



Impact Evaluation: Knowledge Transfer Partnership Programme in Scotland

Final Report for the Scottish Funding Council

4th December 2015

EKOS Limited, St. George's Studios, 93-97 St. George's Road, Glasgow, G3 6JA
Reg 145099

Telephone: 0141 353 1994

Web: www.ekos-consultants.co.uk

Direct enquiries regarding this report should be submitted to:

Nicola Graham, Senior Consultant, EKOS

Email: nicola.graham@ekos.co.uk

Tel: 0141 353 8328

 As part of our green office policy all EKOS reports are printed double sided on 100% sustainable paper

Contents

Executive Summary	i
1. Introduction	1
2. KTP Programme in Scotland	6
3. Facts and Figures	13
4. Strategic and Market Failure Rationale	27
5. Summary Business Feedback	35
6. Summary Associates Feedback	40
7. Stakeholder Perspectives	44
8. Economic Impact Assessment	56
9. Conclusions and Recommendations	64
Appendix A: Overarching Criteria for KTP Funding	i
Appendix B: KTP Data	iii
Appendix C: Detailed Business Survey	viii
Appendix D: Detailed Associates Survey	xxvi
Appendix E: Stakeholders Consulted	xlili
Appendix F: Technical EIA	xliv
Appendix G: Best Practice in KTPs	xliv

Executive Summary

Introduction

This executive summary presents the findings of an impact evaluation of the Knowledge Transfer Partnership (KTP) Programme in Scotland which was undertaken for the Scottish Funding Council (SFC).

Background

The KTP Programme, which celebrates its 40th anniversary this year, helps businesses to improve their competitiveness and productivity through the better use of knowledge, technology and skills residing within the UK knowledge base.

The overarching aim of the KTP Programme is to “*strengthen the competitiveness, wealth creation and economic performance of the UK by the enhancement of knowledge and skills and the stimulation of innovation through collaborative projects between business and the knowledge base*”¹.

The UK-wide Programme is managed by Innovate UK². Innovate UK is the lead funding body for the KTP Programme, and there are 12 other funding organisations, including the Scottish Government. Funding from the Scottish Government for the KTP Programme is managed by the SFC. However, individually supported KTPs can receive funding from a number of the funding organisations.

In Scotland, wealth creation and social impact are important considerations for SFC funding of KTPs, and the public sector, charities and not-for-profit organisations are also eligible for funding.

The KTP Programme in Scotland supports three way partnerships between a business, UK university, college, technology organisation or public sector research institution, and a recently qualified graduate known as a KTP associate. The associate(s) is supported to work in the business (for up to 36 months) on a project identified as being of strategic importance to the business.

¹ About KTP: An Overview http://ktp.innovateuk.org/assets/2011/special/About_KTP_Flyer_final_111214.pdf

² Formerly the Technology Strategy Board (TSB).

Study Aims and Objectives

The evaluation focussed on KTPs that started between 1 January 2010 and 31 December 2014³ and sought to establish the value for money offered by the Programme. The study objectives were to:

1. assess the extent to which certain sectors/regions/scales of business are more prone to using KTP or have higher impacts as a result;
2. assess the quantifiable economic impacts (gross and net) of the Programme consistent with the methods used in previous and current evaluations of the Programme at a UK level; and
3. develop recommendations for further development of the KTP Programme, specifically with reference to Scottish Government priorities.

Facts and Figures

Scotland has a fair share of new KTPs supported across the UK - 14% of new KTPs supported in 2014 were in Scotland.

A total of 175 KTPs started in Scotland over the period 2010 to 2014, involving 161 businesses, 29 knowledge base partners, and 200 associates.

Wider facts and figures about the KTP Programme in Scotland over the period include that:

- the KTP portfolio in Scotland peaked in 2010, however, following the 2010 Spending Review the portfolio reduced in size. There are encouraging signs with the number of KTPs in Scotland now almost back to the 2010 figures. This is a similar pattern to the UK as a whole;
- the vast majority of Scottish businesses involved in KTPs were private sector businesses (85%), and demand was strongest among manufacturing-related businesses;

³ The evaluation did not include those KTPs which started pre January 2010 but which were active during 2010 and 2014.

- businesses of all sizes have been involved, with demand highest in Scotland amongst SMEs (60%) - this is similar pattern to the UK as a whole for the last few years⁴;
- almost all KTPs involved a Scottish university or college as the knowledge base partner (93%); and
- 29 knowledge base partners in Scotland were involved in KTPs, albeit levels of engagement varied considerably. The University of Strathclyde has the highest level of KTP activity in Scotland, followed by Robert Gordon University and Heriot-Watt University.

There has been a high level of grant funding committed to KTPs in Scotland. A total of £16.3m was awarded to the 175 KTPs that started between 2010 and 2014.

The KTP Programme in Scotland has been successful in leveraging in a significant amount of funding from elsewhere. Some 42% of grant funding was provided by the SFC, with the remainder committed from a host of funders based outwith Scotland.

KTP grants achieved strong leverage from businesses in Scotland, with grants accounting for only 35% of the total cost of KTPs. Businesses contributed £10.3m to the KTPs that started in Scotland between 2010 and 2014. In many cases businesses committed additional monies - this was to “*exploit outcomes of KTPs*” (e.g. salary top-ups to attract higher quality associates and/or investment in new machinery). Additional contributions amounted to £18.6m.

Strategic Context

There is a very supportive policy environment for the KTP Programme at a European, UK and Scottish level, as outlined in, for example:

- Europe 2020;
- Department for Business, Innovation and Skills - Innovation and Research Strategy for Growth (2011);
- Innovate UK’s Five Point Plan for Economic Growth (2015);
- Scotland’s Economic Strategy (2015); and

⁴ 63% SMEs (2012/13) and 64% SMEs (2013/14) - Innovate UK KTP Achievements and Outcomes Report 2013/14.

- Scotland Can Do: Becoming a World-Leading Entrepreneurial and Innovative Nation (2013).

KTPs are recognised within the Dowling Review of Business-University Research Collaborations (July 2015)⁵ as a crucial element of the business-academia collaboration landscape.

The KTP Programme aligns strongly with policy priorities on fostering collaborations between industry and academia which aim to enhance knowledge exchange and promote innovation. This is at the very heart of the KTP Programme.

Businesses are supported to access academic expertise that they lack internally. The relationship formed between the business and the knowledge base partner, facilitated by the associate, allows the transfer of knowledge, technology and skills to the company - improving business performance, competitiveness and productivity.

KTP Centres and KTP Advisers play a vital hand-holding role - from start to end - reducing the bureaucracy of the Programme for partners which allows partners to focus their time and efforts on the project itself.

Feedback from Businesses

Overall, feedback from supported businesses was positive, as described below:

- KTPs were considered to be an effective mechanism to achieve desired business outcomes, and a route to developing and sustaining long-term relationships with the knowledge base;
- 82% of businesses were happy with the application process and suggested no areas for improvement;
- a high proportion of businesses reported current/future impacts on business performance (e.g. increased/sustained turnover and/or employment, etc) as a direct result of the KTP;

⁵ <https://www.gov.uk/government/publications/business-university-research-collaborations-dowling-review-final-report>

- additionality was high - 94% of businesses that reported current/future business performance impacts went on to report that the impacts would not have been achieved or only some would have been achieved in the absence of support from the KTP Programme in Scotland;
- overall satisfaction was high – almost all businesses were satisfied with the KTP Programme (97%) and 91% reported that their expectations had been met or exceeded; and
- almost all businesses would recommend the KTP Programme to others, or have already done so.

Businesses value the KTP Programme in Scotland, and feedback suggests that participation has or will lead on to more KTPs (i.e. repeat business).

The overall marketing and promotion of the KTP Programme in Scotland was, however, rated poorly – less than one-fifth of businesses considered this effective. KTP associates held a similar view.

Feedback from Associates

Some of the main findings from the KTP associates survey was that:

- participation in KTPs was attractive on a number of different levels, with the following rated as important/very important by most associates:
 - the project that was to be undertaken (100%)
 - the chance to pursue research in a field of interest (90%)
 - the chance to build on their skills (86%);
- the training received was rated particularly highly;
- more mixed feedback was, however, provided on the effectiveness of supervision put in place; and
- a wide range of benefits were reported by associates including:
 - developed their technical skills (90%)
 - provided exposure to a commercial environment (90%)
 - developed their management skills (90%)
 - offered formal training (90%)

- improved their career prospects (86%).

Feedback from Stakeholders

The KTP Programme is a well-established and well-regarded programme in the UK and Scotland. The Programme's 40th anniversary was often referenced as testament to the KTP Programme's worth and longevity. The KTP Programme in Scotland is highly thought of and is considered to have an established and credible reputation.

The KTP Programme is considered an important part of a broader system of innovation support and connections between the knowledge base and the wider economy.

The relationship formed between the business and the knowledge base partner, facilitated by the associate, allows the transfer of knowledge, technology and skills to be embedded within the company - this is considered to be Programme's differentiating and unique selling point.

The principle that knowledge transfer is embedded in people is considered a strength of the Programme. There is considered to be great value in the KTP model as it seeks to build deep and lasting relationships between industry and academia, as well as embed culture change within the business.

Challenges identified centred on:

- the UK Government Comprehensive Spending Review in 2010 and the impact this had on the size of the KTP portfolio;
- the shift in focus to wealth creation - stakeholders were supportive of the SFC's commitment to retain the flexibility to also support public and third sector organisations, although the shift in emphasis made it more difficult to leverage in co-funding;
- the recruitment of associates - most notably the short window of opportunity for recruitment, the pace at which knowledge base HR departments move, and the extent to which salaries are competitive;
- the KTP application process was felt by some to be laborious and could benefit from being streamlined; and

- it was felt that marketing and promotion could be improved to increase the visibility and profile of the Programme in Scotland.

Economic Impact Assessment

According to the data provided by businesses and the Impact Assessment calculations, the economic impacts of the KTP Programme in Scotland between 1 January 2010 and 31 December 2014 are detailed below.

Economic Impacts of the KTP Programme in Scotland

	Jobs	Turnover	GVA	Wages	Savings
Gross Impacts					
To Date	430	£36.5m	£26.1m	£13.8m	£2.2m
In Future	370	£36.6m	£23.1m	£11m	£2.8m
Net Impacts					
To Date	510	£38.4m	£31.3m	£17.4m	£2.6m
In Future	460	£38.6m	£28.4m	£14.3m	£3.5m

Note: Jobs rounded to nearest 10, GVA rounded to nearest £0.1m. Mid-point estimates based on sensitivity analysis

The cost per net job figure is higher than that typically found in business support programmes, but not in knowledge transfer initiatives, which tend to have higher cost per job impacts due to: the higher value nature of the employment created; the resource intensive nature of the activity; and the fact that any economic impacts to the participating associates and HEIs are not always captured (as is the case here).

Cost per Job

	Per gross job	Per net job
To Date	£29,200	£24,700
In Future	£33,800	£27,100

Note: Cost per job rounded to nearest £100

Therefore, our experience is that the cost per net job achieved in the KTP Programme in Scotland represents good value for money.

The Programme is forecast to deliver a RoI of £7.30:1 in current impacts and £6.60:1 in future impacts. This means that for every £1 invested in the KTP Programme in Scotland it generates £7.30 in net additional GVA within the Scottish economy to date and £6.60 in future over a three year period⁶.

This is in line with the report recently published by Innovate UK and undertaken by Warwick Economics and Development⁷.

Overall, the KTP Programme in Scotland works well, delivers strong economic impacts and is highly regarded – Scotland also appears to be achieving good value (leverage plus impacts).

Recommendations

There is a need to improve the marketing and promotion of the KTP Programme nationally - to raise the profile and visibility of the KTP Programme, and to increase awareness among businesses, academics, and potential associates.

There is scope for better promotion via (and connections to) other parts of the innovation system, especially Interface and Innovation Centres but also enterprise agencies. The landscape for knowledge exchange is continuing to evolve, and there is a need to ensure that the KTP Programme in Scotland is clearly positioned within this.

In order to expand reach and engagement in KTPs, there needs to be increased promotion of the support provided, and importantly of the value of KTPs to the three partners, as a means of stimulating further demand and greater participation (e.g. case studies, attendance at industry events, etc).

The flexibility of the SFC to support KTPs involving public and third sector organisations is valued and should be retained. Reducing public sector budgets calls for greater innovation in public service delivery. As such, there is an opportunity for KTPs to be aligned with HEI interests in many places – to consider impacts beyond traditional economic measures (e.g. cost savings in service delivery, etc).

⁶ Future RoI is lower than RoI to date given that future additional impacts reported by businesses was lower.

⁷ WECD, KTP Programme: The Impacts of KTP Associates and Knowledge Base on the UK Economy, July 2015.

Wider issues which emerged through the evaluation might be worthy of further discussion and consideration within relevant structures for the KTP Programme in Scotland, including the:

- associate recruitment challenges;
- weaker ratings by KTP associates regarding the effectiveness of the supervision put in place;
- fact that businesses were less likely to report that KTP Advisers and KTP Centres played a role upfront - despite their considerable hand-holding and support provided from start to end. This might in part reflect confusion regarding the nuances between KTP Centre staff and KTP Advisers and the knowledge base partner. In particular, as KTP Centre staff are employed and based within universities; and
- limited use of the KTP Portal among businesses and associates.

SFC should progress discussions with Innovate UK regarding data sharing requirements and reporting. The opt-in nature required for the business survey severely restricted not only the number of interviews undertaken, but also prevented any deeper assessment of the impact of the Programme by company sector, size, and geography. An option to be explored with Innovate UK includes the potential to insert text within future grant award letters stating that grant recipients will be expected to take part in evaluation studies as part of the grant conditions. There is also scope for discussion between Innovate UK and SFC with regard to what data is routinely accessible where and to whom.

1. Introduction

This report presents the findings of an [impact evaluation of the Knowledge Transfer Partnership \(KTP\) Programme in Scotland](#) which was undertaken for the Scottish Funding Council (SFC) between April and November 2015.

1.1 Background

The KTP Programme⁸, which celebrates its 40th anniversary this year, helps businesses to improve their competitiveness and productivity through the better use of knowledge, technology and skills residing within the UK knowledge base.



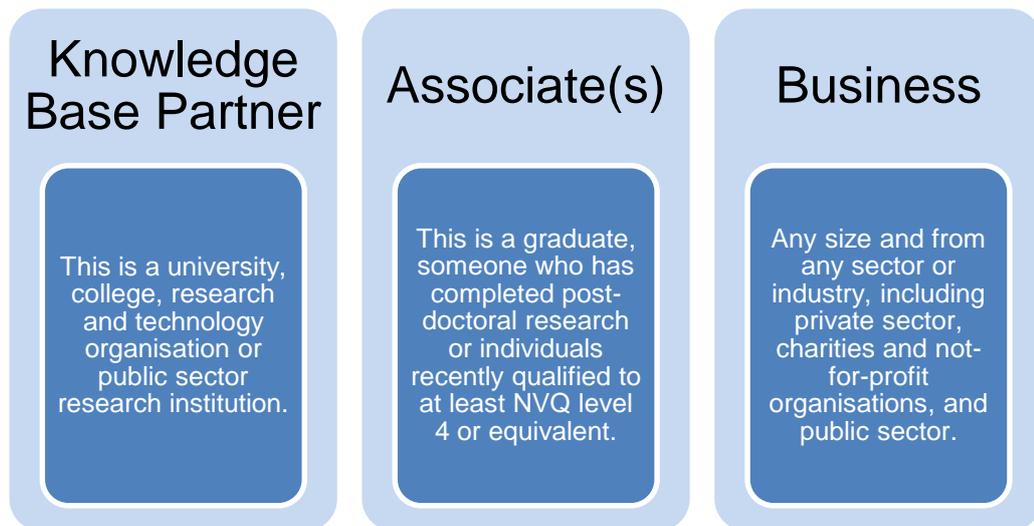
The UK-wide Programme is managed by Innovate UK, formerly the Technology Strategy Board (TSB). Innovate UK is the lead funding body for the KTP Programme, and there are 12 other funding organisations, including UK Research Councils, Devolved Administrations (Scottish Government, Welsh Government, and Invest Northern Ireland), Department of Health, and Department for Environment, Food and Rural Affairs⁹.

In Scotland, funding from the Scottish Government for the KTP Programme is managed by the SFC. However, individually supported KTPs, can receive funding from a number of the funding organisations (e.g. SFC, Innovate UK, Research Councils).

The KTP Programme in Scotland supports [three way partnerships](#) between a business, UK university, college, technology organisation or public sector research institution, and a recently qualified graduate known as a KTP associate. This is illustrated below.

⁸ Previously known as Teaching Company Scheme.

⁹ Nuclear Decommissioning Authority and RSSB have been one-off funders of calls for KTPs on specific themes.



The associate(s) is supported to work in the business on a project identified as being of strategic importance - a real life project to address a business challenge. Each KTP employs one or more associates which helps the business to gain the knowledge and capability it needs to innovate and grow. Associates are employed by the knowledge base partner, but are fully embedded within the business.

KTP associates are supervised by an academic supervisor who is expected to spend one half day per week on the business premises to assist the associate with the project. The associate also has a business supervisor which ensures they have access to the resources they need within the business.

[Importantly, KTPs are designed to be mutually beneficial for all three partners - the business, knowledge base partner, and the associate\(s\).](#)

The model recognises the importance of both codified and tacit knowledge, and is based on the understanding that successful knowledge transfer depends fundamentally on people. These drivers differentiate the KTP Programme from most other interventions aimed at stimulating knowledge transfer and innovation in companies. The relationship formed between the business and the knowledge base partner, facilitated by the associate, allows the transfer of knowledge, technology and skills to the company.

Information on the key attributes of successful KTPs is outlined in **Appendix G**.

1.2 Study Aims and Objectives

The purpose of the study was to undertake an independent evaluation of the KTP Programme in Scotland covering the time period 1 January 2010 to 31 December 2014.

[The study focussed on KTPs that started during this period.](#) There will, however, be other KTPs active during this time (i.e. KTPs which started pre January 2010 but which took place between 2010 and 2014). These KTPs were not the focus of this evaluation.

More specifically, the evaluation of the KTP Programme in Scotland required to consider the value for money offered by the Programme in terms of economic measures such as job creation, net additional GVA and other economic benefits. The detailed study objectives were to:

1. assess the extent to which certain sectors/regions/scales of business are more prone to using KTP or have higher impacts as a result;
2. assess the quantifiable economic impacts (gross and net) of the Programme consistent with the methods used in previous and current evaluations of the Programme at a UK level; and
3. develop recommendations for further development of the KTP Programme, specifically with reference to Scottish Government priorities.

1.3 Wider Research

A recent evaluation report on the KTP Programme at a UK level was published by Innovate UK in July 2015. Warwick Economics and Development (WECD) was commissioned to evaluate the [economic impacts and other benefits, arising for the UK economy from the participation of KTP associates and knowledge base partners.](#) The WECD report¹⁰ provides useful insights into the impact of two of the partners involved in KTPs, and reports that other evaluations of the Programme which have not considered the impacts on these participants (in economic terms) are likely to have under-represented the value of the KTP Programme. We refer to some of the report's findings later.

¹⁰ WECD, KTP Programme: The Impacts of KTP Associates and Knowledge Base on the UK Economy, July 2015.

For the evaluation of the KTP Programme in Scotland, the study (as specified in the research brief) centred on an assessment of the economic impact arising for businesses from their participation in KTPs. A more qualitative assessment from the perspective of other KTP partners – associates and knowledge base partners – was also undertaken.

1.4 Study Method

The study method consisted of the following elements, as outlined below.



It is worth highlighting some issues regarding the business survey.

Given data protection issues, Innovate UK - as data owner - sought legal advice and advised that there would require to be an email issued to businesses to ask whether they would like to opt-in to the telephone survey. This process took a number of months to finalise, following which 22 businesses agreed to opt-in to the survey. In order to boost numbers further, KTP Centres in Scotland¹¹ subsequently emailed their business contacts to consider opting-in to the survey. This resulted in responses from a further 28 businesses.

¹¹ West, North and East KTP Centre staff emailed businesses.

Thus, the total sample for the telephone survey was 50 businesses - much smaller than that envisaged at the outset of the evaluation.

A further challenge was that a number of the businesses that opted-in were involved in more than one KTP over the period examined for the evaluation. This made it more difficult to ask the same business contact to speak with the telephone interviewers twice about different KTPs.

A total of 33 business interviews were completed.

Innovate UK agreed to distribute the online survey to KTP associates which meant that an opt-in mailer was not required for this survey. This resulted in 21 responses.

1.5 Report Structure

Chapters 2 to 8 present the main findings of the evaluation, with conclusions and recommendations outlined in **Chapter 9**. Various appendices are attached.

2. KTP Programme in Scotland

This Chapter provides an overview of the KTP Programme in Scotland, covering:

- aims and objectives;
- KTP structures in Scotland;
- application and approval process; and
- criteria for KTP support.

2.1 Aims and Objectives

The KTP Programme is a long standing intervention designed to address known barriers to effective knowledge transfer.

The overarching aim of the KTP Programme is to “*strengthen the competitiveness, wealth creation and economic performance of the UK by the enhancement of knowledge and skills and the stimulation of innovation through collaborative projects between business and the knowledge base*”¹².

In Scotland, social impact is also an important consideration for SFC funding of KTPs, and the public sector, charities and not-for-profit organisations are also eligible for funding.

The KTP Programme seeks to:

- facilitate the transfer of knowledge and the spread of technical and business skills, through innovation projects undertaken by high calibre, recently qualified people under the joint supervision of personnel from business and the knowledge base;
- provide company-based training for the KTP associate in order to enhance their business and specialist skills within the context of the project;
- stimulate and enhance business relevant education and research undertaken by the knowledge base; and

¹² About KTP: An Overview http://ktp.innovateuk.org/assets/2011/special/About_KTP_Flyer_final_111214.pdf

- increase the extent of interactions by businesses with the knowledge base and their awareness of the contribution the knowledge base can make to business development and growth.

2.2 KTP Structure in Scotland

There are some differences in the structure of the KTP Programme in Scotland compared to the rest of the UK. [Four KTP Centres](#) were established in Scotland to assist multiple knowledge base partners in their region. The KTP Centres came on stream at different times and have formalised agreements in place with their partner academic institutions. There are three KTP Centres in Scotland, namely:

1. [East of Scotland](#) - located within Edinburgh Napier University;
2. [North of Scotland](#) - located within Robert Gordon University; and
3. [West of Scotland](#) - located within the University of Strathclyde.

There was previously a fourth - the [Tayside KTP Centre](#). The Tayside KTP Centre worked with the University of Dundee, University of Abertay Dundee, The James Hutton Institute, and Angus, Dundee and Perth Colleges. The Tayside KTP Centre is, however, no longer in operation. The University of Abertay Dundee has recently become affiliated with the North of Scotland KTP Centre and the University of Dundee deals with KTPs in-house (they continue to be involved in Scotland-wide meetings). Each KTP Centre in Scotland is a formal collaboration between a number of knowledge base partners in their region.

KTP Centre	Knowledge Base Partners
East of Scotland	University of Edinburgh, University of Stirling, St Andrews University, Edinburgh Napier University, Heriot-Watt University and Queen Margaret University.
North of Scotland	Joint venture between Robert Gordon University and University of Aberdeen. More recently it has become affiliated with the University of the Highlands & Islands and University of Abertay Dundee.
West of Scotland	University of Strathclyde, University of Glasgow, Glasgow Caledonian University, University of the West of Scotland, Glasgow School of Art, The Royal Conservatoire of Scotland ¹³ , and Scotland's Rural College ¹⁴ .

¹³ Formerly the Royal Scottish Academy of Music and Drama.

¹⁴ Formerly Scottish Agricultural College.

The KTP Centres in Scotland are funded in different ways:

- East of Scotland – partner institutions contribute via a membership fee and the KTP Centre receives a levy from each project supported;
- North of Scotland - receives a core sum of funding from the University of Aberdeen (regardless of how many KTPs are up and running), while other academic institution partners provide a percentage of overheads on a project by project basis; and
- West of Scotland - paid on a project by project basis by its academic institution partners (an annual fee paid quarterly in arrears).

We consider this in more detail in **Chapter 7** (Stakeholders' Perspectives).

The KTP Centres have dedicated staff, including roles such as Manager / Deputy Manager, Business Development Officers, Commercial Officer, and Administrators / Admin Assistants. The three KTP Centres in Scotland have around 13 members of staff.

KTP Centres are the central point of contact for those considering a KTP, and staff provide a wide range of support at the outset and during the delivery of KTPs.

Awareness raising forms an important part of the Centres' role. However, with no dedicated marketing budgets, feedback from the Centres is that they have adopted various approaches including engaging with academic partners and wider innovation and knowledge exchange providers (e.g. Scottish Enterprise, Highlands & Islands Enterprise, Interface) to increase awareness of the Programme, in particular with staff that have a business-facing role. The thinking is that KTP then becomes part of their "*tool box*" when speaking with businesses.

Wider support from the KTP Centres includes support to:

- define requirements;
- identify an appropriate university partner;
- define the project;
- prepare proposals for submission;
- facilitate the KTP funding process;

- recruitment of, and support for, the associate; and
- administer the project.

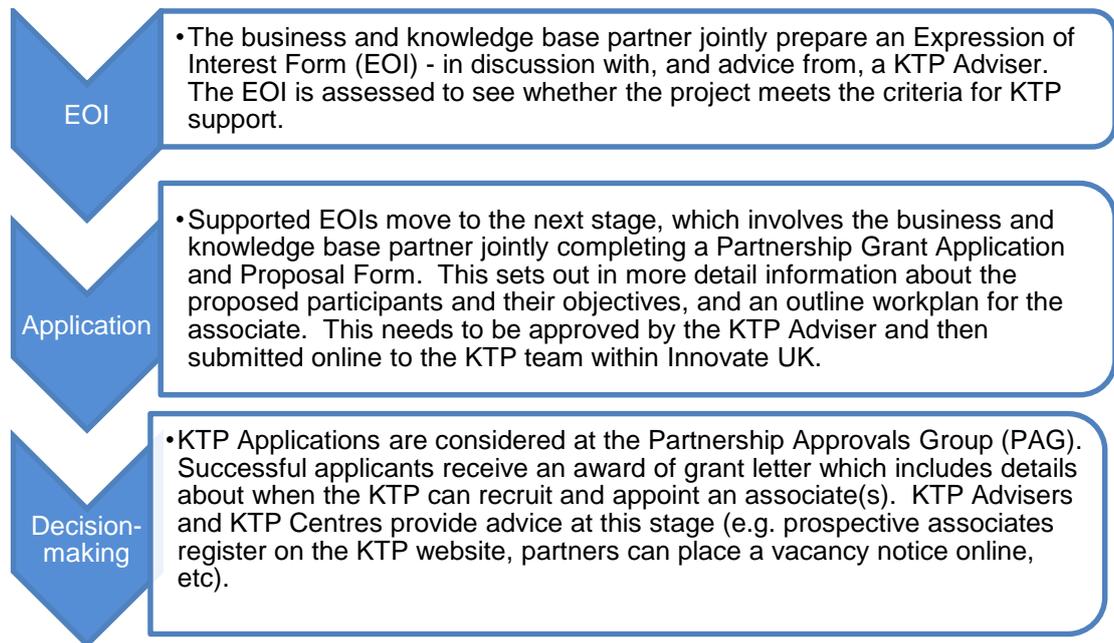
There are [three regional KTP Advisers](#) covering the North, West and East of Scotland. KTP Advisers are employed by Innovate UK and have a broad range of industrial experience. The Advisers have close contact with the KTP Centres and help with the preparation of KTP proposals. They play an important role in the routine monitoring of approved KTPs in their region - reviewing progress and ensuring that the three partners achieve their shared goals.

