

Productivity Through Innovation: Final Evaluation.

Summative Assessment Report

April 2023

Prepared for University of Nottingham, University of Derby & Nottingham Trent University

Evaluation of Productivity Through Innovation: Final Evaluation Report

April 2023

Report Authors

Sanjana Hiremath, Bachelor of Commerce & MSc Accounting and Finance Student

Richard Kneller, Professor of Economics, School of Economics, University of Nottingham

Lynn Oxborrow, Professor of Practice in SME Leadership & Management, Nottingham Business School, Nottingham Trent University

Staff Survey Completed by **Prathamesh Vidhale**, Bachelor of Technology, Instrumentation Engineering & MSc Information Systems & Operations Management Student

Contents

REPORT AUTHORS	2
<i>Sanjana Hiremath</i>	2
<i>Richard Kneller</i>	2
<i>Lynn Oxborrow</i>	2
CONTENTS	3
1 INTRODUCTION	6
1.1 ABOUT THE EVALUATION	6
1.1.1 <i>Survey sample</i>	7
1.1.2 <i>Report structure</i>	8
2 PRODUCTIVITY THROUGH INNOVATION: PROJECT CONTEXT	9
2.1 INTRODUCTION	9
2.1.1 <i>Overview of the logic model</i>	9
2.2 CONTEXT, MARKET FAILURES AND RATIONALE	11
2.2.1 <i>Overall context</i>	11
2.2.2 <i>Market failures</i>	11
2.2.3 <i>Rationale for developing PTI</i>	12
2.3 PROJECT OBJECTIVES	13
2.3.1 <i>Input</i>	13
2.4 ACTIVITIES.....	14
2.4.1 <i>UON Support</i>	14
2.4.2 <i>UoD Support</i>	14
2.4.3 <i>NTU Support</i>	15
2.4.4 <i>Contextual changes since the project was developed</i>	15
2.5 OUTPUTS	17
2.6 OUTCOMES AND IMPACTS	18
2.7 SUMMARY.....	18
3 PROJECT PROGRESS	20
3.1 INTRODUCTION	20
3.2 PROGRESS TOWARDS FINANCIAL TARGETS	20
3.2.1 <i>PCR1 December 2019</i>	20
3.2.2 <i>PCR2 March 2021</i>	21
3.2.3 <i>PCR3 September 2022</i>	21
3.2.4 <i>Performance to Date</i>	22
3.3 PROGRESS TOWARDS OUTPUT AND OUTCOMES TARGETS	23
3.3.1 <i>C1: Number of enterprises receiving support</i>	25
3.3.2 <i>C2: Number of enterprises receiving grants</i>	25
3.3.3 <i>C4: Enterprises receiving non-financial support</i>	25
3.3.4 <i>C6: Private investment matching public support to enterprises</i>	25

3.3.5 C26: No of Enterprises co-operating with research entities	25
3.3.6 C29: number of enterprises supported to introduce new to the firm products	26
3.4 SUMMARY.....	26
4 PROJECT DELIVERY AND MANAGEMENT	27
4.1 INTRODUCTION	27
4.2 TARGETING.....	27
4.2.1 ERDF Eligibility	27
4.2.2 Company characteristics	28
4.2.3 Characteristics of Students supported	29
4.3 QUALITY AND EFFECTIVENESS OF DELIVERY	30
4.3.1 Introduction	30
4.3.2 Awareness raising, demand and referrals	30
4.3.3 How graduates found out about the support	31
4.3.4 Position in the market	33
4.3.5 Support needs	35
4.3.6 Ratings of support, benefits, and meeting needs	37
4.3.7 Strengths, weaknesses, and areas for improvement	38
4.3.8 Feedback from graduates	39
4.3.9 Feedback from businesses not receiving support	41
4.4 HORIZONTAL PRINCIPLES	41
4.4.1 Equality and Diversity	41
4.4.2 Environmental sustainability	41
4.5 MANAGEMENT AND GOVERNANCE	42
4.6 SUMMARY.....	42
5 PROJECT OUTCOMES AND IMPACTS	44
5.1 INTRODUCTION	44
5.2 PROGRESS TOWARDS OUTCOMES AND IMPACTS	44
5.2.1 Company trading and growth	44
5.2.2 Business investment in innovation or productivity	46
5.2.3 Introduction of new products	47
5.2.4 Innovation skills and capacity	48
5.2.5 Skill and knowledge of graduates	48
5.2.6 Collaboration	50
5.2.7 Impact on GVA	50
5.3 NET ADDITIONAL IMPACT.....	51
5.3.1 Deadweight Adjustment	52
5.3.2 Displacement Adjustment	52
5.3.3 Leakage Adjustment	52
5.3.4 Net Additional (Economic Multiplier effects)	52
5.3.5 Total net additional impact	52
5.4 SUMMARY.....	53

6 VALUE FOR MONEY	55
6.1 COST EFFECTIVENESS	55
6.1.1 <i>Cost per net job created</i>	55
6.1.2 <i>Cost per net business supported</i>	55
6.1.3 <i>Return on investment</i>	56
6.2 COST OF OUTPUTS.....	56
6.2.1 <i>Profiled output costs</i>	57
6.2.2 <i>Achieved output costs</i>	57
6.2.3 <i>C1: Number of enterprises receiving support</i>	58
6.2.4 <i>C2: Number of enterprises receiving grants</i>	58
6.2.5 <i>C4: Enterprises receiving non-financial support</i>	58
6.2.6 <i>C26: No of Enterprises co-operating with research institutions</i>	58
6.2.7 <i>C29: number of enterprises supported to introduce new to the firm products</i>	58
6.3 BENCHMARKING	59
6.4 SUMMARY	60
7 CONCLUSIONS AND LESSONS LEARNED	62
7.1 INTRODUCTION	62
7.2 PROGRAMME DESIGN AND NEED FOR INNOVATION SUPPORT	62
<i>Recommendation 1:</i>	62
<i>Recommendation 2:</i>	62
7.3 PROJECT PERFORMANCE.....	63
7.4 DELIVERY AND MANAGEMENT ARRANGEMENTS.....	63
7.4.1 <i>Targeting:</i>	63
7.4.2 <i>Awareness raising, interest and demand</i>	63
<i>Recommendation 3:</i>	64
<i>Recommendation 4:</i>	64
7.4.3 <i>Market position</i>	64
<i>Recommendation 5:</i>	65
7.4.4 <i>Quality of support</i>	65
<i>Recommendation 6:</i>	65
7.4.5 <i>Horizontal principles</i>	66
7.4.6 <i>Project management</i>	66
<i>Recommendation 7:</i>	66
7.5 OUTCOMES AND IMPACTS	66
APPENDIX 1: ACKNOWLEDGEMENTS	67

1 Introduction

The Productivity Through Innovation (PTI) project is part-funded by the European Regional Development Fund (ERDF) and offers fully funded support to small and medium-sized enterprises (SMEs) in Nottingham, Nottinghamshire, Derby and Derbyshire to improve their productivity and market competitiveness. The University of Nottingham (UoN) worked alongside the University of Derby (UoD) and Nottingham Trent University (NTU) to support circa 200 businesses with postgraduate placements and consultancy projects as part of the £7.14M Productivity Through Innovation Programme.

PTI aimed to deliver an in-depth programme of support, working directly with participating businesses to identify and deliver meaningful and sustainable improvements. Support was delivered by Academics, postgraduates, graduates and undergraduates from UoN, NTU and UoD, working directly with businesses through a range of interventions.

1.1 About the evaluation

The evaluation is structured around two phases, as shown in Table 1:

Table 1: Evaluation structure

Phase	Description	Focus	Timing
1	Evaluation Plan and Baseline Review	Describing the proposed approach to the evaluation, and providing a brief outline of the current SME innovation market in D2N2	August 2019
2	Final summative assessment report	Comprehensive assessment of performance, impact and effectiveness. Key lessons learned and implications for future innovation policy and programmes.	April 2023

This final summative assessment report provides an independent assessment of project performance, effectiveness, and impact, from April 2019 up to the end of project delivery in June 2023.

- The following key research tasks were undertaken to inform the final summative assessment:
 - Desk-based analysis of a range of project information including:
 - ERDF financial and output monitoring returns and progress reports.
 - Project Change Requests (PCRs) amending project expenditure and output targets.
 - The project's SME and Graduate beneficiary survey.
 - Staff and stakeholder surveys

- 1-2-1 support (consultancy) and procurement of goods (equipment, etc.) were carried out in compliance with relevant regulations. End beneficiaries, who provided match funding to the project, were subject to procurement rules and treaty principles, and audit trail evidence was retained.
- 12 members of staff from the Productivity Through Innovation project delivery team were interviewed in-depth.
- Online surveys were conducted with a total response of:
 - 164 responses from businesses that received support from Productivity Through Innovation.
 - 252 responses from businesses that enquired about the Programme but did not go on to receive support.

As outlined in the previously submitted and agreed ERDF Summative Assessment Plan Form (ESIF-Form-1-012), the summative assessment has been carried out by the Academic Productivity Champions appointed from each of the partner universities.

The Academic Champions have been focused on the design and delivery of the PTI diagnostic and ensuring its rigour, they are uniquely placed to analyse and interpret the data provided. The Academic Champions have led the Summative Assessment and were supported by an experienced ERDF project manager to gather the necessary data and collate the anecdotal information from the project beneficiaries and delivery teams.

The Academic Champions are experienced in research methodologies, peer-reviewed assessments and undertaking analyses, counterfactual impact assessments (CIE) and quality assured studies.

Two postgraduate students were also selected from the University of Nottingham to support the collection of data / anecdotal information and contribute directly to the independent evaluation reports on the performance of the PTI project.

1.1.1 Survey sample

A survey of beneficiary businesses was conducted at the beginning and the end of the project (Baseline & Exit Surveys respectively).

The chart below illustrates the sample size of the businesses from the Baseline and Exit Surveys.

The total sample size of the Baseline Survey of beneficiary businesses is 165 businesses; of the 218 businesses that were supported by PTI, 84 businesses completed the Exit Survey.

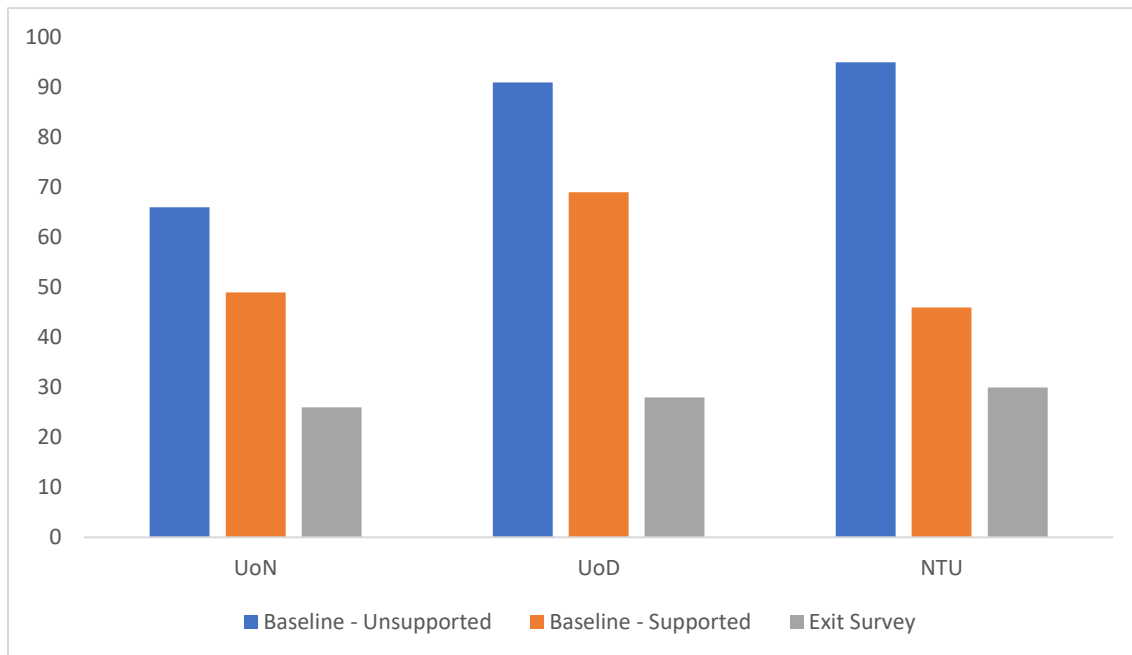
The discrepancy between the sample size of 165 and the to date claimed value of 218 C1s (No of enterprises receiving support)¹ is accounted for due to;

- unusable surveys containing incomplete responses;
- unrecorded responses due to technical issues;
- surveys completed during the PTI evaluation, and therefore were not available for the sample for Baseline-supported detailed in Figure 1.

¹ As of June 2023

The sample size for the graduate survey is 102.

Figure 1: Comparison of survey responses



Source: SME beneficiary data and business survey

1.1.2 Report structure

The report is structured as follows:

- Section 2 provides an overview of the logic model for PTI, outlining the key issues and market failures it seeks to address and the rationale for the programme. It describes the expected causal links between the activities and outputs it will deliver, and how this will lead to benefits in the beneficiary businesses, and in turn, impact upon the economy.
- Section 3 assesses the extent to which PTI has made progress towards its ERDF financial and indicator targets.
- Section 4 considers the effectiveness of programme delivery and management arrangements, including the extent to which the Programme has targeted the intended businesses, and the quality and effectiveness of the support provided.
- Section 5 explores the outcomes and impacts generated by the Programme.
- Section 6 assesses the value for money delivered by the Programme.
- Section 7 summarises the evaluation conclusions and lessons learned from Programme delivery and suggests recommendations which the delivery partners may wish to consider in delivering future business innovation programmes.

2 Productivity Through Innovation: Project context

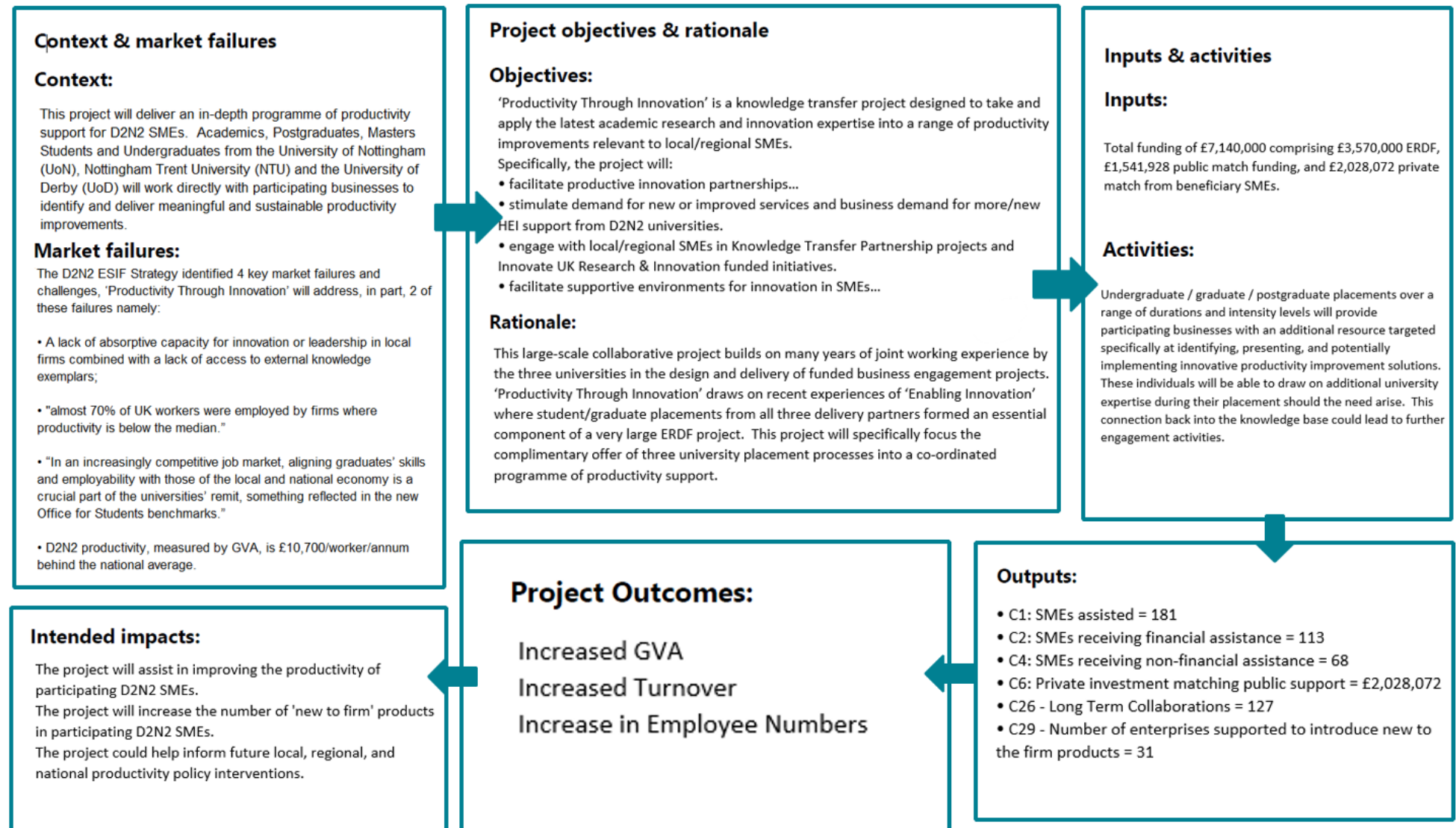
2.1 Introduction

This section considers the economic and policy context in which Productivity Through Innovation was designed. It explores the rationale for intervention and market failures it is addressing, and the link between its aims and objectives, activities, outputs, and outcomes. It is based on the programme's logic model and considers the extent to which its targets are realistic and appropriate.

