innovation Programme (IIIP) is a partnership across four institutions and Northern Accelerator involves all five, with Teesside University joining the project in its second phase in 2021. The other seven projects are delivered by individual institutions, playing to their unique strengths and targeted at local priorities, although often available to regional SMEs. Innovate Tees Valley does, however, also draw upon the expertise of the Materials Processing Institute (MPI) and NEPIC.

Five projects provide graduate internships/placements of varying lengths/focus to help develop innovation capacity within SMEs whilst also improving the skillset of individuals. These are Innovate Tees Valley and Graduates for Growth (both Teesside University); Northumbria Enterprise and Business Support (NEBS) (Northumbria University); Durham Internships and Collaborative Enterprise (DICE) (Durham University) and Sunderland Internships and Enterprise (SIE) (Sunderland University).

Three provide more broad entrepreneurship support for students, staff and alumni to start-up a business (DICE; NEBS and SIE).

One specifically targets academics to increase their commercial awareness and support the creation of stronger spin-outs (Northern Accelerator).

Four (Arrow; IIIP; ITV and SAM) provide research and additional support for SMEs to develop the capacity and ability to innovate, with a focus on developing new products/processes.

²⁴ IIIP Interim Summative Assessment ERS

²⁵ Both phases of the Northern Accelerator are counted as a single project.

2.2.1 Sectoral focus

Eight of the projects focus on the target sectors identified by the North East LEP, and North of Tyne and Tees Valley Combined Authorities. These include:

Key sectors	North of Tyne CA	North East LEP	Tees Valley CA
Health and life sciences	●	●	●
Advanced manufacturing and engineering	●	●	●
Digital and creative	●	●	●
Subsea, offshore, clean energy, and renewables	●	●	●
Chemicals and process			●
Business / Professional services	●		●
Logistics			●
Culture and tourism	●		

The SAM project focuses only on the advanced manufacturing sector. Innovate Tees Valley also includes specific support for the digital industries; materials and processing industries.

3 Performance & impact

Summary

- Evaluation evidence indicates the universities are generating a positive economic impact through their innovation activities. Some of this has been felt already – in the region of 500 net jobs and £23m net GVA created to date²⁶ with more jobs and GVA expected to be created in the future as a result of the investments.
- Support is effective, targeted at the region’s key sectors, well managed and meeting the needs of beneficiaries. Universities have a strong track record delivering funded projects and have been able to adapt quickly to external challenges such as Covid 19. The innovation activity is making a real difference, helping to create a step-change in the pace and quality of university spin-outs.
- Universities are collaborating effectively which adds value to the offer, facilitates knowledge exchange between organisations, and enables SMEs to have access to a wider talent pool as well as high tech facilities and equipment.
- The evidence indicates the innovation support is helping retain graduates in the region and is developing the skills of the future workforce.
- There is a strong argument for universities to continue to deliver innovation activity across the region to support future economic growth.

This section examines the performance and impact of the universities’ contribution to the innovation and business growth agenda by delivering the nine projects outlined in section 2. It draws upon project performance and evaluation information as well feedback from stakeholder consultations.

The nine projects have been delivered across different time periods, with the earliest starting delivery in 2015 and with seven due to complete in June 2023. Covid 19 impacted project delivery in most cases, resulting in extensions to the original delivery period. As a result, only two projects have completed a final evaluation, with the rest having interim evaluations, reporting actual performance at the mid-term, alongside the final forecast outturn. Therefore, while it is too early to quantify the full impact of activity, the interim reports provide useful intelligence in terms of the direction of travel, as well as insight as to the efficacy of service delivery.

²⁶ Created by the eight innovation projects supported with ERDF resources. Outcomes generated by Northern Accelerator are noted separately.

Where possible output and impact data has been aggregated across the projects. However, the outcomes generated by Northern Accelerator Phase 2 are noted separately, as the outputs / KPIs are different to those reported by the ERDF funded projects.

3.1 Impacts and benefits

Evaluation evidence indicates the innovation activities are, overall, working well and generating positive impacts in terms of new employment and GVA, as well as more qualitative impacts such as helping strengthen the innovation culture and capability among the workforce and SMEs. However, it is important to note that for many of the investments, there will be a time lag between the innovation activity and this leading to quantifiable outcomes such as new jobs and increased turnover. This is particularly the case for longer term, intensive projects such as IIP where a graduate works with an SME for three years.

The following sections consider some of the impacts arising from the nine innovation projects.

3.1.1 Deliverables and outputs

Overall, the eight ERDF projects are forecast to **defray £33.3m** and **support 1,524 SMEs**, generate an **increase in employment of 662 FTE jobs**, and help SMEs bring **768 new products/processes to either the market or the firm**.

Table 1 provides details of funding and outputs across the eight ERDF funded projects. It excludes Northern Accelerator Phase 2 as outputs are not comparable.

Table 1: Aggregate funding and outputs

Indicator	Area	Target	Confirmed at evaluation stage ²⁷	Forecast on project completion
Total funding		£33,688,677	£17,452,990	£33,319,909
Outputs				
SMEs assisted	LA6	647	343	647
	Durham	290	139	170
	Tees Valley	402	445	509
	North East*	196	107	198
	Total North East	1,535	1,034	1,524
Enterprises cooperating with research institutions	LA6	260	200	260
	Durham	94	60	94
	Tees Valley	32	35	35
	North East*	0	0	0
	Total North East	386	295	389
Employment increase in supported enterprises	LA6	333	136	333
	Durham	129	76	131
	Tees Valley	77	93	100
	North East*	90	50	98
	Total North East	629	355	662
Enterprises supported to introduce new products to the FIRM	LA6	300	113	301
	Durham	100	38	100
	Tees Valley	60	96	103
	North East*	10	0	10
	Total North East	470	247	514
Enterprises supported to introduce new products to MARKET	LA6	77	4	77
	Durham	55	11	55
	Tees Valley	85	81	102
	North East*	15	20	20
	Total North East	232	116	254

* Sub-region not specified

²⁷ Based on data reported in evaluation reports. These were largely interim assessments and some final evaluations

3.1.2 Outcomes and impacts

3.1.2.1 *Creating businesses, Jobs and GVA*

The projects are generating wealth for the regional economy -creating new businesses, jobs and GVA.