Both KTP Centres and KTP Advisers therefore play a pivotal role in supporting business and academic partners in scoping and building projects. There is a need to consider how the KTP will help the business make a strategic step change by, for example:

- improving existing products or developing new products;
- developing and implementing a marketing strategy to enter new markets;
and
- developing new systems and frameworks to improve efficiencies in staff and processes.

2.3 Application and Approval Process

Applications for KTP funding can be submitted throughout the year. Key steps in the process are outlined below.



In addition, Innovate UK run [Themed Calls or Competitions](#) throughout the year to stimulate KTP projects to be brought forward within particular priority areas.

A fundamental part of the Programme is that KTPs must offer the potential to benefit all three partners:

1. **Business** - KTPs often deliver significant increased profitability for businesses through improved quality and operations, increased sales and access to new markets - in particular, as new skills are embedded and capability improves.
2. **Knowledge Base** - from an academic partner's perspective, benefits centre on the application of knowledge and expertise to important business problems, contributing to the Research Excellence Framework (REF) and Impact Agenda, and developing business-relevant teaching and research materials.
3. **Associate(s)** - the main benefits are considered to be fast track career development opportunities, a competitive salary, employment within chosen academic discipline, training and development, opportunity to register for higher degree during project, and many are offered employment by host companies.

Approved KTP projects are typically supported on a co-sponsorship (co-funded) basis, together with a contribution from the business which is made on a project by project basis.

SMEs can receive a grant for 67% of eligible project costs, and large companies (250+ employees) can receive a 50% grant. The grant contribution reduces if the business goes on to become involved in more KTPs. Costs cover the salary and personal and professional development for the associate(s), cost of staff from the knowledge base partner, equipment and travel costs, etc.

2.4 Criteria for KTP Support

As outlined above, KTP applications and approvals are managed by Innovate UK. Each KTP application is assessed against overarching criteria to ensure the proposal for funding fits with the agreed mission and objectives of the KTP Programme¹⁵ (see **Appendix A**). In addition, each funder (e.g. SFC) identifies specific criteria that also require to be met by applicants.

Innovate UK only supports KTPs that generate wealth creation. The SFC criteria for KTPs is, however, more flexible in that it also considers the social impact of KTPs.

A summary of the SFC criteria for supporting KTPs is detailed below (April 2013)¹⁶:

- **Industry and Business Sectors:**
 - a portfolio of demand-led knowledge transfer projects that will contribute to delivering sustainable economic growth and/or societal impact to Scotland and that are aligned with the Scottish Government's Economic Strategy
 - responsive to business needs in Scotland - not be restricted to any specific business sectors (can last between six and 36 months)¹⁷;

¹⁵ <http://webarchive.nationalarchives.gov.uk/20140729081412/http://www.ktponline.org.uk/sponsorship-criteria>

¹⁶ <http://webarchive.nationalarchives.gov.uk/20140729081412/http://www.ktponline.org.uk/sponsorship-criteria>

¹⁷ Replacing the previous Classic KTPs (12 and 36 months) and Mini KTPs (6 and 12 months).

- **Technologies, Disciplines and Subject Areas:**
 - a broad cross-section of public, private and third sector businesses and other organisations in Scotland that demonstrate the potential for a high level of innovation and economic and/or societal benefits
 - do not necessarily need to be of a technological nature - but will result in benefits for the business, the associate and the host institution
 - preference given to projects that are innovative and imaginative in scope and demonstrate clear challenges for all participants
 - the knowledge base partner in a KTP project should be the most appropriate for the proposed knowledge transfer activities;
- **Size of Company:**
 - priority to support projects involving SMEs based in Scotland. Funding for projects with large companies based in Scotland will be considered where it can be demonstrated that the project has the potential to deliver significant economic benefits and there is a clear knowledge and benefits flow through to the SME supply chain; and
- **Shared Funding:**
 - SFC seeks to share funding of projects in Scotland with other public sector organisations, but is prepared to sole fund projects which demonstrate a sufficiently high potential for innovation, economic and/or societal impact and challenge for all the participants.

At times, SFC is asked to fund KTPs in full rather than split the costs across various KTP sponsors - this occurs when the KTP application does not fulfil Innovate UK's criteria, but produces wider social or economic impacts. It is our understanding that this does not happen frequently¹⁸. Upon completion, each KTP is required to submit a final report which is graded by an independent KTP assessor panel.

¹⁸ When this does occur, it is after the proposal has been approved by PAG and the partnership has been told that the project has been approved, in principle, subject to funding.

3. Facts and Figures

This Chapter provides our analysis of KTP data at a Scottish level provided by the SFC, with some data contained in **Appendix B**. Prior to this, however, it is worth presenting some data for the KTP Programme at a UK level broken down by region, including Scotland. We have drawn on information contained in the recent WECD report for Innovate UK¹⁹ and Innovate UK's KTP Achievement and Outcomes Report 2013 to 2014.

3.1 KTP Programme at a UK Level

Tables 3.1 and 3.2 provide details of completed and ongoing KTPs for UK regions. While the time period is much broader than the focus for this evaluation, it provides useful insights into the scale of the Programme. The data shows that there is some regional variation in terms of the involvement of knowledge base organisations in the KTP Programme - this is linked to regional averages being skewed by the large range/variation in participation.

In Scotland there were 841 KTPs (completed or ongoing) between 1982 and 2014. The total grant awarded was circa £65 million.

Source: WECD Report (2015)

For completed KTPs, the average grant per project is slightly higher in England. For ongoing KTPs, the average value is higher in Scotland.

Table 3.1: Completed Projects by UK Region (KB²⁰ Location) - 1982 to 2014

Country	KBs	Projects	Average No of Projects per KB	Businesses	Total Grant*	Average Grant per Completed Project
England	119	4,996	42	4,142	£389.83m	£78,030
Scotland	28	747	27	620	£56.02m	£75,005
Wales	16	543	34	444	£40.43m	£74,468
Northern Ireland	8	445	56	353	£34.25m	£76,988
Total	171	6,731	39	5,559	£520.56m	£77,338

Source: WECD, KTP Programme: The Impacts of KTP Associates and Knowledge Base on the UK Economy, July 2015. * Figures rounded

¹⁹ <https://www.gov.uk/government/publications/the-knowledge-transfer-partnership-programme-an-impact-review>

²⁰ KB = Knowledge Base.

Table 3.2: Ongoing Projects by UK Region (KB Location) -1982 to 2014

Country	KBs	Projects	Businesses	Total Grant*	Average Grant per Completed Project
England	81	514	489	£45.86m	£89,231
Scotland	16	94	93	£8.93m	£95,092
Wales	8	28	27	£2.41m	£86,306
Northern Ireland	3	45	43	£3.77m	£83,960
Total	108	681	652	£60.99m	£89,571

Source: WECD, KTP Programme: The Impacts of KTP Associates and Knowledge Base on the UK Economy, July 2015. * Figures rounded

The University of Strathclyde is in the top ten knowledge base participants in the KTP Programme across the UK - the university is positioned at number five, and completed 202 KTP projects between 1985 and 2014 (**Table 3.3**). This compares to 322 projects for Queen's University Belfast which is the most active institution.

Table 3.3: Top Ten Knowledge Base Participants - 1985 to 2014

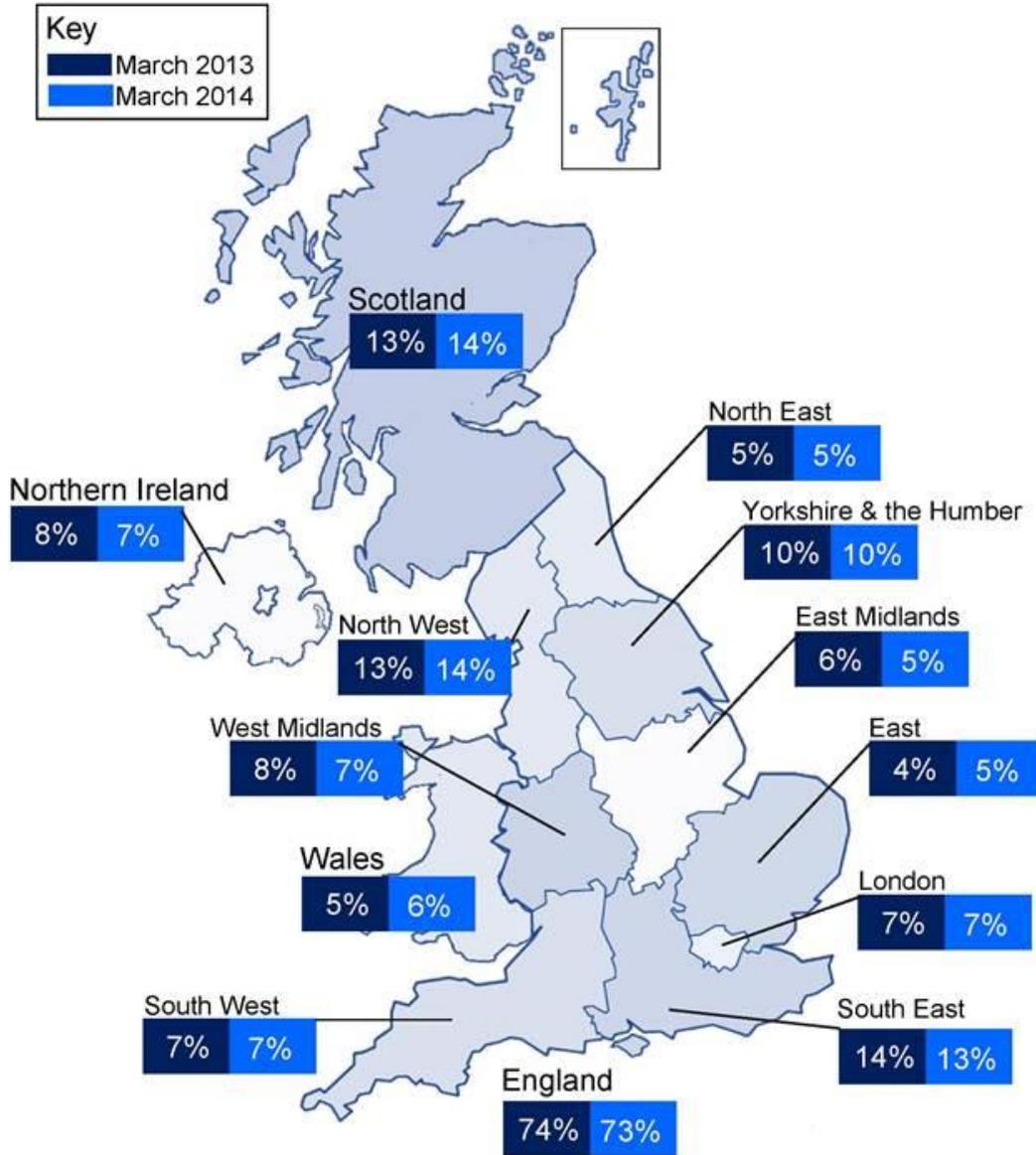
Institution	Total Completed Projects
Queen's University Belfast	322
University of Reading	239
University of Manchester	226
University of Plymouth	206
University of Strathclyde	202
University of Ulster	193
University of Sheffield	172
London South Bank University	165
Sheffield Hallam University	162
University of Wolverhampton	158

Source: WECD, KTP Programme: The Impacts of KTP Associates and Knowledge Base on the UK Economy, July 2015.

Innovate UK's *KTPs Achievements and Outcomes Report 2013 to 2014* presents a map of KTPs across the UK. It shows how the numbers and distribution of projects has remained broadly consistent, **Figure 3.1**

14% of new KTPs supported in 2014 were in Scotland.

Figure 3.1: KTPs across the UK (2013 and 2014)



Source: Innovate UK, *KTPs Achievements and Outcomes Report 2013 to 2014*

3.2 KTP Portfolio in Scotland

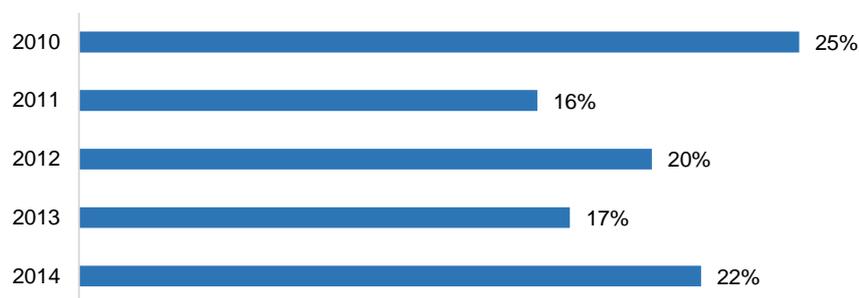
The remaining sections consider the KTP Programme in Scotland, and are based on a review of data provided by the SFC. The data presented is based on KTPs which became active during the period 1 January 2010 to 31 December 2014.

A total of 175 KTPs started in Scotland between January 2010 and December 2014 - involving 161 businesses, 29 knowledge base partners, and 200 associates.

The number of KTPs fluctuated slightly over the period, with a high of 44 in 2010 (25%) and a low of 28 the following year (16%), **Figure 3.2**.

The KTP portfolio in Scotland (and across the UK) peaked in 2010, however, following the 2010 Spending Review the portfolio reduced in size. Data for 2014, shows encouraging signs with the number of KTPs in Scotland almost back to the 2010 figures.

Figure 3.2: Year KTPs in Scotland Started (2010 to 2014)



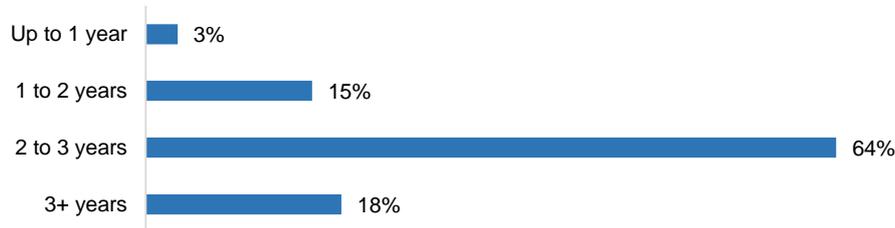
Source: KTP Monitoring Information, N=175

Just over half of KTPs in Scotland that started over this period are now complete (97, 55%), with almost one-third ongoing during 2015 (53, 30%). A total of 25 KTPs were terminated either early or very early (14%)²¹.

There has been a tendency for longer KTPs to be undertaken, with KTPs in Scotland typically lasting between two and three years (107, 63%), **Figure 3.3**. The average duration of a KTP in Scotland is 2.5 years.

²¹ Terminated early ranges from 15 months to 34 months. Terminated very early ranges from 6 months to 18 months. In addition, one KTP was withdrawn after approval and never started.

Figure 3.3: KTP Duration (2010 to 2014)



Source: KTP Monitoring Information, N=170. Five KTPs had unspecified end dates.

Where KTPs lasted more than three years, this included the time required to recruit the associate, as well as instances where the associate left post prior to completion of the KTP resulting in another associate being recruited.

3.3 Businesses Involved in KTPs

A total of 161 businesses were involved in the 175 KTPs in Scotland that started between January 2010 and December 2014.

A review of the data shows that:

- the vast majority were private sector businesses (137, 85%);
- a much smaller share of the portfolio were public sector (15, 9%) or third sector organisations (9, 6%);
- the majority of businesses were located in the West or East of Scotland (37% and 32% respectively). This was followed by the North of Scotland (24%) reflecting the prevalence of oil and gas in the region - a well-represented sector within the KTP Programme in Scotland; and
- while most businesses were located in the same region as their knowledge base partner (123, 70%), a significant minority were not (52, 30%)²².

Businesses of all sizes have been involved in KTPs, with demand highest amongst SMEs (60%), **Table 3.4**.

²² This is as a proportion of the 175 KTPs.

Table 3.4: Size of Business involved in KTPs (2010 to 2014)

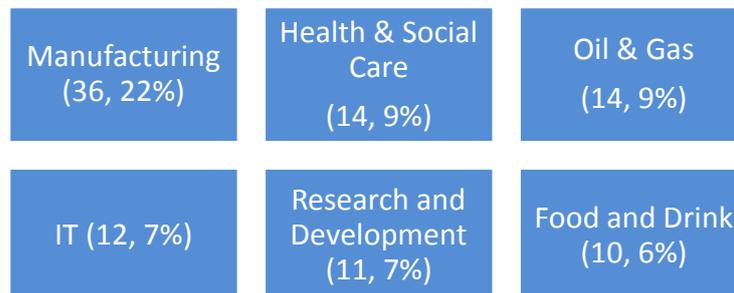
	Nos of Businesses	%
Micro - less than 10 FTEs	28	16%
Small - 10 and 49 FTEs	65	37%
Medium - 50 and 249 FTEs	40	23%
Large - 250+ FTEs	42	24%

Source: KTP Monitoring Data. N=161

Not surprisingly, demand for KTPs from micro businesses was low, with both time and financial constraints likely to be particularly challenging for this size of business²³.

Demand for KTPs in Scotland has been strongest, by far, among manufacturing-related businesses. The top six sectors involved in KTPs in Scotland over this period are outlined below.

Figure 3.4: Business Sector involvement in KTPs (Top Six) - 2010 to 2014



Source: KTP Monitoring Information, N=161. **Appendix B** has the full list.

The most common technology that was examined through the KTPs was Information and Communication Technologies (23%). This was followed by High Value Manufacturing (12%) and Management Science (9%).

There was a small amount of repeat business over the period 2010 to 2014 - 13 businesses were involved in more than one KTP over this period (8%), **Table 3.5**.

²³ This matches similar profile for the UK for classic KTPs. In 2013/14 this was micro (10%), small (39%), medium (25%), and large (26%) - KTP Achievements and Outcomes 2013/14 Report.

Table 3.5: Level of Engagement in KTPs (2010 and 2014)

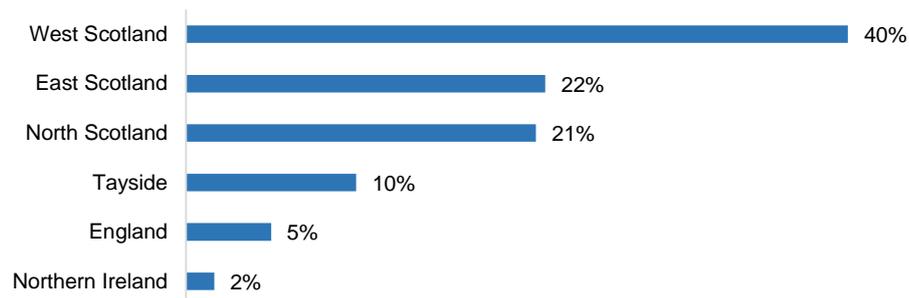
	Nos of Businesses	%
1 KTP	148	92%
2 KTPs	12	7%
3 KTPs	1	1%

Source: KTP Monitoring Information. N=161

3.4 Knowledge Base Partners

Almost all KTPs that started between 2010 and 2014 in Scotland involved a Scottish university or college as the knowledge base partner (168, 93%), **Figure 3.5**, with West of Scotland institutions most heavily involved in KTPs. A much smaller proportion of knowledge base partners were located outwith Scotland (i.e. England, Northern Ireland).

Figure 3.5: Knowledge Base Partner Involvement by Region (2010 to 2014)



Source: KTP Monitoring Information, N=175

Some 29 knowledge base partners in Scotland were involved in KTPs, albeit levels of engagement varied considerably. The University of Strathclyde has the highest level of KTP activity in Scotland, followed by Robert Gordon University and Heriot-Watt University, **Table 3.6**.

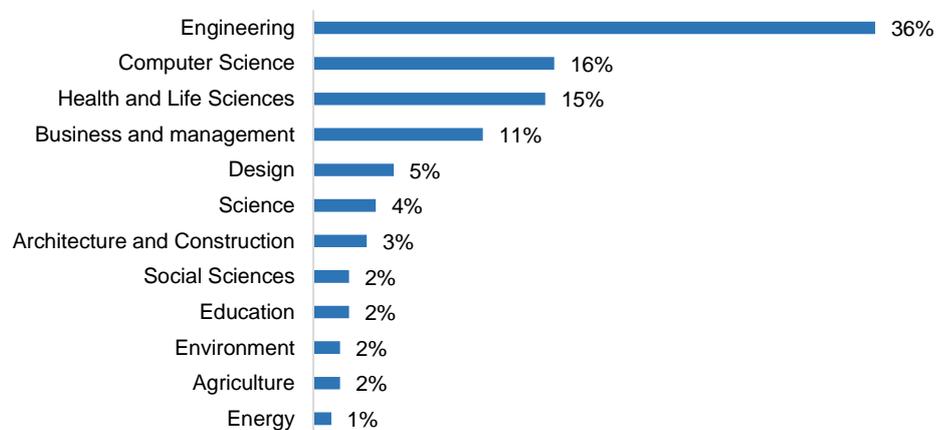
Table 3.6: Knowledge Base Partners in Scotland (Top Ten) - 2010 to 2014

Knowledge Base Partner	Number of KTPs	% of Total
University of Strathclyde	34	19%
The Robert Gordon University	20	11%
Heriot-Watt University	16	9%
Glasgow Caledonian University	13	7%
University of Aberdeen	13	7%
University of Dundee	11	6%
University of the West of Scotland	11	6%
Edinburgh Napier University	10	6%
University of Glasgow	10	6%
The University of Edinburgh	7	4%

Source: KTP Monitoring Information. N=175. **Appendix B** has the full list.

Further analysis by department shows that Engineering (36%) was the most common department engaged in KTPs, followed by Computer Science (16%), Health and Life Sciences (15%) and Business and Management (11%), **Figure 3.6**.

Figure 3.6: KTPs by Research Partner Department (2010 to 2014)



Source: KTP Monitoring Information, N=173 (not specified for two).

3.5 Associates

A total of 200 associates were involved in the 175 KTPs. From a review of the data:

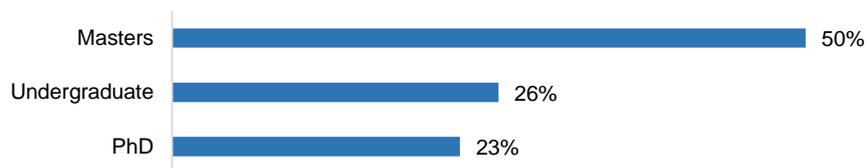
- the majority of KTPs had one associate (149, 85%);
- 24 KTPs had two or three associates (14%); and

- two KTPs are in the process of recruitment (1%).

In instances where KTPs had multiple associates, 38% planned to have that many (nine), while the remainder had to recruit new associates as a result of the original person leaving post early (15, 63%).

The majority of associates had a postgraduate degree as their highest level of qualification (144, 73%), **Figure 3.7**.

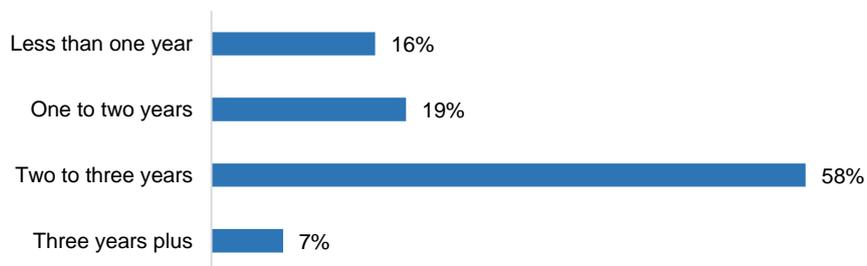
Figure 3.7: Associates Highest Level of Qualification (2010 to 2014)



Source: KTP Monitoring Information, N=197 (not specified for three).

Over half of associates were involved in the KTP for between two and three years (116, 58%), **Figure 3.8**. The average time spent was 22 months.

Figure 3.8: Associate Time Spent in KTPs (2010 to 2014)



Source: KTP Monitoring Information, N=200

Most associates either completed or are still taking part in the KTP (150, 75%), **Table 3.7**. The remainder left the position prior to completion.

Table 3.7: Associate Status (2010 to 2014)

	Nos. of Associates	%
Completed the KTP	96	48%
Still active in the KTP	54	27%
Left less than 12 months into KTP	31	15%
Left between 12 and 21 months into KTP	19	9%

Source: KTP Monitoring Information, N=200

However, for over half of associates that left early (27, 54%), the KTP also finished early. It is our understanding that this is mainly as a result of the associate leaving early, however, some KTPs also terminated early.

3.6 Financial Review

This section provides an overview of financial data, including grants awarded for KTPs in Scotland, business contributions, any additional business contributions, and administration costs.

KTP grants seem to have achieved strong leverage from businesses in Scotland, with grants accounting for only 35% of the total cost of KTPs. **Table 3.8** provides a summary, with each element then considered in turn.

Table 3.8: Summary of Grant and Business Contributions (2010 to 2014)

Grants	Funding Contribution	% of Total
Total grants awarded	£16.3m	35%
Total business contribution	£10.3m	22%
Total additional business contribution	£18.6m	39%
Total Administration Costs	£1.6m	4%
Overall total	£46.8m	100%

Source: KTP Monitoring Information. Numbers subject to rounding

KTP Grants Awarded

There has been a high level of grant funding committed to KTPs in Scotland.

A total of £16.3m was awarded to the 175 KTPs that started in Scotland between 2010 and 2014.

Awards varied from a low of £40,000 to a high of £247,000, with the majority of successful applicants awarded grants up to £100,000 (71%, 124 KTPs), **Figure 3.9**. The average award size was circa £93,000.

Figure 3.9: Value of KTP Grants Awarded (2010 to 2014)



Source: KTP Monitoring Information, N=175

The SFC and Innovate UK funded the most KTPs (161 and 160 respectively) during this time, **Table 3.9**.

Some 42% of grant funding was provided by the SFC, with the remainder committed from a host of funders based outwith Scotland (58%). This suggests that the KTP Programme in Scotland has been successful in leveraging in a significant amount of funding from elsewhere.