2.1.1 Overview of the logic model

Figure 2 overleaf provides a summary of the PTI logic model, which is based on the original ESIF business case, developed in 2018.

Figure 2 Summary of the PTI logic model



2.2 Context, market failures and rationale

2.2.1 Overall context

This project was designed to deliver an in-depth programme of productivity support for D2N2 SMEs. Academics, Postgraduates and Undergraduates from the University of Nottingham (UoN), Nottingham Trent University (NTU) and the University of Derby (UoD) worked directly with participating businesses to identify and deliver meaningful and sustainable productivity improvements.

The delivery partners agreed to develop a standardised productivity diagnostic, to inform all business intervention activities. The diagnostic to focus on five key productivity drivers namely:

- research & development
- skills & talent
- investment
- international trade
- management & leadership

Each business intervention will involve using the diagnostic which, after discussion with the business, to lead to either:

- Postgraduate / Masters / Undergraduate placements lasting for up to 12 months or
- Academic support for technical and or Management & Leadership interventions.

All intervention activities to be based on business need, innovative in nature whenever possible and fully supported by the research base.

2.2.2 Market failures

In 2018 the Institute of Directors (IoD) stated that “UK economic productivity has hardly improved at all since 2008 and is now the lowest in the G7” while in November 2017 a Confederation of British Industries (CBI) study found that “...almost 70% of UK workers were employed by firms where productivity is below the median.”

In addition, research suggests that D2N2 productivity, measured by GVA, is £10,700 per worker per annum behind the national average. This represents an annual productivity gap of more than £8.2 billion as identified by Professor Richard Kneller in his ‘D2N2 Productivity Gap’ report dated 2017. This report goes on to say that “From the academic evidence we do know that firms in this part of the distribution (middle productivity firms) are more likely to be non-exporters than exporters (or export relatively little), to have lower management scores and use more recent technologies less intensively. That might be a useful starting point for thinking about appropriate support for firms.”

The D2N2 ESIF Strategy identified 4 key market failures and challenges; PTI will address, in part, 2 of these failures, namely:

1. A lack of absorptive capacity for innovation or leadership in local firms combined with a lack of access to external knowledge exemplars...

To be addressed with Undergraduate or Postgraduate placements ranging from 3 to 12 months to provide participating businesses with an additional resource targeted specifically

at identifying, presenting, and potentially implementing innovative productivity improvement solutions. These individuals to be able to draw on additional university expertise during their placement should the need arise. This connection back into the knowledge base offers a potential for further engagement activities.

2. The need to stimulate higher levels of graduate employment and enterprise in the area, and to build on existing research strengths, particularly relationships with the local business base...

Medium-term placements to offer the host business an ideal opportunity to assess the capability, added value and potential of the individual(s) working on their productivity challenges. Equally, the placement(s) are intended to offer a real insight into their host business, its values, strategic direction, supply chain integration etc. The relationship built during the placement period may encourage either or both parties to consider a permanent employment situation which, once again, would have direct connections back into the Higher Education Institution knowledge base.

There is also a clear synergy between point 2. and the Higher Education and Research Act 2017 established the Office for Students, which includes the following as an early statement from the OfS...

"In an increasingly competitive job market, aligning graduates' skills and employability with those of the local and national economy is a crucial part of the universities' remit, something reflected in the new Office for Students benchmarks."

As previously stated, businesses engaged in the project will have the opportunity to influence and have oversight of the placements within their business for an extended period of time. This will not only benefit the individuals concerned but will also allow the business to assess their potential and capability for on-going employment.

2.2.3 Rationale for developing PTI

UK productivity has historically lagged behind other G7 and EU nations, in part this is attributed to a number of business issues including:

- a lack of absorptive capacity within SMEs;
- an inability to identify potential productivity improvements;
- an inability to implement productivity improvements;
- disconnection from the knowledge base.

This large-scale collaborative project builds on many years of joint working experience by the three universities in the design and delivery of funded business engagement projects. PTI drew on recent experiences of 'Enabling Innovation' where student / graduate placements from all three delivery partners formed an essential component of a very large ERDF project. PTI further developed this model, with complimentary offers from the three university placement processes co-ordinated into a programme of productivity support.

It was proposed that without this academically supported placement programme, many D2N2 SMEs would continue to operate as they have always done; sub-optimally and below the national average.

With ERDF support, it was suggested that PTI could contribute to improvements in participating businesses and subsequently inform D2N2 policies for future intervention programmes.

2.3 Project objectives

PTI was designed as a Knowledge Exchange project to take and apply the latest academic research and innovation expertise into a range of productivity improvements relevant to local/regional SMEs.

Specific aims included;

- To facilitate productive innovation partnerships; project placement(s), ranging from 3 to 12 months, leading to ongoing SME / HEI relationships where research-based innovation concepts can be applied within the business community.
- To stimulate demand for new or improved services; trust, quality and reliance of delivery through a successful 'productivity' placement process to stimulate business demand for more / new HEI support from D2N2 universities.
- Knowledge exchange and innovation links (SME/HEI); the three delivery partners provide the capability and capacity to engage with local / regional SMEs in Knowledge Transfer Partnership projects and Innovate UK Research & Innovation funded initiatives.
- Facilitated supportive environments for innovation in SMEs; the opportunity to deliver 'long term engagements' (C26 outputs) with local / regional SMEs as a result of PTI, to demonstrate that the three delivery partners are enthusiastic and supportive stakeholders in wanting to drive the D2N2 economy forward.

PTI's objectives were to provide:

- a standardised productivity diagnostic/ assessment tool to help the business and University partners identify priorities for improvement;
- additional resources to complement a business' existing staff;
- the potential to identify a number of productivity improvement initiatives;
- the ability to assist in implementing such initiatives;
- a direct connection to the academic/research base in order to draw on current knowledge.

The project specifically focused the complimentary offers of three university placement processes into a coordinated programme of productivity support.

2.3.1 Input

The total resource for PTI was originally £7,140,000, which included an ERDF grant of £3,570,000, alongside £1,541,928 of public sector match funding, and £2,028,072 of private sector match. Since the original approval in 2019, a number of Project Change Requests (PCRs) have been submitted to DLUHC to slightly reduce project costs, with the most recent being approved in September 2022.

The final agreed total project cost for PTI is £6,941,238, which consists of £3,470,619 ERDF, public sector match funding of £1,571,835 from UoN, UoD and NTU, and private match funding of £1,898,784, as part of UoD and NTU's contribution.

The project has been delivered by 3 Project Teams, each based at one of the partner Universities; these included, but not exclusively, a project manager, a business engagement lead, and a project support role.

In addition, partner universities could draw on academic expertise from within the Universities, as well as from its wider academic and business networks locally, regionally, and nationally, to provide one-to-one advice and expertise to beneficiary businesses.

2.4 Activities

PTI brought together all three D2N2 universities into one collaborative knowledge exchange project with the overall objective of developing sustainable links with the SME business community, with a specific focus on productivity improvements. It was hoped that connecting businesses to the extensive research base across the three universities and embedding placements into participating businesses would stimulate and encourage the adoption of innovative techniques and technologies.

2.4.1 UON Support

UoN offered Postgraduate placements ranging from 3 to 6 months to participating businesses, with additional resource targeted specifically at identifying, presenting and potentially implementing innovative productivity improvement solutions. These individuals were able to draw on additional university expertise during their placement should the need arise. This connection back into the knowledge base could lead to further engagement activities.

The placements offer the host business an ideal opportunity to assess the capability, added value and potential of the individual(s) working on their productivity challenges. Equally, the placement gained a real insight into their host business, its values, strategic direction, supply chain integration etc. The relationship built during the placement period may encourage either or both parties to consider a permanent employment situation which, once again, would have direct connections back into the HEI knowledge base.

2.4.2 UoD Support

UoD offered a menu of support option for SMEs:

1. **Knowledge Exchange for Innovation grants** - 30% Grant towards a graduate's salary for 12 months along with technical support from an academic at the University to support the project delivery. The graduate role would help the company to address a step change in the company's usual activity by introducing a new set of skills. UoD also provided support with recruitment for both the graduate and the business.
2. **Industry Research Projects (PhDs and MPhils)** – Businesses benefited from longer term research projects, 12 months to 3 years, focused on research and development. The project could be a feasibility study or could focus on the development of new products, services, or systems. UoD covered the cost of the student fees, academic supervision and consumables; the company covered the cost of the student stipend payment. This was a completely new offering for UoD and created a blueprint for the continuation of the offer after the life of the project.

3. **Consultancy Support** – One-to-one bespoke support for technical and or management and leadership interventions from an academic or technical member of staff at the University.
4. **Graduate Placements 400 Hr** - £1000 grants for businesses hiring a graduate for a specific project to improve their performance or productivity. This included “Example developing and validation products”, “Analysing data for strategic development” and more. As part of this offering, UoD offered recruitment support for both graduates and the company.
5. **Undergraduate Internship 80 Hr** – Fully funded internships for the UoD students, aiming to support businesses with short-term projects, transferring new knowledge to the company and giving the student invaluable experience.

2.4.3 NTU Support

NTU’s support offered the following options for SMEs:

1. A 20% grant contribution towards the salary of a graduate role in an SME to address an area of innovation need within the business for up to 12 months. This was to enable SMEs to bring in new talent to their business where they didn’t have sufficient capacity or capability in a given area. NTU’s support also extended to providing recruitment support from their Employability Team, including advice on how to attract, select and retain talented individuals within the business.

Or

2. A fully funded consultancy with NTU academics and or technical experts with industry experience, to work on an agreed project to look at improving operational efficiency or the introduction of new products and services. This provided SMEs with access to NTU’s expertise and world class facilities, potentially supporting them with technical support such as detailed product design, proof of concept or creating early stages prototypes for testing. NTU’s award winning Nottingham Business School ran workshop programmes on a range of Management and Leadership challenges, such as supply chain management, employee engagement and flow management, which then led to a bespoke support package depending on the specific needs of the business.

2.4.4 Contextual changes since the project was developed

The UK economy was growing at a steady pace, but in 2019 the COVID pandemic led to a sharp contraction in the second quarter of 2020. The country's GDP fell by a record 19.8% in Q2 2020 (source: UK ONS). Although it recovered in the months to come, the economy remained significantly below pre-pandemic levels.

The pandemic had a profound impact on different sectors of the economy. The hospitality, tourism, and aviation industries were hit particularly hard due to lockdown measures and travel restrictions. In contrast, the e-commerce and online retail sectors experienced significant growth during the pandemic.

Brexit, which took effect on January 31st, 2020, also had an impact on the UK's economy during this period. There was significant uncertainty surrounding the UK's trading relationships with the EU and other countries, which led to some businesses delaying investment decisions, particularly around the financing of exporting initiatives to the EU.

Impact of COVID, Brexit and Global Economic instability on PTI performance

The unprecedented challenges small and medium-sized businesses and their employees faced as a result of the international pandemic have been widely reported and significantly changed the landscape of business support since the original application was submitted.

The pandemic had a significant impact on business involvement in the project as the majority of SME experienced the following –

- Cease in trading – temporary or permanent
- Professional and personal implications of mandatory national and regional lockdowns e.g. impacts on childcare and adult care commitments
- Forced full/part closure due to various iterations of social distancing
- Reduced income and in turn redundancies and cutbacks
- Supply chain and trade issues
- Significant numbers of staff sickness and/or isolation
- Furloughed staff
- Staff absence due to sickness, isolation and caring responsibilities (as school's closed due to infection rates)
- Diversification for business survival
- Significant time invested in resource planning to deal with the impacts of the above

All of these factors created considerable challenges for the project, and whilst overall demand for support remained strong, due to circumstances out of their control or the projects control, SMEs could not fully engage with support at that time. During this time, many sectors were assessing the feasibility and practicality of transitioning to permanent full or practical home/remote working, which again was considered priority to ensure business operations could continue and recover as quickly as possible. This change required significant financial and time investment from many sectors, as they equipped employees to work away from business sites, again further depleting resources which might have been used to engage in the PTI project. The unprecedented changes required the staff to be more flexible to accommodate staff, students on placement and the processes involving delivery partners.

Whilst organisations also try to recover from the worst years of the pandemic and trading difficulties caused by Brexit the stress on business finances due to rising energy bills and inflation over the last 12 months, has further reduced the ability of businesses to engage.

What mitigation and measures the project put in place and whether this was successful?

One of the most significant changes in the project was a change in focus for businesses as their priority moved from growth to survival. One of the impacts seen was a shift to prioritise operational efficiency, improving their systems and existing ways of working and improving what they already had, whereas beforehand there was an expectation we would be assisting businesses to develop new products and services.

The project adopted new delivery methods to ensure project support has remained as accessible as possible, whilst reflecting participant needs and maintaining relevance to business needs. Much of the activity was delivered online, later transitioning to hybrid delivery (a mixture of online

and face-to-face). While this was a shift that was required because of pandemic measures, positive consequences were evident; the wider acceptance and use of remote working by placement hosts (SMEs) had the effect of increase accessibility to a wider group of staff and students. In turn, this provided a significant reduction in the overall project requirements for travel, at both a personal and project costs levels, while also helping to reduce associated environmental impacts. However, one of the negative impacts of this was that the workshops did not bring the many benefits of face-to-face peer groups.

2.5 Outputs

PTI had the following ERDF targets to achieve:

Table 2: PTI Output Targets

Indicator	Targets	
	Original	Revised ²
University of Nottingham		
- Postgraduate Placements	150	170
University of Derby		
- Industry PhD	3	1
- Industry MPhil	9	5
- Industry PhD Placements	3	3
- Knowledge Exchange Internships (KEIs)	20	36
- 400 hr Placements	50	30
- 80 hr Internships	65	50
Nottingham Trent University		
- Consultancy	63	63
- Placement	63	59
C1: Enterprises receiving support	181	181

² PCR September 2022

C2: Enterprises receiving grants	113	113
C4: Enterprises receiving non-financial support	68	68
C6: Private investment matching public support to enterprises	£1,998,781	£1,898,784

Based on previous experience of delivering the Enabling Innovation programme and actual PTI performance to date, the original targets seem broadly appropriate and realistic.

2.6 Outcomes and impacts

The Programme also has the following outcomes to achieve:

Table 3: PTI Output Targets

Indicator	Lifetime Targets	
	Original	Revised ³
C26: No of enterprises collaborating with research entities	181	122
C29: No enterprises supported to introduce <u>new to the firm</u> products	31	27

The proposed outcomes for the project are appropriate, taking account of the performance of previous innovation projects led by the University, which have resulted in the creation of new FTE jobs (for graduates completing a placement or internship), ongoing collaboration between businesses and the University, and the development of new-to-market and new-to-firm products.

The overall impact is expected to be an increase in GVA, alongside increases in the number of SMEs becoming innovation active, that trade outside of D2N2, and that improve internal capacity for innovation.

2.7 Summary

The analysis of the staff survey indicates that the project plan was comprehensively defined and effectively communicated from the project's inception. The initial objectives of the project were explicitly stated and easily understood, and the resources allocated to the project were sufficient for the team to achieve their goals. Furthermore, the project timeline was appropriately designed and realistically established, ensuring that the project could be completed within the specified timeframe.

Overall, there is a clear need for a project in D2N2 to boost business growth and economic prosperity by supporting SMEs to capitalise on innovation opportunities and increase engagement in innovation. There was a clear rationale for investment, and the delivery model builds on the

³ PCR September 2022

expertise and track record of the 3 Partner Universities in delivering previous innovation projects, particularly the 'Enabling Innovation' programme.

The aims and objectives of the project relate to the economic and policy context, and market failures, it is seeking to address.

The output and outcome targets relate to the activities being delivered, and, based on previous performance of the Partner Universities in delivering innovation projects, are broadly appropriate and realistic.

Although the economic conditions have changed since the development of the project, the need to support SMEs to increase engagement in innovation, and capitalise on innovation opportunities, is as relevant as ever, particularly in the context of continued uncertainty in the market and an overall reluctance to invest in innovation projects.

3 Project progress

3.1 Introduction

This section of the report assesses the progress made by PTI towards the achievement of expenditure and output targets, since the start date in April 2019. The analysis is based on the following sources of information:

- The latest available ERDF monitoring returns and claim, which reports on project expenditure and outputs as at March 2023, alongside the forecasted final outturn for expenditure and outputs by June 2023, provided by the PTI Programme Manager.
- The Project Change Requests (PCR) agreed by DLUHC in December 2019, March 2021 and September 2022.
- Evaluation feedback from staff, stakeholders, graduates, and business beneficiaries.