Increased rate (and quality) of university spin-out company formation

There is evidence of an increase in the rate and quality of new spin-outs. For example, the Northern Accelerator (Phase 1) evaluation, reported the project had increased the rate of university spin-out company formation and delivered success in accelerating the commercialisation of university research. The project has been a key driver in increasing university efforts to identify suitable IP for potential spin-outs. There are also increased economic benefits for the region and the UK from exploiting IP via the spin-out route as opposed to licensing the technology. This could include local employment and supply chain opportunities for regional and UK business²⁸. The Phase 2 evaluation noted from the perspective of the research-intensive institutions: *“Northern Accelerator was a game changer for commercialisation in North East England”*. For example, the evaluation reported the following averages across the four universities:

- Pre-Northern Accelerator five-year average (2011/12-2015/16): **1.8 spin-outs** per annum.
- Northern Accelerator five-year average (2016/17-2020/21): **over 8 spin-outs** per annum²⁹.

By placing executives in businesses at the early stages, spin-outs have been more commercially successful than would likely have been the case. Longer term, Durham and Newcastle universities have confirmed ‘cornerstone investments’ of up to £5m each into the larger Venture Capital fund with discussions ongoing with other universities. This will help support a future pipeline of spin-outs.

In addition, other projects such as ITV, DICE, NEBS and SIE are also helping generate new start-up businesses, by raising entrepreneurial activity, particularly through the incubator and accelerator programmes.

Creating jobs and increasing GVA

The table below provides an estimate of aggregate jobs and GVA (gross and net) generated by projects and as reported in the evaluations. This will underestimate the impacts as interim evaluations include only jobs and GVA reported by businesses part way through delivery. There will be additional individuals and businesses assisted which will generate further impacts. There will also be a time lag in terms of generating economic impacts. For example, the IIP activity is longer term, supporting SMEs with research projects for about three years. Impacts arising from the new products/processes developed will be felt further downstream. With this in mind, the headline figures to date indicate the projects are having positive economic impacts:

²⁸ Northern Accelerator Summative Assessment, Optimat, September 2019

²⁹ (Interim) Evaluation of the Northern Accelerator Evaluation, Ekos, 2021

It is also worth noting that due to the nature of activity and target sectors supported, *many of the jobs can be considered “high value”*. For example, the Northern Accelerator Phase 2 evaluation estimated the *jobs created have an average productivity of approximately £79,000 compared to an average GVA per job in the North East of c. £52,000, representing a 52% uplift*.

Graduate placement and internship projects generally create jobs within SMEs more quickly than longer term research projects, which tend to report more of a time lag between intervention and impact. However, the longer-term economic impact arising from the more intensive research projects is likely to be greater.

Table 2: Jobs and GVA generated at evaluation stage

Indicator	Total at evaluation*
Gross FTEs	2,406.10
Net FTEs	502.89
Gross GVA	£86,862,348
Net GVA	£23,043,633

*Excludes Arrow and NEBS as the interim evaluations did not estimate GVA

The Northern Accelerator impacts are estimated over a longer period and summarised below. If these are included total impacts increase notably.

Table 3: Benefits arising from Northern Accelerator (Phase 2)

	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	Total
FTE jobs	10	20	30	40	50	50	110	120	150	150	180	
Annual job years - cumulative	10	30	60	90	140	200	310	430	570	720	900	
GVA (£m)	£-	£0.10	£0.20	£0.50	£1.30	£1.40	£6.80	£8.20	£14.30	£13.80	£14.00	£60.60

Source (Interim) Evaluation of the Northern Accelerator Evaluation, Ekos, 2021

3.1.2.2 Wider impacts

In addition to the ‘hard’ economic impacts in terms of jobs, GVA, new starts ups and spin outs, the projects are having wider benefits and impacts upon the region’s workforce and business base. Longer term this should lead to stronger businesses and economic growth.

Acceleration in efforts to commercialise university research. Northern Accelerator Phases 1 and 2, as well as IIIP, DICE, and SIE evaluations, reported more awareness and understanding about the possible opportunities of commercialising research. Northern Accelerator also noted partners report more enquiries to the Technology Transfer Offices (TTOs) and enhanced interest. Collectively the projects are leading to a ‘culture change’ across partners.

Improving the technology transfer process. Closely linked to the above, there is a feeling that the projects have improved the technology transfer process. The Northern Accelerator evaluation commented that business development or technology transfer staff were the interface between academics and Northern Accelerator and that supporting and funding additional posts within the TTOs made a significant contribution to the overall success of NA and technology transfer process.

Innovation support is having a positive impact on innovation skills, capacity, and culture within SMEs and among graduates/students. The Innovate Tees Valley evaluation, for example, reported that programme participants noted they were changing behaviours and implementing new approaches to supporting innovation within their business. Similarly, IIP beneficiaries noted the assistance was developing their internal capacity. The ITV evaluation also reported individuals felt their personal 'innovation skills and capacity' had increased.

Strengthening relationships and collaboration between universities and the business base. Across the board, the activities have strengthened relationships between universities and businesses. For example, the Arrow interim evaluation noted the data shows a positive impact on SME engagement with Newcastle University, with 23% of survey respondents saying they had continued to work with the University as a result of the Arrow Programme, and a further 47% saying they would like to in the future. This is important on a number of levels – increased collaboration will help universities better understand the needs of their business, this intelligence can shape learning provision, and at the same time the businesses will benefit from access to higher level skills and research capacity.

Reduced risk of investing in R&D activity and product validation and testing. Numerous evaluations reported that SMEs and spin-outs welcomed the support as it greatly reduced their risk of investing in R&D/innovation and so enabled them to go ahead with a specific project. For example, IIP reduces risk by providing intensive academic research support, and others reduce risk by providing grant funding e.g. Arrow. The graduate placement schemes reduce risk by part funding the salary of interns.

Helping retain graduates within the North East. Evaluation evidence indicates the range of activity from placements to enterprise support and research projects is helping to raise undergraduates/graduates/academics' awareness of opportunities regionally and those involved are more likely to look for employment or start their business within the region.

3.2 Value for money

Due to the project delivery timescales (i.e. some are still in the delivery phase and some are complete) and evaluation methodologies, assessing the overall value for money of activities is challenging. However, some broad assessments can be made.

Based on the jobs and GVA reported to date (either at interim or final evaluation stage), together with total project expenditure to date, it is possible to estimate cost per job and benefit: cost ratio. This is presented below. It excludes Northern Accelerator Phase 2 which is reported separately below, and also excludes Arrow and NEBS as they did not estimate GVA at the interim evaluation stage.