Table 3.9: Grant Funders of KTPs in Scotland (2014 to 2014)

Funders	Number of KTPs funded	Average % of Total Grant	Average Grant	Total Grants	% of Total Grants
Innovate UK	160	52%	£49,427	£7,908,385	49%
Scottish Funding Council (SFC)	161	45%	£42,170	£6,789,433	42%
Engineering and Physical Sciences Research Council (EPSRC)	21	37%	£33,472	£702,914	4%
Economic and Social Research Council (ESRC)	8	41%	£31,774	£254,192	2%
Natural Environment Research Council (NERC)	7	39%	£33,507	£234,549	1%
Engineering and Physical Sciences Research Council - Knowledge Transfer Account (EPSRC – KTA)	4	50%	£38,837	£155,346	1%
Biotechnology and Biological Sciences Research Council (BBSRC)	2	34%	£41,717	£83,434	0.5%
dotRural	1	60%	£59,080	£59,080	0.4%
Medical Research Council (MRC)	1	50%	£33,352	£33,352	0.2%
Engineering and Physical Sciences Research Council - Collaborative Training Account (EPSRC – CTA)	1	30%	£26,526	£26,526	0.2%
Scottish Executive Environment and Rural Affairs Department (SEERAD)	1	15%	£9,934	£9,934	0.1%

Source: KTP Monitoring Information, N=175

Of the £16.3m awarded to KTPs over this period, £10.7m has been claimed to date (i.e. 66% of total grants awarded), **Table 3.10**.

As highlighted earlier, almost one-third of KTPs are ongoing during 2015 with further expenditure likely to drawn down. Where KTPs completed early or very early (i.e. terminated), there were higher levels of grant funding not claimed.

Table 3.10: Actual Grants Claimed (2010 to 2014)

KTPs	Grant	Claimed	% Claimed
Active	£5,442,402	£2,137,095	39%
Completed	£8,404,787	£7,692,237	92%
Completed early	£1,477,077	£716,801	49%
Completed very early	£895,900	£150,730	17%
Total	£16,263,378	£10,696,862	66%

Source: KTP Monitoring Information

Administration Costs

Administration costs totalled £1.6m for Scottish KTPs over the period 2010 to 2014.

Administration costs are gathered at a UK level, but are not broken down by region or by individual KTP. Administration costs for Scotland are calculated by multiplying the number of active KTPs on the 31st December each year by the average administration cost of UK KTPs for that year, **Table 3.11**.

It should be noted that this differs from how Innovate UK usually calculate administration costs in Scotland, which is usually presented as a function of SFC funding only rather than total grant funding (i.e. irrespective of funder), and is therefore 42% of total figure presented below.

These costs include the KTP Adviser costs, Associate Training costs, Innovate UK staff costs, etc.

Table 3.11 Administration Costs

Year	Average Admin Cost per KTP per Year	Number of Active KTPs	New KTPs	Completed KTPs	Total Admin Cost
2010	£5,300	44	44	0	£233,200
2011	£5,300	67	27	5	£355,100
2012	£4,000	78	35	5	£312,000
2013	£4,000	82	30	26	£328,000
2014	£4,000	85	38	35	£340,000
Total	-	-	175	55	£1,568,300

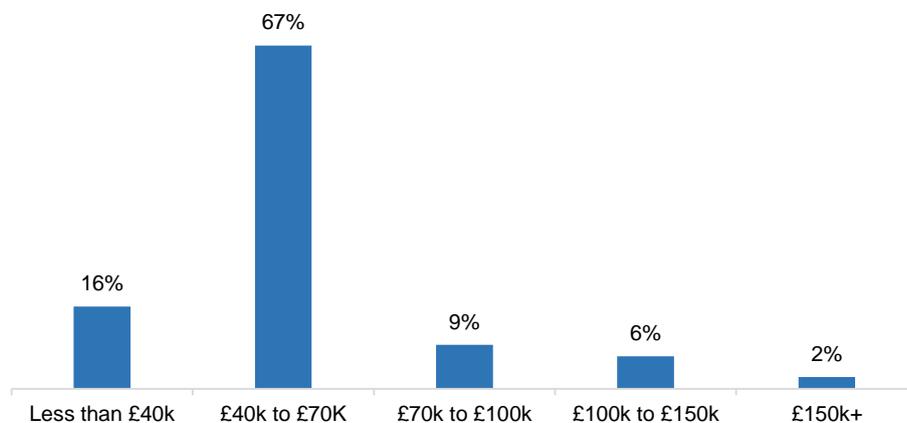
Source: KTP Monitoring Information, Innovate UK

Business Contributions

Businesses contributed £10.3m to the 175 KTPs in Scotland that started in between 2010 and 2014.

This ranged from a low of £21,000 to a high of £203,000, with the average contribution circa £61,000. The majority of businesses contributed less than £70,000, **Figure 3.10**.

Figure 3.10: Business Contributions to KTPs (2010 to 2014)



Source: KTP Monitoring Information, N=175

Business contributions were typically one-third of the total KTP project cost (125, 71%), with around a quarter at 50% of total KTP cost (46, 26%), and a handful higher than this (4, 3%).

In many cases businesses committed additional monies - our understanding is that this was to “*exploit outcomes of KTPs*”, for example, salary top-ups to attract higher quality associates and/or investment in new machinery to exploit new technologies. A review of the data shows that:

- businesses committed additional monies to all but one KTP that started between January 2010 and December 2014;
- [additional contributions amounted to £18.6m](#);
- contributions varied from £6,500 to £990,000 - with an average contribution of circa £116,000; and
- some 16% of additional contributions were greater than the combined total of grant funding and initial company contribution (28).

4. Strategic and Market Failure Rationale

This Chapter presents the strategic and market failure rationale for the KTP Programme in Scotland.

4.1 Strategic Context and Rationale

There is a very supportive policy environment for the KTP Programme at a European, UK and Scottish level.

There continues to be a strong commitment to [foster and encourage innovation-led economic growth](#). There is recognition that future economic opportunities will be in new technologies, and that innovative companies will achieve higher growth rates than companies that do not innovate, and will be more successful in competing in an increasingly international marketplace.

“A large body of evidence shows that innovative economies are more productive and faster growing. They deliver higher returns on investment and increased living standards”.

Source: Department for Business Innovation and Skills - Innovation and Research Strategy for Growth (2011)

There is a strong policy context for the [role of higher education in supporting economic growth](#), and a desire for more businesses to tap into the full range of knowledge and expertise within universities to address specific business needs and challenges.

There is a continued drive to boost collaboration between businesses and universities, and much greater emphasis placed on universities to demonstrate and evidence their external impacts. The Research Excellence Framework (REF), which replaced the Research Assessment Exercise (RAE), requires universities to present an account of the impacts of their research activities beyond standard measures of academic impact.

European Level

Two economic growth priorities within the [Europe 2020](#) strategy²⁴ are particularly relevant for the KTP Programme:

- **Smart Growth:**
 - improving performance in research and innovation - creating new products and services that generate growth and jobs and which help address social challenges
 - refocusing R&D and innovation policy to tackle major challenges (e.g. climate change, energy and resource efficiency, health and demographic change) - with a target of 3% of EU GDP to be invested in R&D by 2020
 - strengthening every link in the innovation chain - from 'blue sky' research to commercialisation; and
- **Inclusive Growth:**
 - raising Europe's employment rate – more and better jobs, especially for women, young people and older workers
 - helping people of all ages anticipate and manage change through investment in skills and training
 - modernising labour markets and welfare systems
 - ensuring the benefits of growth reach all parts of the EU.

The KTP Programme contributes to the Smart Growth priority through its focus on linking businesses to academic expertise. It facilitates the transfer of knowledge and technical and business skills, through innovation projects undertaken by associates (e.g. improving existing products or developing new products, developing new systems/processes) - supporting business improvement and growth. It contributes to Inclusive Growth through the opportunities provided for associates. The KTP Programme is considered to be a large graduate recruitment scheme - embedding associates in the business and providing opportunities which enhance their career prospects (including the provision of training and professional development).

²⁴ Europe 2020 (2010) http://ec.europa.eu/europe2020/index_en.htm

UK Level

The [Department for Business, Innovation and Skills \(BIS\) - Innovation and Research Strategy for Growth \(2011\)](#)²⁵ outlines the UK Government's priorities for supporting innovation-led economic growth. There is a commitment to supporting research and innovation in businesses, providing incentives for companies to invest in high-value business activities; creating a more open and integrated innovation ecosystem; and removing barriers to innovation (in particular for SMEs).

The strength of UK universities and the wider knowledge base is recognised as being world-class (a national asset), and that in an increasingly global innovation economy, the UK needs to strengthen and enhance its ability to accelerate the commercialisation of emerging technologies. Improving the interface between universities and industry is considered crucial, and the Strategy outlines approaches for:

- continuing support for blue skies, curiosity-driven research across a range of disciplines;
- identifying resources to exploit emerging technologies, whilst driving innovation in high technology sectors and in response to societal challenges;
- encouraging increased business investment in all forms of innovation, particularly by SMEs, including technology development, but also in intangible assets such as design, the development of new business models and skills; and
- increasing knowledge exchange and facilitating networks, clusters and research campuses as hubs for interaction at local, national and international level.

The KTP Programme has a strong fit here - it aims to increase the extent to which businesses engage and interact with the wider knowledge base, and to transfer and embed knowledge and skills into the business. This is with a view to improving business competitiveness and productivity (improving bottom line, creating jobs, increasing skills, etc).

²⁵ Department for Business Innovation and Skills - Innovation and Research Strategy for Growth (2011)
https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/32450/11-1387-innovation-and-research-strategy-for-growth.pdf

Innovate UK published a [Five Point Plan for Economic Growth](#)²⁶ in July 2015 outlining the organisation's main aims for the next few years, ahead of the publication of their new strategy. The five points are:

- [accelerating UK economic growth](#) – nurturing small high-growth potential firms in key market sectors, helping them to become high-growth mid-sized companies with strong productivity and export success;
- [building on innovation excellence](#) – throughout the UK, investing locally in areas of strength;
- [developing catapults](#) – a national innovation network to provide access to cutting edge technologies, encouraging inward investment and enabling technical advances in existing businesses;
- [working with the research community and across government](#) – turning scientific excellence into economic impact and delivering results through innovation; and
- [evolving funding models](#) – exploring ways to help public funding go further and work harder, while delivering impact through innovation.

At a UK level, the KTP Programme has a particular focus on wealth creation and improving the economic performance of the UK - it seeks to achieve this through fostering innovation and collaboration between industry and the knowledge base. The end goal is to improve the competitiveness of businesses by supporting them to innovate and grow.

Commissioned by BIS, the [Dowling Review of Business-University Research Collaborations](#) (July 2015)²⁷ provides a review of the existing business-university collaboration landscape.

“KTPs have proved to be highly valuable for facilitating knowledge transfer and seeding collaborations. Innovate UK should increase levels of KTP funding to enable it to better meet demand for the scheme, as well as ensuring that the burden on applicants is proportionate to the size of the grant.”

Source: The Dowling Review (2015)

²⁶ Our Five Point Plan For Economic Growth

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/451645/5-point_plan_July_2015.pdf

²⁷ <https://www.gov.uk/government/publications/business-university-research-collaborations-dowling-review-final-report>

KTPs are recognised within the Dowling Review as a crucial element of the business-academia collaboration landscape - evidenced by its 40-years of operation and continuing demand for KTPs across the UK. There were, however, two areas recommended for improvement:

1. The number of KTPs decreased by 37% from its peak in 2010 after the Spending Review. It was recommended that levels of funding be increased to meet demand and to better meet the overarching recommendation of improving business-university brokerage.
2. Despite the fact that a lengthy proposal development process plays a key role in establishing the relationships needed for successful KTPs, it was noted that there is a similar administrative burden, irrespective of the size of the grant award. It was recommended that the burden on both business and academia be proportionate to the size of the award.

Overall, the review concluded that relationships and trust are at the heart of successful business-academia collaborations and that government intervention to encourage partnerships do not, in and of themselves, create trust. Policy should focus on facilitating the things that do engender trust between business and academia, such as encouraging greater movement between the two and providing incentives for collaboration.

Scottish Level

Scotland's Economic Strategy (2015)²⁸ is committed to the overarching priority of achieving sustainable economic growth through increasing competitiveness and tackling inequality. Priorities of relevance to the KTP Programme in Scotland include:

- **fostering a culture of innovation** - innovation is identified as a driver of long-term competitiveness and sustainable growth, and Scotland's universities are a central component of the innovation system - enhancing the links between universities and the private sector is considered crucial for translating this research into greater commercial opportunities and economic growth; and

²⁸ Scotland's Economic Strategy (2015) <http://www.gov.scot/Resource/0047/00472389.pdf>

- **investing in our people, infrastructure and assets** - ensuring that Scottish people are well-skilled and innovative and that Scotland's infrastructure supports businesses to grow and innovate.

“If we are to become more competitive we need to ensure that Scottish businesses understand the benefits of investing in innovation and research and development”.

Scotland's Economic Strategy (2015)

The Scottish Government is committed to improving industry and academic networks and fostering collaborations which aim to enhance knowledge exchange and promote innovation.

This is at the very heart of the KTP Programme in Scotland. KTPs helps businesses to innovate and grow - the three-way partnerships ensure that businesses are linked to the right knowledge base partner, and a suitably qualified associate is fully embedded in the business to work on a project which is of strategic importance to the business. The associate and knowledge base partner bring new skills and knowledge to the business.

The KTP Programme is considered to be a large graduate recruitment programme - it provides employment for the associate within the business, and provides training and support to increase skills. Overall, the experience enhances associates career prospects - either through permanent employment with the company or to secure employment elsewhere.

[Scotland Can Do: Becoming a World-Leading Entrepreneurial and Innovative Nation \(2013\)](#)²⁹ sets out the Scottish Government's plan for boosting entrepreneurship and innovation in the Scottish economy, covering four themes:

- **capable** - ensuring that businesses have the right leadership and technical skills to innovate and grow, with government facilitating this by providing a range of business support services;
- **ambitious** – fostering an entrepreneurial and ambitious culture, particularly amongst the younger generation, with the education system being the key tool to achieve this;

²⁹ Scotland Can Do: Becoming a world-leading Entrepreneurial and innovative nation (2013)
www.gov.scot/resource/0043/00438045.pdf

- **networked** – improving the creation and exploitation of knowledge across the innovation system, including encouraging collaboration between business and academia; and
- **demand and opportunities** – stimulating demand and market opportunities to accelerate the development of new products and services, particularly through innovative public procurement and the conversion of science and technology into new products and services.

The KTP Programme has a clear fit - it supports businesses to access academic expertise that they lack internally. The knowledge and skills transferred to the business through the KTP then helps improve business performance, competitiveness and productivity. The associate plays a crucial role in managing the strategic project which supports the business to innovate and grow.

4.2 Market Failure Rationale

The KTP Programme aims to address a number of market failures in the economy. Market failures occur when imperfections in the market prevent economic efficiency, and where there is clear evidence that markets cannot provide the best outcomes, there is a strong justification of public sector intervention³⁰. The failures identified involve **information failures** common to knowledge exchange interventions.

Information failures

Informational failures are common between businesses and universities and research institutions - academics often possess knowledge that would benefit businesses, but fail to recognise its commercial potential, whilst businesses lack information and awareness about that knowledge, how to access it, and what the potential benefits might be. This can prevent both parties from pursuing mutually beneficial collaborations.

Information failures can lead to potentially large barriers to collaboration as businesses need to research the academic expertise available and spend time approaching a range of academics to identify the most appropriate collaborative partner.

³⁰ Appraisal and Evaluation in Central Government http://www.hm-treasury.gov.uk/d/green_book_complete.pdf

The KTP Programme addresses informational failures by acting as a bridge between companies seeking to undertake a collaboration and the academics who possess the relevant knowledge and expertise. Through the KTP Centres in Scotland and KTP Advisers, the Programme provides a single point of contact for businesses interested in participating in a KTP (and signposted to alternative support mechanisms if a KTP is not appropriate). This reduces both the time and cost for businesses.

An Alternative Approach

A report published by Innovate UK ‘*A mission-oriented approach to building the entrepreneurial state*’ (March 2015)³¹ provides an alternative narrative, critiquing the market failure approach to government interventions in the economy.

It argues that whilst combating market failures (such as information failures) is a necessary function of government, it is not sufficient if innovation is to be put at the centre of government growth policy. Rejected is the idea that once failures are addressed, the market will lead the economy back to the optimal path. Instead, it is argued that markets are ‘blind’ and do not necessarily lead to the optimal outcome from a societal perspective.

Instead, policy should take the lead in shaping and creating markets in clearly defined, goal driven areas for the benefit of wider society. This can take a number of forms, including direct public sector research, seed funding for start-ups, direct funding in mature businesses, or in the case of the KTP Programme, targeted knowledge transfer schemes.

Innovate UK is broadly supportive of this argument, stating “*We agree ... that Government has a role in not just helping to simplify that system [the innovation system], but also to align it around important challenges*”³², and has an established programme of themed calls and competitions, taking a proactive approach in establishing partnerships in areas deemed to be of societal benefit by the government rather than being led by industry demand.

³¹ <https://www.gov.uk/government/publications/a-mission-oriented-approach-to-building-the-entrepreneurial-state>

³² <http://marianamazucato.com/wp-content/uploads/2014/11/Innovate-UK-paper-press-release.pdf>

5. Summary Business Feedback

This Chapter provides a summary of the feedback from the business survey, with the detailed write-up in **Appendix C**.

Chapter 1 provided an overview of the study method and issues experienced in progressing the business survey. From a final contact list of 50 businesses, 33 interviews were completed. This represents a response rate of 66%.

5.1 Initial Awareness and Engagement

More than three-quarters of businesses first became aware of the KTP Programme in Scotland through word of mouth from a personal, business or academic contact – this was typically the businesses' main route into the Programme.

The overall marketing and promotion of the KTP Programme in Scotland was, however, rated poorly – less than one-fifth of businesses considered this aspect of the KTP Programme to be effective.

The main reasons for participating in KTPs were to develop new products/services (88%), to develop new processes (76%), to improve the skills base (76%), to improve products/services (73%) or to improve processes (70%). These desired outcomes are strongly aligned with what the KTP Programme delivers for businesses.

Most businesses had tried to achieve the same outcomes (i.e. develop new products/processes, improve skills) by some other means – e.g. using in-house resources (76%) or working with a university, not including KTP (67%). However, it was felt that the KTP route represented a better way to develop and sustain long-term relationships with a university partner and to gain access to their wealth of expertise.

At the application stage, businesses reported that they primarily identified academics, defined the aims and detail of the Project, and prepared the application forms - with support from lead academics.

82% of businesses were happy with the application process and that there were no areas for improvement.

Fewer businesses said that KTP Advisers or KTP Centres were involved at this stage in the process. This might in part reflect confusion among some business regarding the nuances between KTP Centre staff and KTP Advisers and the knowledge base partner. In particular, as KTP Centre staff are employed and based within universities.

5.2 Project Delivery

The majority of businesses experienced no problems in recruiting an associate (82%). However, of those that did, the main issue by far was finding a candidate with the right abilities.

Overall, businesses rated the Project delivery period relatively positively, as demonstrated below:

- **KTP Advisers** - aspects rated effective/very effective ranged from 77% for resolving project issues to 88% for reviewing progress towards objectives;
- the effectiveness of **university partners** ranged from a low of 73% for spending half a day per week on the Project and for supervising the associate, to a high of 91% for attending Local Management Committee meetings and for their overall level of engagement and commitment; and
- just over half of businesses reported that they had contact with a **KTP Centre**, and there was 100% satisfaction with this experience.

A small number of businesses reported issues in Project delivery, largely relating to the quality of the associate and the work undertaken.

The **KTP Portal was poorly used** – 85% of businesses did not use the Portal often or did not use it at all.

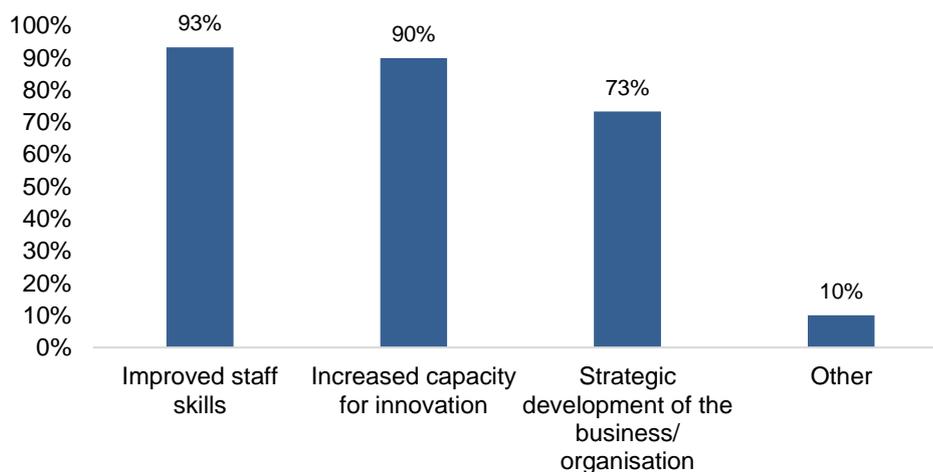
Overall satisfaction was high – almost all businesses reported satisfaction with the KTP Programme (97%).

The ideal duration of a KTP was felt to be two years, as this allowed sufficient time for the associate to fully settle into the business.

5.3 Benefits and Impacts

Nearly all businesses reported positive benefits from their involvement in KTPs (91%). In the main, businesses reported benefits such as increased skills and increased capacity.

Figure 5.1: Benefits of the KTP Programme



N=30

'Other' benefits included improved collaborations with other organisations/universities, and an enhanced reputation.

A high proportion of businesses reported wider impacts on business performance (e.g. increased/sustained turnover and/or employment, cost savings) as a direct result of the KTP:

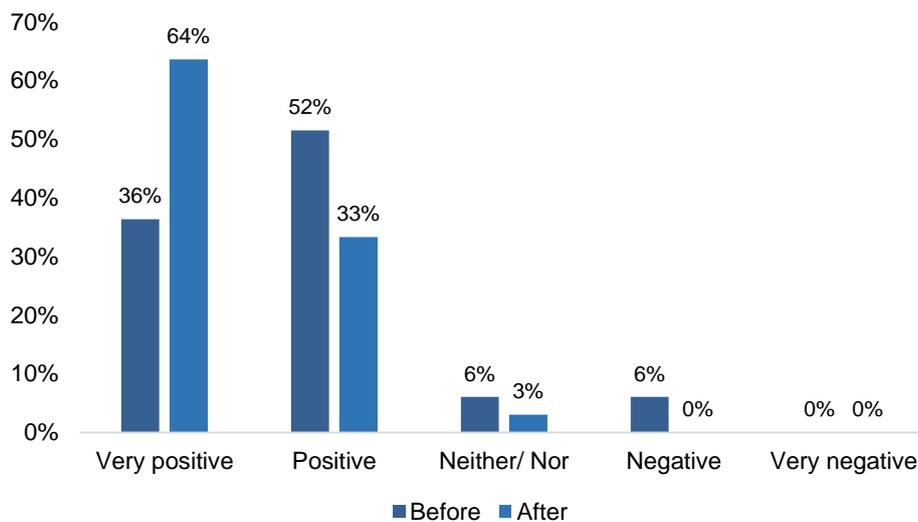
- 76% of businesses reported that wider impacts had been achieved to date; and
- 88% of businesses anticipated further business performance impacts over the next three years.

Additionality was also high - 94% of businesses that reported current/future business performance impacts went on to report that the impacts would not have been achieved or only some would have been achieved in the absence of support from the KTP Programme in Scotland.

5.4 Attitudes towards Collaboration

The survey also found that attitudes towards collaboration with academia had significantly improved after involvement in a KTP, with those reporting a very positive attitude increasing from 36% before participation to 64% afterwards – **Figure 5.2**. Typically, however, businesses had a positive attitude prior to taking part.

Figure 5.2: Attitude to Collaboration with Academia



N=33

5.5 Strengths, Weaknesses and Areas for Improvement

91% of businesses reported that their expectations from involvement in the KTP had been met or exceeded.

The main strength of the KTP Programme was considered to be the partnerships it cultivates between academia and business, facilitating access to expertise and an exchange of skills. Its flexibility and the quality of associates were also praised.

A few businesses highlighted weaknesses – difficulties with the application process, challenges in recruiting associates, and the time taken to complete the Project. The main suggestion for improvement centred on the marketing and promotion of the KTP Programme in Scotland.

Almost all businesses would recommend the KTP Programme to others, or have already done so. (97%).

5.6 Future Involvement in KTPs

Businesses clearly value the KTP Programme in Scotland, and feedback suggests that participation has or will lead on to more KTPs. Some 85% of businesses were likely to, or already have, undertaken another KTP. This suggests that there has been/will be additional repeat business.

6. Summary Associates Feedback

This Chapter provides a summary of the feedback provided by KTP associates.

An online survey was distributed by Innovate UK to 138 contacts, with 10 unsubscribes/bounces, giving a total sample of 128. With 21 responses, this represents a response rate of 16%. The detailed write-up is in **Appendix D**.

At the end of this Chapter, we draw on some of the findings of the WECD Report for Innovate UK (July 2015) which identifies the impacts of the KTP Programme for associates at a UK level.

6.1 Initial Awareness and Engagement

Perhaps not surprisingly, the most common way associates became aware of the KTP Programme in Scotland was through academics at university (48%).

Participation in KTPs was attractive to associates on a number of different levels, with the following rated as important/very important by a high proportion of associates:

- the Project that was to be undertaken (100%);
- the chance to pursue research in a field of interest (90%);
- the chance to build on their skills (86%);
- the chance to gain further qualifications while working (86%);
- the associate training programme (85%).

The application process and the quality of information provided on the roles and responsibilities of the three partners involved in KTPs was rated as good or very good by two-thirds of associates.

A significant minority reported that the ease of finding out about the KTP Programme in Scotland and of associate vacancies were poor (both 29%). As reported earlier, businesses also considered the marketing and promotion of the KTP Programme to be weak.