3.2 Progress towards financial targets

The total resource for PTI was originally £7,140,000, which included an ERDF grant of £3,570,000, alongside £1,541,928 of public sector match funding, and £2,028,072 of private sector match.

Since the original approval in 2019, a number of Project Change Requests (PCRs) have been submitted to DLUHC, with the last approved PCR in September 2022 affecting a slightly reduce project costs. The final agreed total project cost for PTI is £6,941,238, which consists of £3,470,619 ERDF, combined public sector match funding of £1,571,835 from the three partner universities, and private match funding of £1,898,784 as part of UoD and NTU's contribution to funding.

3.2.1 PCR1 December 2019

At the end of Q3 2019, the project was behind plan for expenditure. This was primarily due to resource constraints and the delay in receiving the contract from MHCLG causing a delayed start.

The project was planned to start 1st April 2019, however the funding agreement wasn't signed until the end of May 2019, which caused delays in contracting spend. A key feature of the project was the implementation of a productivity diagnostic which all SMEs had to complete as part of their interventions. The design and approval of this was also delayed, resulting in further delivery delays and negative impacts on both spending and outputs.

A reprofile of outputs and expenditure over the lifetime of the project was requested to reflect the delays described above and to bring the project into line with planned project activity.

UoN requested cost neutral changing to staffing.

NTU requested cost neutral changing to staffing.

UoD requested the following changes to their cost and match profiles to bring the forecast into line with expected project delivery:

- Salaries reduced by £183,439 and overheads by £27,489. This was due to the requirement for consumables and travel as part of the PHD and MPhil research projects with SMEs.
- Other revenue was increased by £210,928 overall. This change took into account the increase in the consumables and travel budgets along with enabling KEIs projects to be between 12-18 months, originally budgeted for 12 months.

- The number of MPhils was reduced from 9 to 5, however the length of time for an MPhil increased from 12 months to 12-18 months.
- Sandwich placements were removed from the project.
- The value of SME match was increased from 950,448 to 1,026,780 to take into account the additional KEIs and to enable these to be from 12-18 months
- The value of University of Derby match was decreased from 239,552 to 163,220
- Business Development Manager was to be called Business Advisor going forward.

No changes to key milestone dates were requested.

The PCR was subsequently agreed on 20th December 2019.

3.2.2 PCR2 March 2021

Covid-19 caused major disruption to SME demand in terms of ability and willingness to commit to medium and long-term innovation collaborations. SME focus was understandably on short-term risk management and adaptation.

It was proposed that failure to extend the project would lead to underperformance against outputs associated with the 12-month graduate placement model. As this was a key strand of activity on the Productivity through Innovation programme, it would lead to a failure to generate enough eligible SME match to make the project viable.

Based on the project's then current contractual end date of 31 March 2022, it would have been impossible for the project to offer SMEs the option of a full 12-month placement in Q2 of 2021. This was because a contracted end date of the placement could not be close to or beyond the end of the programme.

Whilst placement activity had stalled during the Covid-19 pandemic due to SMEs reduced confidence to invest, it was proposed that a 12-month extension would enable the programme to deliver SME support in addressing business challenges and opportunities and play a fundamental role in helping to aid the recovery of local SMEs. The aims, objectives and outputs of the programme remained the same as they were at the outset of the programme. Therefore, the PCR requested to extend the duration of the programme to 31 March 2023.

For the Project Change Request of a 12-month extension, no additional funding was required from the original contracted budget of £7,140,000.00. Reduction in face-to-face events and working from home meant the programme required a smaller budget for marketing, travel and office type activity, especially as less onsite SME visits were occurring with delivery online and less marketing collateral being produced. The programme proposed moving non-staff (marketing, travel, office, consumables and other costs) underspend to direct staff costs.

In addition, UoD requested a move of £47,028 from Private Match to Public Match to cover costs for the extension of programme activity.

The PCR was subsequently agreed on 4th May 2021.

3.2.3 PCR3 September 2022

Changes to expenditure were primarily due to NTU proposing to reduce the overall scale of their project from £2,380,000 to £2,158,125.50, a reduction of £221,874.50.

This was the direct result of SMEs being unable to recruit to vacancies, impacting on the grant funding they were able to offer to support graduate level roles in local SMEs. An unstable, and

often buoyant recruitment market also meant that posts were recruited to only for the role holder to move on within a matter of months as they were able to secure a better paid role at a new employer. Particularly during the pandemic businesses offered more flexibility with hybrid working and employees were able to be very choosy about new roles without the same geographic constraints that had been present in the labour market. NTU's model offered a grant of 20% of the salary of a graduate role for up to one year, with the 80% SME contribution being captured as match. This unforeseen recruitment issue significantly impacted upon the amount of private sector match funding NTU were able to generate within the project timescales. It was therefore decided to reduce the project SME match requirement by £129,288.

NTU also took the PCR as an opportunity to revisit some of their cost headings;

- Staffing costs were reduced as a result of not fully utilising salaries when they had experienced vacancies; this subsequently drives a reduction in the flat rate overheads.
- Reduction in marketing costs, due to the utilisation of digital channels rather than print and other media.
- Increase in consultancy costs to buy in some external expertise required on their upcoming Employee Engagement workshop series.

In addition, UoN's reprofiling to actuals for Claims 1-13 and additional costs associated with extending activity into Q2 of 2023 resulted in an overall increase in total expenditure of £23,113.32 compared to their current profile. This increase was made possible due to financial decommitment within the proposed NTU budget and did not require any increase in the total ERDF Grant payable. UoN confirmed an increase of £11,556.66 in Public Match Contribution, from £1,190,000 to £1,201,556.66.

3.2.4 Performance to Date

Between April 2019 and 31st March 2023⁴ the project had defrayed expenditure totalling £6,497,162 (93.6% of the target). Of this figure, £3,248,581 is ERDF grant, £1,810,851 is private sector match, and £1,440,126 is public sector match.

By the project end date of June 2023, total project expenditure is expected to reach £6,908,918, which is 99.5% of the total approved project costs.

As a result, the financial performance of the project has been rated as 'green' (forecasted performance at project closure greater than 95% against total budget value).

Table 4 summarises actual performance against expenditure targets as reported in the January – March Claim (Claim 16), alongside Forecasted final expenditure performance by June 2023.

⁴ The date of the most recent ERDF claim at the time of the evaluation

Table 4: Spend performance (as of 31st March 2023)

Indicator	Lifetime Targets		Performance (as of March 2023) ⁵		Forecasted performance at project closure ⁶		Overall assessment
	Original	Adjusted ⁷	No.	% of Target	No.	% of Target	
Revenue expenditure (£m)	£7.140m	£6.941m	£6.497m	93.6%	£6.941m	99.8%	
Public sector contributions	£1.542m	£1.571m	£1.440m	91.6%	£1.569m	99.8%	
Private sector contributions	£2.028m	£1.898m	£1.810m	95.4%	£1,893m	99.7%	
ERDF	£3.570m	£3.470m	£3.248m	93.6%	£3.462m	99.8%	

Overall, PTI has made strong progress towards its expenditure targets, defraying 99.8% of total project costs.

3.3 Progress towards output and outcomes targets

The progress made by PTI towards the approved output and outcomes targets is presented in Table 5. The table shows actual outputs and outcomes achieved and reported in the most recent available ERDF claim (as of March 2023), along with forecasted outputs to the end of June 2023. Over the lifetime of the project, 2 output and outcome targets have been reduced (C26 & C29), in line with lower project costs.

⁵ Based on financial information provided in the Jan – Mar 2023 claim

⁶ Based on final expenditure figures provided by the Programme Manager

⁷ Final Project Change Request agreed in Sept 2022

Table 5: Progress towards output and outcomes targets, as of June 2023

Indicator	Lifetime Targets		Performance (As of March 2023)		Forecasted performance at project closure ¹		Overall assessment
	Original	Adjusted ¹	No.	% of Target	No.	% of Target	
C1: No enterprises receiving support	181	181	218	120.4%	222	122.7%	
C2: No enterprises receiving grants	113	113	107	94.7%	109	96.5%	
C4: No enterprises receiving nonfinancial support *	68	68	124	182.4%	124	182.4%	
C6: Private investment matching public support to enterprises	£2,028,072	£1,898,784	£1,817,998	95.8%	£1,893,495	99.7%	
C26: No of Enterprises cooperating with research institutions	127	122	93	76.2%	122	100.0%	
C29: No enterprises supported to introduce <u>new to the firm</u> products	31	27	11	40.7%	23	85.2%	

The Programme's progress towards each of the key contracted ERDF output indicators is discussed in the next section of the report.

3.3.1 C1: Number of enterprises receiving support

The target is to support a total of 181 unique businesses with a mix of financial and non-financial support. As at March 2023, a total of 218 C1 outputs had been reported (120% of the target). This is forecasted to increase to 222 C1 outputs by June 2023, the end date of the project, equating to 123% of the overall project target. For this reason, performance has been rated as 'green'.

3.3.2 C2: Number of enterprises receiving grants

This output indicator is a subset of C1: Number of enterprises receiving support. The target is to support a total of 113 businesses with grants of at least £1,000 towards the salary of a graduate placement or Knowledge Exchange Internship. As at March 2023, a total of 107 C2 outputs had been reported (95% of the target). This is forecasted to increase to 109 C2 outputs by June 2023, the end date of the project, equating to 96% of the overall project target. For this reason, performance has been rated as 'green'.

3.3.3 C4: Enterprises receiving non-financial support

This indicator is also a subset of the C1 output measure and relates to businesses supported through UoN Placements activity, who are receiving fully funded innovation advice or expertise (a minimum of 12 hours of support) to build their innovation capacity, and progress with their innovation project.

As at March 2023, a total of 124 C4 outputs had been reported (182% of the target). This is expected to remain unchanged for the final claim period of the project. For this reason, performance has been rated as 'green'.

3.3.4 C6: Private investment matching public support to enterprises

The target is to secure private match funding totalling £1,898,784. As at March 2023, a total of £1,817,998 had been reported (96% of the target). This is forecasted to increase to £1,893,495 by June 2023, the end date of the project, equating to just under 100% of the overall project target.

Evaluation feedback indicates that there have been a number of challenges in delivering the placements and KEI's, which has impacted on the level of private sector investment generated. For example, the majority of SMEs have benefited from a 26-week placement, rather than a 52-week KEI, which has had a negative impact on the level of company contributions towards graduate salaries. Despite these challenges, the project has almost met the overall target. Therefore, performance has been rated as 'green'.

3.3.5 C26: No of Enterprises co-operating with research entities

This target is that a total of 122 enterprises will collaborate with a research institution as a result of the project. Collaborations are intended to be 'long-term and sustained and are distinct from enterprise support. Benefit must be conditional on some form of formal co-operation.'⁸ This includes, for example, joint ventures, spin-out businesses, or joint and long-term development of new businesses or services.

⁸ Output indicator definitions guidance for the European Regional Development Fund. Version 6: June 2018

As at March 2023, a total of 93 C26 outputs had been reported (76% of the target). This is forecasted to increase to 122 C26 outputs by June 2023, the end date of the project, equating to 100% of the overall project target. For this reason, performance has been rated as 'green'.

3.3.6 C29: number of enterprises supported to introduce new to the firm products

As at March 2023, a total of 11 C29 outputs had been reported (41% of the target). This is forecasted to increase to 23 C29 outputs by June 2023, the end date of the project, equating to 85% of the overall project target (see Section 2.3.4.). For this reason, performance has been rated as 'amber'.

3.4 Summary

- PTI has made strong progress towards its revised expenditure target, defraying 99.6% of total approved project costs.
- Whilst the majority of output and outcome targets have remained static or subject to minor reductions over the lifetime of the Programme, targets for all but the C29 have been either exceeded or delivered within 5% of their profile targets. This suggests a high level of delivery flexibility and continued interest from businesses in the support offered by PTI.
- Overall, the Programme has made good progress towards the revised output and outcomes targets, with some of the key project targets being exceeded. E.g. 218 unique SMEs supported against a target of 181 (C1), 124 SMEs receiving non-financial support against a target of 68 (C4).
- The revenue expenditure for public and private match is forecast to have less than 0.3% variance to profile.

4 Project delivery and management

4.1 Introduction

This section explores the success of implementation, governance, and management of the project. The effectiveness of the programme is based on the survey results and feedback from beneficiaries (SMEs, placement students), staff and other stakeholders.

This section also explores the delivery areas of the project, including the comparison of total number of businesses that received treatment and those that did not receive treatment, their characteristics, and the characteristics of graduates on placement/internship. There are also insights on areas for improvement.

4.2 Targeting

The PTI project is an in-depth programme to drive productivity in the D2N2 (Derby, Derbyshire, Nottingham & Nottinghamshire) Local Enterprise Partnership (LEP) area to improve the productivity of SMEs. PTI seeks to improve productivity through innovation, to help SMEs create demand for existing, new, or improved products and or services, through knowledge exchange and providing a supportive environment for innovation.

The project will have supported in excess of 218 SMEs by 30th June 2023 by providing direct intervention to businesses through academic / technical placements and a minimum of 124 businesses receiving non-financial support.

The following analysis is based on data collected from the University of Nottingham and its delivery partners – University of Derby and Nottingham Trent University, graduates, staff and beneficiary businesses.

4.2.1 ERDF Eligibility

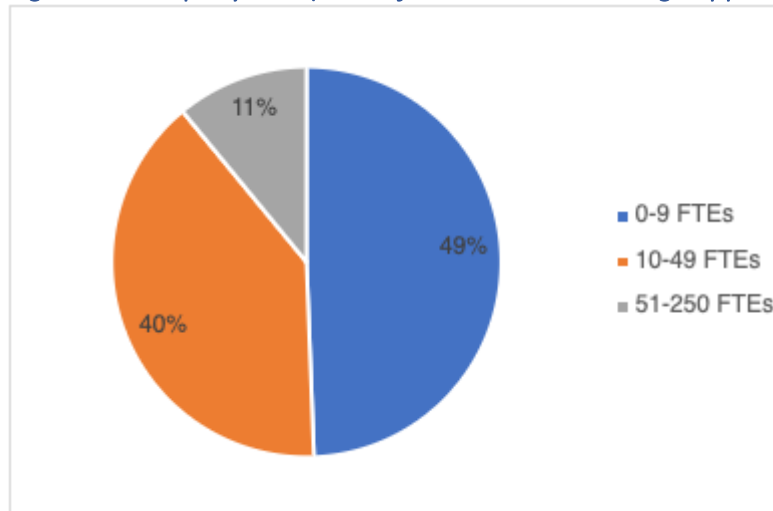
The three universities have nominated 'Academic Productivity Champions' to be a part of the advisory panel to govern the activities of the project. Having a closer working relationship between the three Universities has driven them to overcome unforeseen challenges and stay focused on providing tailored interventions for businesses in the D2N2 area.

It had been the original intention for the project to be rigorously selective about the SMEs that would be enrolled on the project; to specifically target those businesses that would offer major productivity gains for the region. However, this ambition was suspended due to the pandemic, with the main imperative being to support any businesses that needed our support.

All businesses supported by PTI are based in the D2N2 area. The sample of 164 businesses that received financial support in the form of placement and KEIs were distributed as in Figure 3:

- Micro-businesses with fewer than 10 FTEs (Full-Time Employees) is 49%
- Small businesses with 10 to 50 FTEs is 40%
- Medium-sized businesses with 51-250 FTEs is 11% (18 businesses)

Figure 3: Company size (FTEs of businesses receiving support)



Source: Business survey

4.2.2 Company characteristics

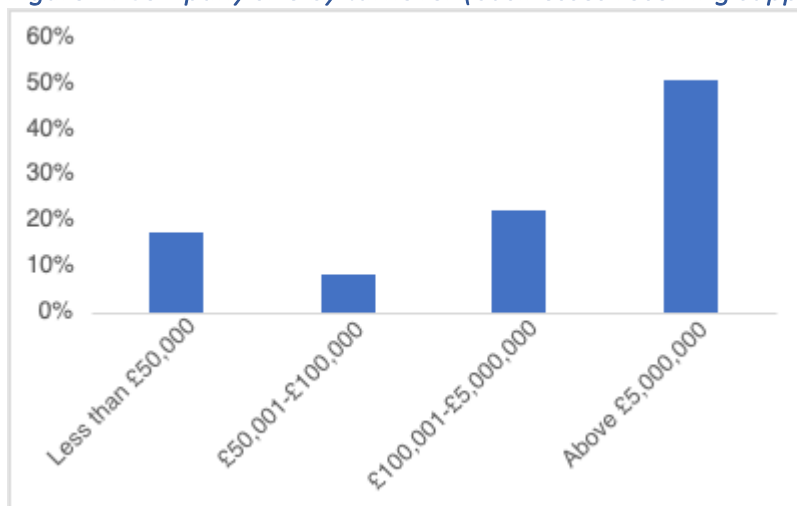
All SMEs supported by the PTI project meet the ERDF criteria.

To provide an overview of the businesses seeking help, Figure 4 provides a summary of the annual turnover of the businesses prior to seeking support from PTI.

The analysis is based on the sample of 164 businesses that received support from PTI.

Approximately half of the businesses (49%) have a turnover of less than £5 million with another 51% of businesses having a turnover of above £5 million.

