Evaluation of the Technology Transfer Fund (2)

A Report for Advantage West Midlands (AWM)

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1 Executive Summary

Introduction

1.1 The second phase of the Technology Transfer Fund has invested nearly £4m in projects seeking to realise the commercial potential of scientific and technical knowledge in SMEs and other organisations across the West Midlands. The Fund was intended to help overcome various market failures which constrain investment in innovation.

1.2 The core objective of the research was to quantify the impacts generated by the Fund and identify lessons for how future innovation support projects may be delivered. The method comprised a mix of desk based reviews of data and reports, qualitative interviews with public and private sector delivery partners, and an online survey of beneficiary companies. The survey generated 48 responses from a population of 155 companies supported, a sufficient response rate to allow results to be aggregated up.

What We Found

1.3 The overriding message from the evaluation is that TTF2 funded interventions have been effective, helping West Midlands based start-ups and SMEs to grow their business and capitalise on the region's embedded scientific and technical knowledge. A number of key findings are apparent:

- 9 in 10 companies supported by TTF2 are further ahead than they would otherwise have been i.e. TTF2 funded support has accelerated their development. This reinforces the added value of the support that was made available.
- The portfolio approach, whereby the risk of investment was balanced by the potential scale of return, was a positive feature of the Fund.
- The degree of satisfaction with TTF2 support was positive, based on the comments received from companies responding to the survey.

1.4 Given the diversity of SMEs supported and the interventions received, many of which were modest in financial terms, the results are encouraging. They also confirm that the level of grant that was available to companies was appropriate to their needs. Beneficiary companies still contact Alta Innovations Ltd for business support and advice despite the TTF2 fund closing nearly a year ago, reaffirming the success of the Fund.

1.5 The impact on turnover and jobs is significant, with TTF2 investment realising £25.4m of additional (net) turnover and creating 47 additional (net) jobs between 2006-2008. In the absence of the TTF2 programme, the positive trends in business start up and growth would have been much less significant. Substantial persistence effects are also apparent.

1.6 Core value for money is impressive, with the Agency expected to secure a return of £11.10 in GVA for every £1 invested in the scheme. Additionality was higher than in many similar business support schemes. This reinforces the rationale for targeted public sector investment in proof of concept and early stage commercialisation activities.

Implications for Future Practice

1.7 The evaluation has highlighted the effectiveness of TTF2 and there is a need to disseminate the results across partners in the West Midlands, including cluster and sector networks as well as Business Link and other key stakeholders. Going forward, the BSSP Grant for Research and Development product will support similar activities and it is important that the learning from this evaluation is fed in as part of the next phase of access to finance products in the region.

1.8 The key lessons and learning points from the evaluation are:

- Whilst the results varied considerably between participant firms, there was no direct correlation between sector and impact generated. This reinforces the limitations of sectoral targeting.
- The award of the maximum £25,000 grant in the majority of cases appeared somewhat arbitrary. More sophisticated selection criteria are needed to tailor funding more closely to the opportunity being put forward. This will help to minimise deadweight.
- The BDMs played a key role in supporting participant firms through the process, a role which was generally valued. Whilst a team of experienced BDMs is highly desirable, it is important that the balance of ownership remains with the applicant firm. It would be beneficial for the applicant, supported by the BDM, to present the case to the decision making panel.
- The ability to support both capital and revenue costs and activities needs to be retained so as meet the needs of establishing and early stage SMEs. In parallel, clarity on the portfolio approach and selection criteria is needed from the outset, in order to minimise the potential for abortive work being undertaken.
- Effective monitoring is a time consuming and resource intensive process and the TTF2 experience indicates that expectations were not as clear as they needed to be at the outset. It is essential that systems are in place to capture the support provided to companies and beneficiaries fully sign up to monitoring and audit requirements. In some cases, a wider suite of outputs may be required.
- The scale of persistence effects highlights the long term nature of many of the benefits. A more longitudinal approach to tracking the progression and development of beneficiary firms is needed.