Table 4: Cost per job and benefit:cost ratio to date

Indicator	Total at evaluation
Gross FTEs	2406.10
Net FTEs	502.89
Gross GVA	£86,862,348
Net GVA	£23,043,633
Confirmed expenditure	£16,056,300
Cost per gross FTE	£6,673
Cost per net FTE	£31,928
Net GVA:Cost ratio	£1.4

This indicates cost per net job to date is in the region of £31,928. As noted earlier in the report, impacts are likely to increase over time and these indicators are expected to improve. This is also the case for Northern Accelerator. When considered over a 10-year period the following outcomes are expected to accrue (as reported in the interim evaluation):

Table 5: Northern Accelerator Cost per Net Additional Job

	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Cumulative PV Costs (£m)	£3.1	£6.5	£10.3	£10.3	£10.3	£10.3	£10.3	£10.3	£10.3	£10.3	£10.3
Cumulative Net Additional jobs	10	20	40	70	140	220	390	560	770	990	1,240
Cost per Annual Job (£'000)	£307	£324	£257	£147	£73	£47	£26	£18	£13	£10	£8

Source: Northern Accelerator Evaluation, Ekos 2021

At the time of the 2021 evaluation, cost per Northern Accelerator job was estimated at £147,000 but as the authors noted, it reflects the significant upfront investment from CCF and partners and the time lag to generate impact. By 2028, the cost per job is estimated at approximately £8,000. The evaluation reports this as a very positive return in line with what would be expected for high growth business, enterprise and entrepreneurship interventions. It also estimated the RoI will be £7.4 to £1.

The Northern Accelerator evaluation benchmarks the project against other comparable interventions:

- Impact evaluation of ProspeKT and Informatic Ventures – University of Edinburgh, RoI: £7.4³⁰;
- Impact evaluation of Scotland’s Innovation Centres Programme, RoI: £4.38 - £7.04³¹; and
- BIS Research³², average RoI of UK innovation grant support programmes for SMART and Collaborative R&D: £7.1 - £9.1.

This indicates Northern Accelerator is likely to deliver returns in-line with comparable interventions that seek to support R&DI activity and innovation³³

3.3 Added value

The universities have added real value, delivering activity which would not have happened and could not have been delivered by others. Whilst there are a range of business support providers operating across the region, the Universities offer a range of unique support, not available from other providers. This includes:

- **Access to innovation infrastructure including high tech research facilities and equipment.** The universities offer access to high quality, state of the art research labs, specialist facilities and equipment to support business innovation e.g. prototyping and testing. For example, the SAM project provides micro factories enabling companies to access facilities they would not find elsewhere and could not afford to buy; while Teesside University has the National Horizons Centre, a centre for excellence in bio science and health.
- **Access to academic expertise, technical skills and credibility:** Universities also offer access to expertise across a range of disciplines, sectors, and specialist areas including new and emerging fields, to support business innovation. For example, IIP was unique in its focus on placing postgraduate research students within a business, to work on bespoke research projects to support the development and introduction of new products and services. Beneficiary businesses reported that academic involvement improved their commercial credibility. The SAM project has been particularly effective in working with businesses, in part due to the reputation of AMAP.
- **Access to students:** Universities are uniquely positioned to provide graduate placement and internship programmes, connecting graduates with SMEs and regional businesses to support business growth and innovation. They have traction with the student population as well as the business community, building effective relationships which support businesses to innovate, retain graduates in the region, and boost productivity.

In addition, universities support students and academics to start spin-out and start-up businesses, and work with the business community to develop and deliver higher level skills, enabling local businesses to meet their skills needs.

By working collaboratively, and combining their unique offer, the five universities:

³⁰ EKOS Ltd impact evaluation on behalf of Scottish Enterprise (2013), see [here](#).

³¹ EKOS Ltd impact evaluation on behalf of Scottish Funding Council (2017), see [here](#).

³² Estimating the effect of UK direct public support for innovation, BIS (2014), see [here](#).

³³ NA Evaluation Ekos 2021

- **Raise the profile of the region as a place for science and innovation:** The Northern Accelerator evaluation noted that the universities being seen to collaborate on a flagship project is helping to improve the wider perception of the North East as a place for science and innovation. The medium-longer term outcome could then lead to a more virtuous circle of investment within research, innovation, and company growth.
- **Add greater value compared to individually:** By working together, universities can pool resources and facilities and share knowledge. This enables SMEs and early-stage spin-outs to access a larger pool of technical and research staff as well as more specialist testing equipment and lab space.

3.4 Effectiveness

Two of the nine projects have involved cross university collaborations (Northern Accelerator and IIP) and seven have been led by individual institutions, two of which have involved collaboration with other business organisations. Feedback from the Universities suggest that both collaborative projects have worked well, delivering new, potential high value spin-outs, creating highly skilled, well paid FTE jobs, and boosting regional productivity. It was also suggested that there is significant potential to roll-out and adapt the Arrow model, to create a new collaborative project supporting regional businesses to innovate,

Key messages regarding the effectiveness of the innovation support are presented below.

Effective governance and management. Evaluation evidence indicates that the projects are well managed with strong governance arrangements. This is particularly important for more complex projects such as IIP and ITV involving multiple delivery partners.

Where institutions have collaborated this has worked well, added value, and developed internal capacity. Collaborative projects NA and IIP have further strengthened relationships between the institutions. As the evaluation of Northern Accelerator (Phase 2) noted, through the development of formal and informal linkages, the programme has stimulated capacity building both within technology transfer practitioners and the academic base. This capacity development has evolved through co-working by the four partner institutions and strategic and operational knowledge sharing.

The universities have proven they can respond and adapt quickly and effectively to major challenges such as Covid 19. Almost all project delivery has been impacted by Covid 19. Delivery partners, however, adapted quickly, for example, switching to online provision and changing the focus of grant support to assist SMEs to respond to more pressing challenges. This was well received by beneficiaries and ensured activity continued at a time when it was arguably most needed.

Projects are effectively targeted. The summative evaluation evidence indicates the projects are well-targeted in terms of beneficiaries, with SMEs being based in the region/sub region (NELEP or Tees Valley) as appropriate. Where activity is focussed on key sectors, the majority of beneficiaries operate in those sectors.

Quality support and meeting the needs of beneficiaries. Overall, the quality of support provided by the universities is rated highly by those that use it (academics; graduates and undergraduates and SMEs) There are some minor suggestions for improvement but in the main it is rated highly by service users and is meeting their needs.