Figure 4: Company size by turnover (businesses receiving support)



Source: Business survey

This is consistent with evaluation feedback, which suggests PTI supported a combination of businesses that had been established several years back, and smaller, younger businesses that have been set up recently.

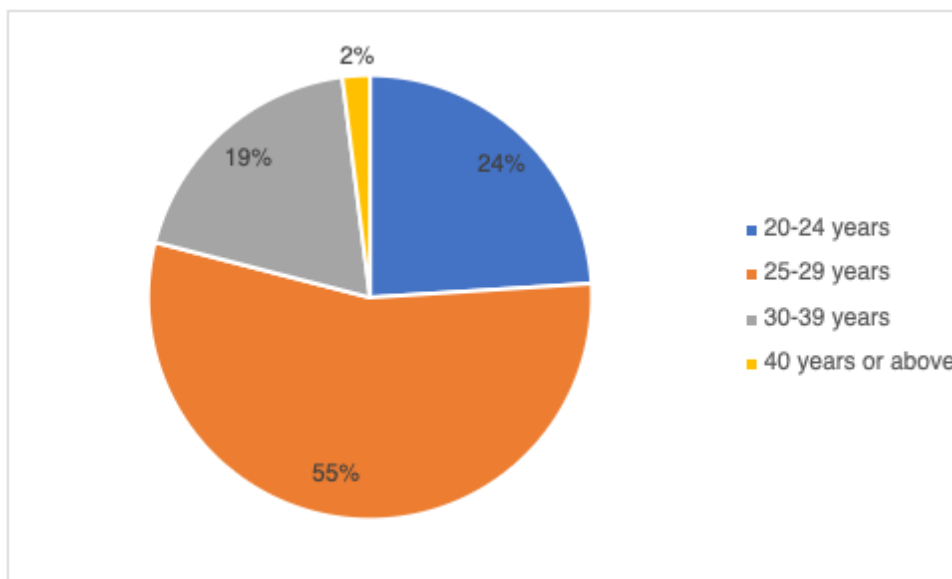
Feedback through the Staff Survey suggests that majority of the businesses that approached the delivery partners for support already had an idea of the innovation project and needed help to

develop it further. In some cases, businesses had already identified an innovation project and needed help to deliver it.

4.2.3 Characteristics of Students supported

The key strands of the PTI Programme are Knowledge Exchange Internships and Graduate or Postgraduate Placements. Of the 132 graduates from UoN who provided feedback about their placement or internship, 55% were aged between 25 and 29 years, 24% were aged between 20 and 24, and 19% were aged between 30 and 39 years (see Figure 6).

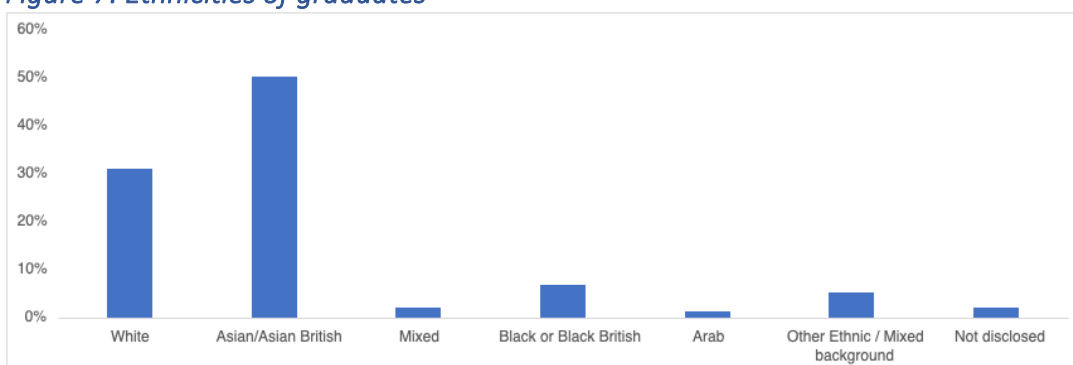
Figure 6: Age of graduates



Source: Graduate survey

Of the 132 students of UoN who filled out the survey, there were students of various ethnic backgrounds selected for placements with 50% Asians / Asian British students, 31% of White / Other White ethnicities and 18% of students from other ethnicities.

Figure 7: Ethnicities of graduates



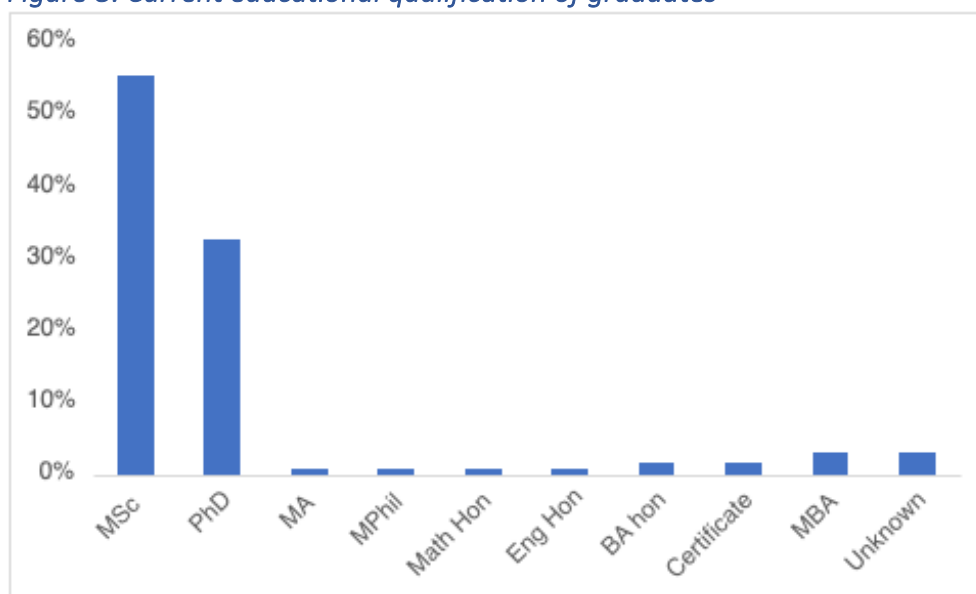
Source: Graduate Survey

Most of the graduates were studying sustainability in Building, Technology, Energy Engineering, Hydrogen CDT, and Transportation. Other courses were Biotechnology, Business and Management, Computer Science, Economics and Data Science, Environmental Engineering, Human-Computer interaction, and many other varied fields.

Findings suggest that 10% of the 132 graduates that took the survey reported a disability, including AD(H)D, learning impairment, dyslexia and mental health conditions. The gender of the graduates is approximately equal with around 46% being women and 54% men.

Graduates were also asked what their current educational qualification was, and more than half (55%) of the 132 respondents were MSc students and 33% were PhD students.

Figure 8: Current educational qualification of graduates



Source: Graduate Survey

4.3 Quality and effectiveness of delivery

4.3.1 Introduction

This section considers the quality and effectiveness of delivery of the PTI programme. It is based on feedback from businesses and graduates, as well as programme staff and stakeholders.

4.3.2 Awareness raising, demand and referrals

The majority of the businesses supported through the programme had already received placements with the previous project Enabling Innovation and came back for the second or third round of placements⁹. This has increased the Universities' ability to provide tailored technical support, involvement with research initiatives and further placements.

Demand for the PTI programme peaked in 2020 and 2021 as the Programme was more sought after by small and micro businesses which were affected by Covid 19. Various promotional activities were undertaken by UoN, NTU and UoD, including but not limited to, direct marketing, referral by the local Growth Hubs, networking events and social media.

The Universities NTU and UoD have a wide network of businesses from the previous project

⁹ ESIF-Form-2-010 Full Application Form – Productivity Through Innovation v17 May 2018

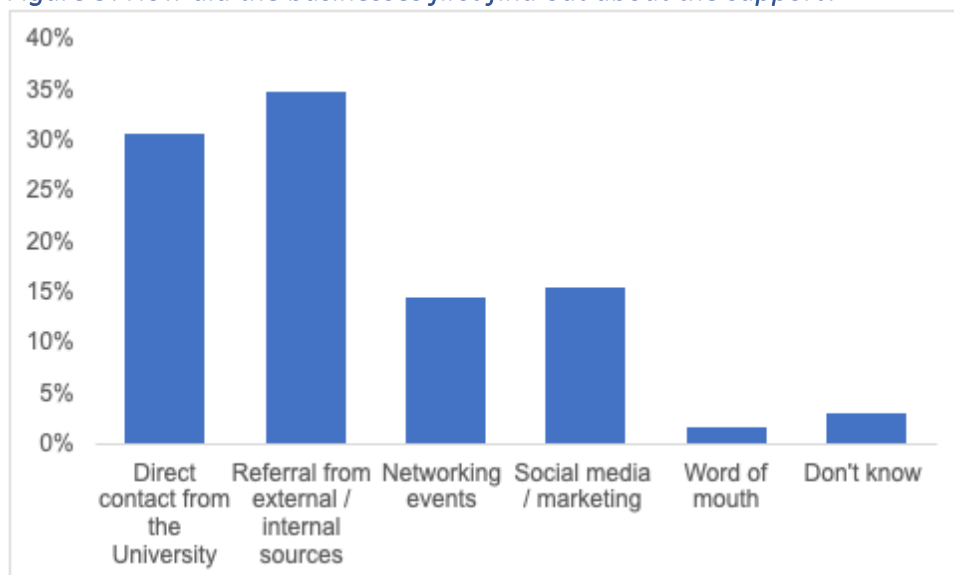
'Enabling Innovation' which delivered 383 placements based on a different model but were mainly based in the Nottingham and Derby city areas.

The partners held around 8-12 events each year which, included workshop programmes, to ensure businesses of all sizes had access to take part in the programme. PTI was publicised in several ways, for example:

- Website and social media of all three Universities;
- Marketing events;
- Press Releases;
- Printed materials, including posters of the project displayed in public areas of the Universities.

Staff from the three delivery partners were asked about the referral pathways of the businesses that received support from PTI;

Figure 9: How did the businesses first find out about the support?



Source: staff survey

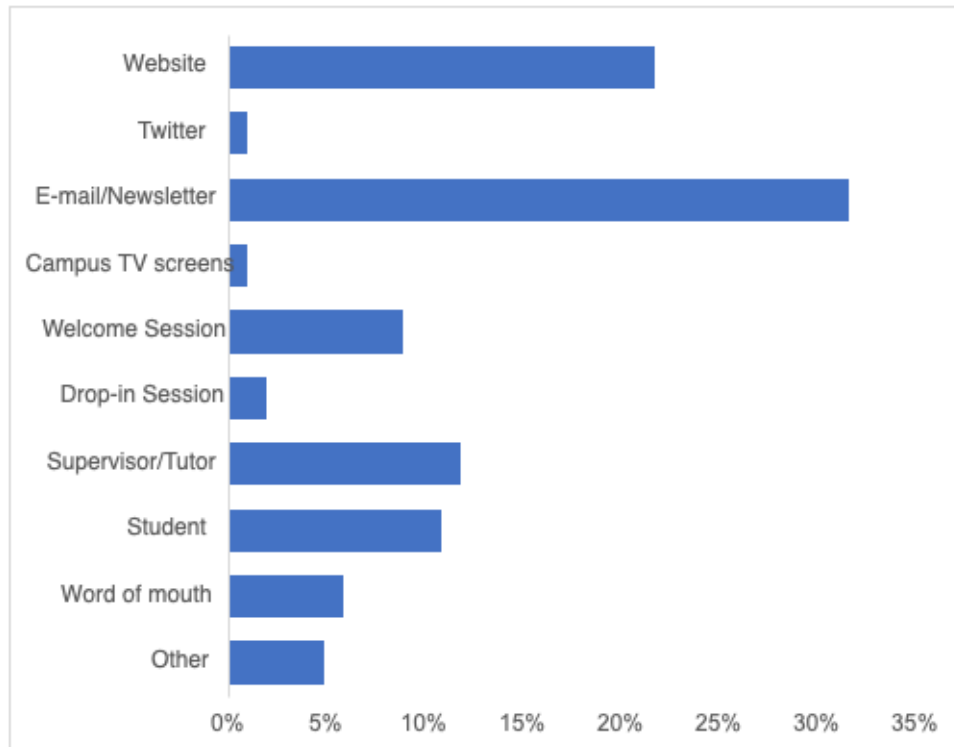
Figure 9 percentages are from a sample of 193 businesses and their referral pathway. The highest percentage of businesses (35%) found out about the programme through a referral from external/internal sources (Other projects, consultants, other PTI businesses, staff-career service and Growth Hub), 31% through direct contact from the Universities, 16% through social media/marketing and 15% through networking events.

4.3.3 How graduates found out about the support

To explore the effectiveness of the marketing and communication activities targeted at graduates, they were asked how they first found out about the placement or internship.

Over 32% of the students found out about the programme through the Emails / newsletters sent to students via the University and over 22% found out about it through the University website. Supervisors, tutors and welcome sessions also publicised the placement programme, which in turn increased the student referrals and word of mouth.

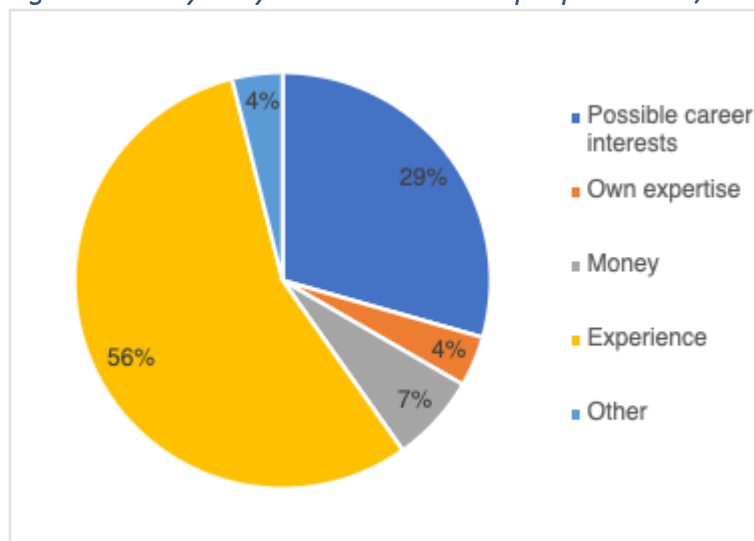
Figure 10: How did you first find out about the support?



Source: Graduate Survey

To help understand graduates' motivations for participating in the programme, they were asked why they decided to take up a placement/internship.

Figure 11: Why did you decide to take-up a placement/internship?



Source: Graduate Survey

The majority of the students (56%) said that they did it to gain **experience** in their field of study and interest. They also wanted to explore their **possible career interests** (29%) as the placements aimed to improve their time management skills, human resource management and material resources management.

Take-up of support by Programme Strand

The project staff indicated that the success of the project can be attributed to the strong collaboration between partners, which remained resilient despite the challenges brought about by the pandemic. The project has provided valuable experiential learning opportunities for postgraduate students and has supported local businesses by establishing strong partnerships and facilitating the exploration of novel offerings.

The project has surpassed its output goals while remaining on budget, which is a testament to the team's ability to pivot and adapt. The postgraduate-SME model has proven to be robust and beneficial, highlighting the success of internships and academic consultancy. The project's outcomes have been exceptional, providing substantial support to local businesses and offering valuable skill sets to postgraduate students. Overall, the project's success can be attributed to the team's collaborative approach, resilience, and ability to adapt, making it a remarkable achievement.

While the project encountered several frustrating obstacles, the team's ability to pivot and adapt quickly helped them overcome these challenges. The highly bureaucratic and administrative nature of ERDF funding and the turnover of contract managers, as well as the limitations posed by the survey and geographical restrictions, were some of the most significant frustrations experienced.

Despite not meeting all the original objectives, the project still provided valuable experiential learning opportunities to postgraduates and supported businesses through the uncertain period caused by the pandemic. The team recommends establishing clear goals and requisites at the outset of future projects and developing a more robust marketing plan to improve client acquisition. Overall, the project taught the team important lessons and provided them with valuable experience for future endeavours.

4.3.4 Position in the market

The demand for PTI was slightly lower than expected due to the pandemic and issues in staff resource planning due to the economic downturn associated with the war in Ukraine. As per the business survey, some businesses did not want to employ more people, fearing that they would not be able to commit long-term, rising costs of recruitment, industry-wide issues and internal staffing issues.

There were a number of similar business support offers within the D2N2 area, though other ERDF funded projects were mainly commissioned to address Priority Axis 3 (Enhancing the Competitiveness of Small and Medium Sized Enterprises), rather than PTI's specific focus on Promoting research and innovation (Priority Axis 1). This said, it must be acknowledged that PTI's requirement to work with only SMEs to meet ERDF eligibility, resulted in a number of D2N2 specific projects following very similar routes to market and selection criteria during their client acquisition phases.

UoD offers KEIs as a part of its Ensite 3 programme, this does not interfere with the aims of PTI as they have a different focus.

MediLink's 'Inspiring Network to Stimulate Technological Innovation in Life Sciences' (INSTILS) receives funding under the same D2N2 PA1 project, but the major difference is that PTI is aimed at SME innovation and productivity improvements; however, INSTILS is dependent on new product development and enterprises creation in the medical / life sciences arena.