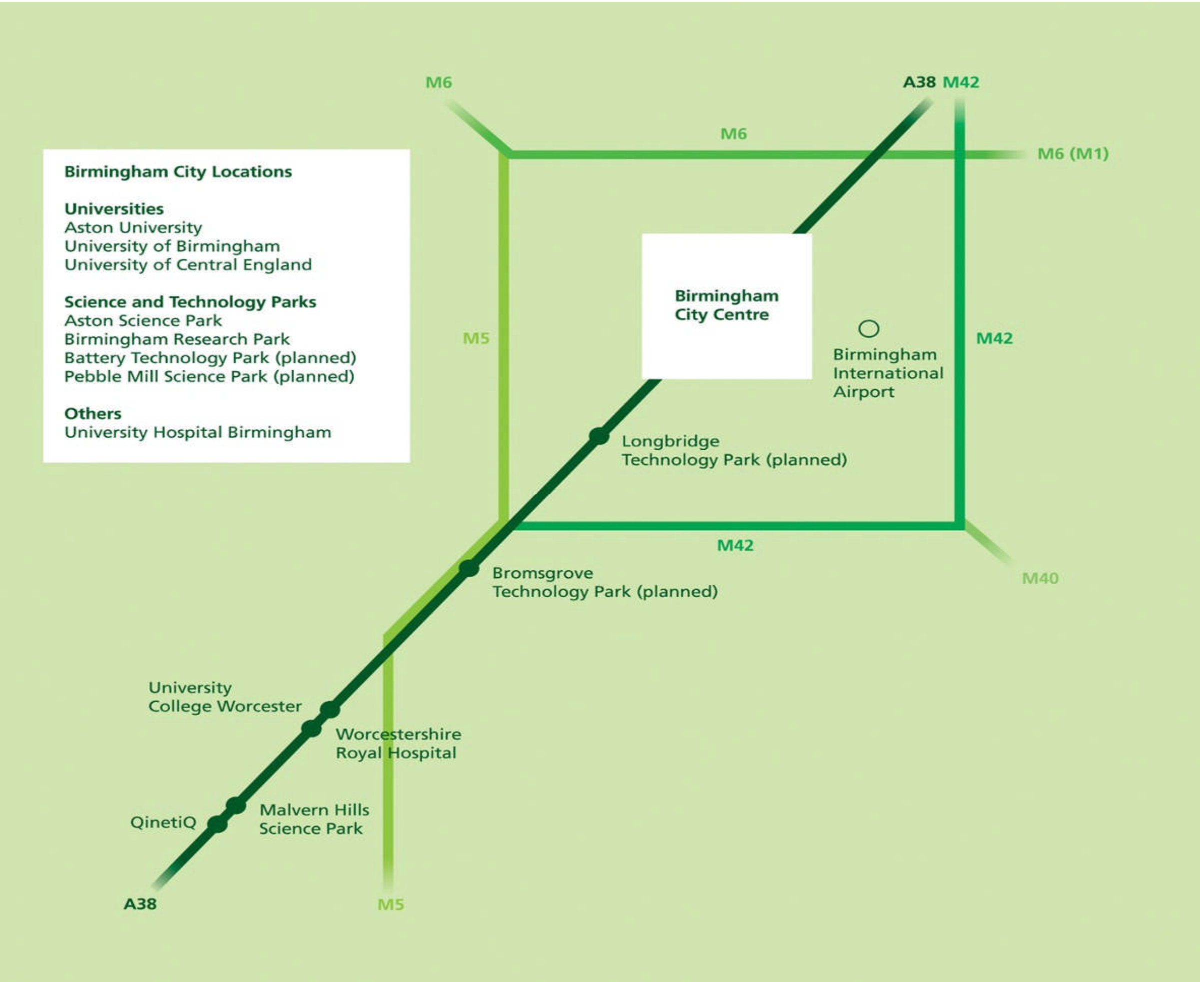
2 Introduction

The Technology Transfer Fund (TTF)

2.1 Advantage West Midlands (AWM) launched the Technology Transfer Fund (referred to as TTF1) in April 2005. The objective of the Fund was to help realise the commercial potential of scientific and technical knowledge held by existing businesses, universities and other research institutions within the Central Technology Belt (CTB), the high technology corridor that follows the A38 from Birmingham to Malvern. The Fund sought to tap into and exploit the burgeoning materials and medical technologies sectors, linked to the Agency's wider investment in clusters.

2.2 The first TTF scheme had a total value of £1.5m (including ERDF). It offered grants of up to £25,000 to start up businesses and existing small and medium sized enterprises (SMEs) in the Medical Technologies and Advanced Materials sectors.

Core locations within the West Midlands Central Technology Belt



2.3 Over 120 companies benefited from the first round of the Fund. Following its success, AWM and other partners (including Birmingham City Council and Worcestershire County Council) launched a second phase (TTF2) in October 2006. The value of TTF2 increased from £1.5m to £3.8m but the sectoral targeting remained unchanged. This evaluation concentrates on the impact and effectiveness of TTF2.