Integrated packages of support add value. For example, the Northern Accelerator evaluation noted the combination of pre-incorporation training, Proof of Concept funding, the Executives into Business element, and post-incorporation investment was considered to offer support at every stage of the spin-out 'journey', even if academics entered the programme at different stages. Few other technology transfer programmes offered all these elements of support as an integrated package. This was widely perceived to be a key source of added value and differentiator to other support.

Integrated and connected with wider support at different stages of the innovation journey. Projects such as Northern Accelerator provide provision that fits with and adds value to existing support prior to the spin-out process and beyond³⁴. The innovation activity helps generate a pipeline of companies that will access venture capital and/or move into incubator or follow-on space such as Orbit and Newcastle Helix.

Engagement with the local business base. Universities have strong relationships with their local business population which has helped engage SMEs in the projects.

Support combining technical capability with commercial awareness is particularly valuable. An important selling point for projects when working with SMEs has been their ability to offer technical research expertise with commercial knowledge and understanding. This is particularly true for projects such as SAM.

Commercialising research. Evaluation evidence suggests Northern Accelerator has been effective at this and is creating a step change in spin-outs. Although there is an imbalance between Newcastle and Durham and the other partner universities, the collaborative approach appears to be helping Sunderland and Northumbria on their innovation journeys and is beginning to raise awareness and help create a stronger culture of commercialisation.

Accelerator programmes are boosting start-ups. The start-up accelerator programmes such as Durham's and ITV's digital accelerator appear to be particularly effective. They provide intense support but, importantly, what is needed at the right time.

³⁴ (Interim) Evaluation of the Northern Accelerator Evaluation, Ekos, 2021

Support needs to be intensive to be meaningful but some high-volume activity will help generate future interest. More intensive support (e.g. Northern Accelerator; IIP; SAM; Durham and ITV incubator and accelerator programmes), appear to generate greater results, although there may be a time lag between intervention and full impacts being realised. However, evaluation evidence suggests there is also a need to provide some means of 'triage' (as with Arrow) to really understand SME or start-up needs and how they can most effectively be supported, which needs to be adequately resourced yet may not deliver tangible results. There is also an argument for high volume, light touch activity to raise awareness more broadly to encourage more people to think about innovation or commercialising research to help generate a future pipeline of university graduates and staff thinking about spin-out companies who can then access the more intense support.

Universities have a strong track record in delivering funded projects and are a 'safe pair of hands'. A clear message across all project evaluations is that the universities have managed what are often complex projects well, including maintaining good financial controls and collating a wide range of monitoring data. They have largely delivered against targets (or are on track to) despite external challenges such as Covid 19.

Longevity and continuity of support. There needs to be a clarity of offer when marketing support products to minimise confusion. This can be more challenging when projects stop/start, for example due to different funding streams, and are only delivered on a short-term basis. The universities are, however, uniquely positioned in the fact they are anchor institutions and a constant in the business and innovation landscape. Even if longer term funding cannot be secured, and some specific activities and provision may change, universities should still be seen as a port of call for those wanting help with innovation. SMEs/individuals could then be connected to other support via the universities.

4 Future delivery

It is clear from the evaluation evidence that the universities play an important role in supporting innovation and economic growth and the projects have delivered a range of impacts. There is certainly a case for continued investment in innovation activity led by the universities.

The following section considers what this support could include and how it would contribute to economic policy objectives, in particular Levelling Up and the UK Shared Prosperity Fund Investment Plans.

4.1 Alignment with Levelling Up and UKSPF

4.1.1 Levelling Up

The UK's flagship Levelling Up policy aims to drive up social and economic performance and opportunity across the UK where areas are lagging behind London and the South East and reduce geographic inequality. It notes this needs to begin by improving economic dynamism and innovation to drive growth across the whole country, unleashing the power of the private sector to unlock jobs and opportunity for all. It highlights six capitals as drivers of growth which address inequalities, including human capital (workforce skills) and intangible capital (innovation, ideas, and patents). Universities therefore have a crucial role to play.

The policy aspires to unleash private investment; encourage enterprise and support a dynamic business sector that can create jobs; nurture skills and invest in innovation; secure adequate access to finance, particularly among rapidly-growing small and medium-sized enterprises (SMEs); and improve access to good infrastructure (physical and digital) allowing people to connect and collaborate.

The Levelling-Up White Paper sets a number of ambitious medium-term missions to support the achievement of key policy objectives, including:

Mission 1: Living standards	By 2030, pay, employment and productivity will have risen in every area of the UK, with each containing a globally competitive city, and the gap between the top performing and other areas closing.
Mission 2: Research and Development (R&D)	By 2030, domestic public investment in R&D outside the Greater South East will increase by at least 40%, and over the Spending Review period by at least one third. This additional government funding will seek to leverage at least twice as much private sector investment over the long term to stimulate innovation and productivity growth.
Mission 6: Skills	By 2030, the number of people successfully completing high-quality skills training will have significantly increased in every area of the UK. In England, this will lead to 200,000 more people successfully completing high-quality skills training annually, driven by 80,000 more people completing courses in the lowest skilled areas.

The type of innovation activity delivered to date by the universities is entirely relevant and has the potential to contribute significantly to the Levelling Up missions.

4.1.2 UK Shared Prosperity Fund

The UK Shared Prosperity Fund is a key pillar of the Levelling Up agenda, investing in economic growth and regeneration in the regions of the UK, replacing the previous European Structural Investment Funds which ended with the UK leaving the European Union.

To help realise the Government’s Levelling Up aims, SPF will invest to achieve the following objectives:

- Boost productivity, pay, jobs and living standards
- Spread opportunities and improve public services
- Restore a sense of community, local pride and belonging
- Empower local leaders and communities

In the North East, UKSPF will be managed by the two Combined Authorities, and four local authorities (See Table 6 below). In total, the region has an allocation of £170m, which includes £24.5m for Multiply, a new national programme to improve numeracy skills.

Table 6: UKSPF allocations in the North East

Combined Authority / Local Authority	UKSPF Allocation (2022/23 – 2024/25)
North of Tyne Combined Authority	£51.2m
Tees Valley Combined Authority	£46.3m
Durham County Council	£33.6m
Gateshead Council	£12.8m
South Tyneside Council	£9.6m
Sunderland City Council	£16.5m
Total	£170.0m

The Combined Authorities and Local Authorities have each developed Investment Plans which detail how UKSPF resource will deliver across the three investment priorities of: communities and place; supporting local business; and people and skills, to address local priorities. Each Investment Priority is aligned to number of Levelling Up missions:

- **Communities and Place:** aligns to Levelling Up missions 7, 8 and 9 - building pride in place, improving wellbeing, and reducing health inequalities.