6.2 Project Delivery

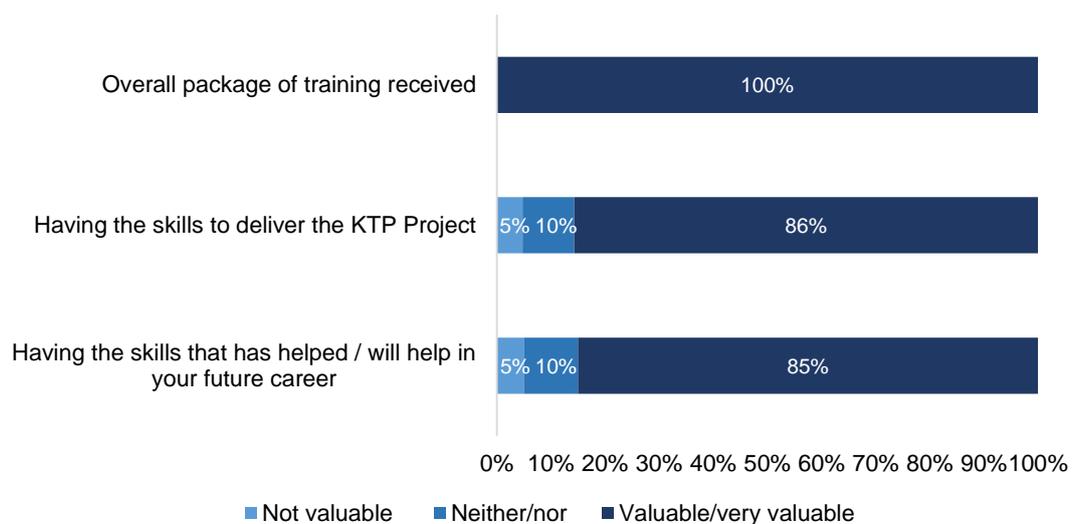
Local Management Committees were thought to function well – all associates were satisfied with the frequency of meetings, and a high proportion considered LMCs to be effective or very effective in overseeing the work of Projects (81%).

Ratings for the value of KTP Advisers, Academic Supervisors and Business Supervisors were, however, more mixed:

- **KTP Advisers** - ratings ranged from 57% of associates that reported KTP Advisers' input was valuable in terms of resolving project issues, to a high of 85% for their help in reviewing progress towards objectives;
- **Academic Supervisors** - ratings ranged from a low of 57% for spending half a day per week on the Project to a high of 95% for attendance at Local Management Committee meetings; and
- **Business Supervisors** - on the whole received less positive ratings, with just 48% of associates rating business Advisers as effective in providing pastoral care and 57% for resolving Project issues.

Training was rated particularly highly, with the overall package of training rated as valuable or very valuable by all associates, **Figure 6.1**.

Figure 6.1: Value Placed on Training by Associates

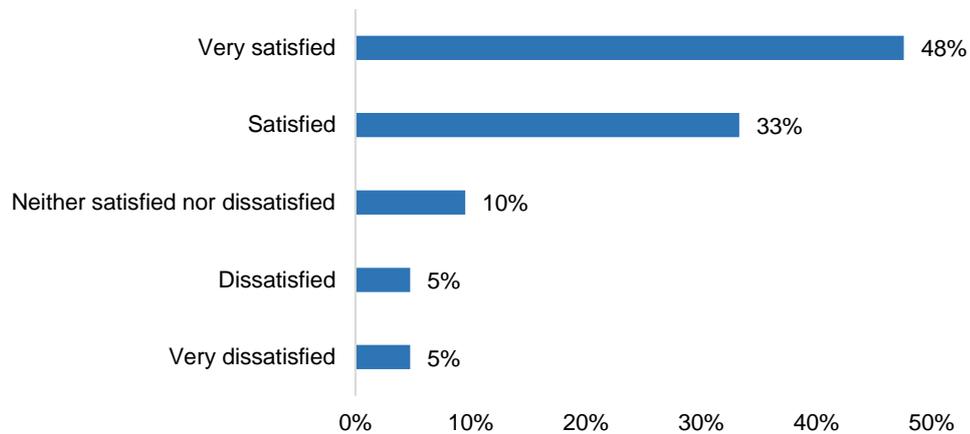


N=21

Views were mixed (as it was for businesses) when it came to the [KTP Portal](#) - just over half of associates accessed it regularly and found it useful (both 52%).

Despite the mixed ratings for some elements of the KTP support, [overall satisfaction was high](#) - 81% of associates reported that they were satisfied or very satisfied with the KTP Programme, **Figure 6.2**.

Figure 6.2: Satisfaction with the KTP Programme



N=21

6.3 Benefits and Impacts

A wide range of benefits were reported by [associates](#) arising from their involvement in KTPs, as detailed below:

- developed their technical skills (90%);
- provided exposure to a commercial environment (90%);
- developed their management skills (90%)
- offered formal training (90%); and
- improved their career prospects (86%).

57% of associates reported that they had seen or experienced a change in approach to innovation within the business they worked with as a result of their time as a KTP associate.

6.4 Future Involvement in KTPs

Just less than half of associates were still involved in the delivery of the KTP (48%), 14% continue to be employed by the company following the KTP completion, while 19% had moved on to another employer.

Around three-quarters of associates intend to, or already have, looked into further work opportunities in research and innovation.

Finally, only a couple of associates said that, on reflection, they would have preferred a different career choice instead of becoming a KTP associate (10%). The vast majority were therefore happy with their decision to go down the KTP associate route.

6.5 WECD Research - Impacts for KTP Associates

The recently published WECD Report (July 2015)³³ found that KTPs provide wide ranging personal and professional benefits for associates. Key findings include that:

- 94% of associates reported an impact on their **overall personal and career development** - for over one-third the impact was considered transformational;
- the vast majority of associates reported **improved skills** (82%) and had experienced **career enhancement** (70%);
- **employment status changes significantly for associates post-KTP** - 84% were in employment immediately following the KTP. Some 98% were currently in employment, including those that were self-employed and running high growth companies;
- 89% of associates reported that their **income is higher as a result of their KTP participation** than it otherwise would have been; and
- it is estimated that the overall (additional) contribution of the KTP to an associate's salary over a 10-year period following the completion of the KTP, is about **£50,200 per KTP associate**.

³³ WECD Report for Innovate UK, *KTP Programme: The Impacts of KTP Associates and Knowledge Base on the UK Economy*, July 2015.

7. Stakeholder Perspectives

This Chapter sets out the main themes, views, and perspectives provided through the wide ranging programme of consultation undertaken with stakeholders with a role or interest in the KTP Programme in Scotland.

A total of [27 consultations](#) were undertaken with various stakeholders, through a mix of face-to-face and telephone interviews, including with:

- SFC;
- Scottish Government;
- KTP Centres;
- KTP Advisers;
- partner Higher Education Institutions - consultations were in the main undertaken with senior staff with a strategic oversight and responsibility for KTPs, rather than academics directly involved in their delivery; and
- wider innovation and knowledge exchange support organisations (e.g. Interface, Scottish Enterprise, Highlands and Islands Enterprise).

A list of organisations and agencies that contributed their views and experiences of the KTP Programme in Scotland is contained in **Appendix E**.

At **Section 7.6**, we draw on some of the findings of the WECD Report for Innovate UK (July 2015) which identifies the impacts of the KTP Programme for knowledge base partners at a UK level, which supplements our more qualitative assessment.

7.1 A Valued Intervention

A common theme which emerged was that the KTP Programme is a well-established and well-regarded programme in the UK and Scotland. Most consultees pointed to the Programme's recent 40th anniversary as testament to the KTP Programme's effectiveness, worth, and longevity. It is highly thought of among stakeholders, and it is considered to have an established and credible reputation.

There was a strong sense from consultees that that the overall ethos and aims of the KTP Programme - that is, supporting three-way partnerships to help businesses to improve their competitiveness and productivity through the better use of knowledge, technology and skills that reside within the knowledge base - has remained a constant over the life of the Programme, and has been key to its longevity. Everyone we spoke with was clear on what the KTP Programme seeks to achieve, and felt that the mechanism worked.

7.2 Rationale for why it is Needed

There was a general consensus among stakeholders regarding the need for the KTP Programme in Scotland (and a continuing need and rationale). This was articulated as follows:

- [to facilitate knowledge exchange between academic institutions and businesses](#) - there was said to be a continued push to boost collaboration between academia and industry given the vast expertise and skills residing within the knowledge base, and the opportunity to use this to maximise commercial opportunities for industry;
- [to stimulate investment by companies in R&D](#) - stakeholders reported a continuing lack of investment by companies in R&D for a host of reasons, including: a lack of understanding of the capability and expertise available within the knowledge base and how this could help; a lack of awareness of who to contact/talk to; risks are often considered too high; a lack of financial and human resources, etc;
- [to help grow the economy \(increasing business turnover, profitability and competitiveness\)](#) - stakeholders commented on the continuing supportive policy environment, with innovation considered a key driver in increasing long-term and sustainable growth. The KTP Programme was considered to drive both improvements in innovation performance and business performance; and
- [to position businesses to compete in a more global economy](#) - it was reported by many that businesses can no longer afford to stand still. Businesses need to be able to compete more effectively, and importantly have an edge over their main competitors.

The KTP Programme was considered by many to help address the common barriers to collaboration between businesses and academia.

A key issue identified by stakeholders is that often industry and academia often do not speak the same 'language' - this makes it difficult on both sides to fully understand industry needs and how research expertise can be practically applied. The planning and scoping element for KTPs helps address this, as it was felt to have a firm focus on relationship building between partners and supporting partners to get to know each other.

KTP Centres and KTP Advisers were considered to play a vital hand-holding role - from start to end. Here, the focus was felt to be on reducing the bureaucracy of the Programme for partners which allowed partners to focus their time and efforts on the Project itself.

7.3 Partnership Delivery Model

The various components of the model adopted by the KTP Programme is considered effective and well-structured.

Here, stakeholders highlighted many aspects of the model which were felt to demonstrate the strengths of KTPs as an effective mechanism for helping businesses to improve their competitiveness and productivity. This included:

- **the design of KTPs to be mutually beneficial to the business, the knowledge base and the associate** - it is specifically designed to benefit everyone involved (the business, the knowledge base, the associate);
- **each KTP has a robust business case behind it** - many commented on the time and effort placed upfront to sufficiently plan and scope the Project. The time spent at the outset was considered vitally important in terms of building relationships, ensuring that partners were on the same page, aligning expectations, and developing high quality proposals;
- **the associate is crucial** - while employed by the knowledge base, the fact that associates are embedded within the business for up to three years is considered by stakeholders to be a real strength of the Programme. The associate is the “*bridge*” between the business and the academic partner;

- [the role of the Local Management Committees is important](#) - both in terms of ensuring the Project remains on track, but also in helping to ensure associates do not get diverted to work on non-Project related activity;
- [the grant funding](#) allows for academics' time to be bought out for their involvement in KTPs, while many commented that KTPs represent a sizable investment for the business too. While KTPs could be considered expensive, and some commented to the effect that the cost to smaller companies is prohibitive, they should be viewed as an investment by the business rather than a cost. The wider feedback was that often businesses see the real value in a KTP after their first experience, and often look to see how it could help other parts of the business (leading to repeat business); and
- [training for associates](#) - the training package was considered high quality and a hugely valuable component of the KTP offer. Some stakeholders talked of associates being on "*a journey*" and that their involvement in the Project and the training received provided significant opportunities for career development and progression.

7.4 Wider Knowledge Exchange Landscape

Generally speaking, consultees consider the KTP Programme to have a clear and well-defined role (and fit) within the wider innovation and knowledge exchange landscape.

The KTP Programme is seen as a crucial component of the broader pipeline of support for businesses, which was said to include:

- "*toe in the water*" funding which seeks to encourage businesses to engage in collaborations with academia for the first time (e.g. SFC's Innovation Vouchers);
- follow-on support to encourage businesses and knowledge bases that have collaborated previously to progress onto the next stage - this is generally with a view to undertaking larger collaborative projects and to foster long-term relationships with academia (e.g. Follow-on Innovation Vouchers);

- student placements - Interface has introduced an Innovation Voucher Student Placement scheme that is aimed at building on existing relationships between SMEs and HEIs to continue the development of a SFC standard Innovation Voucher award. A PhD/Masters student is placed within the company for up to three-months to work on a defined project;
- Horizon 2020 SME Engagement Scheme - aimed at Scottish based SMEs to explore the opportunities of Horizon 2020 funding and apply for particular schemes or calls under it, with the assistance of a Scottish HEI; and
- a wide range of innovation support provided by SE and HIE - through their Account Management functions and newer programmes such as Seek and Solve.

There is therefore generally considered to be wide and varied knowledge exchange support available for Scottish SMEs in particular.

Other stakeholders pointed to the changing and evolving landscape in which the KTP Programme in Scotland operates.

Here, stakeholders frequently spoke of the SFC Innovation Centre Programme which came on stream three years ago, and which aims to support collaboration between businesses and universities (in partnership with SE and HIE). Innovation Centres seek to enhance innovation and entrepreneurship, and have a particular focus on the key growth sectors in Scotland, and in harnessing Scotland's research expertise to work on problems and opportunities identified by industry. In this regard, it was felt that there should be greater links with Innovation Centres, as companies worked with could be ideal candidates for KTPs.

The KTP Programme is, however, viewed as having a clear and well-defined role within this wider landscape - it supports high-level innovation and is open to companies of all sizes. Albeit, a number of stakeholders felt that KTPs were less suitable for micro businesses (e.g. lack the added capacity to manage associates). There was generally considered greater scope for the Programme to support larger SMEs (i.e. higher end of medium sized businesses).

The three-way partnerships supported by KTPs, including embedding an associate fully within the business to work on a project of strategic importance to the business and ensuring strong links and connections into the knowledge base partner, is considered to be the Programme's differentiating and unique selling point.

The principle of the approach is that knowledge transfer is embedded in people and this is considered a strength of the model - as is the flexibility to support longer-term KTPs.

Some felt, however, that there was too big a gap between Innovation Vouchers (small scale collaborations, toe in the water funding, no funding required from the business) to a KTP (which was generally considered by stakeholders to require a serious level of investment from a business).

This issue was keenly felt, for example, amongst stakeholders in the Highlands and Islands where KTPs have been less prevalent, and Innovation Vouchers had achieved a much higher penetration rate. The primary issue raised here is not with the model per se, but with the cost (to businesses).

There was strong support for the KTP Programme in Scotland among its varied stakeholders - there is felt to be a continuing strong and clear rationale for this type of intervention which is said to drive improvements within the businesses supported, at the same time as providing benefits for associates and knowledge base partners. There is considered to be great value in the KTP model as it seeks to build deep and lasting relationships between industry and academia, as well as embed culture change within the business.

The main challenges for the KTP Programme in Scotland - and these are commonly mentioned in similar evaluations we have undertaken - are considered to be:

- how to reach and encourage more businesses (different sizes and sectors) to undertake KTPs;
- how best to increase awareness of the Programme among potential associates;
- the need for more effective referral mechanisms between organisations with similar innovation agendas; and
- the need to join-up and simplify access to support across the innovation journey.

7.5 KTP Centres

The role of the KTP Centres attracted comment from some stakeholders. While the general view was that these are effective in reducing the administrative burden for businesses (and to some extent HEIs) some questions were raised regarding two issues:

- the incentives created by the differing funding models of the Centres; and
- the impartiality of service that they can offer.

Those Centres that are funded on a project by project basis, were felt to be incentivised to bring in more projects and more that were of a high quality and would complete. A different funding model (e.g. a single overall payment) was not felt to generate the same incentive.

There were a few stakeholders that felt that the KTP Centres were focussed, understandably, on securing KTPs for their partner institutions, rather than identifying the most appropriate academic partners for the business regardless of institution.

However, it should be noted that the KTP Programme in Scotland operates on the basis that proximity is best. KTPs Centres, as a first step, look to identify a partner institution with relevant expertise. In instances where there is no local expertise, KTP Centres will cross-refer, for example to other KTP Centres in Scotland as well as to Interface to identify a suitable knowledge base partner elsewhere in Scotland. As highlighted earlier, there are instances where the knowledge base partner is located outwith Scotland. In the majority of cases, however, the business has an existing relationship with an institution/academic, and ultimately selects the knowledge base partner.

7.6 Benefits and Impacts

The main benefits and impacts identified by stakeholders can be clustered as follows.

Business	Knowledge Base	Associate
<ul style="list-style-type: none"> • Project addresses a business issue/challenge. • Increased knowledge. • Business performance impacts - increased turnover, profitability, new products/services. • Develops long-lasting relationships with knowledge base - which often leads on to future collaborations. • Helps businesses to think more logically and strategically. • Go on to do more KTPs or sponsor Phd students. 	<ul style="list-style-type: none"> • Involved in real life projects. • Deeper interactions with businesses. • Develops long-lasting relationships with industry - which lead on to future collaboration. • Supports the Research Excellence Framework (Impact agenda). • Results in case study material, publications. • Informs teaching. • Generates new research ideas. 	<ul style="list-style-type: none"> • Increased confidence. • Career development. • Formal training. • Personal development. • Improved skills (communication, presentation, management etc). • Some continue to be employed by the company after completion of the KTP. • If not then the experience puts them in a better position to find other employment.

The recently published WECD Report for Innovate UK (July 2015)³⁴ also found that KTPs provide wide ranging benefits for knowledge base partners. Key findings include that:

- 82% of respondents reported **closer partnerships with industry** enabling the development of a better understanding of industry;
- KTPs were considered a particularly **effective method of engaging with SMEs**;
- research related benefits including: **research publications, enhanced teaching materials, new research projects and staff skills development**;
- **good quality case study material to demonstrate the impact of their research** including as part of the REF 2014 and also to raise the profile of the knowledge base among the education and business community;
- 74% of respondents reported that KTP participation had a positive impact on **securing new grants** (in addition to KTP);
- 75% of knowledge base participants stated that KTP participation led to **further financial benefits** (e.g. improved consultancy incomes, increased teaching income, development of patents, licencing income and spinouts);

³⁴ WECD Report for Innovate UK, *KTP Programme: The Impacts of KTP Associates and Knowledge Base on the UK Economy*, July 2015.

- the impact of KTP participation reaches beyond the direct partners involved in the KTP projects (e.g. other researchers, knowledge base departments and knowledge base organisations, and other businesses in the same sector and in other sectors); and
- the benefits generated for knowledge base organisations are to a very large extent attributed to the KTP Programme - only 6% stated that their participation in the KTP would have been achieved anyway.

7.7 Marketing and Promotion

Consultees frequently commented on the strong and credible reputation that the KTP Programme enjoys - it is felt to have a strong brand recognition.

That being said, many stakeholders felt that elsewhere in the UK the Programme is more fully recognised within the wider innovation eco-system and has a higher profile as a result of this. In many ways, stakeholders reported that the KTP Programme in Scotland has a lower visibility and profile.

It was commented that KTP Centres in Scotland no longer have dedicated budgets for marketing and promotion. Funding this type of activity requires to come out of their core budgets, resulting in a more selective approach to marketing and promotion (e.g. including piggy-backing onto others events).

Others commented on the importance of striking the right balance in terms of the level of marketing and promotion activity undertaken. It was felt that it could stimulate too much demand - and with finite resources available, not all KTPs proposals could be approved.

Some stakeholders also commented on the role that Innovate UK plays in the marketing of the UK-wide Programme, and felt that this had reduced in recent years - again, linked to reducing budgets for this type of activity.

There was, however, considered to be greater scope for the KTP Programme in Scotland to be promoted nationally. It was suggested that such an approach would help to raise the profile and visibility of the Programme in Scotland. Some stakeholders commented on work currently being progressed to develop a Scotland KTP Programme website.

There was a general consensus among stakeholders that there needed to be “*more noise made about what the Programme has achieved*” and that “*we need to be better at blowing our own trumpet*”.

7.8 Performance

Overall, stakeholders reported that the KTP Programme in Scotland continues to perform strongly on a number of levels. Key points raised were that:

- Scotland enjoys a good share of the total KTPs supported in the UK - as highlighted in **Chapter 3**, 14% of new KTPs supported in 2014 were in Scotland;
- previous Programme evaluations, albeit at a UK level, have shown strong impacts and good return on investment;
- leverage - the KTP Programme in Scotland has performed strongly in terms of leveraging in other funds (e.g. Innovate UK, Research Councils); and
- repeat business - it was suggested that businesses see the value in KTPs after their first experience, and often look to see how another KTP could help a different part of the business (leading to longer-term relationships with academia as a result).

However, as commented on further below, some stakeholders (e.g. KTP Centres, Scottish Government) have experienced challenges accessing data at a Scottish level. In this regard, the Scottish Government is particularly interested to better understand whether the KTP Programme in Scotland is meeting the country’s innovation objectives, what it has achieved and whether it provides value for money.

It is our understanding that the SFC has access to KTP data, which suggests that there is scope for discussion between Innovate UK and SFC with regard to what data is accessible where and to whom. This will then allow the SFC to provide the necessary information and data to key stakeholders as and when required.

7.9 Issues and Challenges

Many consultees' comments on the [UK Government Comprehensive Spending Review in 2010](#) and the impact this had on KTPs. Prior to this time there was said to have been a period of growth in the number of KTPs approved. The CSR essentially resulted in a hold being put on funding new KTPs, as such there was a period of around six-months when no new projects came on stream.

KTP Centres and others directly involved in the Programme felt that this was a period of uncertainty and they were in a period of limbo at this time.

However, consultees were keen to point out that, while it has taken a few years, the number of new KTPs approved has been growing, with feedback that this is almost returning to 2010 levels. This is supported by the data presented in **Chapter 3**.

At this time, there was also said to be a [shift in focus for the Programme](#) - with the Partnership Approvals Group (PAG) most likely to approve those KTPs which delivered the best returns (i.e. wealth creation). Stakeholders were supportive of the SFC's commitment to retain the flexibility to support public and third sector organisations, although many commented that the shift in emphasis to wealth creation did make it more difficult to leverage in co-funding from other Programme sponsors. Stakeholders, however, felt that while KTPs involving public or third sector organisations was a smaller part of the overall KTP portfolio, it is an important part - and that this flexibility should be retained.

The [recruitment of associates](#) was highlighted by some as challenging, with a number of issues at the forefront, including:

- the six-month window of opportunity to recruit an associate was often too tight;
- the offer of a fixed contract with no guarantee of a job at the end of the KTP was considered potentially off-putting for some potential associates - even though many were said to be kept on by the business;
- the slow moving pace of academic institutions' HR departments - this put added pressure on the short window of opportunity to recruit associates; and

- salary levels were not always competitive - some commented that if the KTP Programme is looking to work with “*the business leaders of tomorrow*”, then salary levels need to reflect this. In many cases, businesses “*topped-up*” their financial contribution to attract suitable qualified associates.

A common view provided by stakeholders was that those who were aware of the KTP Programme and who had been involved (businesses, academics, associates alike) value KTPs and benefit from their participation.

That being said, a commonly held view was that the [profile and visibility of the Programme in Scotland was low](#) - and that there was a [lack of awareness](#) of the KTP Programme both among businesses and potential associates.

The issue of lack of awareness is potentially linked to the lack of marketing and promotion - not just by KTP Centres but knowledge bases also have a role to play in increasing awareness of the Programme to academics and students. As highlighted earlier, KTP Centres have worked with and through others (knowledge bases, support intermediaries) to raise awareness e.g. third party events, etc.

The [application process](#) was considered by some to be somewhat cumbersome and laborious, with issues also raised in relation to difficulties with the online system. It was reported that the process could be streamlined.

[Accessing data at a Scottish level](#) was identified as challenging at times by some stakeholders (i.e. those with a direct role in the KTP Programme). An example provided was around the final reports which KTPs are required to submit on completion. These are graded independently (with the highest grade assigned to KTPs that achieved the required outcomes and exceeded objectives). KTP Centres do not see these reports. In addition, the Scottish Government emphasised that it would be helpful to have more information at a Scottish level.

As highlighted above, there is scope for discussion between Innovate UK and SFC with regard to what data is accessible where and to whom. This will then allow the SFC to provide the necessary information and data to key stakeholders as and when required.

8. Economic Impact Assessment

This Chapter provides a summary of the economic impacts and technical Economic Impact Assessment (EIA), which considers the quantitative economic impacts that have been generated through the KTP Programme in Scotland over the study period to date, and anticipated over the next three years. Technical details of the EIA are presented in **Appendix F**.

The EIA is based on the feedback provided by 33 respondents to a telephone survey which sought beneficiaries' views on the nature and scale of the economic benefits and impacts the support has helped to generate.

Key messages:

- Economic impacts to date:
 - 510 net additional Jobs.
 - £38.4m net additional turnover
 - £31.3m net additional GVA
 - £17.4m net additional Wages
 - £2.6m net costs savings
- Economic impacts anticipated in future:
 - 460 net additional Jobs.
 - £38.6m net additional turnover
 - £28.4m net additional GVA
 - £14.3m net additional Wages
 - £3.5m net cost savings
- Value for Money:
 - £24,700 per net job to date
 - £27,100 per net future job
 - £7.30 in GVA per £1 investment to date
 - £6.60 in GVA per £1 investment in future

Later in this Chapter we compare the results with the previous Regeneris evaluation of the UK KTP Programme (2010), and supplement our findings with the recent WECD impact report (2015).

8.1 Gross Impacts

The gross impacts generated through the support are based on direct feedback from beneficiaries regarding the impacts created to date and what they estimate will be the future effects.

Gross impacts are considered as Full Time Equivalent (FTE) jobs, GVA, Turnover, Wages and Cost Savings. Jobs, Turnover and Cost Savings are based upon direct feedback from beneficiaries, whilst GVA and Wages have been calculated using sector co-efficient data, average GVA and wages per employee (more detail is provided in the appendix).

There were issues with businesses being able to quantify the extent of turnover impacts, with twelve companies able to quantify employment impacts but unable to quantify turnover. In these cases turnover was calculated using sectoral average turnover per employee figures in a similar method to GVA and wages.

The gross impacts reported by the beneficiaries as attributable to the KTP Programme in Scotland are reported in **Table 8.1**.

Table 8.1: Gross Impacts

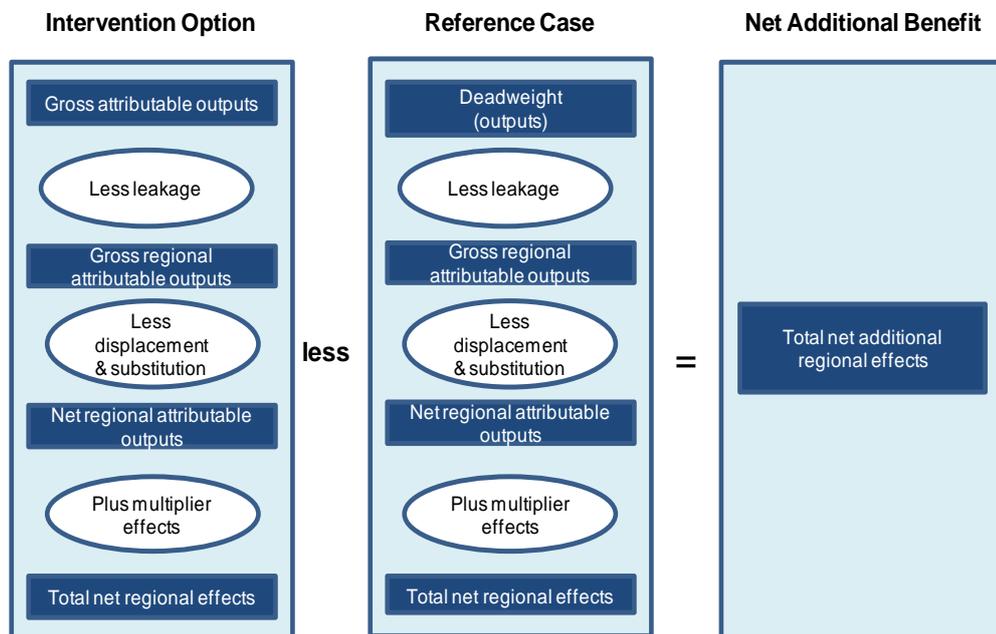
	Jobs	Turnover	GVA	Wages	Savings
To Date	120	£11.6m	£5.4m	£3.2m	£0.6m
In Future	110	£11.8m	£4.8m	£2.7m	£1.3m

Note: Jobs rounded to nearest 10, GVA rounded to nearest £0.1m

8.2 Net Impacts

The net impact of the KTP Programme in Scotland is the difference between what would have happened anyway in the absence of the support (i.e. the reference case) and the benefits generated by the project (i.e. the intervention case), adjusted for displacement, leakage, deadweight, and multiplier effects, outlined in **Figure 8.1**.