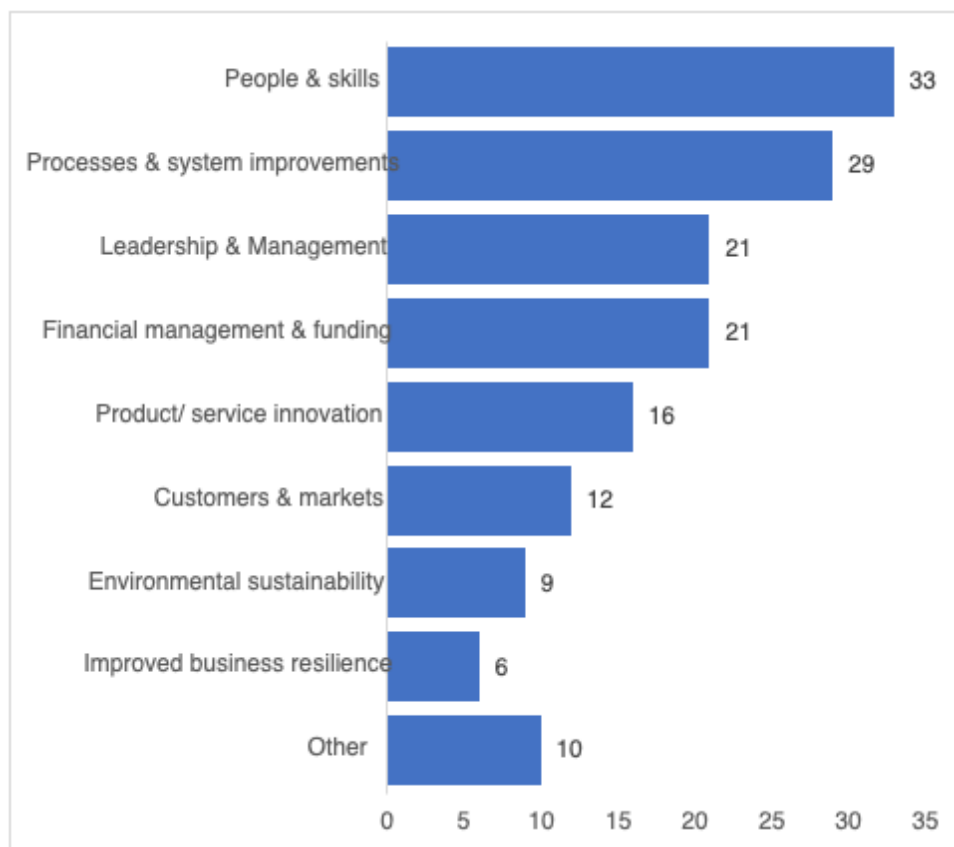
Table 6: Business assist targets for each strand (March 2023)

Productivity through Innovation	Original Target (C1: Number of enterprises supported)	Revised Target (C1: Number of enterprises supported)	Achieved (C1: Number of enterprises supported)
University of Nottingham	62	63	64
Postgraduate Placements	x	x	171
Nottingham Trent University	59	59	54
Placements	63	59	58
Consultancy	63	63	63
University of Derby	60	60	100
Industry PhD (3 years)	3	1	1
Industry MPhil (1-2 years)	9	5	4
Industry PhD Placements (3 months)	3	3	2
KEIs (1 year)	20	36	43
400 hr Placements	50	30	25
80 hr Internships	65	50	50
TOTAL (GROSS)	181	181	218

The PTI programme has supported or will support over 218 unique SMEs by the end of June 2023. To achieve these objectives, the three delivery partners delivered various types of placements, Knowledge Exchange Internships and Academic Consultations, each with their own Outputs target profiles.

Post support, businesses were asked what additional needs they had identified (Figure 12).

Figure 12: What (if any) additional support needs have you identified for your business?



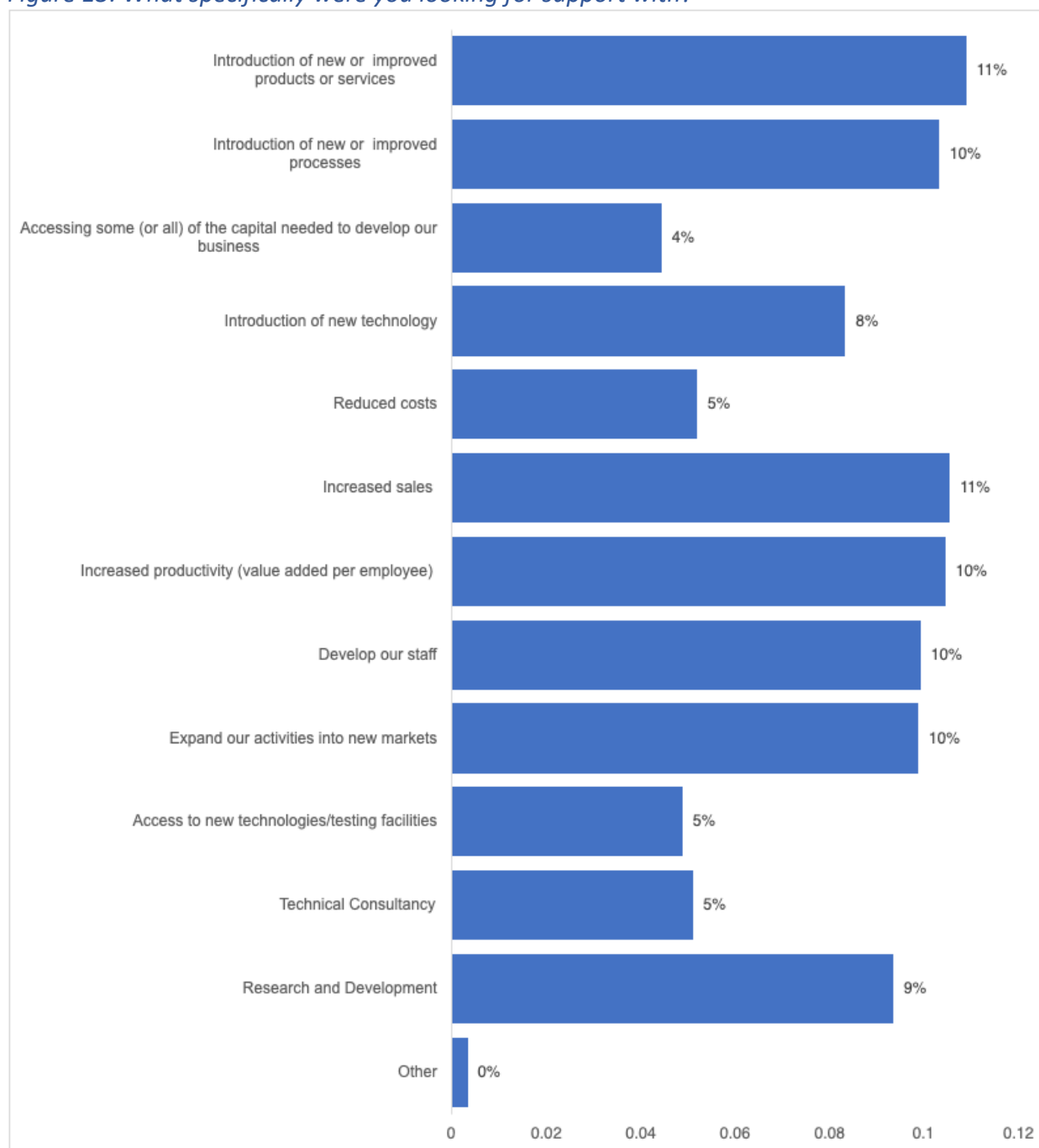
In a sample size of 84 from the Exit Survey, 33 businesses said that they needed additional skilled employees, 29 businesses said an improvement in the existing processes & systems. Businesses (21) also were looking for help with management, understanding finances and funding. There was also a need for innovation, increasing customer base, increasing sustainability of operations, and increasing resilience to changes in the market.

4.3.5 Support needs

Businesses were asked what they were looking for when they sought support from PTI in the Baseline Survey. They were allowed to choose from multiple options.

The graph below shows 165 businesses that received financial support and 253 businesses that did not receive financial support provided a total of 2261 responses. Figure 13 illustrates what support businesses were looking for when they first accessed the project.

Figure 13: What specifically were you looking for support with?



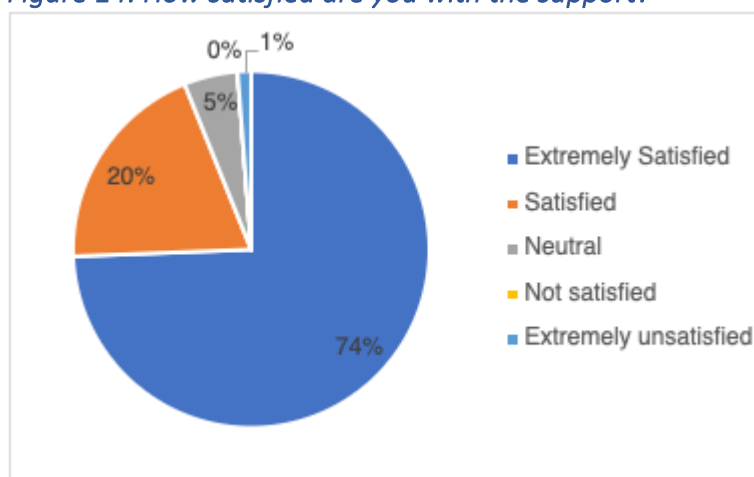
Source: Business survey

The most common answers when combined were that they wanted to create and or improve their products, services, and processes (21%). The most common area of support required by businesses was help with increasing sales, productivity, staff development and expansion into new markets. Research and Development and the introduction of new technology were also important factors that businesses considered. They wanted to do this by recruiting graduates or receiving consultation from Academics in the Universities.

4.3.6 Ratings of support, benefits, and meeting needs

Businesses were asked to rate how satisfied they were with various aspects of the support received from PTI.

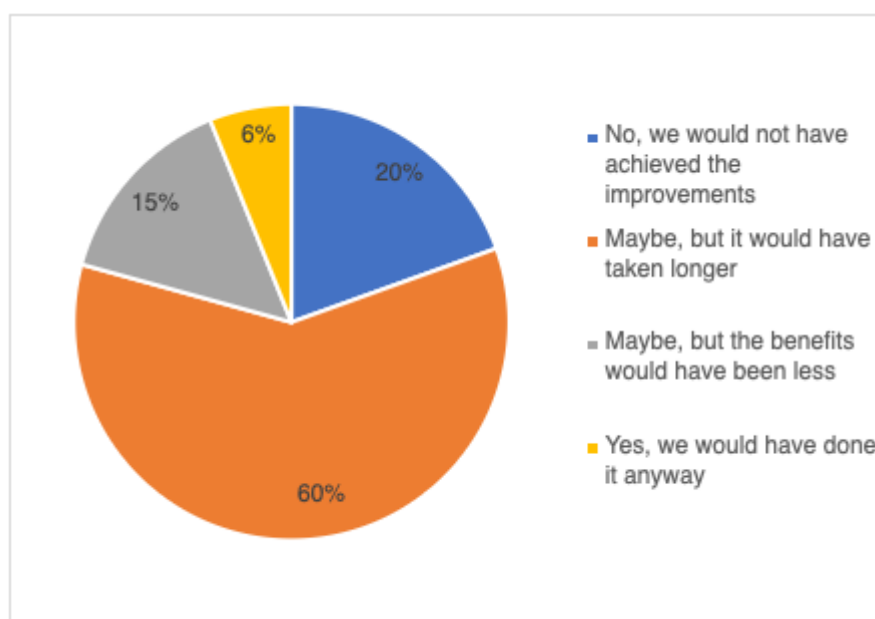
Figure 14: How satisfied are you with the support?



Source: Business survey

Overall businesses reported being satisfied with the support, rating each of the key indicators highly. Around 74% of the businesses were extremely satisfied and 20% were satisfied.

Figure 15: Would you have achieved the improvements without the support of PTI?



Source: Business survey

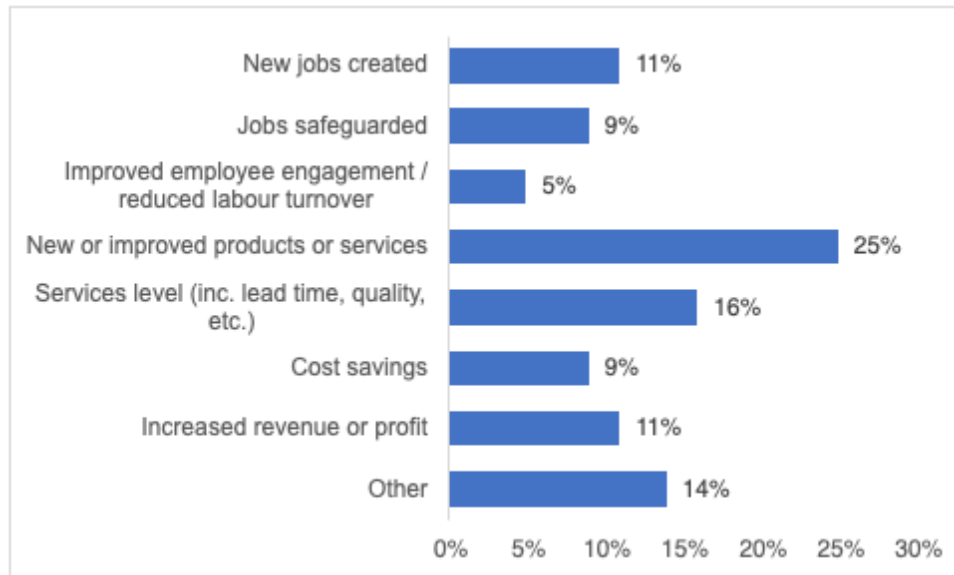
Most businesses had identified their business needs and were asked if they would have achieved the results without the SME intervention (Figure 15).

As per the Exit survey, 20% of businesses say that they would not have achieved the improvements without the intervention, with 15% reporting PTI enhanced their capacity to make productivity improvements.

Around 60% businesses said that they would maybe have achieved the goals, but it would have taken them longer without the intervention.

Only 6% businesses say that they would have achieved the desired productivity improvements even without the intervention.

Figure 16: What evidence or examples do you have to show the impact of the support on your business?



Source: Business survey

The feedback from the exit survey indicates that the most beneficial aspects of the support were that a quarter of the businesses generating New or Improved Products or Services (25%), Improved Quality in Providing Services (16%), Increased Revenue or Profit (11%), and New Jobs Created (11%).

Other benefits include increased potential opportunities, receiving academic feedback with the latest knowledge in industry practices, and added value from the graduate placement giving them a fresh perspective.

4.3.7 Strengths, weaknesses, and areas for improvement

The majority businesses said that they found all aspects of the support exceeded or met their expectations. A small number of businesses made suggestions for improvement. The main area of improvement is to increase the amount of time or support available to businesses.

Some comments on the strengths of PTI are:

'... As a newly established business, the project has helped us to achieve what we needed to, much for efficiently than we would have been able to. This has helped us to achieve some shorter-term goals and has lasting impact for future service delivery and funding streams. We are grateful to the whole team who have helped with this - the whole process has been supportive and clear; this is particularly helpful in a fast-paced environment.'

'PTI provided an impartial opportunity to provide staff-specific insights into our efforts to engage with our colleagues. It helped highlight areas where we could further improve our staff engagement activities and provide better company communications.'

Some comments on improvement are:

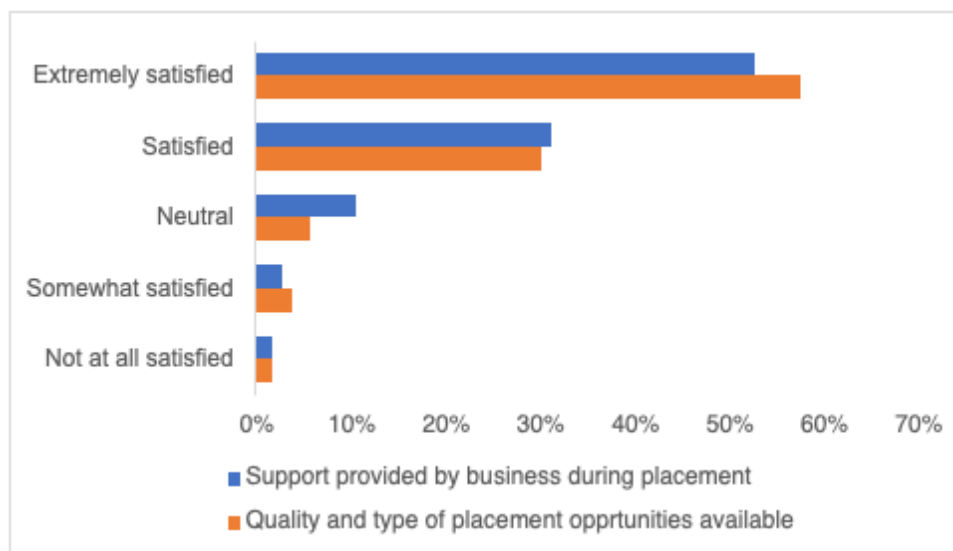
'...the delay in agreeing to progress our business case, but this is more to do with government finances and the political landscape.'