- **Supporting Local Business:** aligns to Levelling up mission 1 - boost pay, employment and productivity, and globally competitive cities; mission 2 – increase domestic public R&D investment by 40% outside of the greater South East; and mission 9 – improvements in pride in place.
- **People and skills:** aligns to Levelling Up missions 1 and 6 – boosting pay, employment and productivity; and increasing the number of people participating in, and successfully completing high quality skills training.

Each investment priority will deliver against a number of interventions, with each Combined Authority and Local Authority selecting the most relevant for their area, from a long list of potential interventions.

Table 7: Example interventions

Communities and Place
E6: Support for local arts, cultural, heritage and creative activities.
E13: Community measures to reduce the cost of living, including through measures to improve energy efficiency, and combat fuel poverty and climate change.
Supporting local business
E19: Increasing investment in research and development at the local level. Investment to support the diffusion of innovation knowledge and activities. Support the commercialisation of ideas, encouraging collaboration and accelerating the path to market so that more ideas translate into industrial and commercial practices.
E20: Research and development grants supporting the development of innovative products and services
E29: Supporting decarbonisation and improving the natural environment whilst growing the local economy. Taking a whole systems approach to invest in infrastructure to deliver effective decarbonisation across energy, buildings and transport and beyond, in line with our legally binding climate target. Maximising existing or emerging local strengths in low carbon technologies, goods and services to take advantage of the growing global opportunity.
People and Skills
E39: Green skills courses targeted around ensuring we have the skilled workforce to achieve the government’s net zero and wider environmental ambitions.
E40: Retraining support for those in high carbon sectors.

The nature of the universities’ activities considered in this report are well aligned to these interventions.

The SPF investment plans were submitted to the UK Government by the 1st August 2022. It is expected that details of the plans will be made publicly available shortly.

4.2 Future delivery (opportunities for future collaboration)

The review of innovation projects, combined with consultation feedback from the five Universities, and the high-level assessment of Levelling Up and UKSPF policy objectives, identifies key messages and potential opportunities for future university collaboration on delivery of innovation and business growth activities.

4.2.1 Key Messages

A compelling case to invest in university-led innovation activity. Evaluation evidence indicates the universities are well placed to deliver innovation activity and the projects are making a real difference and contribution to economic growth. The nature of the activity aligns with possible UK Shared Prosperity Fund interventions and will contribute to the Levelling Up agenda, as well as regional priorities.

Collaborate where possible. Projects such as IIP and Northern Accelerator, which combine expertise across organisations, have worked well, while projects delivered by a single university which have worked well, such as Arrow, offer opportunities for future expansion and collaboration. This is an important added value of university activity. It provides opportunities to share knowledge across the institutions, enables SMEs to access a wider talent pool and opens up access to a wider range of specialist research and testing facilities. It also means that universities offer expertise across the full innovation journey. For example, Newcastle and Durham Universities undertake significant early stage, high level science and technological research whereas Sunderland and Teesside see their strengths as being more focused on advancing near to market technologies and services. By collaborating, the full spectrum is covered. Linked to this point regarding collaboration, partners could develop a more structured facility/mechanism for academics from different institutions to engage, network, and discuss their research projects/ideas.

Integrated package of support. Providing integrated packages of support which are sufficiently flexible to allow individuals and SMEs to access the support they need across their innovation journey is important. For example, the integrated, connected nature of support from Northern Accelerator was important, providing expertise as well as PoC funding. Similarly, programmes such as Durham and Teesside's accelerator programmes providing the continuum of support add value. Projects must also be integrated well into institutions' internal resources, such as TTOs and with the wider business support network.

Intensive support such as the Northern Accelerator approach to accelerate formation of spin-outs. Evaluation evidence indicates the Northern Accelerator project has been effective in terms of delivering a step-change in research commercialisation and creating viable spin-outs that contribute to regional prosperity, levelling up, and which create 'more and better jobs'. Whilst resource intensive it delivers quality impacts. Connecting academics with commercial expertise early is important for the viability and commercial success of the spin-out. This collaborative model could be considered as a priority for future activity. However, there are a number of potential issues for partners to consider:

- Using a sweat equity model is considered the 'right' approach for business executives and academics and should continue.

- PoC funding is important, meeting a gap in provision.
- There is a danger the limited talent pool within the region to provide executives to lead the spin-out will constrain the project – a lack of CEO with the right skillset will affect the viability of the spin-out. It may be necessary to open up the process and proactively target executives outside of the region, making the most of digital communication to help widen the pool.
- To date the majority of beneficiaries have come from Newcastle and Durham universities as others are building up their culture and capacity to generate spin-outs. The proportion of partners' resource contributions may need to be carefully considered to reflect the likely balance of beneficiaries.

Feedback loop to improve success rates, particularly regarding funding.

Projects, particularly those involving grant support such as PoC/seed funding, should include formalised feedback loops. This is valuable for those academics and institutions that have less experience and expertise in preparing funding applications³⁵.

Pre-start-up / accelerator awareness raising. Whilst the projects are beginning to help lead a culture change across the universities, more could be done to embed this across all schools/departments within the institutions. Activity across the board to help raise awareness about the opportunities for commercialisation and entrepreneurship among students and academics will help feed a pipeline of ideas and people to support at the next stage of the innovation journey.

Start-ups and spin-outs will need grow on / follow on space. As both spin-outs and graduate start-ups grow, they will need move-on space and supporting infrastructure. The region has some key assets such as Middlesbrough's Boho Zone, NETPark, Orbit, Durham City Incubator and Newcastle Helix to name a few. Connecting support and maintaining good links to these facilities will be important, as well as establishing connections with future facilities that may come on stream.

A region wide graduate placement scheme. Offering graduate placement schemes is important. They reduce the risk for SMEs to invest in research projects and develop their innovation capacity and create employment. Such internships also improve the skills of graduates and help retain talent in the region. Partners may wish to consider how this would be managed, for example, a region wide scheme with sufficient flexibility to respond to SMEs needs, with a mix of short-term, project focussed placements and longer-term internships. Alternatively, universities may be better placed to plan and deliver their own schemes but cross-referring SMEs and graduates as appropriate.

Need medium/long-term commitment rather than short-term funding.