Figure 8.1: Assessing Additionality



Deadweight refers to the benefits and costs of an intervention that would still have occurred if public sector support was not provided.

Displacement is the negative effects on non-beneficiaries which arise because an intervention has generated positive outcomes for beneficiaries. This occurs due to increased competition in the markets in which beneficiaries participate.

Leakage is the proportion of gross impacts that accrue outside the target region i.e. England.

Multiplier effects refer to the impacts associated with additional purchases of inputs from suppliers based in the target area (supplier linkages) and additional consumption expenditure on goods and services of those employed via direct and supplier linkage effects (income multipliers).

Table 8.2 reports on the net impacts achieved by the KTP Programme in Scotland.

Table 8.2: Net Impacts

	Jobs	Turnover	GVA	Wages	Savings
To Date	130	£13.8m	£6.3m	£3.8m	£0.6m
In Future	120	£15.9m	£5.7m	£3.3m	£1.6m

Note: Jobs rounded to nearest 10, GVA rounded to nearest £0.1m

If we consider the overall additionality i.e. set the net impacts against the gross impacts, then the support delivers net to gross impact ratios between 109% and 135% depending on the measure.

We would generally expect net impacts to be lower than gross impacts due to the negative impacts of displacement, leakage, and deadweight outweighing the positive multiplier effects. However, there were very low levels of deadweight, as many companies would not have undertaken the project in the absence of the KTP, and high multipliers, as the majority of businesses were large mature enterprises.

8.3 Overall Programme Impacts

In order to calculate the overall impact of the KTP Programme in Scotland it is necessary to 'gross up' the results to reflect the entire population that received support.

The impacts are grossed up to the population based on the inverse of the proportion responding to the survey (e.g. a response rate of 5% generates a grossing up factor of $100\%/5\% = 20$). Statistical outliers (values that lay outwith the majority of responses based on those that were twice the standard deviation) were removed from the sample and added back in after grossing up.

Therefore with a total of 33 responses and a total population of 175, the impacts are grossed up by a factor of **5.3**. The grossed up economic impacts are reported in **Table 8.3**³⁵.

³⁵ Please note that outliers were removed from the sample when grossing up results to avoid skewing the impacts.

Table 8.3: Grossed up Economic Impacts

	Jobs	Turnover	GVA	Wages	Savings
Gross Impacts					
To Date	430	£36.5m	£26.1m	£13.8m	£2.2m
In Future	370	£36.6m	£23.1m	£11m	£2.8m
Net Impacts					
To Date	510	£38.4m	£31.3m	£17.4m	£2.6m
In Future	460	£38.6m	£28.4m	£14.3m	£3.5m

Note: Jobs rounded to nearest 10, GVA rounded to nearest £0.1m

8.4 Impact Sensitivity

As highlighted above, the impact assessment data is based on direct feedback from a sample of beneficiaries. It is therefore important that we build in an element of sensitivity to our economic model to take account for variances within the wider supported population.

The statistical reliability or confidence interval can be calculated based on the sample data (the number of responses to a question) considered against the wider population. The confidence interval (CI), also called margin of error, is the plus-or-minus figure expressed as a percentage representing how often the true percentage of the population who would pick an answer lies within the confidence interval.

The grossed up results are based on achieving a 95% confidence level. This means that we can be 95% confident that if we surveyed all the businesses that have been supported, they would have provided a response within a +/-% confidence interval of those that participated in the survey.

Our survey sample has generated a CI of 15.41%. **Table 8.4** presents the grossed up results including the sensitivity analysis.

Table 8.4: Net Impacts Sensitivity Analysis

	Year	Low Point	Mid-Point	High Point
Jobs	To Date	430	510	580
	In Future	390	460	530
Turnover	To Date	£32.5m	£36.5m	£44.3m
	In Future	£32.7m	£38.6m	£44.6m
GVA	To Date	£26.5m	£31.3m	£36.2m
	In Future	£24m	£28.4m	£32.7m
Wages	To Date	£14.7m	£17.4m	£20.1m
	In Future	£12.1m	£14.3m	£16.5m
Savings	To Date	£2.2m	£2.6m	£3m
	In Future	£2.9m	£3.5m	£4m

Note: Jobs rounded to nearest 10, GVA rounded to nearest £0.1m

8.5 Sectoral and Regional Impacts

Businesses reporting impacts from the survey were:

- more likely to be from the West or East of Scotland than all Scottish KTPs, (86% to 69%);
- less likely to be a micro business (5% to 16%); and
- from more varied sectors, with fewer manufacturing businesses (10% to 22%).

However, the small sample does not permit any more detailed analysis of impacts by, for example, region, sector or scale of business. The opt-in method for the business survey resulted in a much lower overall sample being available. Therefore, it is not possible to comment further on sectoral and regional impacts.

8.6 Value for Money

The value for money assessment is based on the cost per job and Return on Investment (RoI). The cost per job of the KTP Programme in Scotland is determined by setting the grossed up gross/net jobs against expenditure (adjusted to reflect 2015 prices).

Total expenditure in this case is equal to the total value of the grants claimed over the evaluation period, £10.7m, plus the total administration costs, totalling £1.6m. This gives total costs of £12.3m, adjusted to £12.4m. This does not include expected future grant payments for active KTPs as it is difficult for businesses to estimate future impacts based upon grants they have yet to receive.

Cost per job figures are outlined in **Table 8.5**.

Table 8.5: Cost per Job

	Per gross job	Per net job
To Date	£29,200	£24,700
In Future	£33,800	£27,100

Note: Cost per job rounded to nearest £100

The cost per net job for the KTP Programme in Scotland is estimated at £24,700 to date and £27,100 in future.

We would expect a 'typical' business support project to deliver returns around £10,000 - £20,000 per net job. Job creation was not the sole focus of this Programme, with innovation and efficiency savings in supported businesses also important. In addition, we would expect these to be higher value jobs given the nature of the activity.

The Return on Investment (RoI) is based on the GVA impact of the Programme, assuming that impacts persist for three years, set against total expenditure.

Table 8.6: Return on Investment

	Return on Investment
To Date	£7.30:1
In Future	£6.60:1

Note: RoI rounded to nearest £0.10

Therefore, the Programme is forecast to deliver a **RoI of £7.30:1** in current impacts and **£6.60:1** in future impacts.

This means that for every £1 invested in the KTP Programme in Scotland it generates £7.30 in net additional GVA within the Scottish economy to date and £6.60 in future over a three year period.

This is a higher rate of economic impact than previous studies suggest, with the evaluation of the UK wide KTP Programme undertaken by Regeneris estimating a RoI of between £4.70:1 and £5.20:1³⁶. This is likely due to our analysis having a smaller sample size than the Regeneris study (33 responses compared to 422) and therefore having a large margin of error.

8.7 WECD Report - Impact Assessment

The recently published WECD Report (July 2015)³⁷ concluded that at a UK level:

- [KTP businesses and associates are the main economic beneficiaries](#) of the KTP Programme;
- [knowledge base partners' benefits are mainly non-economic, however, they are recognised as being of considerable value](#);
- [an additional £369 million to the UK GVA, not taken into account in the previous Regeneris study, has been generated through participation of KTP associates](#). This brings the total net additional impacts secured by the KTP Programme between 2001/2 and 2007/08 to [£1.97 - £2.17 billion](#);
- it estimates that [KTP Associates working in non-KTP participating businesses have generated an additional net direct and indirect contribution to the UK GVA of between £933 million and £968 million](#) over the 30-year period 1984-2014; and
- estimates of the Return on Investment (ROI) of the programme have shown that approximately [£7.5 - £8 of net additional GVA is generated for every £1 of KTP grant funding invested by sponsors through businesses and KTP associates](#) participating in the programme.

The RoI figure for the KTP Programme in Scotland is in line with the WECD report.

³⁶ Ibid

³⁷ WECD Report for Innovate UK, *KTP Programme: The Impacts of KTP Associates and Knowledge Base on the UK Economy*, July 2015.

9. Conclusions and Recommendations

The primary purpose of the study was to assess the economic impact of the KTP Programme in Scotland over the period 1 January 2010 to 31 December 2014 in terms of measures such as job creation, net additional GVA and other economic benefits.

The detailed study objectives were to:

1. assess the extent to which certain sectors/regions/scales of business are more prone to using KTP or have higher impacts as a result.
2. assess the quantifiable economic impacts (gross and net) of the Programme consistent with the methods used in previous and current evaluations of the Programme at a UK level.
3. develop recommendations for further development of the KTP Programme, specifically with reference to Scottish Government priorities.

9.1 Methodological Issues

Before presenting the conclusions it is worth reiterating some important caveats on the data and subsequent analysis.

The process for identifying contacts for the primary research (the business survey) via an opt-in method resulted in a much lower overall sample being available. There are two important implications arising from this:

- first, the margin of error to which the survey data are subject is greater than originally envisaged, and the analysis should be treated with a degree of caution as a result; and
- the small sample does not permit any more detailed analysis of impacts by, for example, region, sector or scale of business. As a result, our assessment of these issues is based on the monitoring data provided by the SFC and does not address any differences in impact, only propensity to use the KTP Programme in Scotland.

9.2 Strategic Rationale and Landscape

The strategic and market failure rationale for the KTP Programme is clear.

Economic policy consistently prioritises innovation as a driver of growth, and the role of knowledge transfer between research institutions and business is a near universal feature. Market failures affecting these activities are well evidenced and ongoing, presenting a robust rationale for public intervention.

Of course, the KTP Programme is but one mechanism, and one that is better suited to businesses with a degree of existing innovative capacity and the resources to commit. As a result, it should be seen as an important part of a broader system of innovation support and connections between the knowledge base and the wider economy.

Feedback from stakeholders points to the wide and varied knowledge exchange support available for Scottish SMEs in particular, and the evolving landscape in which the KTP Programme operates. The KTP Programme is, however, viewed as having a clear and well-defined role within this wider landscape.

The relationship formed between the business and the knowledge base partner, facilitated by the associate (on a project of up to 36 months), allows the transfer of knowledge, technology and skills to be embedded within the company - this is considered to be the Programme's differentiating and unique selling point. The principle that knowledge transfer is embedded in people is considered a strength of the Programme.

9.3 Views of KTP Partners and Wider Stakeholders

Overall, the evidence gathered through the evaluation (and from the WECD Report) demonstrates that the KTP Programme is a well-established Programme and is a highly regarded and valued programme in the UK and Scotland - among businesses, associates, knowledge base partners alike.

As highlighted above, it is an important element of the business-academia collaboration landscape, as evidenced by its 40-years of operation and the continuing demand for KTPs across the UK.

A common issue which emerged from businesses, associates, knowledge base partners and wider stakeholders was that marketing and promotion of the KTP Programme in Scotland is not as effective as it could be. The visibility and profile of the KTP Programme was generally considered to be low.

9.4 Economic Impacts

This evaluation focused on an assessment of the economic impact arising for businesses from their participation in KTPs. A qualitative assessment from the perspective of KTP associates and knowledge base partners was undertaken. This approach was adopted given ongoing research at a UK level to identify the impact of the UK-wide KTP Programme on associates and knowledge base partners (see below).

According to the data provided by businesses and the Impact Assessment calculations, the economic impacts of the KTP Programme in Scotland between 1 January 2010 and 31 December 2014 were as follows:

Table 9.1: Economic Impacts of the KTP Programme in Scotland

	Jobs	Turnover	GVA	Wages	Savings
Gross Impacts					
To Date	430	£36.5m	£26.1m	£13.8m	£2.2m
In Future	370	£36.6m	£23.1m	£11m	£2.8m
Net Impacts					
To Date	510	£38.4m	£31.3m	£17.4m	£2.6m
In Future	460	£38.6m	£28.4m	£14.3m	£3.5m

Note: Jobs rounded to nearest 10, GVA rounded to nearest £0.1m. Mid-point estimates based on sensitivity analysis

Value for money was calculated on the basis of the cost per job and Return on Investment (RoI). Expenditure used in these calculations is the total value of the grants awarded over the evaluation period plus any other costs relating to the delivery of the Programme such as marketing or administration and management costs.

Table 9.2: Cost per Job

	Per gross job	Per net job
To Date	£29,200	£24,700
In Future	£33,800	£27,100

Note: Cost per job rounded to nearest £100

The cost per net job figure is higher than that typically found in business support programmes, but not in knowledge transfer initiatives, which do tend to have higher cost per job impacts due to:

- the higher value nature of the employment created;
- the resource intensive nature of the activity i.e. innovation and knowledge transfer; and
- the fact that any economic impacts to the participating associates and HEIs are not usually captured (as is the case here).

Therefore, our experience is that the cost per net job achieved in the KTP Programme represents good value for money for this kind of intervention.

The Return on Investment (RoI) is based on the GVA impact of the project, assuming that impacts persist for three years, set against total expenditure.

Table 9.6: Return on Investment

	Return on Investment
To Date	£7.30:1
In Future	£6.60:1

Note: RoI rounded to nearest £0.10

Therefore, the Programme is forecast to deliver a **RoI of £7.30:1** in current impacts and **£6.60:1** in future impacts.

This means that for **every £1 invested in the KTP Programme in Scotland it generates £7.30 in net additional GVA within the Scottish economy to date and £6.60 in future over a three year period.**

As noted, this is a higher return than that shown in previous evaluations of the UK wide KTP Programme, although the small sample here should be borne in mind.

Nevertheless, the conclusion must be that the Programme has delivered strong economic impacts and a good return on public investment in Scotland, particularly when the leverage of funds from other UK sources is considered. The return to the Scottish Government would be substantially higher.

The recent WECD Report (July 2015)³⁸ concluded that KTP businesses and associates are the main economic beneficiaries of the KTP Programme, and while knowledge base partners' benefits are mainly non-economic - they are recognised as being of considerable value. Estimates of the Return on Investment (ROI) of the Programme have shown that approximately **£7.50 - £8 of net additional GVA is generated for every £1 of KTP grant funding** invested by sponsors through businesses and KTP associates participating in the programme.

The ROI figure for the KTP Programme in Scotland is in line with the WECD report.

9.5 Regional, Sectoral and Scale Effects

As noted earlier, the detailed impact assessment does not permit a finer grained analysis of the relative impacts according to the region, scale or sectors of participating businesses. However, the wider monitoring data and stakeholder input does hint at some broad patterns.

In terms of regional distribution, the KTP Programme broadly reflects the concentration of economic (and higher education) activity in the Scottish economy – the city regions around Glasgow, Edinburgh and Aberdeen have been most active. Glasgow and Edinburgh are to be expected, and Aberdeen's strong representation is almost certainly a reflection of interest in the Programme within the energy sector, and industry which places a high premium on innovation.

The lower representation of the Tayside region could be seen as a consequence of the closure of the KTP Centre there, but this would not account for the whole of the evaluation period. Our view is that this is again likely a reflection of the concentration of industry.

³⁸ WECD Report for Innovate UK, *KTP Programme: The Impacts of KTP Associates and Knowledge Base on the UK Economy*, July 2015.

One area felt by some to be under-represented was the Highlands and Islands with feedback that the Programme was ill-suited to the company base in that region (too costly and projects too long). The geographic area covered and the lack of innovative firms was considered to pose specific challenges.

While a small number of stakeholders raised issues regarding the effectiveness of the KTP Programme across the Highlands and Islands region, this is difficult to evidence. The low representation of Highlands and Islands businesses within the KTP Programme may be less a criticism of the Programme and more a reflection of the realities of the business base in the region – few businesses have the scale, innovative capacity and resources to undertake a KTP and are better suited to earlier stage interventions such as Innovation Vouchers.

The appropriate policy response to this would be to seek an intermediate mechanism better suited to these companies that can help build that capacity, and this is exactly the direction taken by Highlands and Islands Enterprise with the Knowledge Exchange Partnership (KEP) initiative.

The other issue that arises when considering regional distribution is the role of the KTP Centres themselves and whether or not they constitute a conflict of interest. Certainly they are not fully impartial and are required to support KTP business for their partner institutions. The KTP Programme operates on the basis that proximity is best.

The test of this would be if businesses were not getting the kind of academic support and input that they require (because they are matched with partner HEIs - or indeed are already engaging with a HEI and come forward jointly for a KTP - rather than via a wider national search). The data from our survey does not support this given the generally high levels of satisfaction from businesses with their academic partners (and the impacts achieved).

In terms of sectors and scale, two patterns do emerge. Manufacturing and technology sectors are strongly represented, and so are SMEs. As noted already, KTP as a Programme is better suited to businesses with the resources to invest, and with a degree of commitment to innovation. It is not a first 'toe in the water' scheme – that is the area for Innovation Vouchers.

This raises the issues of the shorter KTPs, which were introduced partly as a means of encouraging a wider base of companies to engage. Our understanding is that these were not universally popular with HEIs nor with businesses as they incurred similar levels of administrative cost (for businesses), and the grant intervention rate for the shorter KTPs was lower. On this basis, the case for proactive promotion of the shorter KTPs (which are still available) is not clear. It is more likely that these needs are better addressed by linked interventions offering different kinds of support (such as the Follow-on Vouchers, for example).

9.6 Recommendations

The following recommendations are outlined for consideration by the SFC:

[There is a need to improve the marketing and promotion of the KTP Programme nationally](#) - to raise the profile and visibility of the KTP Programme, and to increase awareness among businesses, academics, and potential associates.

[There is scope for better promotion via \(and connections to\) other parts of the innovation system, especially Interface and Innovation Centres but also enterprise agencies \(e.g. account managers\)](#). The landscape for knowledge exchange is continuing to evolve, and there is a need to ensure that the KTP Programme in Scotland is clearly positioned within this.

[In order to expand reach and engagement in KTPs, there needs to be increased promotion of the support provided, and importantly of the value of KTPs to the three partners](#), as a means of stimulating further demand and greater participation (e.g. case studies, attendance at industry events, etc).

[The flexibility of the SFC to support KTPs involving public and third sector organisations is valued and should be retained](#). Reducing public sector budgets calls for greater innovation in public service delivery. As such, there is an opportunity for KTPs and aligned with HEI interests in many places – to consider impacts beyond traditional economic measures (e.g. cost savings in service delivery, etc).

[Wider issues which emerged through the evaluation](#) might be worthy of further discussion and consideration within relevant structures for the KTP Programme in Scotland, including the:

- associate recruitment challenges - most notably the short window of opportunity for recruitment, the pace at which knowledge base HR departments move, and the extent to which salaries are competitive;
- weaker ratings by KTP associates regarding the effectiveness of the supervision put in place;
- fact that businesses were less likely to report that KTP Advisers and KTP Centres played a role upfront - despite their considerable hand-holding and support provided from start to end; and
- limited use of the KTP Portal among businesses and associates.

[SFC should progress discussions with Innovate UK regarding data sharing requirements and reporting.](#) The opt-in nature required for the business survey severely restricted not only the number of interviews undertaken, but also prevented any deeper assessment of the impact of the Programme by company sector, size, and geography. An option to be explored with Innovate UK includes the potential to insert text within future grant award letters stating that grant recipients will be expected to take part in evaluation studies as part of the grant conditions. There is also scope for discussion between Innovate UK and SFC with regard to what data is routinely accessible where and to whom. This will then allow the SFC to provide the necessary information and data to key stakeholders as and when required.

Overall, the KTP Programme in Scotland works well, delivers strong economic impacts and is highly regarded – Scotland also appears to be achieving good value from it (leverage plus impacts).

Appendix A: Overarching Criteria for KTP Funding

Each proposal for a KTP will be assessed against all of the following criteria, no matter which of the funding organisations might support that Project:

General:

- All projects must be fully in accord with the agreed aims and objectives for Knowledge Transfer Partnerships.
- There must be a clear need for input from the UK knowledge base to the project and a clearly demonstrated need for knowledge transfer.
- The potential outcomes/benefits for all three partners will not, or will be most unlikely to, occur to the same extent without a Knowledge Transfer Partnerships project (i.e. there is clear additionality).
- The project must not replace what could be achieved by using independent consultants (i.e. it must require the ongoing involvement of an academic partner in project delivery and needs the active embedding of outcomes by an associate), and must not replace solutions that are available 'off the shelf' (e.g. commercial software packages).
- The project must be stimulating and challenging for all three partners.
- The stated potential benefits for all three partners will be likely to accrue

Business:

- The business partner must be capable of making significant use of the knowledge, skills and/or capability to be transferred.
- The proposed project must be innovative and of clear strategic relevance to the business.
- The proposed project must be underpinned by a clear business case, including commercial, societal, cultural and environmental outputs and outcomes as appropriate
- The business partner must be regarded as being financially viable following consideration of their latest Report and Accounts, or other financial information where appropriate.
- There must be evidence of commitment to the project by the business and this shall be reflected in the proposed membership of the Local Management Committee.
- The business partner must indicate how the proposed project is likely to result in the spread of best practice (e.g. within that firm or to suppliers or to customers).

Associate:

- The project must provide the associate(s) with a challenging learning experience appropriate to his/her background and aspirations.
- There must be a clear training and development plan for the associate(s) which is appropriate to the requirements of the KTP project.
- There must be an appropriate level of academic and company support available to the associate(s) throughout the project.

Knowledge Base:

- There must be clear benefits to the knowledge base partner, including target outcomes.
- The proposed involvement of the knowledge base partner must provide the appropriate expertise, having regard to the knowledge, skills and expertise to be transferred during the course of the project.
- There must be evidence of commitment to the project by the knowledge base partner and this shall be reflected in the proposed membership of the Local Management Committee.

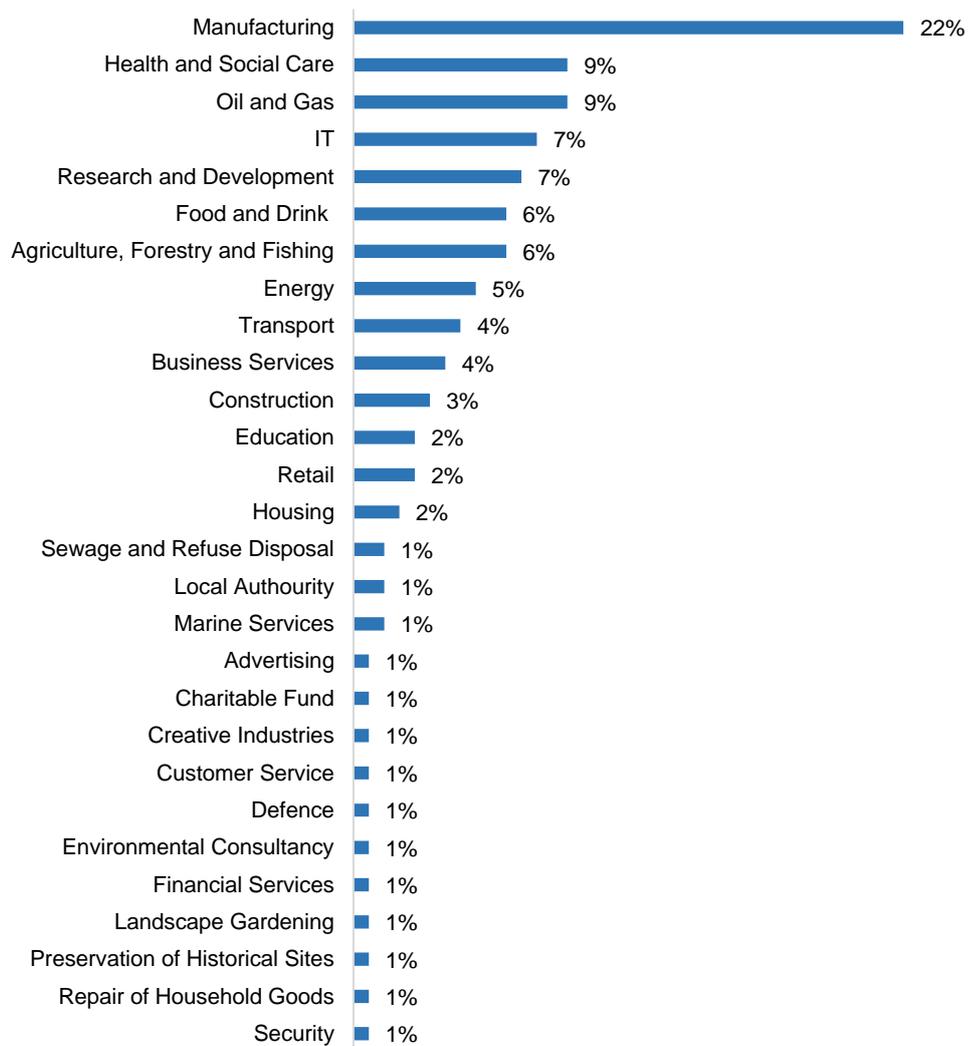
Appendix B: KTP Data

Figure B.1: KTPs by Business Location



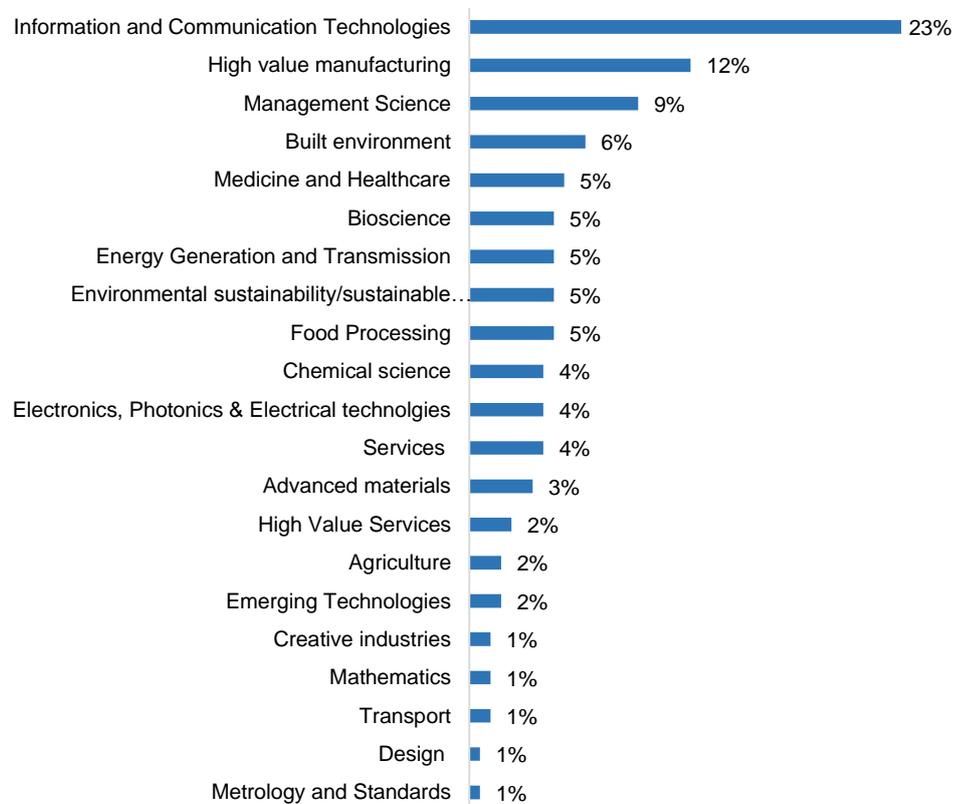
Source: KTP Monitoring Information, N=161

Figure B.2: KTPs by Business Sector



Source: KTP Monitoring Information, N=161

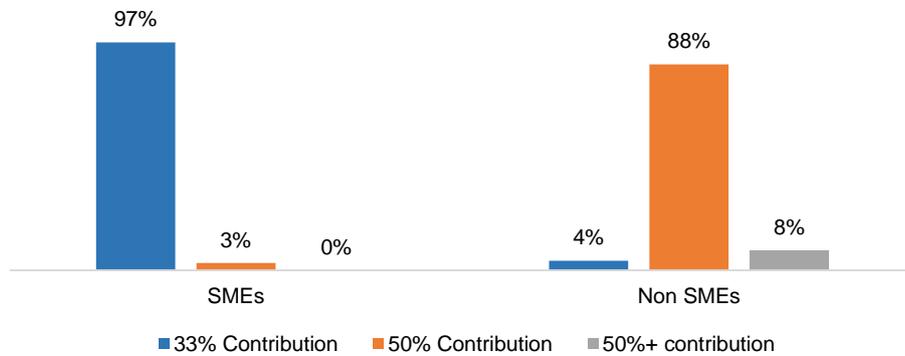
Figure B.3: KTPs by Technology³⁹



Source: KTP Monitoring Information, N=175

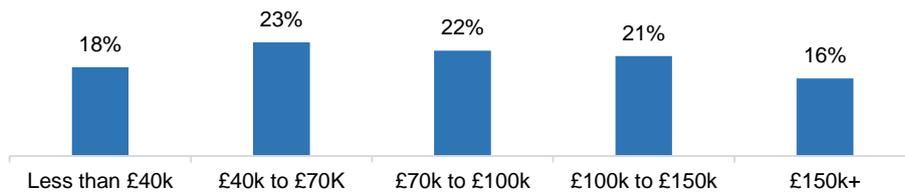
³⁹ Others are: High Value Services (4), Agriculture (3), Emerging Technologies (3), Creative Industries (2), Mathematics (2), Transport (2), and Metrology and Standards.