2.4 The definition of the two sectors supported was deliberately kept broad to enable all SMEs within these sectors to apply to the fund. The definition of 'Advanced Materials' included lightweight structural composites, functional materials and coatings, nano-powders and nano-composites, as well as modelling and simulation. The definition of 'Medical Technologies' enabled the fund to embrace medical devices, diagnostic tools, drug discovery and delivery.

2.5 Funding was available for a range of business needs and activities covering a range of commercialisation activities including:

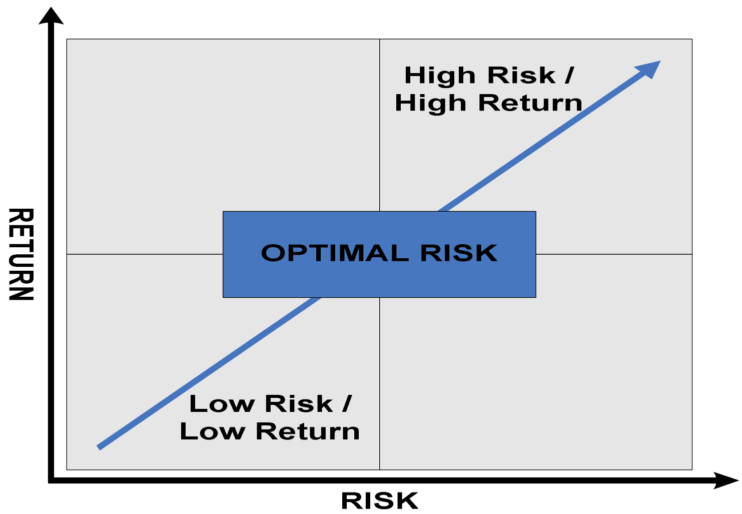
- Concept development / proving;
- Capital equipment purchases;
- Prototyping;
- IP Protection; and
- The development of products & processes.

2.6 The Technology Transfer Fund was intended to help overcome various market failures encountered by many technology based start-ups and established SMEs in the West Midlands. It provided finance to SMEs for product development and other proof of concept-related activities. The Fund was operated on a grant basis, unlike many similar schemes (which have been operated on a loan or part-equity / part-debt basis), and focussed on pro-actively supporting the aspirations of growing businesses in the CTB, reducing risk and enabling opportunities to be fully exploited. It is evident that the Fund has been a key component of the CTB strategy, complementing physical and other investment.

2.7 The broader strategic fit of the Fund is strong. The White Paper, *Innovation Nation*, published in March 2008, sets out the Government's aim to make the UK the best place in the world to run an innovative business. Integral to this aim is the role of the public sector in and stimulating demand for new innovatory products and services. A cross cutting aspect to the strategy is the enhanced focus on boosting 'innovatory capacity', the principles of which are captured in the flexible way that the Fund was set up.

2.8 The Fund also responded to other market failures relating to an insufficient risk versus return ratio. This has meant that commercial finance has often been difficult to secure for many SMEs. The Delivery Team deliberately sought to balance the degree of risk versus the level of reward or outcome achieved. This eventually led to the 'portfolio' approach being adopted, although it should be said that initially there was no overarching investment strategy. This approach appeared sensible.

Conceptualising the Balance of Risk versus Reward



3 Evaluation Objectives and Study Methodology

3.1 Assessing the extent to which TTF2 stayed true to its original objectives and maximised its potential impact lies at the heart of this study. With TTF2 now closed, its role has been taken on by the new region-wide 'Advantage Proof of Concept' fund. This is not to say that the lessons of the Technology Transfer Fund will not be of interest to both policy makers and practitioners seeking to provide innovation funding in the future. As a result, we have ensured that the evaluation is as forward looking as possible, with the recommendations set within the context of the Business Support Simplification Programme (BSSP).

3.2 The study provides a definitive view on the quantitative and qualitative benefits that were achieved by TTF2. The evaluation is fully IEF-compliant, examining the gross and net outcomes and impacts, with value for money (VfM) being assessed against our in-house benchmarks. This approach captures the hidden innovation and longer term effects on business competitiveness as well as the more traditional sales achieved and jobs created.

3.3 The way in which TTF2 was delivered was critical to its success. The study captures how businesses were recruited to apply, the support provided to them and the grant criteria and decision-making processes with which they had to comply. The experiences of beneficiaries are blended with the views of the Delivery Team to inform the conclusions on the added value that was achieved.