Funded projects are inevitably short-medium term, driven by the funders' frameworks and timescales. However, this can cause some confusion and uncertainty in the business support market place. The universities are well placed to help maintain some consistency as they are a constant in an evolving landscape. The shorter-term nature though means that activity such as research projects which need some years to complete may be curtailed or cut short due to funding

³⁵ Northern Accelerator evaluation Ekos 2021

limitations. If funders could extend the timescales, more ambitious/longer-term projects could potentially be supported and may deliver greater benefits.

Adequate project management resource. For projects to be successful it is important they have good project management systems in place, including adequate resources. This is particularly the case for more complex projects involving multiple delivery partners.

4.3 Potential opportunities for collaboration

There are clear opportunities for future collaboration, aligned to the policy objectives, and investment priorities of Levelling Up and UKSPF. This includes:

Ongoing delivery of the **Northern Accelerator**, with Durham University continuing as lead partner. There may be potential to broaden out the research focus, aligned to specific sector or growth priorities identified in the UKSPF Investment Plans, and / or to add new members to the decision-making panel to reflect a broader remit.

Introducing a new collaborative innovation project, based on the **Arrow model**, to support regional businesses to innovate, testing and commercialising innovative products and services. The delivery model should be sufficiently flexible to ensure it works for all five universities e.g. allowing some to focus on a small number of sectors; provide support at different stages of the innovation journey; or to support larger or smaller scale innovation projects.

Continuing to provide **Internships and enterprise** support, either individually, or collaboratively, providing businesses with access to the higher-level skills they need to support growth.

Key features of a collaborative delivery model could include:

- **Choice:** Beneficiary businesses would be asked which University and / or academic they would prefer to work with, with potential to offer alternatives matched to the company innovation needs, should the first choice not be available.
- **Project administration and management team:** This could be a dedicated team within the lead university for each project, or a new central team working across all five universities, which could broker relationships between academics / universities and businesses to work on innovation.
- **Flexibility:** to enable each university to deliver to their strengths e.g. early stage / elemental research; near market research; sectoral focus etc.

Sectoral focus

The universities may wish to consider targeting activity identified in each local Investment Plan. While the plans have not yet been published, there is a strong focus in the Levelling Up White paper, and UKSPF interventions on the clean energy sector, green jobs and decarbonisation. This is also an identified priority for the North of Tyne and Tees Valley Combined Authorities, and for the North East LEP, in terms of innovation, sector growth, and the creation of new highly skilled jobs.

There is potential for the Universities to collaborate on supporting the growth of this key sector and the transition to a low carbon economy, through innovation, research, and the provision of higher-level skills.

4.4 Potential challenges

Consultation with the five universities also identified a small number of challenges including:

- **Fragmentation:** There is a risk that the delivery of innovation support across the region may become fragmented due to the administrative structure of UKSPF. A strong case could be made for innovation support to be region-wide, with the two Combined Authorities and four Local Authorities agreeing to work together to support delivery of region-wide interventions.
- **Complex management and administration:** The management and administration of projects supported by UKSPF may be complex, with each funder (combined authority and local authority) developing different application processes and paperwork, and requiring different information to evidence delivery and draw down funding. The Universities may need to invest in a central administrative team that can manage and co-ordinate this task.
- **Financial resources:** It is likely that the level of grant funding available from UKSPF will be less than that previously available from ESIF. The Universities will need to ensure that projects are scalable and can be tailored to the level of resource available. In some cases, Universities may need to provide match funding, or to secure additional resources from other funding programmes.

5 Summary and concluding remarks

The North East benefits from five universities who make a significant contribution to the region. They are drivers of economic growth both as major employers and in their role in developing the talent and skilled workforce of the future, together with leading research and innovation to address business and societal challenges such as net zero and health and wellbeing. They are an important asset and must be seen as key partners in delivering regional and national policy objectives, particularly with regards to Levelling Up.

A review of the nine funded innovation projects indicates the activity is generating a positive economic impact. Some of this has been felt already – in the region of 500 net jobs and £23m net GVA created to date with more jobs and GVA expected to be created in the future as a result of the investments.

Support is effective, targeted at the region's key sectors, well managed and meeting the needs of beneficiaries. Universities have a strong track record in delivering funded projects and have been able to adapt quickly to external challenges such as Covid 19. The innovation activity is making a real difference, helping to create a step-change in the pace and quality of university spin-outs.

Universities are collaborating effectively which adds value to the offer, facilitates knowledge exchange between organisations, and enables SMEs to have access to a wider talent pool, as well as high tech facilities and equipment.

The evidence indicates the innovation support is helping retain graduates in the region and is developing the skills of the future workforce.

There is a strong argument for universities to continue to deliver innovation activity across the region to support future economic growth and to 'Level Up' the region.

This paper presents some options for partners to consider in terms of future activities, taking into account regional and national priorities. These include:

- Collaborating across the five institutions where possible as this is a key strength and added value. This includes continuing with existing collaborative projects such as Northern Accelerator, and adapting existing single university projects that have worked well such as Arrow, to include wider collaboration across all five universities.
- Provide an integrated package of support across the innovation journey.
- Intensive support such as the Northern Accelerator approach to accelerate formation of spin-outs as this has created a step change.
- Providing a feedback loop to improve the success rate, particularly when accessing funding.
- Pre-start-up / accelerator awareness raising across the institutions to help generate a pipeline of future ideas and people.

- Start-ups and spin-outs will need grow on / follow on space, so institutions need to maintain links with facilities such as Helix and NETPark.
- A region wide graduate placement scheme would be beneficial but with flexibility to tailor the length and focus of activity to SME needs.
- Need medium/long-term commitment rather than short-term funding to minimise confusion as projects stop/start, but also to support longer term research projects such as IIRP.
- Adequate project management resource to ensure effective delivery.