Figure B.4: Company Contribution



Source: KTP Monitoring Information, N=175

Figure B.5: Additional Company Contributions



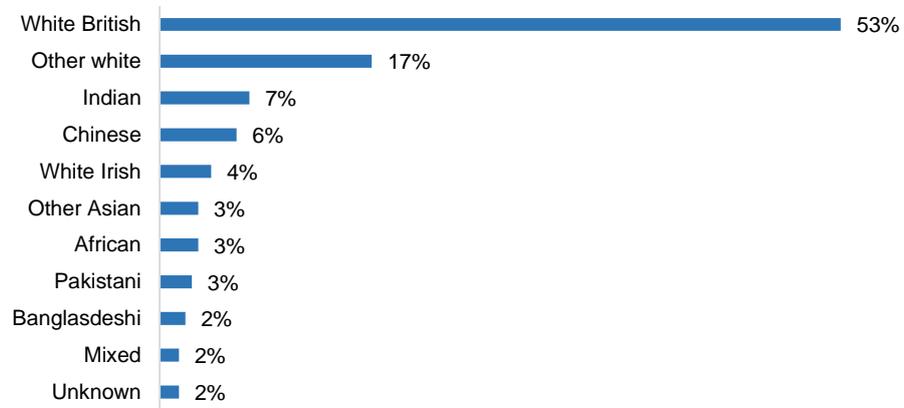
Source: KTP Monitoring Information, N=175

Table B.1: Knowledge Base Partners

University	Number of KTPs	% of Total
University of Strathclyde	34	19%
The Robert Gordon University	20	11%
Heriot-Watt University	16	9%
Glasgow Caledonian University	13	7%
University of Aberdeen	13	7%
University of Dundee	11	6%
University of the West of Scotland	11	6%
Edinburgh Napier University	10	6%
University of Glasgow	10	6%
The University of Edinburgh	7	4%
The University of Abertay Dundee	5	3%
Loughborough University	3	2%
Queen's University Belfast	3	2%
University of Stirling	3	2%
Newcastle University	2	1%
City of Glasgow College	1	1%
Cranfield University	1	1%
Glasgow School of Art	1	1%
Institute of Food Research	1	1%
Lewis Castle College UHI	1	1%
Perth College UHI	1	1%
Queen Margaret University	1	1%
Shetland Fisheries Training Centre Trust	1	1%
The James Hutton Institute	1	1%
The Scottish Association for Marine Science	1	1%
University of Cumbria	1	1%
University of Leeds	1	1%
University of St Andrews	1	1%
University of the Highlands and Islands	1	1%

Source: KTP Monitoring Information, N=175

Figure B.6: Associate Ethnic Origin



Source: KTP Monitoring Information, N=200

Appendix C: Detailed Business Survey

This Appendix presents the detailed feedback from the telephone survey of businesses. From a contact list of 50 businesses, 33 interviews were completed - a response rate of 66%. Five of the businesses who completed interviews had undertaken two KTP Projects in the period under review.

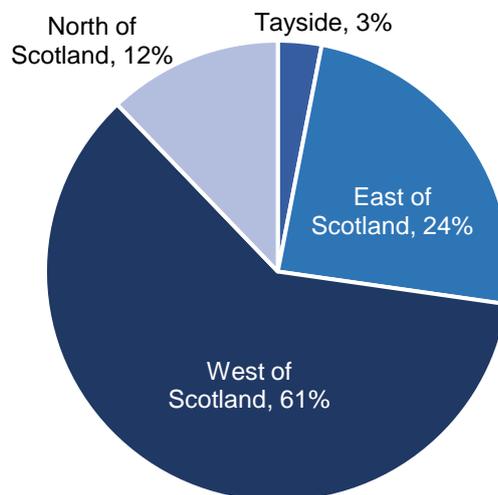
Background

Nearly four-fifths of businesses were in the private sector (79%), with the remainder either public sector (15%) or third sector (6%) organisations.

Most KTPs were complete (61%) or ongoing (33%), with a small proportion terminated early (6%).

More than three-fifths of businesses had contact with the West of Scotland KTP Centre (61%), while nearly a quarter engaged with the East of Scotland KTP Centre (24%) – **Figure C.1**.

Figure C.1: KTP Centre



N=33

Businesses had engaged with a range of university partners in KTPs, with the University of Strathclyde and the University of the West of Scotland the most common – **Table C.1**.

Table C.1: Knowledge Base

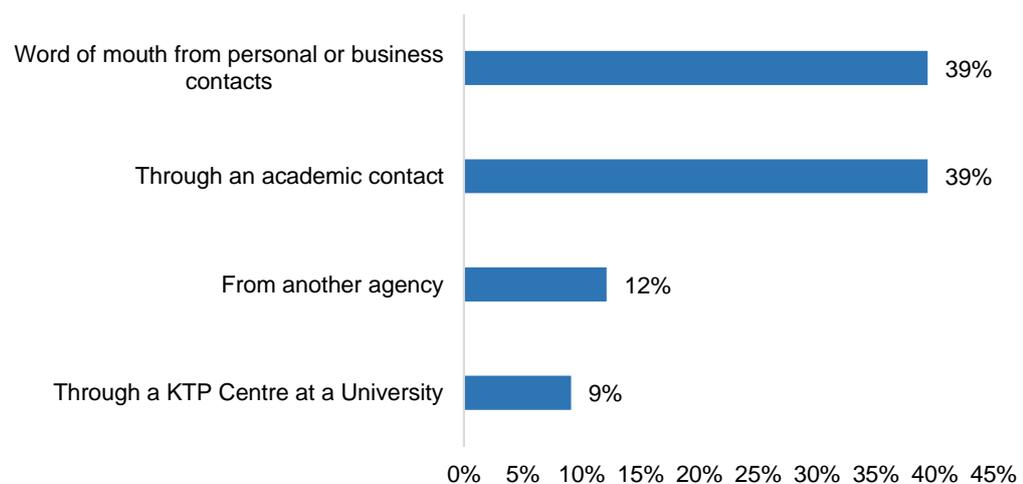
University	Number	%
University of Strathclyde	7	21%
University of the West of Scotland	5	15%
Glasgow Caledonian University	4	12%
University of Edinburgh	4	12%
University of Glasgow	2	6%
University of Abertay Dundee	2	6%
Dundee University	2	6%
Robert Gordon University	2	6%
Heriot-Watt University	2	6%
Queen's University Belfast	1	3%
University of Aberdeen	1	3%
Glasgow School of Art	1	3%
Total	33	100%

N=33

Initial Awareness

The most common ways of finding out about the KTP Programme were through word of mouth from a personal or business contact or through an academic contact (both 13, 39%).

Figure C.2: Initial Awareness of the KTP Programme

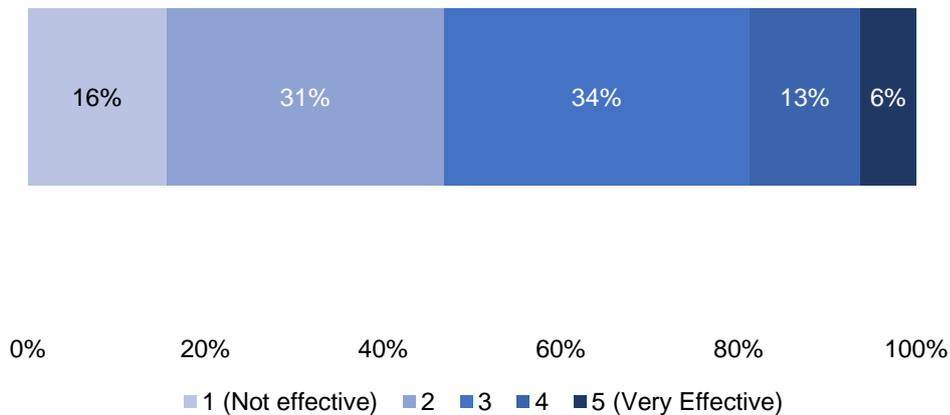


N=33

Other agencies that businesses became aware of the KTP Programme through were Scottish Enterprise, Interface and the NHS.

Almost half of businesses (15, 47%) reported that the marketing and promotion of the KTP Programme in Scotland was not effective, while only 19% (6) felt it was effective.

Figure C.3: Effectiveness of Marketing and Promotion



N=32

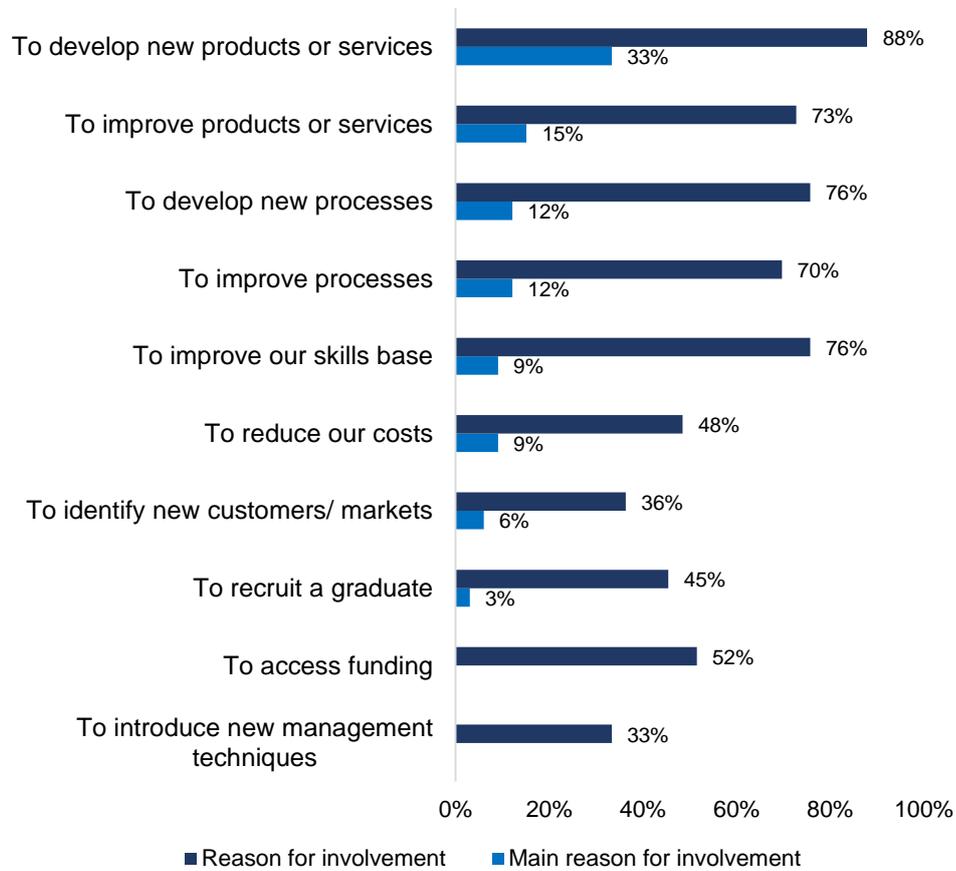
The main reasons provided for the more negative ratings on marketing and promotion, was that businesses reported there to be a lack of knowledge and awareness of the KTP Programme among businesses, with some feeling that they fell out by chance through an academic contact or word of mouth from another business. It was reported that the Programme could be better promoted and advertised among the wider business base.

Reasons for Involvement

The top five reasons for becoming involved in the KTP Programme were to develop new products/services (29, 88%), to develop new processes (25, 76%), to improve their skills base (24, 76%), to improve products/services (24, 73%), and to improve processes (23, 70%).

When asked about the single most important reason for participation, this was to develop new products/services (11, 33%).

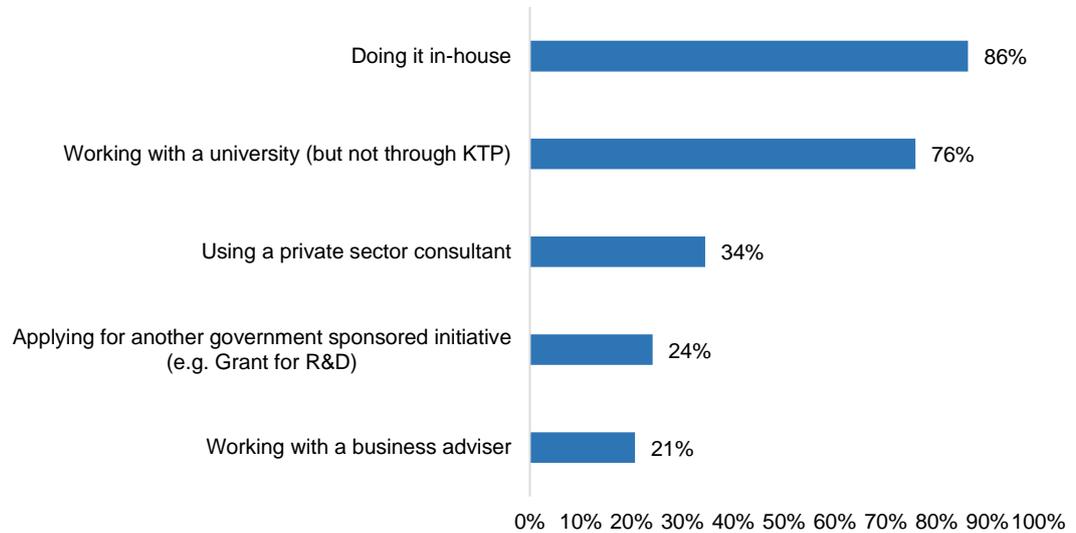
Figure C.4: Reasons for Involvement in the KTP Programme



N=33

The majority of businesses (29, 88%) had, prior to engaging with the KTP Programme, investigated alternative ways to achieving the same outcomes (i.e. developing new products/services, etc). The main ways included doing it in-house (25, 86%) and working with a university, but not through KTP (22, 76%) – **Figure C.5.**

Figure C.5: Alternative Methods of Achieving Outcomes



N=29

These businesses subsequently decided to engage with the KTP Programme for a variety of reasons. The main reasons were that they hoped that participating in a KTP would help build a long-term relationship with the university, and that it would provide access to their expertise and allow the transfer of skills/knowledge from the university to the business. A handful of respondents also commented on the flexibility of the Programme, and that funding was available.

Application Stage

Businesses reported that staff within the business in the main helped identify the academics for the KTP (30, 91%). This was followed, but to a much lesser extent, by academics (10, 30%), **Table C.2**. Satisfaction with the roles that different people/organisations played at this stage was also high.

Table C.2: Role in Identifying Academics

	% Involved in Identifying Academics	% Rating of Valuable/Very Valuable
Yourself/other colleagues	91%	90%
Lead Academic	30%	100%
KTP Adviser	9%	100%
Other Academic	9%	100%
KTP Centre at the University	3%	100%
Other	3%	0%

N=33

The 'other' organisation was Highlands and Islands Enterprise.

Similarly, all businesses reported that staff within the business played a key role in defining the aims and details of the Project, with academics also heavily involved at this stage (100% and 64% respectively), **Table C.3**. Of note is that businesses did not identify that the KTP Advisers or KTP Centre staff were particularly involved in defining the aims and details of the Project. Satisfaction with the roles that different people/organisations played at this stage was also high.

Table C.3: Role in Defining Aims and Detail of the Project

	% Involved in Defining Aims and Objectives	% Rating of Valuable/Very Valuable
Yourself/ other colleagues	100%	100%
Lead Academic	64%	95%
Other Academic	12%	75%
KTP Adviser	6%	50%
Other staff at the University	3%	100%
KTP Centre at the University	3%	100%

N=33

When it came to preparing the necessary KTP application forms, all businesses reported that they and their colleagues had played a role in doing completing the forms, and two-thirds reported that the Lead Academic played a role. Satisfaction with the roles that different people/organisations played at this stage was also high – **Table C.4**.

Table C.4: Role in Preparing KTP Application Forms

	% Involved in Completing Application Forms	% Rating of Valuable/Very Valuable
Yourself/ other colleagues	100%	84%
Lead Academic	66%	100%
KTP Adviser	38%	92%
KTP Centre at the University	16%	100%
Other Academic	3%	100%

N=32

Overall, a majority of businesses were happy with the application process (27, 82%) while a small number (6, 18%) reported that some aspects could be improved. The main issue here related to completing the application form, which some respondents felt was too time consuming and bureaucratic.

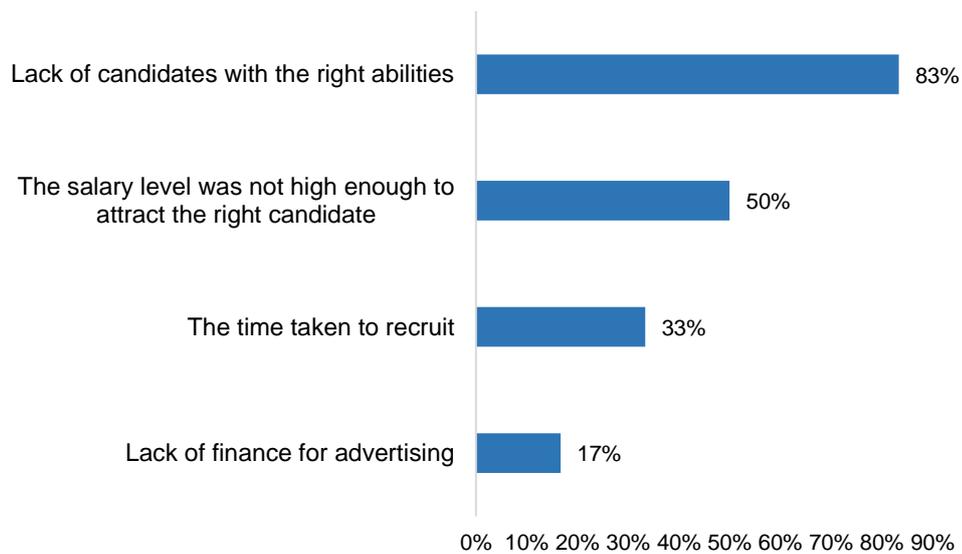
Particular strengths of the application stage, which were each highlighted by a small number of businesses, included the support from the KTP Centre/university and support from the KTP Adviser. Weaknesses, again highlighted by a small number of respondents, included that the application form/process was time consuming and complicated.

KTP Delivery

Most businesses reported that they did not have any problems in recruiting an Associate (27, 82%). However, among businesses that did experience challenges, the most common issue was a lack of candidates with the right abilities (5, 83%),

Figure C.6.

Figure C.6: Problems with Recruiting Associates



N=6

Project delivery was rated highly overall - from the role of the Local Management Committee throughout the KTP, to the quality of training provided to the associate and the associate's performance – all received good/very good ratings of between 82% and 88%, **Table C.5.**

Table C.5: Rating of Project Delivery

	Very Poor/ Poor	Neither/nor	Good/ Very Good
The input of the Local Management Committee in managing the work of the Project	3%	9%	88%
The performance of the Associate in delivering the Project	9%	3%	88%
The training provided for the Associate - in terms of helping to deliver the Project	0%	18%	82%

N=33

While around half of businesses could not think of any improvements that could be made in terms of Project delivery, others did raise some suggestions. Comments largely related to offering more support to the Associate to increase their impact. Suggestions included giving them commercial advice, better planning and management, and increased monitoring.

Most businesses also reported that the frequency of Local Management Committee meetings was about right (28, 85%), while a small number felt that they should be more frequent (4, 12%) or less frequent (1, 3%).

Businesses rated KTP Advisers highly, with effective/very effective ratings ranging from 77% for resolving project issues to 88% for reviewing progress towards objectives and agreeing the detail of the work to be undertaken, **Table C.6**. Earlier (**Table C.3**), only a small number of respondents identified KTP Advisers as playing a role in defining the aims and objectives at the application stage; this rating significantly improved by the time of the Project delivery stage.

Table C.6: Effectiveness of KTP Adviser

	1 - not effective	2	3 - average	4	5 - very effective
Providing advice and support to your business/organisation	0%	0%	19%	25%	56%
Reviewing progresses towards objectives	0%	0%	12%	33%	55%
Resolving project issues	0%	0%	23%	23%	55%
Agreeing the detail of the work to be undertaken	0%	3%	9%	36%	52%

N=33

Generally speaking, businesses also considered their university partner to be effective across a range of aspects.

This ranged from a low of 73% (effective/very effective) in providing supervision for the associate and spending half a day per week on average on the Project, to a high of 91% for attendance at Local Management Committee meetings – **Table C.7**.

Table C.7: Effectiveness of University Partner

	1 - not effective	2	3	4	5 - very effective
Attending Local Management Committee meetings	0%	0%	9%	13%	78%
Providing academic expertise	0%	0%	12%	30%	58%
Spending half a day per week on average on the Project	4%	4%	19%	15%	58%
Identifying personal dev./ training needs for the Associate	0%	6%	13%	26%	55%
Levels of engagement and commitment	0%	3%	6%	39%	52%
Supervising the Associate	3%	6%	18%	24%	48%

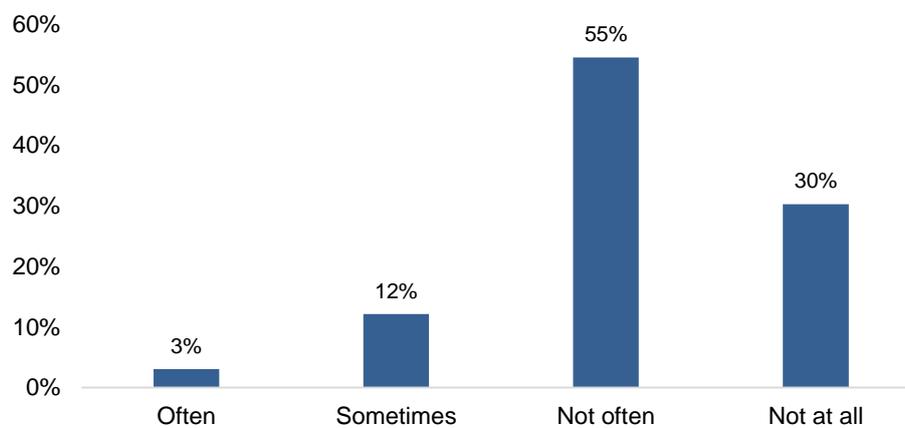
N=33

Just over half of businesses (18, 55%) reported that they had contact with a KTP Centre during the Project. All stated that they were either satisfied (7, 39%) or very satisfied (11, 61%) with their engagement with KTP Centre staff.

KTP Portal

Most businesses reported that they either did not use the KTP Portal often, or did not use it at all (28, 85%), **Figure C.7**.

Figure C.7: Frequency that the KTP Portal was used

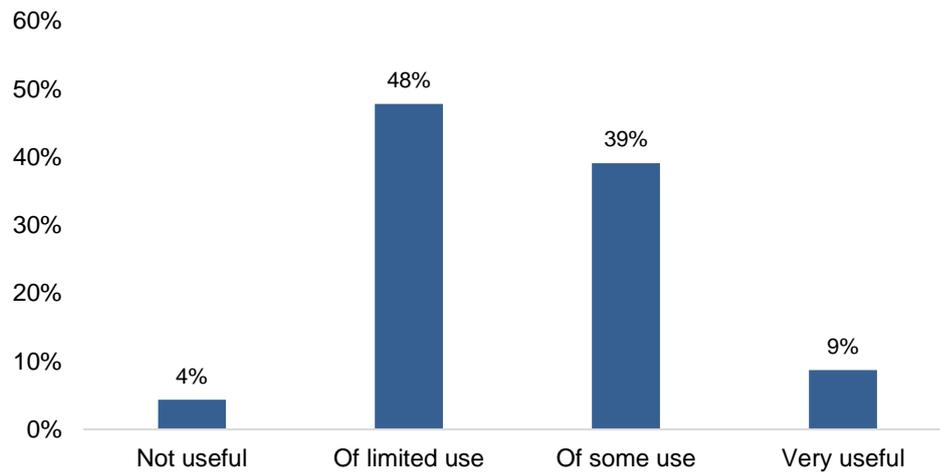


N=33

Of the businesses that had used the Portal, there was a relatively even split between those who found it of limited use and those who said it was of some use/very useful,

Figure C.8.