'Work was occasionally held up by the students' other commitments, but this was to be expected, and their academic work always has to be of primary importance.'

4.3.8 Feedback from graduates

Graduates were asked to rate how satisfied they were with various aspects of their placement or internship.

Figure 17: How would you rate the following aspects of your placement/internship?



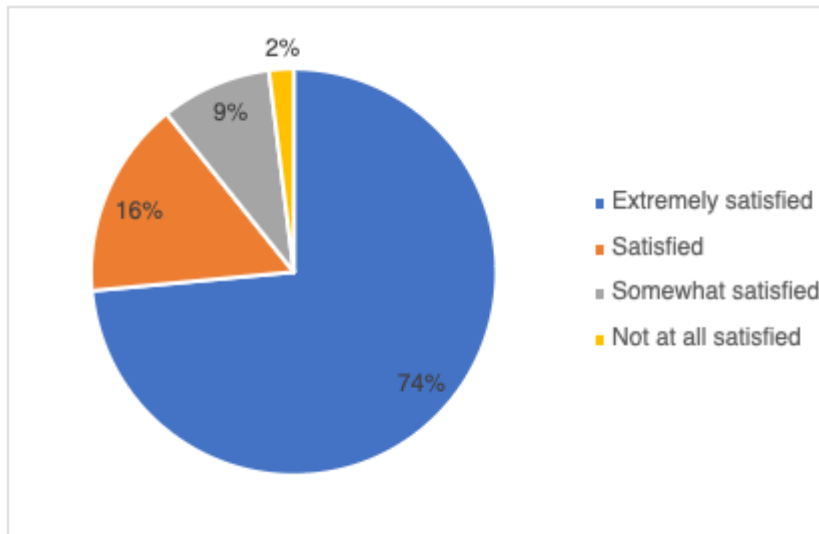
Source: Graduate survey

Graduates were asked to rate other aspects of the support, including independence while working on the placement, the one-to-one support they received from their supervisor / manager, if the placement broadened their goal of enhancing / broadening overall knowledge, if they had learnt any new technical / scientific skills, and if the placement matched their skills.

In the sample of 102 survey responses, most of the students were extremely satisfied (58%) or satisfied (31%) with the support provided by the business during their placement and the types of placement opportunities available.

Graduates were also asked to rate the overall extent to which the placement had met their needs.

Figure 18: To what extent did the scheme meet your needs and expectations?



Source: Graduate survey

For about three-quarters of the graduates (74%), the placement was beyond their expectations, while 16% said it met all their needs and the remaining 9% felt it met some of their needs.

Graduates identified the most helpful aspect of the placement as being the opportunity to learn new things and gain more experience. Specific comments suggest that for some, the opportunity has helped to improve their skills and knowledge, as well as their future career prospects.

"I've made valuable contacts during my placement - I've been offered further employment opportunities as a result."

"It has given me the platform to integrate the skills and knowledge that I've gained since coming here to Nottingham, with the ones I've gained in the past through work and having the opportunity to discover how I could apply them was rewarding for me."

"Very approachable supervisor, who answered all questions and was very good with communication. Supportive of all the work and very accommodating given the covid 19 situation and studies overall".

The aspects of the placement that graduates expressed as a dislike was due to covid 19, hours assigned and the distribution of work on the placement clashing with their studies. When asked about what they disliked about the placement, some comments were;

"It took some time to get my ideas understood / point across"

"Time pressure was high due to shortened length of placement (shorter than originally intended due to delay in hiring)"

"Some smaller goals for every 3/4 weeks would help to plan the project and manage time (this was done but not in as much of a rigid format, so deciding on goals before the project started and checking that they had been hit each month would help)."

4.3.9 Feedback from businesses not receiving support

Many businesses did the initial enquiry and approached the Delivery Partners to receive support but did not proceed with the productivity diagnostics process. To better understand their reasons / constraints, staff from all three partners were asked the reasons why businesses did not go ahead with the support and if there were any common themes.

Many businesses did not proceed with the project as there were too many time constraints. Reasons given for this included;

- Did not have time to train an intern;
- They were too busy working on other projects to dedicate time to improve productivity;
- Too busy working in the business to stay afloat after the pandemic that they could not find the time to work on developing the business.

A very small percentage did not want to go through the diagnostics process/ did not want to provide information regarding their business.

They already had too many projects that were ongoing and did not meet the eligibility criteria.

4.4 Horizontal principles

This section of the report explores the extent to which the two ERDF cross-cutting principles of equality and diversity, and environmental sustainability have been integrated into the project.

4.4.1 Equality and Diversity

All three partners of PTI the programme sought to promote and market the programme to all eligible businesses and not make any distinction between men or women or distinguish based on specific or protected characteristics. The gender profile of project beneficiaries was monitored. Some measures undertaken to ensure the PTI programme was accessible were;

- Equal opportunities policy is extended to all recruitment activities: the students come from all ethnic and economic backgrounds and were monitored in the students selected for the placements for PTI;
- All three University buildings used for business facing activities are fully compliant with all accessibility requirements;
- Programme publicity materials and case studies included both men and women;
- With respect to the Equality Act, 2010, care is taken to eliminate unlawful discrimination and provide equal opportunity irrespective of age, disability, gender reassignment, marriage and civil partnership, pregnancy and maternity, race, religion or belief, sex and sexual orientation.

4.4.2 Environmental sustainability

The partners of PTI worked together to ensure their activities have minimal negative impact on the environment and have undertaken measures to ensure minimal use of energy, water and have reduced waste. Businesses were encouraged to use public transport while travelling to events / workshops in the Universities, as these were centrally located.

UoN and NTU have had measures in place to reduce carbon emissions by 2020 and are in the top 10 sustainable Universities of 'Green Metric of World Universities'.

UoD has achieved an EcoCampus Gold Award.

The PTI project has provided the opportunity to support many businesses to enhance their Sustainability measures, for example;

- Marketing Strategy for disruptive displacement of single use disposable takeouts
- Marketing and Sustainability Strategy Development
- Energy Profiling Software Project
- Net Zero 2030 Carbon Calculation Tool
- Sustainability Strategy Review and Plan

4.5 Management and governance

The three partners of PTI have set up their individual university project management teams, which have been responsible for their institutional finances and outputs. The overall project oversight is the responsibility of the 'Productivity Through Innovation Project Group' consisting of the senior institutional / project staff with their prior experience and knowledge of working together on large scale complex funded projects. They also had the authority to make changes as per the market demand and facilitate referrals between the delivery partners.

Each delivery partner had an 'Academic Productivity Champions' who provided specific advice to the Project Group and had meetings on a scheduled basis or ad-hoc if requested.

COVID-19 brought about a permanent change in the way people work, and the project team was able to adapt to this change by innovating and being flexible. Despite the challenges posed by the pandemic, the team have successfully met their targets and engaged with new businesses, establishing partnerships with businesses they had not previously worked with.

Staff survey indicates that the most satisfying aspect of the project was undoubtedly the revelation of project outcomes, where the team learned about the successes achieved and the mutual benefits reaped by all parties involved. The project staff also said that witnessing the growth and development of both the clients and postgraduates, and their achievements through the project, was an immensely rewarding experience for the team. Moreover, the seamless collaboration between the three universities was particularly gratifying, with numerous success stories of businesses benefiting from their collective support, demonstrating a strong partnership among all three parties.

The team's ability to provide effective SME support and work cohesively as a team has been a source of great satisfaction, and they remain dedicated to continuing this important work. Overall, the success of the project is a testament to the team's outstanding collaboration and hard work.

4.6 Summary

- Overall, the PTI project has been well targeted, as it engaged with SMEs in the D2N2 area with no duplicates or deadweight.
- The project has exceeded the market demand by delivering more than the target C1 support. The project increased momentum in 2020 and 2021 to deal with the effect the

pandemic had on SMEs. There has been steady demand in the D2N2 area, and many businesses associated with the University with the previous programme came back to receive support through PTI.

- A wide range of channels were used to raise awareness and increase demand for PTI project and surveys suggests that direct contact from the universities and referral from internal or external sources being most effective channels. Graduates were also made aware of the placements through various channels with direct email / newsletters from the universities being the most effective channel.
- The high satisfaction rate of the quality of the placement made the businesses request for further support through additional placements. The graduate survey also confirms this result of high satisfaction because it aligned with their career interests and the skill requirements.
- The most beneficial aspect of the project for businesses was new or improved products or services, improved quality in providing services and increased revenue or profit.
- Businesses and graduates provided feedback for improvement, with the majority of businesses hoping the placements would be for longer duration, and graduates requiring additional time to get familiar with the business environment and time pressures to fit work in their academic schedule.
- PTI has several horizontal themes integrated into project delivery and the normal working practices of the delivery partners. The universities already had existing policies on Equality and Diversity, which were embedded in the PTI delivery and processes. This was also evident in the sustainability of the wider operations of all three universities, which in turn helped in the development of productivity and innovation projects promoting sustainability within the delivery and support offered to the SMEs.
- The PTI staff structure was adequate, with each University having their own PTI Project Lead recruited full time on the project and utilising other staff from within the University, all of whom had other clearly defined roles and responsibilities.

5 Project outcomes and impacts

5.1 Introduction

PTI aims were to deliver an in-depth programme of productivity support for D2N2 SMEs.

The intention of PTI was to develop a standardised productivity diagnostic which would inform all business intervention activities. The productivity improvement activities were assessed against the original diagnostic. This helped identify the progress and informs future interventions on the best practices in supporting productivity growth in D2N2 businesses.

5.2 Progress towards outcomes and impacts

The extent to which project delivery has generated its intended outcomes and impacts is assessed below. Feedback was received from 84 businesses. This is supplemented with consultation responses from project staff and stakeholders.

5.2.1 Company trading and growth

The programme aims were to support SMEs to improve their productivity, as measured by increased turnover, employment, and exports. For some SMEs improvements started with a new level of awareness generated by the diagnostic process or initial evaluation with academic or placement consultants.

Comments include:

“The top-level summary of the business processes was enlightening”

“The SWOT analysis was unexpected and very helpful as part of our business expansion strategy.”

“Learning of our own business and aligning our capabilities with demand”

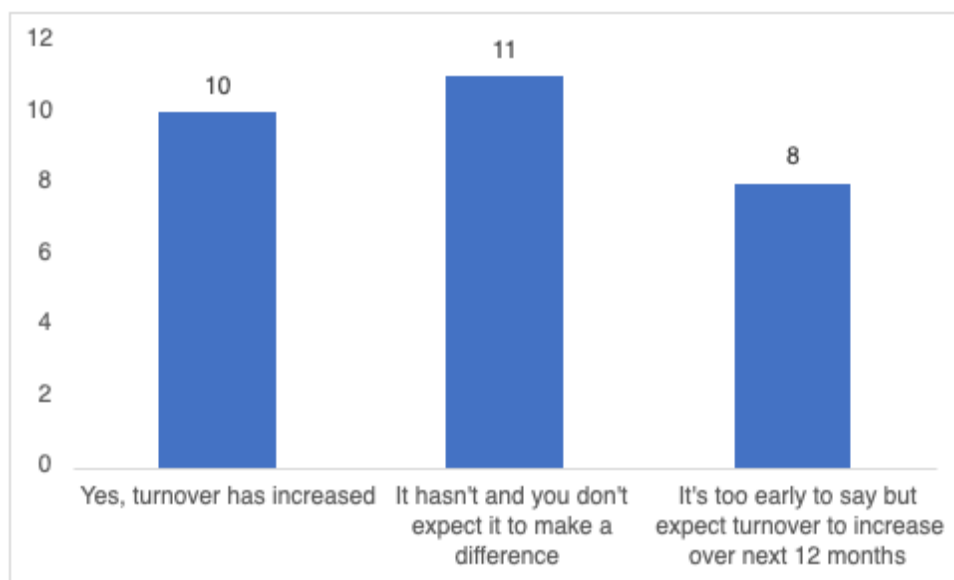
One added that it has been *“a cathartic process that has surprised us as a business”*

The intended outcomes and impacts are described in the project logic model (see section 2).

Turnover

Feedback from beneficiary businesses indicates that the programme has already had a **positive impact on turnover for some businesses**, while others **expect turnover growth in future years** as their innovation projects come to fruition.

Figure 19: As a result of the support, has your business turnover increased?



Source: Business survey

Figure 19 is based on the feedback from 29 businesses that commented on their turnover.

For 10 businesses, there has already been an increase in turnover and a further 8 expect it to increase during the next 12 months. Meanwhile, just over one-third of businesses (11) say that turnover hasn't increased as a result of the support and they don't expect it to or it is just too early to assume.

An evaluation of the exit survey indicates that, of the 16 respondents that identified an increase in revenue or profit as an impact of their PTI support, 10 provided specific details with revenue or turnover increasing by 5% to 30%, equally split between those with an increase below 10% or above. A further response suggested that profits were up by 50% following the support. One commented that turnover was down by 10%, but attributed this to the economic context, not PTI support, while others who provided no specific figure were positive about future prospects.

Jobs created

There could be a delay in understanding if jobs were created as a result of PTI intervention as the firms also faced the effects of global changes with the pandemic, the Ukraine war and the economic downturn.

Of the 18 SMEs that identified new jobs as a result of PTI support, 10 provided details of how many new jobs had been created. A total of 12.8 FTE roles were identified, equivalent to 1.28 FTE per SME, consistent with the growth of 2.09 FTE over a longer time period.

However, after analysing the FTE data of 153 businesses (Source: Businesses House) between 2018-2022, we find there to be an increase of 2.09 FTEs per business which scaled up to the sample size is 320 FTEs.

The exit survey indicates a few new jobs created are permanent posts offered to graduates who have completed a KEI or graduate placement.

These are the sample of quotes relating to employee numbers from 74 text respondents:

"We have been able to keep the Graduate on after the project ended and secured new contracts with the likes of Rolls Royce. Kept the graduate on after support and introduced a new product."

“We have increased the number of our employees by 20% with a graduate analyst and hope very shortly to employ a further person.”

“We created a new post, specifically for one of the people on the placement as they were too good to let go!”

“Set up of a new marketing team (3 new members)”

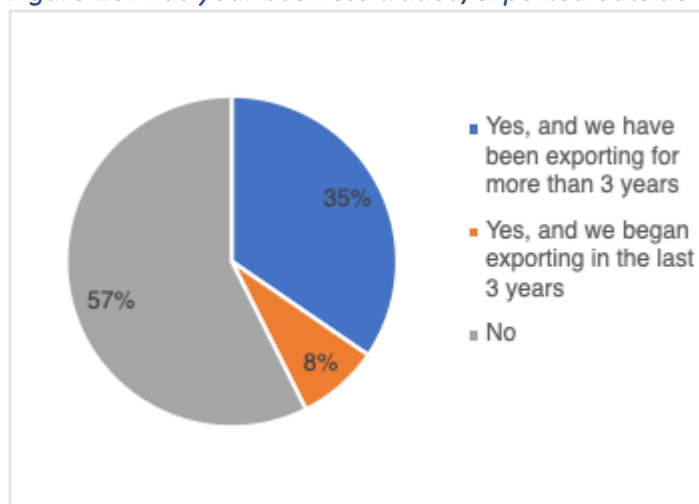
Exports

Businesses were asked if their primary customers were in the D2N2 Area, within the UK or outside the UK.

In our sample size of 162 respondents, 43% of them have been exporting in the last 3 years or more.

However, the pandemic disrupted international trade and caused long-term supply chain adjustments, with UK exports falling by 25.3% in 2020 (source: ONS¹⁰). Based on the 3-year analysis of exports, the regression output suggests that there is insufficient evidence to conclude that the project has had a significant effect on export levels, after controlling for the effects of other variables in the model. This is due to the various other factors influencing the export levels.

Figure 20: Has your business traded/exported outside D2N2?



Source: Business survey

5.2.2 Business investment in innovation or productivity

Businesses were asked to elaborate on the effect PTI had on their innovation activities and productivity.

There has been a positive impact reported on the productivity, innovation, and confidence of businesses. Some businesses in the exit survey have highlighted that the placements have had a significant effect in navigating their markets and understanding the market landscape. Of the 84 businesses that took the exit survey, 39 businesses said process efficiency was the highest rated improvement.

For example;

¹⁰

<https://www.ons.gov.uk/businessindustryandtrade/internationaltrade/bulletins/internationaltradeinuknationsregionsandcities/2020>

“Helping us understand areas of the business requiring the greatest focus through process visibility & improvements”

“Allowed us to produce better and more timely design drawings to enable research and development and also hit customer targets”

“Processes and systems improvement – Placement has been compiling our AutoCAD library which is having a positive impact on the amount of business we can fulfil.”

“The project is to investigate process improvements in two areas with high capacity demands to improve product flow and remove waste.”

“The project enabled us to develop our ERP systems to store and process customer bookings more efficiently”

“We have a process for analysing our suppliers now and methods in place for keeping score on how they are performing.”

“One placement was specifically to help us drive forward our ESG agenda from which we have gained significant competitive advantage and brand reputation. We have also been supported with our diversification through the remaining 3 placements which have developed our service innovation and helped us to access new customers and markets.”