Appendix A – Consultees

New Skills Consulting would like to thank the following for their input to the report:

Name	Organisation
David Pratt	Teesside University
Jenny Taylor	Durham University
Martin Cox	Newcastle University
Sue Graham	University of Northumbria
Tim Pain	University of Sunderland

Appendix B – Overview of the innovation projects

Project	Summary	Total funding (£)	Delivery period	Lead org	Delivery partners	Objectives	Area of focus	Key targets
Collaborative projects:								
Northern Accelerator Phase 1 (originally named Commercialisation of University Research)	To support economic growth by increasing the number of successful spin-out companies from Newcastle and Durham universities. The programme sought to attract experienced and talented business leader to join university spin-out companies at the pre-commercial stage to support academics create commercially viable enterprises.	£0.81m	Oct 2016 to 2019	Jointly led by Newcastle University and Durham University, although PM team based at NU	Staff across the two universities and a panel of executives to lead the commercialisation of spin-outs.	To create 15 well managed and commercially driven spin-outs that successfully exploit IP generated from Newcastle and Durham universities. To create high quality technical and commercial employment opportunities in the start-ups. Long-term creation of an ecosystem where business leaders are attracted to high technology, innovative commercial opportunities both created and developed in the north east of England. Attract high quality business leaders to the region.	NELEP focus. However, the pool of potential CEOs developed within the project was not restricted to the North East or the UK and applications were encouraged from outside the region and internationally.	15 SMEs assisted 15 new enterprises supported 15 new to market products 15 new spin-out companies 15 jobs (employment increase in supported enterprises) Commercialisation of world class technology Increased employment
Northern Accelerator Phase 2	Building on the first NA project, a programme of flexible, end-to-end support through the “commercialisation journey”, from awareness raising and capacity building, through to seed investment funding. It sought to stimulate capacity building within technology transfer practitioners and the academic base across four of the region’s universities.	£10.7m	Jul 2021 to Jul 2023	Managed by Durham University	Durham, Newcastle, Northumbria Sunderland and Teesside Universities and business executives to lead spin-outs. Engagement with wider enterprise and	Increase the number and sustainability of spin-outs. Share Technology Transfer Office (TTO) knowledge across the partner institutions Attract quality executives Create a pipeline of activity for a future Venture Capital fund. Stimulate an innovation culture change across the universities.	NELEP area with a focus on the smart specialisation sectors -life and health sciences, process and chemical engineering, advanced manufacturing and digital.	170 Academics involved 35 Pre-incorporation awards 25 Innovation assessments 5 Seed fund investments 27 New spin-outs / enterprises

Innovating Together – Universities in the North East (In-Tune), NSC, 2022

Project	Summary	Total funding (£)	Delivery period	Lead org	Delivery partners	Objectives	Area of focus	Key targets
	Activities included ' Future Founders ' to raise awareness of commercialisation opportunities, innovation assessments, Proof of Concept funding and Executives into Business (similar to NA Phase 1).				innovation networks.			
Intensive Industrial Innovation Programme (IIIP- North East and Tees Valley)	Intensive support programme to connect SMEs from the smart specialisation sectors with the region's university research expertise. It would work actively with them to address their specific research issues, focussing on research that could lead to the development of new products or processes to the business and to the market. It was expected to deliver significant and sustainable growth to the local smart specialisation SME base and enable business to be at the forefront of new and emerging markets as a result of focused research. Support would include: Help to develop the research problem into a research proposition alongside academics.	£7.26m	October 2018 to June 2023	Durham University	Durham, Newcastle, Northumbria, and Teesside Universities Engagement with wider enterprise and innovation network	Long term (3 year) SME research developments, resulting in usable evidence for product development and market testing, leading to business growth and new market opportunities from new products or services launched. Support long term job creation and graduate retention in the smart specialisation sectors of the North East.	North East region including Tees Valley. Focus on smart specialisation	81 SMEs assisted (NELEP) And 15 (TV) 119 jobs (Employment increase in enterprises (NELEP)) and 7 jobs (TV) 81 SMEs cooperating with research institutions (NELEP) And 7 (TV) 80 New to firm products (NELEP) And 7 (TV)

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Project	Summary	Total funding (£)	Delivery period	Lead org	Delivery partners	Objectives	Area of focus	Key targets
	Assistance to identify appropriate post grad researcher/academic team Dedicated post grad to address research needs for 3 years Ongoing, complementary support from the universities.							
Projects delivered by individual institutions:								
Arrow	A project to create additional wealth in the NELEP economy through improved business innovation, productivity, and commercial exploitation of university research and innovation expertise. The project had two strands: Innovation Catalyst - Connecting SMEs to university expertise; Innovation Associates to lead SME projects, enhancing and accelerating innovation. Innovation Accelerator to provide SME grant support for research & innovation activities	£3.39m	Apr 2018 to Mar 2023	Newcastle University (NU)	Delivered by NU. Internal University departments and the wider business and innovation network utilised to help engage with SMEs and to connect them with wider support where appropriate.	Deliver growth in NELEP economy by enabling more SMEs to innovate and grow, overcoming barriers to innovation by opening up access to specialist university expertise, assets and resources, which SMEs would otherwise be unable to access. Improve the university's engagement with SMEs by changing the organisational culture and opening up all schools and departments to undertake collaborative research with SMEs. This is intended to create long-term collaborative and commercial relationships between the university and SMEs	SMEs in NELEP area. Focussed on four priority / smart specialisation sectors (Health & life sciences; Advanced manufacturing; Digital & creative industries; Subsea, offshore, & energy technologies).	152 SMEs assisted 110 SMEs cooperating with research institutions 15 new to firm products 23 jobs (employment increase in SMEs)
DICE (Durham Internships and Collaborative Enterprise)	Package of support to stimulate enterprise, innovation and business growth, including: Internships in SMEs;	£2.563m	May 2018 to Jun 2023	Durham University (DU)	DU, together with Business Durham. Engagement with New	To increase graduation retention. To enhance the number of graduates starting new businesses & increase level of	SMEs in County Durham with a focus on ESIF priority sectors.	132 SMEs assisted 65 new SMEs assisted

Project	Summary	Total funding (£)	Delivery period	Lead org	Delivery partners	Objectives	Area of focus	Key targets
	Start-up academy providing enterprise support to graduates/alumni; Incubator with accelerator programme of support to create new businesses; Operational support for businesses at ORBIT				College Durham. Engagement with the wider business and innovation support network to engage SMEs and signpost where appropriate.	entrepreneurship in the university. To grow a sustainable SME base in Durham. To increase growth and development in established SMEs who benefit from an internship and from enterprise growth support linked with university knowledge and expertise. To facilitate collaborative working between key stakeholder groups and SMEs in Durham.	Durham University staff, graduates, and alumni.	45 new to firm products 130 individuals assisted to be enterprise ready 50 jobs (employment increase in SMEs)
Graduates for Growth	Matching recent graduates with relevant higher-level skills to SME growth and development needs. Three, interlinked strands of activity: Information, advice and guidance and a role matching service for SMEs to connect them with graduates to meet their skills and growth needs. A short-term Graduate Internship Programme – an average 12-week graduate internship programme, with support from the University to both SME and graduate, in line with pre-diagnosed SME	Total £1.045m	Jun 2018 to May 21	Teesside University (TU)	University departments. Engagement with wider business, enterprise, and innovation network.	Support SMEs to grow in terms of employment and turnover, and innovate in terms of developing or improving new products and services. Create highly skilled jobs. Improvements to productivity; profitability; cost reduction or waste reduction. Graduate retention.	Tees Valley SMEs, focussing on priority sectors.	90 SMEs assisted 45 jobs (employment increase in SMEs) 30 new products to firm/market.