Figure C.8: Rating of the KTP Portal



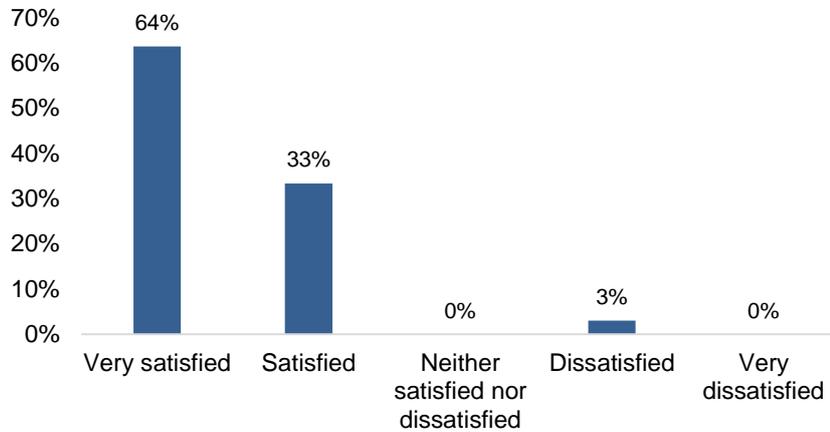
N=23

Most businesses could not think of any improvements that could be made to the KTP Portal, or were unsure as they rarely used it. Where suggestions were made, this tended to centre on making it easier to navigate and more user friendly.

Levels of Satisfaction

Overall, there was a high level of satisfaction with the KTP Programme - almost all businesses were satisfied or very satisfied (97% 32), with most very satisfied, **Figure C.9.**

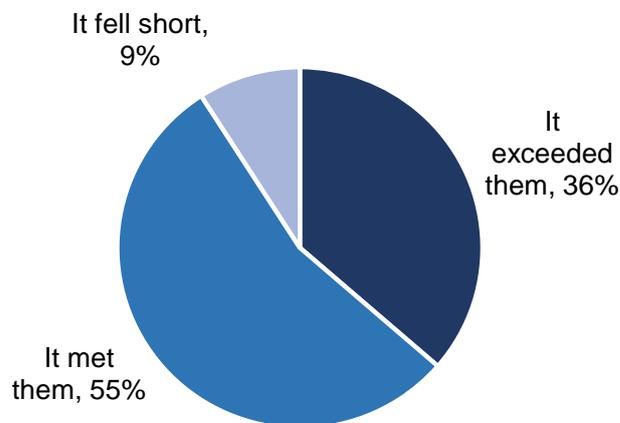
Figure C.9: Satisfaction with the KTP Programme



N=33

Satisfaction is further evidenced with 91% of businesses reporting that the KTP Programme either met or exceeded their expectations – **Figure C.10**.

Figure C.10: Extent that the KTP Programme Met Expectations



N=33

Where expectations were met or exceeded, key reasons included the quality of the associate and the level of support that was offered to both the associate and the business through the KTP Programme. The following quotes help illustrate this:

- *“The associate was superb. His attitude and his outcome was excellent. We wanted to keep him but he is doing a PHD at university”;*
- *“What I expected. They helped us and wanted to help us. There was a lot of good will”;* and

- *“There was good support for the associate, especially in terms of their training and development.”*

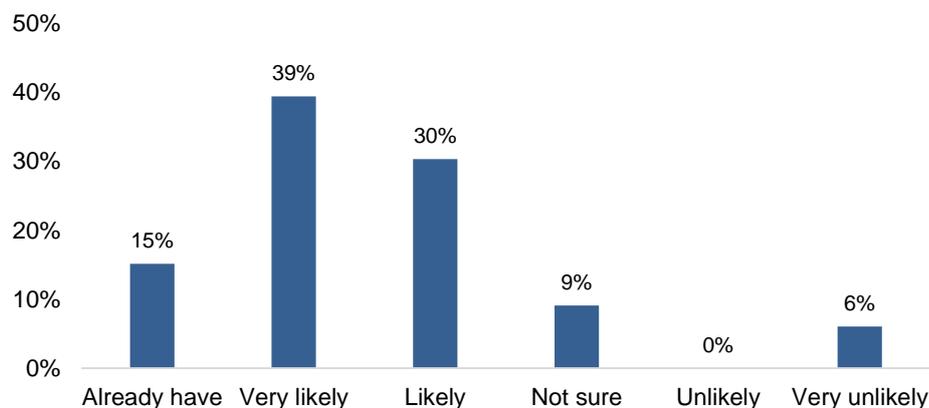
For the small number of cases where expectations were not met, this was largely because the Project was not completed or the associate’s work was felt to be disappointing.

Future Involvement

This high level of satisfaction is further evidenced by nearly all businesses reporting that they would recommend the KTP Programme to others, or have already done so (32, 97%), with only one business (3%) reporting that they would not.

A high proportion of businesses reported they would likely/very likely (23, 70%) undertake another KTP, with a further 15% (five) already done so – **Figure C.11**.

Figure C.11: Likelihood of Undertaking another KTP



N=33

Of those who were unsure or unlikely to, this was because they either did not have any requirement for it, they were waiting to see the outcome of their existing Project, or because they had a disappointing experience with their previous involvement.

Suggested Improvements

Around two-thirds of businesses could not think of any improvements that could be made to the format of the KTP Programme, in the main because they were satisfied with the current format.

Where suggestions were made, these are detailed below (and were mentioned by one or two businesses):

- make the Programme more flexible with its timescales;
- improve supervision of the Associate to ensure they carry out their role effectively;
- LMC meeting frequency should be more flexible, depending on Project progress; and
- a quicker application process.

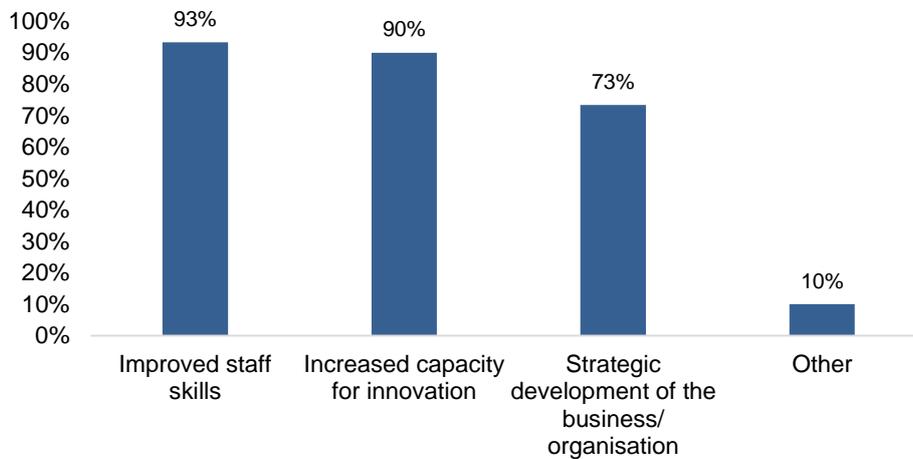
Businesses were asked to consider the ideal duration of a KTP. Responses ranged from 12 months to 48 months, with an average of 28 months. Around two years was considered sufficient time to allow the associate to get used to working within the business and long enough for them to make an impression on the business. Others felt that the duration of the KTP depends on the nature of the Project being undertaken (five businesses).

Benefits and Impacts

The vast majority of businesses reported at least one positive impact arising from their involvement with in the KTP (30, 91%), with only a small number (3, 9%) recording no benefits.

The most common benefits were improved staff skills and increased capacity for innovation. Responses under 'other' included improved collaboration with other organisations/universities, and enhanced reputation of the business.

Figure C.12: Benefits of the KTP Programme



N=30

Most businesses reported wider impacts arising from their involvement in the KTP. The top three impacts were improved staff skills (25, 76%), product/service improvements (21, 64%), and new products/services developed (20, 61%) – **Table C.8.**

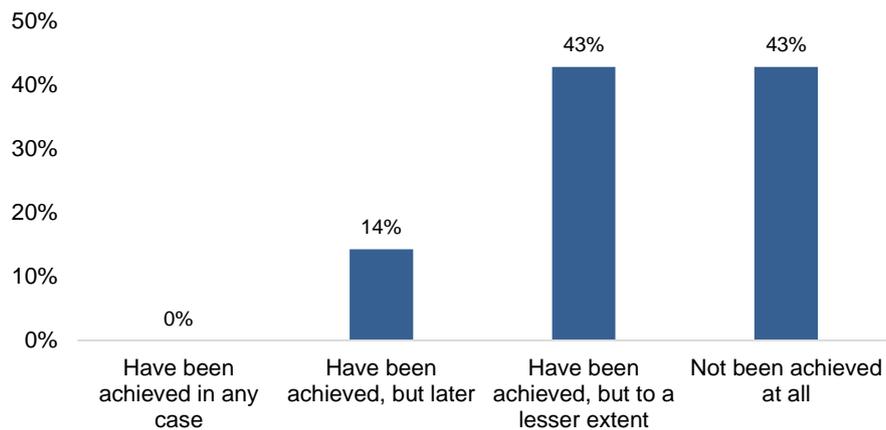
Table C.8: Impacts of the KTP Programme

Impact	% of Businesses Reporting Any Impact	% of Businesses Reporting Significant/Very Significant Impact
Improved staff skills	76%	45%
Product/service improvements	64%	27%
New products/services developed	61%	33%
New processes developed	61%	42%
Process improvements	58%	42%
Access to new markets/ customers	48%	27%
Cost/efficiency savings	48%	27%
Increased profitability	45%	21%
Collaboration with other businesses	42%	27%
Spend on R&D	36%	18%
New management practices	33%	15%
New IPR registrations	21%	9%
It is too early to tell	12%	0%
None of the above	3%	0%

N=33

In relation to the afore-mentioned impacts, none of the businesses reported that the impacts would have been achieved in the absence of support from the KTP Programme, **Figure C.11**. Some 43% said that the impacts would not have been achieved at all, while the remainder reported that the impacts would have occurred later or to a lesser extent.

Figure C.13: Additionality of the Support



N=28

Around three-quarters of businesses (25, 76%) reported that they had already achieved turnover or employment impacts or cost savings as a direct result of participating in a KTP.

Over the next three years, 88% of businesses (29) expect to achieve turnover or employment impacts, or cost savings, as a direct result of the KTP.

Table C.9: Turnover, Employment and Cost Saving Impacts

Outcome	Businesses achieving impact to date	% to date	Businesses achieving impact over next 3 years	% over next 3 years
Made cost/efficiency savings	18	55%	19	58%
Safeguarded/created turnover	15	45%	21	64%
Safeguarded/created employment	15	45%	19	58%
No impacts	8	24%	4	12%

N=33

Additionality for the business performance impacts outlined above was high. Some 94% of businesses (29) reported that none – or only some – of the impacts would have occurred or will occur if they had not been involved in a KTP.

Table C.10: Additionality of the Support

	Number	%
All the impacts would have occurred/ will occur anyway	1	3%
Most of the impacts would have occurred/ will occur	1	3%
Around half the impacts would have occurred/ will occur	0	0%
Some of the impacts would have occurred/ will occur	17	55%
None of the impacts would have occurred/ will occur	12	39%
Total	31	100%

Indeed, 84% (26) of businesses that reported impacts said that the KTP support had allowed (or would allow) the impacts to happen earlier, at a greater scale, or at a better quality than otherwise.

Strengths, Weaknesses, and Areas for Improvement

The main strengths of the KTP Programme were felt to be the partnership it cultivated between academia and business, allowing for an exchange of skills and harnessing businesses with expertise they may not otherwise have access to.

Its ability to respond to the needs of the business and the quality of the Associates were also praised by several respondents. Comments included:

- *“Getting a link with the university and developing a product we wouldn't have otherwise been able to do”;*
- *“Helps with collaboration between small businesses and universities in spite of great cultural differences”;* and
- *“Access to good quality graduates who already have experience.”*

Few businesses highlighted weaknesses with the Programme. Among those that did, the main themes included: problems with selecting an associate or attracting high quality candidates (four), difficulties with the initial application process (three), and the length of time it took to get the Project started and/or completed (three).

Among businesses who suggested improvements that could be made to the Programme (around half), a recurring theme was that it should be better advertised and promoted, while two businesses felt that funding to allow them to take on Associates could be improved.

Appendix D: Detailed Associates Survey

This Appendix presents the detailed feedback from KTP associates.

An online survey was distributed by Innovate UK to 138 contacts, with 10 unsubscribes/bounce backs, giving a total sample of 128. With 21 responses, this represents a response rate of 16%.

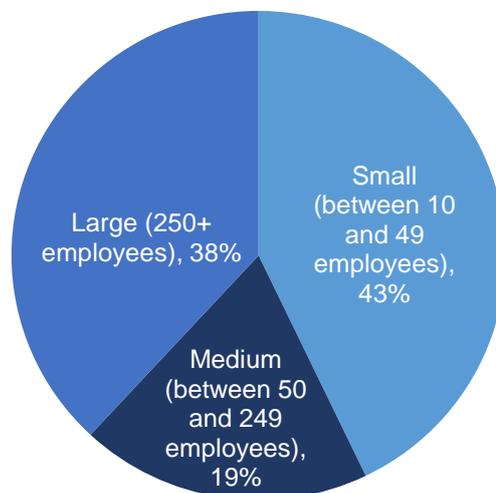
Profile

More than half of associates were male (57%) and the remainder female (43%).

All associates had been involved in a KTP of between 12 and 24 months (13, 62%) or between 24 and 36 months (8, 38%).

Associates worked for a mix of small, medium and large businesses – **Figure D.1**. None worked on a KTP with a micro business (less than 10 employees).

Figure D.1: Size of Business involved in KTP

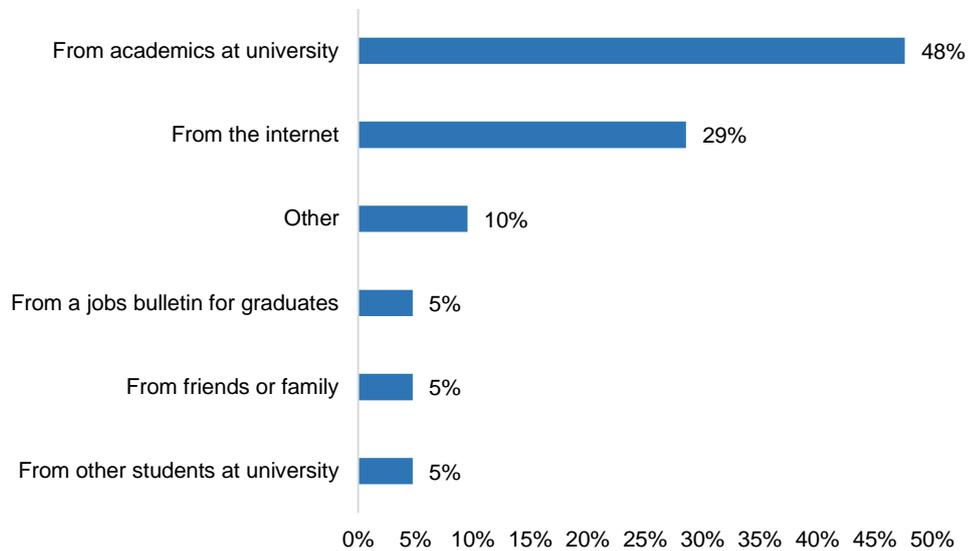


N=21

Finding Out About the KTP Programme

Almost half of associates (10, 48%) initially became aware of the KTP Programme from academics at university. This was followed by 29% (six) that found out about KTPs through the internet.

Figure D.2: Initial Awareness of the KTP Programme

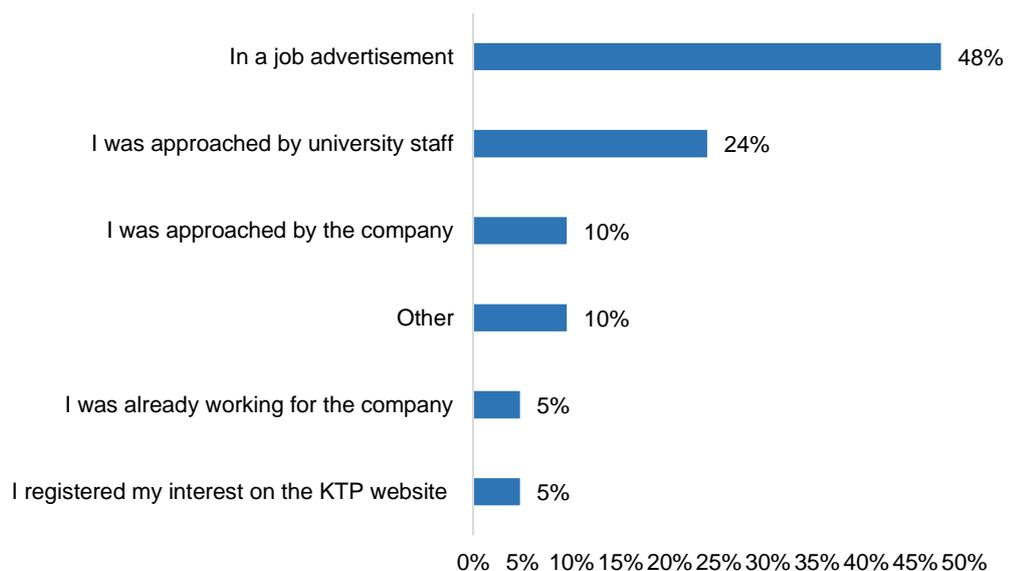


N=21

Of those who selected 'other', one associate found out through the business, and the other through undertaking some consultancy work for the KTP Programme.

When it came to the specific Project that the associate undertook, nearly half (10, 48%) saw the role in a job advertisement, while 24% (five) were approached directly by university staff.

Figure D.3: How Found Out about Associate Opportunity



N=21

Of those who selected 'other' (2, 10%), this was through a friend who was a KTP Associate and by approaching university staff directly.

Reasons for Applying to be a KTP Associate

The most important factor in attracting prospective associates to apply for the role was the nature of the Project that was to be undertaken - all associates considered this important/very important.

This was followed by the chance to pursue research in a field of interest (90%, 19), the chance to build their skills (18, 86%), to gain a further qualification while working (18, 86%), and the training programme (18, 86%).

Of note, is that salary level was not considered as important a factor when compared to other aspects.

Table C.1: Importance of Different Factors When Applying to the KTP

	1 (Not important)	2	3 (Neither/nor)	4	5 (Very important)
The Project that was to be undertaken	0%	0%	0%	33%	67%
The chance to build on your skills	0%	10%	5%	24%	62%
The chance to pursue research in a field of interest	5%	0%	5%	33%	57%
The chance to gain a further qualification while working	0%	0%	14%	29%	57%
The Associate training programme	5%	0%	10%	33%	52%
The chance to work in a forward looking company/organisation	5%	5%	19%	33%	38%
The chance of long-term employment in the company	5%	5%	29%	38%	24%
The salary level	5%	14%	43%	29%	10%

N=21

Views on Initial Engagement with KTP Programme

Views were more mixed when it came to associates' initial engagement with the KTP Programme (i.e. prior to formal involvement).

Two-thirds of respondents rated the application process and the quality of information provided on expected roles and responsibilities to be good/very good (both 14, 67%). However, aspects such as the ease of finding out about potential associate opportunities and about the KTP Programme as a whole received higher poor/very poor ratings (both 6, 29%).

Table D.2: Views on Initial Engagement

	Very poor	Poor	Neither /nor	Good	Very good
The application process to be an Associate	0%	5%	29%	38%	29%
Quality of the information provided on the roles and responsibilities to be expected from the Associate, the University and the business/organisation	0%	14%	19%	43%	24%
The ease with which you found out about potential Associate opportunities	5%	24%	24%	33%	14%
The ease with which you found out about the KTP Programme in Scotland	0%	29%	14%	57%	0%

N=21

Suggested improvements included:

- increased publicity for the KTP Programme, to boost awareness of it among students (three respondents);
- improved and faster communication during the application stage - going through university HR departments was felt to prolong the process (one); and
- greater involvement from KTP representatives from the application process onwards, instead of waiting until the first Local Management Committee to meet them (one).

Views on Project Delivery

Satisfaction levels with various aspects of the KTP were generally high.

Associates gave the highest ratings for aspects such as having adequate access to other staff within the business (17, 81%), having adequate access to equipment and materials (16, 76%), and adequate support from the academic supervisor (15, 71%).

Of note, is that over one-third were expected to devote significant time to non-Project work (7, 35%).

Table D.3: Views on Project Delivery

	Strongly disagree	Disagree	Neither /nor	Agree	Strongly agree
My academic supervisor gave me sufficient guidance	5%	14%	10%	24%	48%
My company supervisor gave me sufficient guidance	14%	5%	14%	19%	48%
I had adequate access to other company/organisation staff	0%	14%	5%	43%	38%
I had adequate access to equipment and materials	5%	10%	10%	38%	38%
I had sufficient time to deliver the Project	10%	0%	24%	43%	24%
I was expected to devote significant time to non-Project work (N=20)	25%	25%	15%	20%	15%

N=21

Further comments and suggestions included (absolute numbers are very small):

- academic supervisors did not have enough time to provide the level of guidance required (two respondents);
- there could be better guidelines around supervision (one respondent); and
- both university and business partners should have a better understanding of their role, rather than expecting “*the other side (and the associate!) to do all the work with little/no help*” (one respondent).

Local Management Committees

Local Management Committees were rated highly in terms of their role in managing the work of Projects:

- 81% of associates reported that LMCs were effective or very effective; and
- the remainder rated their effectiveness as ‘neither/nor’ (4, 19%).

All associates felt the frequency of LMC meetings was about right.

Input from KTP Advisers

Ratings were mixed in terms of the value attached by associates for the input from KTP Advisers.

This ranged from a low of 57% (12) for resolving project issues to a high of 85% (18) for reviewing progress towards objectives. Average ratings - “neither/nor” - were quite prevalent (with the exception of reviewing progress towards objectives, this ranged from 24% to 38%).

Table D.4: Rating of Support from KTP Adviser

	1 - Not valuable	2	3 - Neither /nor	4	5 - Very valuable
Providing ongoing support	0%	5%	24%	33%	38%
Identifying your personal development and training needs	0%	10%	24%	29%	38%
Resolving project issues	5%	0%	38%	19%	38%
Reviewing progress towards objectives	5%	0%	10%	52%	33%
Agreeing the detail of the work to be undertaken	5%	0%	24%	43%	29%

N=21

Of the associates who provided further comments, two said they only made contact with the KTP Adviser at LMC meetings. While one associate felt this was an issue, the other reported that “*there was not much need [for contact] otherwise*”.

Input from Academic Supervisors

The advice and support received by associates from Academic Supervisors did, for the most part, receive relatively high ratings (i.e. considered effective/very effective).

This ranged from 66% (14) for resolving project issues to a high of 95% (20) for their attendance at LMC meetings. However, of note is that only 57% (12%) of associates reported that their Academic Supervisor spent half a day per week on the Project.

Table D.5: Rating of Support from Academic Supervisor

	1 - Not effective	2	3 - Neither/nor	4	5 - Very effective
Attending Local Management Committee meetings	0%	0%	5%	19%	76%
Providing academic expertise	10%	5%	14%	5%	67%
Reviewing progress towards objectives	5%	0%	14%	24%	57%
Identifying your personal development and training needs	5%	5%	10%	29%	52%
Agreeing the detail of the work to be undertaken	5%	5%	14%	29%	48%
Providing pastoral care	10%	0%	19%	24%	48%
Spending half a day per week on average on the Project	5%	29%	10%	14%	43%
Resolving project issues	5%	5%	24%	33%	33%

N=21

A small number of associates provided further comment on their Academic Supervisor (absolute numbers are low):

- the Academic Supervisor was crucial to the success of the Project, but was only involved at arm's length;
- it was difficult to arrange regular meetings as the business and Academic Supervisor were in different locations;
- a specific Professor was singled out for praise; and

- while meeting regularly with the associate, the Academic Supervisor did not offer much help with the Project.

Input from Business Supervisor

Ratings were particularly mixed when it came to associates' views on the effectiveness (or otherwise) of their Business Supervisor.

Business Supervisor attendance at Local Management Committee meetings received the highest ratings (19, 90%). This was followed by reviewing progress towards objectives (15, 71%) and spending half a day per week on average on the Project (15, 71%).

However, a number of aspects received more negative ratings – identifying personal development needs, providing pastoral care, agreeing the detail of work to be undertaken and resolving project issues (ranged between 43% and 57%).

Table D.6: Rating of Support from Business Supervisor

	1 - Not effective	2	3 - Neither/nor	4	5 - Very effective
Attending Local Management Committee meetings	0%	5%	5%	19%	71%
Spending half a day per week on average on the Project	5%	5%	19%	19%	52%
Reviewing progress towards objectives	5%	19%	5%	29%	43%
Resolving project issues	0%	10%	33%	14%	43%
Agreeing the detail of the work to be undertaken	5%	14%	24%	14%	43%
Providing pastoral care	14%	10%	29%	10%	38%
Identifying your personal development and training needs	24%	10%	24%	10%	33%

N=21

Further comments provided by associates relating to Business Supervisors included (absolute numbers are low):

- the Business Supervisor may not have had suitable experience to identify and advise on personal development and training needs (one);

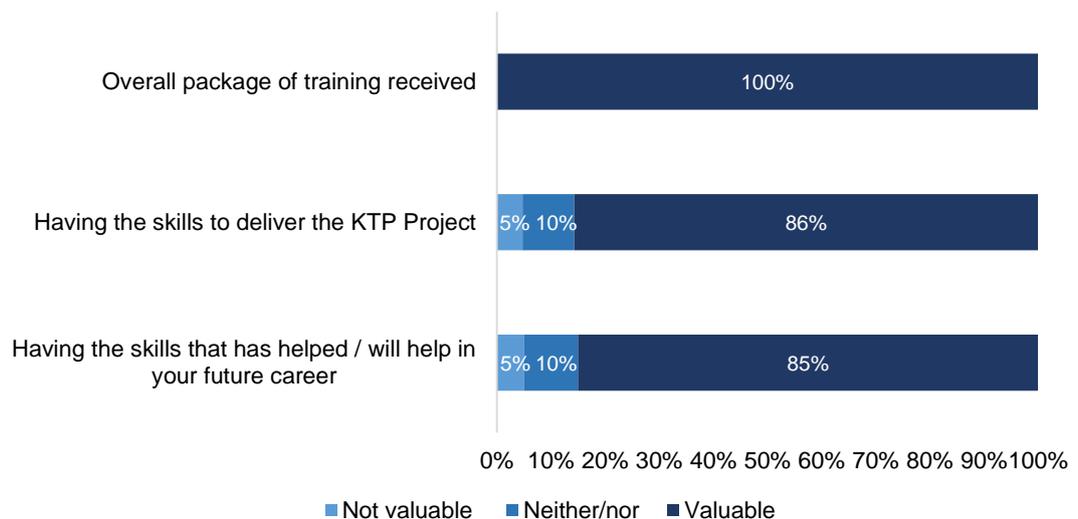
- the Business Supervisor wanted results despite “zero input” on their side; and
- a Business Supervisor was singled out as “fantastic”.