3.4 This approach recognises that TTF2 was just one element of the support available to beneficiary firms; the online survey explored how businesses have fared since receiving the support, disentangling the benefits that TTF2 has realised for individual companies.

Methodology

3.5 The research involved three key stages based upon the completion of primary research (a survey of the 155 beneficiary companies) and a consultation programme with a range of stakeholders. The methodology is summarised here:

- A review of the management and delivery arrangements under which the fund was administered and monitored using data supplied by Alta Innovations Ltd.
- Primary research with stakeholders and beneficiaries. This took the form of a series of semi-structured face to face interviews, supplemented by a detailed online beneficiary questionnaire circulated to all 155 beneficiary companies. This approach realised a total of 48 responses which was nearly a third of the total number of beneficiaries.

Report Structure

3.6 The research results and our analysis are set as follows:

- Chapter 4 summarises the wider economic and strategic context within which TTF2 was delivered;
- Chapter 5 sets out the beneficiary characteristics and market conditions;
- Chapter 6 sets the gross and net turnover and employment impacts achieved;
- Chapter 7 considers the wider impacts of TTF2; and
- Our conclusions and recommendations are presented in Chapter 8.

4 Programme Delivery

Programme Management

4.1 Birmingham Research and Development (BRDL) was established in 1986 in response to Birmingham University's need to promote and exploit an expanding portfolio of inventions, knowledge, expertise and patents. The company managed the exploitation of intellectual property and any related spin-off commercial ventures generated through the University.

4.2 BRDL (now Alta Innovations Ltd) successfully bid for the contract to deliver TTF2. A number of issues were identified with the early management of the fund, notably that the person with overall responsibility for its delivery operated a very detached and 'hands off' style of management, which impacted on the early delivery of the Fund. The discovery of serious fraud at BRDL (unrelated to TTF) provided an impetus to review the staffing and management arrangements that had been imposed. In the following restructure Dr. Andy Mountain was appointed to manage the continued delivery of TTF2, replacing Prof. Donald Fitzmaurice[1].

4.3 The experience of managing TTF2 was very intensive, with substantial staff time and other resources required to support applicants and undertake monitoring. In addition, some stakeholders felt the balance of risk could have been shared more equally between AWM and Alta, albeit the approach adopted mirrored that of similar business support projects. Going forward, it will be important that future schemes build in sufficient core management cost/resource in order that the delivery role is attractive to a wide range of organisations

Marketing the Programme

4.4 BRDL/Alta Innovations Ltd hosted two promotional events, the first taking place at Warwickshire Cricket Ground (Edgbaston) in October 2006, with a second taking place at Worcestershire County Cricket Ground in May 2007. Combined with the network of contacts made accessible through the Delivery Team and the success achieved by the first phase of TTF, the events ensured that there was a steady flow of applicants over the lifetime of the programme. There does not appear to have been a strong case for a wider marketing programme, given the focus of the Fund.

The Application Process

4.5 The amount of grant that was available to applicants was debated by the Delivery Team at length, with several people arguing that an increased sum should be made available. A compromise position was eventually reached with £25k being considered an appropriate sum for the majority of companies that TTF was looking to support. Those seeking additional resources were entitled to apply to the fund more than once. Initially, applicants could bid for a lump sum grant of up to £25,000.

4.6 As TTF2 developed, Alta Innovations Ltd introduced a system of milestones which would provide applicants with a set proportion of the total amount awarded. This resulted in not all of the available £25,000 being claimed by each applicant, and the fund actually slightly under-spent during its lifetime. Whilst the benefits of this approach were recognised, future schemes should consider a more tailored approach with the sum awarded being more closely linked to need/opportunity.

4.7 One of the strengths of TTF2 was that it was a solely grant funded programme. Stakeholders were clear that this format enabled the Programme to achieve its objectives and support SMEs and start up businesses. The size of the maximum award was arguably too small for an equity based

[1] It must be stressed that Professor Fitzmaurice was not implicated in the BRDL fraud in any way.

scheme, whereas a pure loan system would also have had implications especially if the loan was performance dependent. These alternatives may have deterred many SMEs from accessing the support. An alternative delivery model would have been to administer the fund on the principles of a Seed Fund but this could only work if the return were based on the achievement of profit or a certain outcome. Again this might deter start up companies from applying, potentially losing some very interesting companies from the Programme.