“...Automation of software scheduling and delivery has provided more time to innovate and engage with more customers, helping to reach market penetration faster.”

“Remote working of postgraduate support meant that product innovation and automation work was able to continue during Covid without interruption.”

“While ongoing operational costs have increased (higher than expected expense cloud computing), the extra time availability has allowed us to re-focus on acquiring new customers and leads. More time to innovation and grow the business has had a large positive impact on the long-term business prospects.”

5.2.3 Introduction of new products

The programme aims to support SMEs to develop and introduce new products. Products can be goods or services and may be either new to the firm or new to the market.

Evaluation evidence indicates that the programme has had **a positive impact on supporting SMEs to introduce new products** (to either the firm or market). 11 businesses introduced new products to the firm; this is expected to rise to 23 C29s (number of enterprises supported to introduce new to the firm products) by the close of the programme. Of the 84 businesses that completed the survey, 21 businesses already say that they have launched new products or services. This particular output/outcome was adversely affected by the pandemic. Businesses needed to go into crisis management and survival mode which meant that they had a focus on operational improvements and not new product or service development as we might have anticipated when the project started.

For example:

“We have taken on more project design work”

“We have developed 3 new consultancy support services in sustainability, building health and interior design”

"We will have 4 franchisees by the end of this quarter, this in turn will increase the service level around the events and variety we can offer."

"Although covid has meant turnover has halved as for the business we have still been able to carry out developing new products and move forward so we are ready for when things start to get back up and running."

Future prospects and unexpected outcomes:

"Considering different areas the business could develop product in that we had not considered before."

"Product development under way with renewables focus"

5.2.4 Innovation skills and capacity

A high percentage of businesses felt the support had a positive impact on the level of their innovation activity, with 40% responding with product and or service innovation when asked "In which areas of the business has the support had the biggest impact?"

Here are some comments on the skills and employee engagement from the Exit Survey:

"Now the staff are more settled with the way things are now structured, clearer focus"

"Developing our mission, vision and values and running employee workshops. It has provided clear insights on where we are as a business and how we improve the trajectory."

"Our placement's very organised approach has had a positive impact on our own team's approach."

Examples of direct benefit:

"We have established long term core funding in place and received investment into the research. Unexpected outcomes/ relates to Covid challenges highlighted above."

"The funding meant that we didn't have to furlough the member of staff working on this project and as a result we have been able to move forward with development and get a good working product and secure new contracts off the back of this."

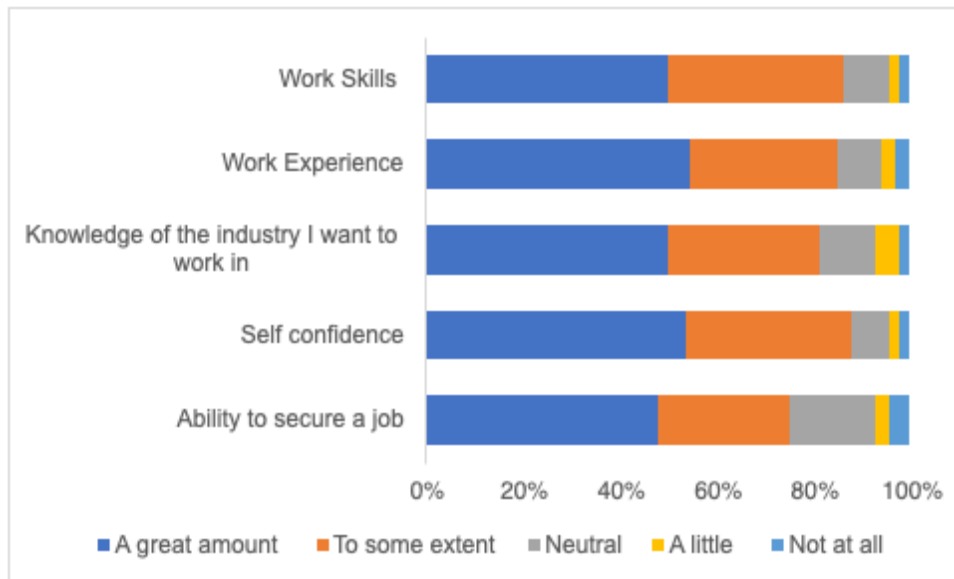
It is also worth noting that another form of benefit observed was the avoidance of costly mistakes through early research on product viability:

"Did not achieve the desired impact because the research (sadly) proved the proposed product innovation was not possible because the industry data quality was inadequate and there was too much 'noise' within the data."

5.2.5 Skill and knowledge of graduates

The evaluation evidence also demonstrates that the programme has had a **positive impact on the skills and knowledge of graduates** participating in KEIs and placements.

Figure 23: What impact has the placement/internship had on the following factors?



Source: Graduate survey

Of the 102 graduates that answered the survey, the area in which graduates reported the greatest improvement was gaining work experience, with 55% reporting a significant improvement. Meanwhile, 88% reported a significant (54%) or moderate (34%) improvement in their self-confidence; and 86% felt there had been a significant (50%) or moderate (36%) improvement in their work skills.

Graduates were also asked to self-evaluate their perceived improvement in their own personal resource management since completing a PTI placement or internship;

Figure 24: What impact has the placement / internship had on my Competencies, Skills, and Qualities?



Source: Graduate survey

A significant number of students reported they have improved their time management skills (84%), Human Resource skills (71%), Utilising Facility resources (64%) and Material resources (70%). which shows a positive improvement PTI had on the Graduates' skill level.

5.2.6 Collaboration

The programme aimed to facilitate collaboration between businesses and research institutions on innovation activities.

Businesses were asked about their collaborative work with other businesses and or research institutions. The project achieved 93 C26s (No of enterprises collaborating with research institutions) as of March 2023 and is forecasted at 122 C26s by June 2023.

There were over 218 businesses interacting with the PTI research institutions during the lifetime of the programme. Exit survey feedback with 84 businesses shows that the programme has had **an impact on collaboration** for some businesses, with 72% reporting that they had worked collaboratively with other businesses, universities, or other research institutions. The same survey revealed that 28% of businesses reported that they had not worked collaboratively with other businesses or research institutions.

The exit survey illustrates the range of ongoing collaborations that have taken place. Examples include:

“The research is ongoing; however, this has the potential to have long reaching impact on our service and future opportunities.”

“If I was to highlight one [benefit], it would be the long-term business strategy work I did with Prof Mark Gilman because all the potential innovation and product development, that is taking place all streamed from working with him.”

“Complete understanding of the [SME] vision & great collaboration”

The same survey also revealed some unexpected but positive, and potentially powerful, outcomes:

“[We are] having more people from Derby Uni apply for jobs here.”

“Maryam... became a friend!! The study on the demographics also gave us an insight into the areas we wanted to grow into by sectors.”

“A possible joint business venture with another company seeking help from the university.”

“We've learnt some interesting things about other cultures and countries, and made some good friendships.”

5.2.7 Impact on GVA

The average employment of businesses in the treatment group in the pre-treatment period is 20.575. This gives total employment across 153 businesses of 3,148.

Using data on treated businesses that answered the post-treatment survey we find that this average employment increased by on average 0.6 persons after treatment had occurred (standard error 6.5 jobs: 95%CI = -12.4 jobs to 13.6 jobs). Assuming that this effect was present for all firms for which we do not have data from the survey and scaling this across the 218 businesses this gives total additional jobs of 130.8 (CI: -1,897 jobs to 2,081 jobs).

Using data on treated firms for which we have data from their accounts for the year 2018 and 2022¹¹ we find that this average employment increased by on average 2.09 persons after treatment had occurred (standard error 4.33 jobs: 95%CI = -6.44 jobs to 10.61 jobs).

Assuming that this effect was present for all firms for which we do not have data from the survey and scaling this across the 218 businesses supported to date (C1s claimed), **this gives total additional jobs of 455.62** (CI: -985 jobs to 1623 jobs).

According to data from the ONS, GVA per job filled in D2N2 in 2020 was £49,729.

On this basis of the 50 survey responses (“Survey Data”), the total **annual GVA (gross) generated by the Programme is £6,505m** (CI. -£94.353m to £103.486m)

Based on the collection of 123 sets of “Accounts Data”, the total **annual GVA (gross) generated by the Programme is £22.658m** (CI. -£48.999m to £80.727m)

From here on we will concentrate on the latter estimate because it is based on a larger number of firms (123 versus 50) and because it allows for a longer time period between pre-and post-treatment outcomes allowing us to capture longer-run effects.

BIS guidance suggests that when estimating the impacts of public sector investment, it is important to consider the extent to which benefits generated persist over time. Where support has developed the capacity of a business it may enable the organisation to sustain or continue to achieve further benefits in the future. BIS suggests that individual enterprise support Programmes may generate benefits within one year but that they may persist for up to three years in total.

Based on the **Accounts Data**, it is assumed therefore, that the annual gross GVA impacts of the Programme will persist for three years in total (the first year, plus a further two years).

Considering persistent effects, **the total gross GVA impact of the Programme is estimated as £ 67.974m.** (CI: -£146.997m to £242.180m)

5.3 Net additional impact

The Government (through the HM Treasury Green Book) maintains that public sector spending should address market failures and bring about change that would not have happened at all, or would have happened at a slower rate, lower quality or on a smaller scale than without the public intervention. This is referred to as additionally.

A few factors affect the additionally of an intervention:

- **Deadweight effects:** This refers to any outcomes and impacts that would have happened anyway, even without the public investment.
- **Displacement effects:** This refers to the extent to which activities or outcomes generated by this programme have the effect of reducing activities or outcomes elsewhere within the target area. For example, if by supporting one business to grow, market share is taken away from.
- **Leakage effects:** This refers to the extent to which any outcomes generated by the programme are lost outside of the target area, or whether any ineligible beneficiaries are supported.

¹¹ Accounts may have been filed sometime before being published, and therefore potentially before the full impact could be evidenced in some cases.

▪ **Net Additional (Multiplier effects):** Public investment may lead to further economic activity, for example, as local businesses spend money with local suppliers and employees spend wages in the local economy.

5.3.1 Deadweight Adjustment

The median average deadweight effect for business development and competitiveness programmes at the sub regional level is 50.5%.¹²

5.3.2 Displacement Adjustment

A low ready reckoner for displacement (25%)¹³ was selected because: the Project was openly available to SMEs across the D2N2 geography (hence it did not exclude businesses); it covered a wide geographical area, meaning the likelihood of displacement is lower than in a more restricted geography; and its direct economic impacts were relatively minimal, thereby reducing the likelihood of displacement.

Displacement = 25%

5.3.3 Leakage Adjustment

In relation to the D2N2 Growth Hub ERDF Project, this refers to any expenditure, employment or GVA generated that is leaked out of the D2N2 geographical area or was achieved by ineligible businesses. As the Project was specifically targeted at businesses within the D2N2 area, with strict eligibility criteria, it is likely to have experience minimal leakage. Therefore, a low ready reckoner of ten per cent¹⁴ was applied.

Leakage = 10%

5.3.4 Net Additional (Economic Multiplier effects)

The multiplier effects of innovation and growth-related support projects such as the D2N2 Growth Hub are well established within research literature. Guidance refers to the use of a low economic multiplier ready reckoner of 1.3 at the regional (D2N2) level.¹⁵

Economic multiplier = 1.3

5.3.5 Total net additional impact

Applying the above additionality components to the gross Programme impacts results in the following net additional impacts, as presented in Table 7.

The gross employment impact of the Programme is 455.62 FTE jobs, and the **net additional employment impact is 197.9 FTE jobs.**

The total gross GVA impact of the Programme (including persistent effects) is £67.974M, and the **net additional GVA impact (including persistent effects) is £29.525m**

¹² BIS Research to Improve the Assessment of Additionality 2009.

¹³ Homes and Communities Agency (HCA) Additionality Guide (2014) Additionality Guide

¹⁴ HCA (2014) Additionality Guide, 'low' leakage ready reckoner

¹⁵ HCA (2014) Additionality Guide

Table 7: Gross and net additional impact (employment and GVA)

		Impact area: D2N2	
Impact indicator		Measure	Adjustment
Employment: FTEs (Based on initial Accounts Data from Businesses House)	Gross impact	455.62	-
	Deadweight / reference case	225.5	50.5%.
	Displacement	169.1	25.0%
	Leakage	152.2	10%
	Multiplier	197.9	1.3
	Net additional	197.9	-
GVA: £m (Including persistent effects)	Gross impact	67.974	-
	Deadweight / reference case	33.647	50.5%.
	Displacement	25.235	25.0%
	Leakage	22.712	10%
	Multiplier	29.525	1.3
	Net additional	29.525	-

5.4 Summary

- Based on evaluation feedback from beneficiaries, graduates and staff, the outcomes of PTI project are positive and have achieved its objective outlined in the logic model.

- Businesses that engaged with the PTI programme also created or expect to create a total of 197.9 Net Additional full-time jobs.
- The Programme has also had a positive impact on the innovation skills and capacity of the beneficiary businesses, as well as improving the skills, knowledge and employment prospects of the graduates supported.
- It is estimated that PTI will generate an annual gross GVA of £22.658m, and a net additional GVA impact totalling £29.525m when persistent impacts are taken into account.
- Evaluation evidence indicates that the project has been well targeted, with little leakage effects, and with multiplier and deadweight effects which reflect BIS averages for business development and competitiveness programmes at the sub regional level.

6 Value for money

It is good practice to measure the value for money of public sector investment in terms of:

- Cost effectiveness as measured by cost per net outputs / outcomes; and
- The return on investment (ROI).

6.1 Cost effectiveness

To estimate the cost effectiveness of the Programme, two net output / outcome indicators have been calculated.

6.1.1 Cost per net job created

The number of net additional jobs created by the Programme is 197.9 FTEs. This is based on data from the 153 businesses responding to the evaluation survey and the information available on businesses' financial statements, scaled up to reflect the 218 businesses PTI has supported and evidenced through C1 claimed.

This has resulted in an average net FTE jobs per business of 0.91.

If this average is applied across the total 222 SMEs assisted by the end of the Programme, the total net additional jobs created would be 202.02 FTEs. This is intended to provide a broad indication only of the potential total net job creation impact across the entire project.

The total public sector expenditure forecast to be defrayed by the end of the Programme in June 2023 is £5,031,000.

Therefore, the cost per net job created for PTI is estimated as £24,903.

6.1.2 Cost per net business supported

A total of 222 SMEs (gross) are expected to have been supported by the end of the Programme in June 2023. Applying the net additionality factor of 35.9%¹⁶ for the Programme, results in a total of 80 net businesses supported. The total public sector expenditure defrayed by the end of the Programme in 2023 was £5,031,000.

Therefore, the cost per net business supported for PTI is estimated as £62,888.

Table 8 below provides benchmarks for four other business support projects in the UK, this time using ERDF expenditure only.¹⁷ The figures have been adjusted for inflation.

¹⁶ BIS Research suggests the mean average net additionality ratio is 35.9% for business development and competitiveness programmes at the sub-regional level. BIS Research to Improve the Assessment of Additionality 2009

¹⁷ These have been anonymised.

Table 8: Benchmark comparators - cost per net output / outcome

Output / outcome	Cost per net job created	Cost per net business supported
Project 1	£1,428	£26,626
Project 2	£19,041	£167,855
Project 3	£6,467	£15,908
Project 4	£3,336	£6,777
Mean Value	£7,568	£54,292
Productivity Through Innovation	£17,141	£15,599

Source: Carney Green (2019)

Note: all figures have been adjusted for inflation

The analysis shows that the costs per net output or outcome for PTI are broadly in line with those of other business support and innovation programmes.

This may reflect the fact that some of the interventions delivered through PTI can be time and cost intensive when compared to some other types of business support programmes.

6.1.3 Return on investment

In accordance with government guidance, the return on investment (ROI) delivered by PTI is estimated based on the net additional GVA impact (£29,525,000¹⁸) divided by the total public sector expenditure expected to be defrayed by the end of the Programme in June 2023 (£5,031,000).

The estimated final outturn in terms of return on investment is positive at 5.9:1 i.e., for every £1 of public sector investment, £5.90 of net additional GVA is generated.

6.2 Cost of outputs

Cost per outputs are calculated using project expenditure data divided by the number of outputs achieved, for each type of output indicator.

¹⁸ Including three-year persistent effects

The same calculation was used for ERDF-only expenditure, effectively giving cost per output figures that were half the cost of the overall expenditure figures (given the 50% intervention rate).

6.2.1 Profiled output costs

Table 8 below provides 'planned' cost per outputs based on the original project expenditure and output targets, as well as the re-profiled targets contained within the September 2023 PCR.

Table 9: Profiled cost per outputs

Output / outcome	Full project expenditure		ERDF-only expenditure	
	Original cost per output	PCR cost per output	Original cost per output	PCR cost per output
C1	£39,447	£38,349	£19,723	£19,174
C2	£63,185	£61,426	£31,592	£30,713
C4	£105,000	£102,077	£52,500	£51,038
C26	£39,447	£56,895	£19,723	£28,447
C29	£230,322	£257,082	£115,161	£128,541

6.2.2 Achieved output costs

Table 9 below uses the projected final achieved expenditure and outputs to calculate the projected cost per output over the lifetime of the Project.