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Project	Summary	Total funding (£)	Delivery period	Lead org	Delivery partners	Objectives	Area of focus	Key targets
	<p>requirements. Employed by the university on a short-term basis while delivering the project.</p> <p>A medium-term Graduate for Growth Placement Programme in which the university offers part-funding towards the employment of graduates with higher level skills by SMEs at 50% of salary costs for a period of six months on average.</p>							
Innovate Tees Valley	<p>9 strands of activity to raise awareness and develop a more innovative culture among individuals and SMEs, including innovation exchanges through short term KTPs/ placements; digital innovation and additive manufacturing workshops.</p>	£6.10m	Feb 2016 to July 2019	TU	TU; Digital City; MPI; NEPIC – an ‘innovation super network’ as well as engagement with the wider support network.	<p>To increase the proportion of Tees Valley SMEs that are innovation active and improve the commercialisation of new and enhanced services and products through research collaboration and improved access to investment opportunities:</p> <p>Support for research into the commercial feasibility of scientific and technical innovation.</p> <p>Facilitate collaboration between research institutions and enterprises.</p> <p>Facilitate access to networks and support to overcome barriers to investment in innovation.</p>	<p>SMEs in Tees Valley, focussing on: Advanced manufacturing; energy and process; digital and creative; health; logistics; professional and business services; and cultural and leisure.</p> <p>TU Graduates / alumni and individuals in Tees Valley</p>	<p>297 SMEs assisted</p> <p>44 new SMEs assisted</p> <p>25 SMEs cooperating with research institutions</p> <p>25 jobs (employment increase in SMEs)</p> <p>53 new to firm products</p>

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Project	Summary	Total funding (£)	Delivery period	Lead org	Delivery partners	Objectives	Area of focus	Key targets
						<p>Link the knowledge base to growth opportunities and SME needs through the Innovation Exchange partnership strand.</p> <p>Support to develop prototypes for market testing and proof of concept.</p> <p>Offer a route into further support.</p>		
Internships & Enterprise (Ph3)	<p>Small, fast-growing firms are significant contributors to the economy as important creators of jobs and wealth. Initiatives designed to increase business start-ups, and contribute to a growing SME population, will help to increase the number of private sector employment opportunities available in the region, and contribute to regional economic growth. Project includes two strands of activity:</p> <p>Internships- graduates into SMEs to work on business growth projects, especially where there are opportunities for rapid scale up through the development of new products, services, and processes, including through the use of digital technologies.</p>	£2.63m	October 2018 to June 2023	Sunderland University	<p>Specialist external agencies to deliver some enterprise activities.</p> <p>Collaboration with University departments and integration with the wider business network to engage SMEs and connect businesses to other support as appropriate.</p>	<p>Support SMEs to develop their internal capability and capacity in order to improve their productivity, grow and create jobs.</p> <p>Enterprise strand to offer an alternative route to employment for graduates of the University of Sunderland, addressing regional market failures in the form of low levels of entrepreneurship.</p>	<p>SMEs in NELEP area, with a particular focus on target sectors and those with a product development/growth project.</p> <p>Enterprise activity targeted at SU students and staff</p>	<p>300 SMEs assisted</p> <p>110 new SMEs assisted</p> <p>120 individuals assisted to be enterprise ready</p> <p>153 Jobs (employment increase in SMEs)</p> <p>225 new to firm products</p>

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Project	Summary	Total funding (£)	Delivery period	Lead org	Delivery partners	Objectives	Area of focus	Key targets
	Enterprise Support to students, graduates, and staff to develop their business start-up ideas and ultimately create new enterprises.							
NEBS (Northumbria Enterprise & Business Support)	A package of support to improve the competitiveness and growth of SMEs and the creation of new enterprises in the region. Two strands of activity: Graduate Internships – graduates placed into SMEs Enterprise Support programme for students, graduates and staff, providing advice and mentoring to explore business ideas and develop a stronger business plan/create a more sustainable start-up.	Phase 1 £2.07m Phase 2 £1.91m	Ph 1 Oct 2015 to Jun 2018 Phase 2 Oct 2020 to Jun 2023	University of Northumbria at Newcastle (UNN)	Engagement with University departments and wider business networks to engage and signpost.	To enhance the competitiveness and growth of SMEs and to support the creation and ongoing survival of new graduate-led enterprises in the NELEP area. Support the retention of graduates in the region. Project activity will lead to the creation of permanent jobs in the area.	SMEs in the North East and specifically, the Northumberland and Tyne and Wear sub region. Northumbria students, staff, and alumni.	Ph1 181 SMEs assisted 31 new SMEs assisted 10 new to firm products 134 individuals assisted to be enterprise ready 75 Jobs (employment increase in SMEs)
SAM (Sustainable Advanced Manufacturing) (Ph2)	A project to support the implementation of product and process development and the introduction of technology within the SME manufacturing base across the North East LEP area (including more developed and transitional areas). It provided technical expertise & industry specialists; State of the art	Ph 1 £5.1m Ph 2 £5.82m Total £10.92m	Ph1 Jan 2018 to Sep 2020 Ph2 October 2020 to June 2023	Sunderland University	Engagement with SU departments, including AMAP, as well as connections and networks established with partners such as Make UK; CPI; NEPIC; NEAA; Engineering	To address innovation challenges by working with SMEs to mitigate cost, demystify information and implementation risks; provide affordable access to innovation facilities, expertise, and equipment; and facilitate knowledge sharing To develop capacity and capability of SMEs to innovate,	SMEs in NELEP area, focused on manufacturing base	198 SMEs assisted 10 new SMEs assisted 163 cooperating with research institutions 38 new to firm products/process 115 jobs (employment increase in SMEs)

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Project	Summary	Total funding (£)	Delivery period	Lead org	Delivery partners	Objectives	Area of focus	Key targets
	equipment in ' micro factories ', access to research teams for longer term research projects ; and grant support				Manufacturing Network; RTC North to promote and signpost.	leading to new process/product development. Improve production efficiencies and productivity gains within beneficiary businesses.		





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