4.8 The fixed level of the grant meant that no sector was unduly favoured. It was noted that £25,000 was a substantial sum for companies operating within the advanced materials sector, but for those in the medical technologies sector it represented a very small amount. For this reason it may have been beneficial to consider offering a variable sum that was dependent on the type and nature of the project or stage of commercialisation.

4.9 Programme monitoring data indicates that TTF2 received a total of 380 enquiries, with 227 from the Advanced Materials and 153 from the Medical Technologies sectors. This high level of interest translated in 169 applications, of which 155 (i.e. 92%) were successful. Just 14 applications (8%) were rejected, eight from the Advanced Materials and six from the Medical Technologies sector.

4.10 The overall volume of activity in a relatively short space of time is significant and it is apparent that there was a strategic approach overall to the assessment of suitability. Looking back to the start of TTF2, it was apparent that the selection criteria was, however, applied too loosely in a very small number of cases. Whilst this reflected a learning process, it would have been more appropriate to extend the initial timescales for consideration and approval to ensure that all approvals met the objectives of the Fund.

The Delivery Team

4.11 Applicants were assisted by a dedicated Business Development Manager (BDM) employed by BRDL/Alta Innovations Ltd who helped them to prepare the application and who also advocated for the applicant before the Investment Panel.

4.12 BDMs worked with the applicant to gather information to support the application and ensure prospective bidders were eligible to apply. In most instances the BDMs drafted the applications with assistance from the applicant, streamlining the process and ensuring sufficient projects were in the development pipeline. After formal sign off by the applicant, the BDM presented the bid to the Investment Panel.

4.13 The Delivery Team considered whether applicants should prepare and present their own applications to the Investment Panel using a ‘pitching to potential investors’ format. This approach was felt to have a number of limitations: a small number of applicants may have had the necessary knowledge and experience to prepare and present a sufficiently detailed application to the Investment Panel, but many would not. Many applicants would also get too immersed in the technical details of their project, effectively limiting the number of applications that could be considered in each Panel meeting. For these reasons, the BDMs prepared and presented the application to the Panel on behalf of the applicant.

4.14 This approach offered applicants the greatest chance of success, enabling them to benefit from the technical knowledge possessed by the BDMs (particularly regarding the commercialisation of intellectual property, routes to market etc.), and ensured that the applications were of a sufficiently high quality for consideration at the panel meetings. In future, there is merit in our view, in interviewing applicants as part of the assessment process.

The Investment Panel

4.15 The Investment Panel met monthly and comprised a number of voluntary members from the Universities, Business Link, Qinetiq and Aston Science Park and was chaired by AWM.

4.16 The assessment criteria adopted by the Panel were purposefully wide ranging; a rigid approach may have denied the region of some potentially interesting and viable projects[2]. This enabled a broad portfolio of projects to be supported, balancing those which were high risk with potentially high levels of return or benefit with those which would deliver much more modest outcomes.

4.17 The Investment Panel became very effective, but the approval process could have benefited from greater clarity regarding the scope of the sectors to be supported and the overall role of the programme to be provided earlier. In retrospect, a key lesson from the outset would have been to discuss and agree the composition of the target sub sectors and the strategic nature of the Fund.

Monitoring the Programme

4.18 Alta Innovations Ltd managed and prepared all of the necessary data to effectively monitor the fund. Stakeholders reported a number of difficulties in monitoring the performance that had been achieved, particularly in the early stages of the Programme. Getting beneficiaries to assemble the monitoring data was perhaps the most challenging aspect of the project.

4.19 The quality of the monitoring information may have been affected by the restrictions imposed on the outputs that could be claimed by the funders (i.e. a job could not be claimed as an output unless it had lasted for a period of more than 12 months). This may have been resulted in a degree of under-reporting. Monitoring was also affected by the large-scale retro-evidencing process that was necessary following the end of TTF1 and the beginning of TTF2.

4.20 Stakeholders noted that the amount of time and the level of resource required to effectively monitor a funding programme such as TTF2 cannot be under-estimated. The large-scale retrospective gathering of monitoring data at the close of TTF1 and into the early stages of TTF2 was particularly intensive. The lessons learned from this enabled Alta Innovations Ltd to implement effective processes to capture the outputs and outcomes of the Programme with the result that TTF2 was easier to deliver.