Table 9: Projected final cost per outputs

Output / outcome	Full project expenditure	ERDF-only expenditure
C1	£31,197.49	£15,598.74
C2	£63,539.83	£31,769.92
C4	£55,853.56	£27,926.78
C26	£56,769.19	£28,384.60

C29	£301,123.55	£150,561.78
-----	-------------	-------------

Note: based on projected gross outputs

6.2.3 C1: Number of enterprises receiving support

Table 9 shows that the Project is forecast to achieve each C1 assists at a cost of £31,197 when including all project expenditure, and a cost of £15,598 when considering just ERDF expenditure. This is significantly lower than the original anticipated and PCR cost per C1 assists (a reduction of circa 21% in each case). The reasons for this relate to higher levels of C1 assist than profiled, with expenditure remaining at profiled levels.

6.2.4 C2: Number of enterprises receiving grants

Table 9 shows that the Project is forecast to achieve each C2 assists at a cost of 63,539.83 when including all project expenditure, and a cost of £31,769.92 when considering just ERDF expenditure. This is similar, although very slightly higher than the original anticipated and PCR cost per C1 assists. The reasons for this relate to levels of C2 assist and costs have been achieved at profiled levels.

6.2.5 C4: Enterprises receiving non-financial support

Table 9 shows that the Project is forecast to achieve each C4 assists at a cost of £55,853.56 when including all project expenditure, and a cost of £27,926.78 when considering just ERDF expenditure. This is significantly lower than the original anticipated and PCR cost per C4 assists (a reduction of circa 47% in each case). The reasons for this relate to a significantly higher levels of C4 assist delivered than expected, with expenditure remaining at profiled levels.

6.2.6 C26: No of Enterprises co-operating with research institutions

Table 9 shows that the Project is forecast to achieve each C26 assists at a cost of £56,769.19 when including all project expenditure, and a cost of £28,384.60 when considering just ERDF expenditure. This is higher than original anticipated cost per C26 assists (an increase of 44%). This is subsequently reduced at the September 2023 PCR, in line with cost and associated delivery reductions.

6.2.7 C29: number of enterprises supported to introduce new to the firm products

Table 9 shows that the Project is forecast to achieve each C29 assists at a cost of £301,123.55 when including all project expenditure, and a cost of £150,561.78 when considering just ERDF expenditure. This is higher than original anticipated cost per C29 assists (an increase of 31%). This is subsequently reduced at the September 2023 PCR; the reason provided for this reduction in performance was the changing economic conditions over the previous two and a half years. The Deliver Teams reported that as SMEs sought to survive and then adapt following the pandemic, they were more interested in process innovations to make themselves more efficient, rather than new product innovations to drive their growth.

6.3 Benchmarking

It is difficult to ascertain what constitutes ‘good value for money’ without reviewing data against comparator interventions. Unfortunately, there is limited literature or data available in this respect.

When reviewing ‘enterprise support’ more broadly, it is evident that unit costs are prone to variability. For example, a business assist (i.e., a C1) can range from two days’ (e.g., six hours per day) active consultancy advice or other non-financial assistance, to a significant grant award or extended periods of support (e.g., 200hrs Placement / 12 Month Internship, etc). This variation is reflected in the unit costs. For the ERDF 2014-2020 programme, 623 organisations reported on the C1 output.¹⁹

The mean contracted (i.e., planned) unit cost was £34,000 and the mean ‘achieved’ unit cost (based on defrayed costs and reported outputs) was £68,000. The median public sector cost for both was £10,000 per assist, with the lower quartile unit cost at £4,700, and the average project cost in this quartile being £2,500.

Based on the above contracted and mean ‘achieved’ unit cost reported by Regeneris, PTI’s actual unit cost to date of £29,803 per C1 sits very favourably with the “contracted” unit cost outlined above. In addition, when considering the “mean ‘achieved’” value of £68,000, the PTI forecast to increase only marginally to £31,197.49 at project close represents good market value in for this type of support.

In addition, Regeneris (2013) recommends for a relatively low intensity business assist the unit cost should range from £2,500 (£3,270.13) to £4,700 (£6,147.84), and more intensive support should use the £10,000 (£13,080.52) median as a starting point, though continues “However, much higher unit costs can be used if the intention is for a smaller number of higher rates of support”.²⁰

With reference to the range of high intensity support offered through PTI, a minimum benchmark is as provided as follows;

Table 10: Calculated Intervention Values across PTI

University of Nottingham	Number of Units Delivered	Unit Value	Total Value Delivered
- 200 hr Postgraduate Placements	171	£13,080	£2,236,680
University of Derby			
- Industry PhD (3 Years FTE ²¹)	1	£13,080	£13,080

¹⁹ Regeneris Consulting (2013) England ERDF Programme 2014-20: Output Unit Costs and Definitions

²⁰ Regeneris Consulting (2013) England ERDF Programme 2014-20: Output Unit Costs and Definitions; Numbers have been adjusted (in brackets) to take account of inflation, using Bank of England online Inflation Calculator

²¹ FTE is taken as 36 hours per week in line with the C8 output indicators guidance.

- Industry MPhil (1-2 Years FTE)	4	£13,080	£52,320
- Industry PhD Placements (3 Months FTE)	2	£13,080	£26,160
- KEIs (1 Year FTE) 1720	43	£13,080	£562,440
- 400 hr Placements	25	£13,080	£327,000
- 80 hr Internships	50	£13,080	£654,000
Nottingham Trent University			
- Consultancy (see Section 2.5.2 for details)	63	£13,080	£824,040
- Placement (up to 12 months)	58	£13,080	£758,640
Totals	417		£5,454,360

At this basic level, this equates to a ROI of 108.4%, though it is clear that a number of PTI intervention would attract a much higher weighting than the median unit value provided by Regeneris, in particular the UoD Industry PhD / MPhil, KEI and NTU 12 Month Placement offers.

6.4 Summary

The impact of the COVID-19 pandemic on the economy and job market may have affected the effectiveness and outcomes of job creation programmes in recent years. However, despite these circumstances, and number of different measures provide consistent results that the PTI project has been good value for money and a valuable return on investment.

Available information suggests for PTI;

- The project has made good progress towards the achievement of outcome and impact indicators. It has had a positive impact on the productivity, skills, and capacity of the beneficiary businesses, enabling some to introduce new or improved products and services to market.
- The businesses supported have collectively created or expect to create 197.9 FTEs as a result of the intervention.
- The project has supported graduates to improve their skills, knowledge and employment prospects. The graduates have had the opportunity to participate in interesting projects and the Programme has created genuine job opportunities, reflected in the proportion of graduates who have been offered a job. As a result, PTI can demonstrate an impact in terms of retaining graduates in the region.

- It is estimated that PTI will generate an annual gross GVA of £67.974m, and a Net Additional GVA impact totalling £29.525m, when persistent impacts are taken into account.
- The project has been well targeted, with little leakage effects, and with multiplier and deadweight effects which reflect BIS averages for business development and competitiveness programmes at the sub regional level.

7 Conclusions and lessons learned

7.1 Introduction

The evaluation has identified a number of key lessons learned from delivery, and some suggested recommendations for the three partner universities to consider in the design and delivery of future innovation and business support programmes.

7.2 Programme design and need for innovation support

- Overall, there is a clear need for a project in D2N2 to support SME growth by increasing engagement in innovation. There is a clear rationale for investment, and the delivery model builds on the expertise and track record the Partnership Universities in delivering previous innovation projects. The aims and objectives of the Programme relate to the economic and policy context and market failures it is seeking to address.
- The business and innovation support market in D2N2 does not have duplicates and there is a need for additional business support for productivity improvement.
- The output targets are broadly appropriate and realistic. However, evaluation feedback indicates targets have been challenging to achieve due to Covid 19, Brexit, and global economic factors.

Recommendation 1:

Develop a more robust marketing plan to improve client acquisition and ensure the project's benefits are known to all stakeholders. This would allow delivery partners to be prepared to pivot and adapt quickly to overcome any challenges that arise during the project's implementation. By implementing this recommendation, future projects can build on the success of this project, and the project teams can continue to provide valuable support to local businesses and postgraduate students while adapting to changing circumstances.

Recommendation 2:

While the Stage Two diagnostic was a significant investment of time and resources and helped navigate the support needs, it appears that it did not provide the anticipated benefits in terms of analysing the final evaluation. While it's important to undertake thorough diagnostic processes, it's also essential to ensure that they are aligned with the ultimate goal of the evaluation. It may be worth considering whether the resources invested in the stage two diagnostic could have been better utilized in other areas of the evaluation process. Moving forward, it may be helpful to review the overall evaluation process to ensure that all components are contributing to the desired outcomes.

7.3 Project performance

- PTI has made strong progress towards its revised expenditure target, defraying 99.6% of total approved project costs.
- Whilst the majority of output and outcome targets have been reduced over the lifetime of the Programme, the target for enterprises receiving non-financial support increased. This reflects the level of interest from businesses in the support offered by PTI.
- Overall, the Programme has made good progress towards the revised output and outcomes targets, with some of the key project targets being exceeded. E.g. 222 unique SMEs supported against a target of 181 (C1), 197.9 FTEs created, 43 KEIs as against a target of 36. In addition, the revenue expenditure for public and private match has been effectively managed, evidenced by the very low variance to profile.

7.4 Delivery and management arrangements

7.4.1 Targeting:

- Analysis of business characteristics indicates that the project has been well targeted. All the 182 SMEs supported by PTI are based in D2N2. There is no leakage effect. Of the 165 businesses that responded to the survey, 49% were micro-businesses, employing between 0-9 people; 40% employ between 10 and 49 people; and 11% have between 50 and 249 FTEs.
- Analysis of the characteristics of graduates suggests the programme has engaged with its intended audience of recent graduates with specialist skills and mature graduates with industrial experience. Of the 132 graduates responding to the evaluation survey, 24% were aged less than 25, while 55% were aged between 25 and 29; and 21% were aged above 30. Subjects studied included sustainability in Building, Biotechnology, Business and Management, Computer Science, Economics and Data Science, Environmental Engineering, Human-Computer interaction, and many other varied fields.

7.4.2 Awareness raising, interest and demand

- Demand for support from PTI has been steadily increasing for the last 4 years. The Universities are well established and have used their previous project 'Enabling Innovation' to allowed them to have a wide customer base. There were no other ERDF productivity support projects in the D2N2 area, and so the Universities did not face significant competition.
- The delivery partners have invested significant efforts to engage and develop relationships with the business community in D2N2. This is reflected in feedback from businesses, which shows that 31% found out about PTI via direct contact from the University and 35% were referred from external/internal sources (Other delivery partners, staff career service, consultants, other PTI businesses). The delivery partners also organised workshops and

events to raise awareness, and allow many firms in the D2N2 area to have networking opportunities.

- The delivery partners used various channels to attract graduates for placements, and the most effective among many “routes to market” was the direct email / newsletters sent to students (32%), accessing information via University websites (22%), welcome sessions, through their supervisor / tutor, social media, and word of mouth from other students. The various channels allowed the delivery partners to select graduates that match their skills with the requirements of the businesses they wish to support efficiently.

Recommendation 3:

From the Exit Survey, instances of placements or support not leading to successful outcomes was rare across PTI but costly in time and potential financial impact to the SMEs effected. Feedback suggests two main themes; issues around the interviewing and recruitment of a “good fit” individual, either from a skills, work cultural and or experience perspective, and the impact this could have on the level of supervision required from the business; a higher expectation from the SME of the maximum availability (i.e. hours per week) or restrictions for either continuous or intermittent absences e.g. for exams. While it is impossible to mitigate these issues in all circumstances, delivery partners may wish to review and or gain further feedback from the Hosts on how they can be effectively supported through the interview and onboarding process for this type of support.

Recommendation 4:

Helping businesses understand how they can utilise the students' skills on placements to their advantage is a learning process. The Universities could follow up with businesses during the placements to allow for adjustments and changes. Feedback during the placement could also benefit students in managing their expectations and increase satisfaction rate.

7.4.3 Market position

Overall, the businesses that engaged were attracted to PTI because;

- It offered businesses an opportunity to receive external support, improve the skills of their employees, create capacity for innovation, and develop or improve their products / services. Meanwhile, graduates were attracted to the Programme because it matched their career aspirations and offered the opportunity to gain experience and develop their skills.
- PTI did not face competition as there were no other innovation projects providing placements within D2N2. Although University of Derby offers placements through their Encite 3 programme the objectives do not overlap. This has allowed the delivery partners to have a strong understanding of the market and support the needs of a normally crowded market.
- Stakeholder feedback suggests that PTI added significant value to the business support landscape in D2N2. The business support targets were exceeded for number of businesses supported. PTI helped businesses stay on track for their business innovation projects during Covid. Businesses were offered multiple types of placements, consultancy and KEIs, which

allowed them to explore the academic support that they may have previously been unaware of.

Recommendation 5:

To maximise awareness raising and differentiation of support in future projects, the University could consider a more intense and high-profile promotional campaign; this could include a formal launch, awareness raising events, and promotional materials that referral partners can email out to their business networks.

7.4.4 Quality of support

Despite the Delivery Teams having to respond to a number of external challenges in Programme delivery;

- Overall, the businesses who engaged were positive about the support they received, rating most aspects as very good or excellent. In addition, 74% felt the support had met all their needs or gone beyond. Of the graduates who were on placement, 89% were extremely satisfied or satisfied with the placement.
- For businesses the most beneficial aspects of the support were introduction to market of new product / service, improved skill level of employees, increased turnover, improved productivity, and jobs being safeguarded. For graduates, the most beneficial gains identified was an increase in capacity or capability to innovate, improved skills or knowledge, and improved productivity. In addition, they reported being provided with opportunities to learn new things and gain more industry experience.
- Feedback indicates that most businesses had an idea in mind when they approached PTI but the diagnostic procedures helped businesses solidify the plan and take steps towards implementation. However, more substantial, and prolonged support is required for the intervention to result in SMEs introducing new or improved products to the market.
- Evaluation feedback suggests there have been some challenges in accessing academic support due to their teaching and research commitments. This meant that academics were not always available within the timeframe required by the company, or able to commit to providing weekly support over the period of one year (as required by a KEI). As a result, staff have either supported SMEs to procure consultancy support or SMEs have been offered a graduate placement rather than a KEI.
- Evaluation feedback identified only a small number of potential improvements to the support. Businesses would like to see an increase in the time or amount of support available, while some graduates suggested they would like to have been on the placement longer, to increase their contribution.

Recommendation 6:

When planning future projects, the delivery partners to consider a number of models for consultancy provision to address perceived resource shortfalls and or difficulties accessing academic consultation as and when required by the business.

7.4.5 Horizontal principles

- PTI delivery partners have integrated the cross-cutting themes into project delivery, building on already existing equality and diversity processes and practice in the Universities, and supporting SMEs to develop innovation projects with a positive environmental impact. PTI supported many businesses in enhancing their sustainability measures. The delivery partners uphold their equal opportunities policy in all stages of recruitment.

7.4.6 Project management

- Overall, the staff structure for the project was appropriate, and the project team had the relevant skills, expertise and knowledge to deliver the project effectively. Each of the three Universities had their own project management teams and Academic Productivity Champions to provide an advisory role.
- Despite the challenges faced in managing the project, feedback from businesses and stakeholders is positive. The overall view is that the Programme was well managed, and that University staff were responsive and proactive in supporting businesses.

Recommendation 7:

Evaluation evidence suggests that the feedback processes from businesses and placements could have been standardised between the delivery partners to have a better understanding of the results of the project.

7.5 Outcomes and impacts

Overall PTI has:

- made good progress towards the achievement of outcome and impact indicators. It has had a positive impact on the productivity, skills, and capacity of the beneficiary businesses, enabling some to introduce new or improved products and services to market.
- The businesses supported have collectively created or expect to create 197.9 FTEs as a result of the intervention.
- The Programme has supported graduates to improve their skills, knowledge and employment prospects. The graduates have had the opportunity to participate in interesting projects and the Programme has created genuine job opportunities, reflected in the proportion of graduates who have been offered a job. As a result, PTI can demonstrate an impact in terms of retaining graduates in the region.
- It is estimated that PTI will generate an annual gross GVA of £67.974m, and a Net Additional GVA impact totalling £29.525m when persistent impacts are taken into account.
- The project has been well targeted, with little leakage effects, and with multiplier and deadweight effects which reflect BIS averages for business development and competitiveness programmes at the sub regional level.

Appendix 1: Acknowledgements

The PTI Evaluation Team would like to thank the following for their input to the evaluation:

Name	Organisation
Paul Rice	University of Nottingham
Gerry Tonks	University of Nottingham
Michelle Giles	University of Nottingham
Sophie Beer	University of Derby
Eleanor Gregg	University of Derby
Cara Roberts	University of Derby
David Harper	Nottingham Trent University
Alison Marwood	Nottingham Trent University
Scott Shaw	Nottingham Trent University
Silvia Vignaroli	Nottingham Trent University
Clare Tatham	University of Derby
Kerry Wright	University of Nottingham
David Shipley	Nottingham Trent University
Christine Selden	University of Derby
Paul Gosling	University of Nottingham
Rachael Morgan	DLUHC