Views on Training

Associates rated the training they received highly - all respondents reported that the overall training package was valuable/very valuable to them personally.

The training provided many associates with the necessary skills to deliver the KTP Project (18, 86%) and a high proportion also said that the skills gained through the KTP helped/would help in their future career (17, 85%) – **Figure D.4**.

Figure D.4: Views on Training



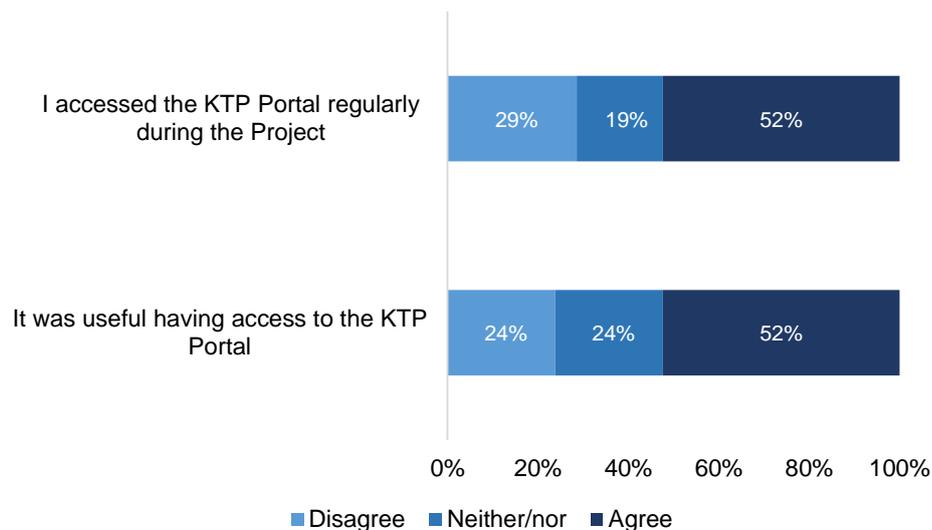
Areas for improvement included:

- there could be greater access to academic qualifications for associates through the academic partner involved;
- the second training session had too much content that was not applicable to most of associates; and
- the budget for training could be increased.

KTP Portal

Just over half of associates agreed that the KTP Portal was useful and that they regularly accessed it during the KTP (both 11, 52%). This suggests that many associates did not access it - either at all or often.

Figure D.5: KTP Portal



N=21

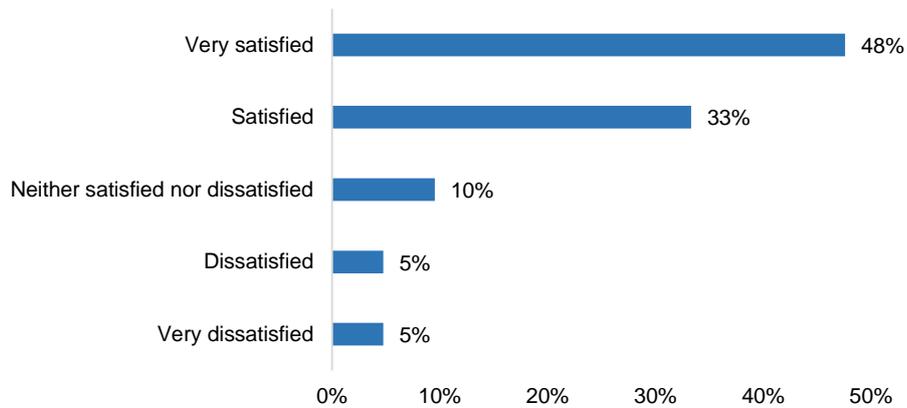
A few comments were provided relating to the KTP Portal:

- *“It is very difficult to find anything on the portal. I only used it to register for the initial training. Other than that, the portal is of no use to me”;*
- *“It would be useful to be able to download and keep the e-learning videos, as they could be used in future as refreshers”;* and
- *“The KTP Portal was useful only in relation to KTP modules for me, however I can understand if other projects would find it more useful due to their nature.”*

Overall Satisfaction

Over four-fifths of associates were satisfied/very satisfied (17, 81%) with the KTP Programme as a whole, with only a handful providing negative ratings.

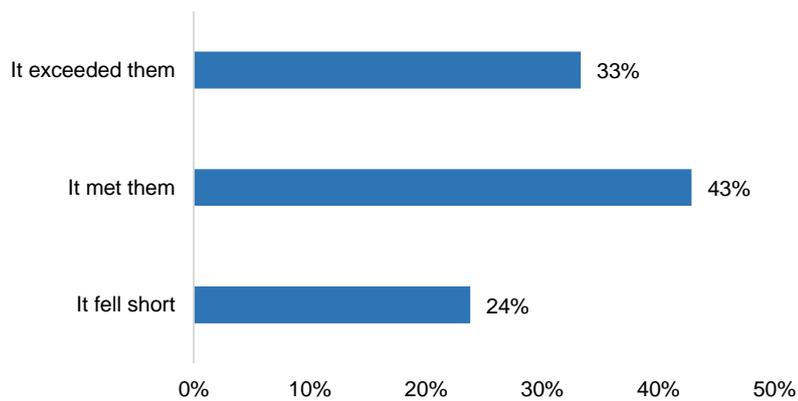
Figure D.6: Satisfaction Rating



N=21

Similarly, more than three-quarters of associates (16, 76%) reported that their expectations of the KTP Programme had either been met or exceeded.

Figure D.7: Expectations



N=21

Most reported a more favourable experience, referring to the skills they were able to develop and the networking opportunities it provided.

“The Project Team worked well together and I have found the training I received very beneficial. I work full-time for the company organisation now and still, 3 years later, people talk about my KTP Project. Therefore the recognition and the job satisfaction that the KTP has brought me I am not sure I would have got elsewhere.” – KTP Associate

The main reasons for expectations not being met, each raised by one or two Associates, included:

- unreasonable expectations from different parties (*“the company thought it was buying cheap consultancy work”*);
- an unsuitable work environment (*“access to academic/research publications from the company premises is impossible”*); and
- the business was not commercially viable and closed.

Benefits and Impacts

Associates reported a wide range of benefits as a direct result of their involvement with the KTP, with the main benefits reported as follows (all 19, 90%):

- it provided the associate with technical skills;
- it provided exposure to a commercial environment;
- it helped to develop management skills; and
- it offered formal training.

Table D.7: Benefits

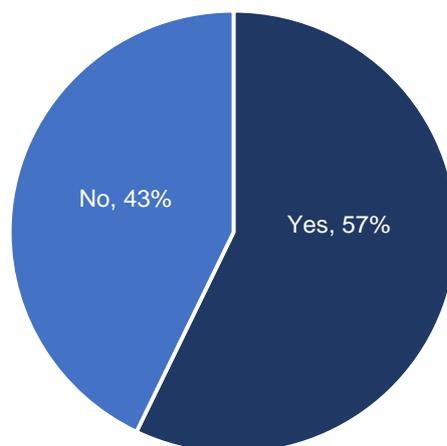
	Strongly disagree	Disagree	Neither/nor	Agree	Strongly agree
Improving your career prospects	0%	10%	5%	33%	52%
Developing your technical skills	0%	5%	5%	43%	48%
Providing exposure to a commercial environment	0%	5%	5%	48%	43%
Developing your management skills	0%	5%	5%	52%	38%
Enhancing your academic qualifications	10%	5%	14%	33%	38%
Providing formal training	0%	0%	10%	57%	33%
Improving your earnings potential	10%	5%	19%	48%	19%
Other (N=8)	13%	0%	13%	25%	50%

N=21

Benefits reported under 'other' included inter-personal skills, it provided a chance for a change in career, and networking opportunities.

More than half of associates reported that they had seen or experienced a change in approach to innovation within the business they worked with as a result of the KTP (12, 57%).

Figure D.8: Change in Approach to Innovation



N=21

Associates reported that businesses had also benefited in a variety of ways as a result of the KTP. A key theme was that businesses had improved internal processes and that staff had benefited from increased knowledge.

Some comments which reflect this are:

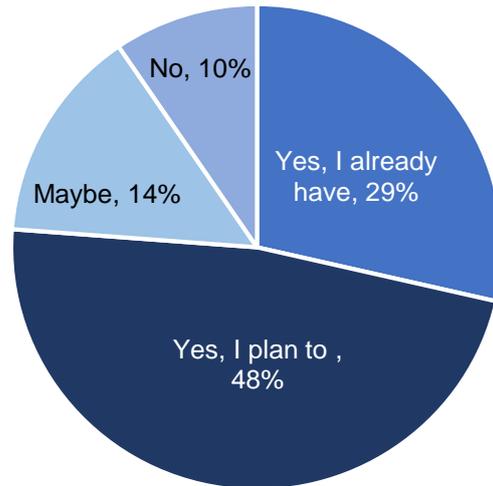
- *“staff illustrated understanding and application of knowledge organisation in both their work and their language”;* and
- *“the company had a better knowledge of how its products worked at the end of the KTP. A knowledge gap existed prior to the project, but this was resolved by the project. Many new products were developed directly as a result of the project.”*

In addition, one associate stated that the KTP had helped develop links between the business and the academic sector.

Future Plans

Just over three-quarters of associates (16, 76%) intended to or already have looked for further opportunities to work in activities related to research and innovation.

Figure D.9: Future Research and Innovation Opportunities

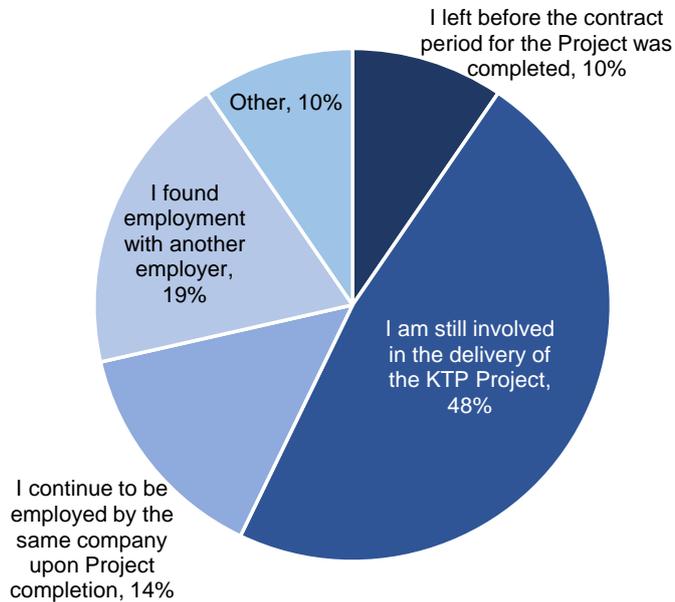


N=21

Current Status

Just under half (10, 48%) of associates were still involved in the delivery of the KTP Project. Some 14% continue to be employed by the same business and a further 10% have since found employment with another business – **Figure D.10**.

Figure D.10: Current Status of Associates

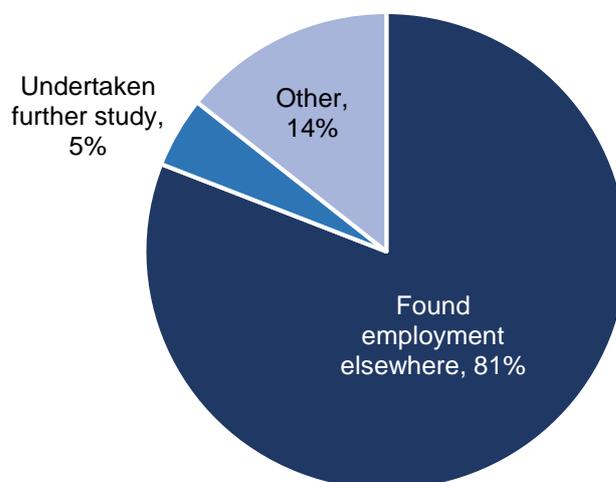


N=21

Of those who selected 'other' (2, 10%), one was on the verge of finishing their Project, after which they will enter employment with the business, and the other was now unemployed.

If Associates had not taken up the position as KTP associate, most reported that they would have found employment elsewhere (17, 81%) – **Figure D.11**.

Figure D.11: If had not become an Associate



N=21

Of those who selected 'other' (3, 14%), all reported that they would have continued in the job they had prior to taking up the associate role.

Only a couple of Associates (2, 10%) said that, on reflection, they would have preferred to make a different career choice instead of becoming a KTP Associate (e.g. PhD). The vast majority were therefore happy with their decision to become an associate.

Areas for Improvement and Development

A wide range of suggestions were made for how the KTP Programme in Scotland could be improved or further developed. Factors mentioned by between two and three respondents were:

- the Programme should be better promoted to increase awareness among potential associates (particularly undergraduates), universities, and businesses (particularly small businesses).
- the need to ensure the expectations and requirements of each partner are clear prior to the Project commencing, and improve the vetting/controls in place;
- the associate should have sufficient time for personal development (e.g. through small projects and research not necessarily related to the Project);
- salaries could be improved/be more competitive; and
- ensure training courses are accessible and relevant to associates.

Individual comments included:

- more social events for Associates;
- more formal networking for Associates;
- improve the working environment for associates and ensure it is easy for them to integrate within the business;
- have training courses/conferences for specific sectors;
- need to make sure training venues are easy to get to (some were considered too remote); and

- improve employability advice, particularly for non-EU students who have a limited time in which to secure a Tier 2 visa if they want to remain in the UK.

Associates were asked for their views on the ideal duration of a KTP Project. Responses ranged from 6 months to 36 months, with an average duration of 23 months. However, some associates stated that it was difficult to specify an ideal duration when this was dependent on the nature of the Project. The most common response was 24 months – this was felt to give adequate time and flexibility to complete the KTP.

Appendix E: Stakeholders Consulted

East of Scotland KTP Centre

Edinburgh Napier University

Glasgow School of Art

Heriot-Watt University x2

Highland and Islands Enterprise

Innovate UK KTP Advisers (West, North and East of Scotland) x3

Interface

North of Scotland KTP Centre

Robert Gordon University

Scottish Enterprise

Scottish Funding Council x2

Scottish Government

The James Hutton Institute

University of Aberdeen

University of Abertay Dundee

University of Dundee

University of Glasgow

University of Highlands and Islands

University of Strathclyde x2

University of Stirling

West of Scotland KTP Centre x2

Appendix F: Technical EIA

Sectoral Benchmarks

Sectoral benchmarks from GVA, Wages and Turnover were calculated from industry averages of the relevant Sectors using Scottish Annual Business Statistics⁴⁰.

Table F.1 GVA Benchmarks

Sector	GVA benchmark	Wages Benchmark	Turnover Benchmark
Accommodation	£22,530	£10,715	£41,273
Activities of Membership Organisations	£12,399	£17,660	£31,739
Architectural and Engineering Activities; Technical Testing and Analysis	£87,969	£35,575	£159,415
Civil Engineering	£65,064	£38,161	£220,727
Construction of Buildings	£62,489	£23,426	£186,451
Electricity, Gas, Steam and Air Conditioning Supply	£60,000	£30,000	£100,000
Extraction of Crude Petroleum and Natural Gas	£1,589,821	£136,225	£2,718,551
Fishing and Aquaculture	£52,267	£13,257	£169,921
Libraries, Archives, Museums and Other Cultural Activities	£2,477	£17,383	£20,731
Manufacture of Basic Pharmaceutical Products and Pharmaceutical Preparations	£118,687	£38,591	£194,774
Manufacture of Beverages	£231,364	£39,928	£462,088
Manufacture of Computer, Electronic and Optical Products	£65,528	£34,418	£169,149
Manufacture of Food Products	£47,418	£20,095	£182,000
Manufacture of Textiles	£31,592	£18,005	£90,360
Other Manufacturing	£36,229	£20,648	£92,655
Other Professional, Scientific and Technical Activities	£53,593	£20,530	£83,554
Repair and Installation of Machinery and Equipment	£97,948	£41,853	£216,574
Scientific Research and Development	£47,732	£30,579	£86,008
Social Work Activities Without Accommodation	£10,735	£15,357	£16,436
Waste Collection, Treatment and Disposal Activities; Materials Recovery	£60,809	£14,891	£103,143

⁴⁰ <http://www.gov.scot/Topics/Statistics/Browse/Business/SABS>

Water Transport	£81,584	£61,590	£354,909
-----------------	---------	---------	----------

Net Impacts

The net impact of the project is the difference between what would have happened anyway (i.e. the reference case) and the benefits achieved by the project (i.e. the intervention case), adjusted for displacement, leakage, deadweight, and multiplier effects.

Deadweight – The proportion of total outputs/outcomes that would have been secured anyway. This considers the counterfactual i.e. what would have happened in the absence of the support.

Deadweight was considered on a **case by case basis**. The impact survey asked the counterfactual question: thinking about these effects, what would you estimate would have happened if you had not accessed this support? A ready reckoner⁴¹ was applied to calculate the deadweight effects:

Deadweight Ready Reckoner⁴²

	Deadweight
None of the effects would have happened/ will happen	0%
Some of the effects would have happened/ will happen	25%
About half of the effects would have happened/ will happen	50%
The majority of the effects would have happened/ will happen	75%
All of the effects would have happened/ will happen	100%

The overall level of deadweight was very low at 6%. This is likely due to the fact that KTP's gave businesses the opportunity to undertake a project which they would not otherwise have done.

Leakage is the proportion of outputs that benefit those outside the projects geographical target area (i.e. Scotland). Leakage estimates were based upon the question "what proportion of your employees are based in Scotland".

The overall level of leakage was 18%, reflecting that the majority of impacts were concentrated in Scotland.

⁴¹ The ready reckoners used are based on established good practice and guidance for BIS

⁴² Please note, the ready reckoners referred to in the report are used as a guide in assessing case by case impacts.

Displacement is the number or proportion of outputs/outcomes that reduce outputs/outcomes elsewhere in the Scotland. These effects can occur in product markets (e.g. amongst non-assisted business competing in the same market) or in factor markets (e.g. in the labour market). Displacement was considered on a **case by case basis**.

First the businesses were asked the proportion of their competitors that were based in Scotland, with a greater concentration of competitors leading to a greater level of displacement. A ready reckoner was applied to calculate the displacement effects:

Displacement Ready Reckoner

	Displacement
None of the businesses I compete with are based in Scotland	0%
A minority of the businesses I compete with are based in Scotland	10%
Around half the businesses I compete with are based in Scotland	25%
The majority of the businesses I compete with are based in Scotland	45%
All the businesses I compete with are based in Scotland	60%

Respondents were then asked how much of their sales were made in Scotland, with higher levels of sales in Scotland indicative of higher levels of displacement. A further ready reckoner was applied with the average of the two taken as the displacement effect.

Displacement Ready Reckoner

	Displacement
None of my sales are in Scotland	0%
A minority of my sales in Scotland	10%
Around half my sales are in Scotland	25%
The majority of my sales are in Scotland	45%
All the my sales in Scotland	60%

Another question was asked to establish the level of growth in the sector in which the business operates. Within growing markets competition is likely to be lower and conversely, within declining markets it is likely to be more intense.

The following adjustment was made to the ready reckoner based upon the level of growth in the market.

Ready Reckoner Growth Adjustment

	Adjustment
Growing strongly	-15%
Growing	-10%
Static	0%
Declining	+10%
Declining strongly	+15%

Overall displacement was 19%, with companies in general reporting few Scottish competitors, high levels of international sales and strong sectoral growth.

Multipliers are further economic activity (e.g. FTE jobs, expenditure or income) associated with additional income to those employed by the project (income multipliers); with local supplier purchases (supplier multipliers) and with longer term development effects (dynamic effects e.g. induced inward migration).

Multiplier data is based on guidance provided by the Scottish Government. Using the reported business sector and description of business activities we determined multipliers for each case.

Table F.3: Multipliers

Sector	Multiplier
Accommodation	1.66
Activities of Membership Organisations	1.82
Architectural and Engineering Activities; Technical Testing and Analysis	1.81
Civil Engineering	2.11
Construction of Buildings	2.11
Electricity, Gas, Steam and Air Conditioning Supply	2.23
Extraction of Crude Petroleum and Natural Gas	1.84
Fishing and Aquaculture	1.72
Libraries, Archives, Museums and Other Cultural Activities	1.70
Manufacture of Basic Pharmaceutical Products and Pharmaceutical Preparations	1.30
Manufacture of Beverages	2.13
Manufacture of Computer, Electronic and Optical Products	1.78
Manufacture of Food Products	2.38
Manufacture of Textiles	1.93
Other Manufacturing	1.57
Other Professional, Scientific and Technical Activities	1.48
Repair and Installation of Machinery and Equipment	1.77
Scientific Research and Development	1.99
Social Work Activities Without Accommodation	1.95
Waste Collection, Treatment and Disposal Activities; Materials Recovery	1.30
Water Transport	2.27

Appendix G: Best Practice in KTPs

This appendix highlights a recent study which sought to identify the key attributes of successful KTPs.

The report '*Key Attributes of Successful Knowledge Transfer Partnerships*' (August 2012)⁴³ was commissioned by Innovate UK and the Research Councils UK. In addition to this report, the main findings were also published in a series of three summary reports by the National Centre for Universities and Business (NCUB)⁴⁴.

Key Attributes of Successful KTPs

The research identified the main barriers faced by both businesses and academics in participating in innovative collaborations.

Table G.1: Barriers to Collaboration

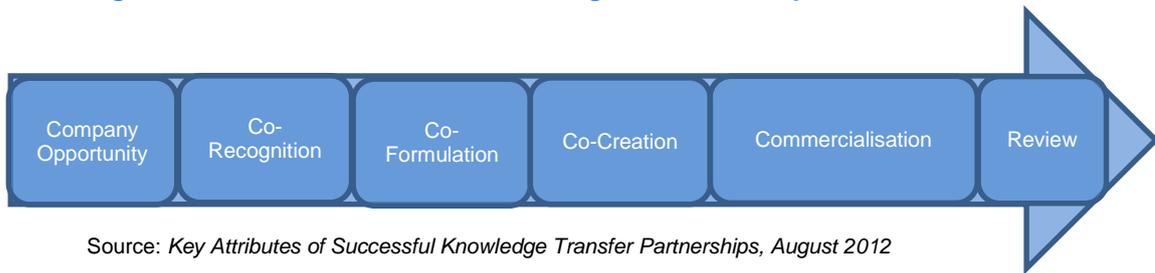
Barriers for Businesses	Barriers for Academics
Academics tend to concentrate on a single discipline whilst business often require cross-disciplinary solutions.	A lack of time to conduct robust research due to the time constraints which businesses face.
Academics are focussed on achieving robust and repeatable results, whilst businesses are able to manage with partial solutions.	Insufficient rewards for collaboration, with the benefits of commercialisation going to the business partner.
The pace of innovation differs, with businesses suffering from much greater time constraints.	Burdensome academic bureaucracy.
University Technology Transfer Offices can create unrealistic expectations of the potential results of collaborative activity.	A lack of experience in dealing with businesses and other external partners.
A lack of shared expectations can lead to a breakdown in trust between partners.	A lack of skills and knowledge in businesses and external partners.

A good practice model was subsequently produced to address barriers to collaboration between industry and academia, and was based on a staged process known as the “Five C’s” (Figure G.1).

⁴³ <http://www.ncub.co.uk/reports/key-attributes-for-successful-knowledge-transfer-partnerships.html>

⁴⁴ <http://www.ncub.co.uk/reports/knowledge-transfer-partnerships-a-best-practice-approach-to-open-innovation.html>; <http://www.ncub.co.uk/reports/best-practice-strategies-for-successful-innovation-through-university-business-collaboration.html>; and <http://www.ncub.co.uk/reports/ktp-report3.html>.

Figure G.1: Process Model for Knowledge Transfer in Open Innovation



Source: *Key Attributes of Successful Knowledge Transfer Partnerships, August 2012*

- **Company Opportunity:** a business realises that there is an opportunity that could be realised if it had access to the relevant expertise and the recognition that a university may be the place to source it;
- **Co-recognition:** a partnership begins to develop between the business and academic as the benefits for both partners are recognised. At this stage a formalised agreement is drawn;
- **Co-formulation:** generic academic expertise is applied to the specifics needs of the business partners through collaborative working;
- **Co-creation:** if the project is successful, at this stage innovative products, processes or services are created;
- **Commercialisation:** the final stage for the business involves taking the new product or service to market or integrating new processes into existing production techniques; and
- **Review:** the final stage for the academic partner is to reflect upon the outcomes of the partnership to identify any potential new research opportunities which arise.

The report went on to emphasise that successful, innovative collaboration relies on two factors:

1. the strength of the relationship between the partners; and
2. the absorptive capacity of the business partner.

The development of a strong trust based relationship is a key factor in the success of any innovative collaboration.

The initial Company Opportunity and Co-recognition phases are crucial stages where the relationship is established, with trust growing through the subsequent stages through regular contact, clear and concise communication, and finding common ground through shared values and experiences.

Table G.2: Successful Partnership Characteristics

A Successful Partnership Exhibits the Following Characteristics	
Benefits all involved.	Partners share a strategic vision, have compatible targets and are equal partners in decision making and responsibility.
Achieves results that could not have been brought about alone.	Emotionally binds the persons involved who achieve a sense of ownership over the project.
Enhances the impact and effectiveness of the project through more efficient use of resources.	Enables the co-creation of an intellectual asset under the partners' control.

The second factor is absorptive capacity. This measures the ability of firms to assimilate new ideas into their existing production methods or processes.

A lack of absorptive capacity arises in two ways:

- a lack of interest or receptiveness to new ideas, resulting in a reluctance to undertake innovative collaborations; and/or
- an inability to make use of innovative technology or ideas once they are developed.

This can result in an otherwise successful partnership failing to produce its desired objectives and impacts. In such cases, there is likely to be resistance to change, a focus on the short-term rather than long-term, poor internal communications, or a lack of experience in process and product innovation.

Adherence to the Five C's model is considered to offer partners involved in a KTP the best chance of having a productive collaboration that achieves the objectives of all involved.