Conclusions

4.21 Overall, TTF2 allocated all but £41,000 of the total £3.8m that was available, assisting 155 companies; 12% of these received more than one grant. Feedback gathered through the online beneficiary survey suggests that beneficiaries have not only gained financial support, but have also benefited from wider impacts i.e. the experience and networking opportunities too.

4.22 Lessons learnt through the delivery of TTF1, and the adjustments made as a result of ongoing monitoring enabled the delivery of TTF2 to be more streamlined. Evidence suggests that when problems did arise, they were discussed and overcome swiftly.

4.23 Certain elements of the process could have been improved: the definition of sectors in terms of eligibility and the role that BDMs were required to play within the companies they assisted were two issues that were raised. So whilst TTF2 can be considered to have been successful in terms of the

[2] The rationale for what could and be supported by TTF2 was not clearly established at the outset. As the rationale became more clear, the Portfolio approach began to be established, with the Panel recognising the need to achieve a balance of high risk / high reward projects with low risk / moderate reward projects

outputs achieved, there were areas within the administrative and decision making processes which could have been enhanced.

5 Beneficiary Characteristics and Trends

Introduction

5.1 The business survey collected a wide range of information from a total of 48 companies that had benefited from TTF2 support, representing nearly one-third of all companies in receipt of a grant.

5.2 The majority of companies applied for the maximum level of grant that was available, with just three companies electing to claim in part[3]. Of the 155 successful applications, 149 companies received £25K, four claimed between £10-£20K and two applied for less than £10K.

5.3 Applicants were entitled to submit more than one application to TTF2, although only after any initial grant awarded had been fully defrayed and evidenced. There were 18 companies which received more than one grant.

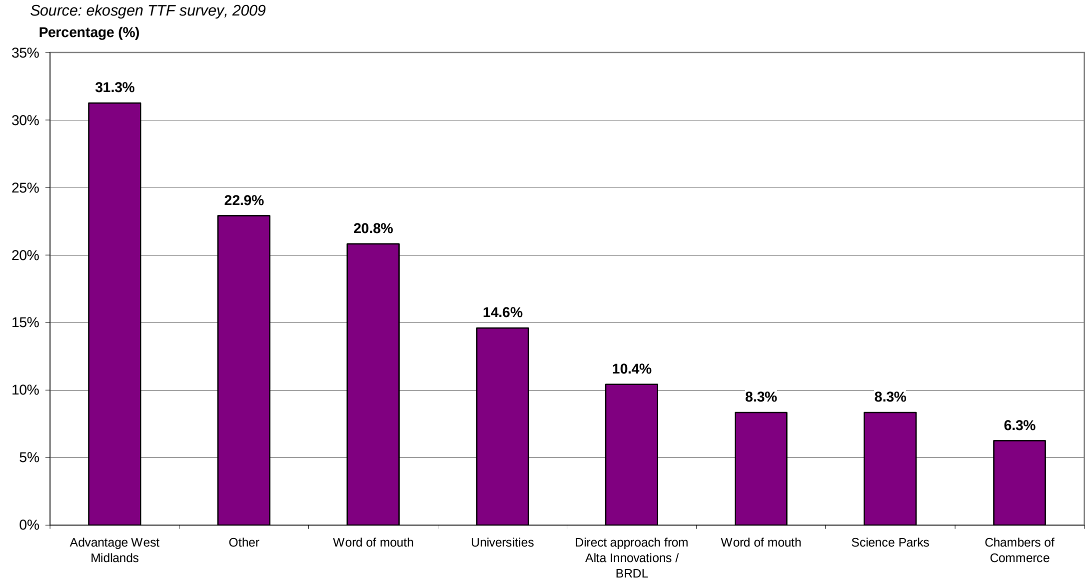
5.4 Data from Alta Innovations Ltd shows that approximately 60% of the companies supported by TTF2 came from the Advanced Materials sector, with 40% drawn from the Medical Technologies sector. This reflects the region's strength in manufacturing. The relatively small number of companies from the Medical Technologies sector reflects its status as an 'emerging sector' within the West Midlands economy. The proportion increased when the focus shifted from bio-technology companies to include medical devices companies, again reflecting the regional strengths.

5.5 The amount of funding granted to companies in both sectors supports the broad split outlined above, with 59% (approximately £2.2m) of the available funding supporting Advanced Technology businesses and the remaining 41% (approximately £1.6m) allocated to Medical Technology companies.

Applications to the Fund

How did you become involved in the Technology Transfer Fund Initiative?

Source: ekosgen TTF survey, 2009



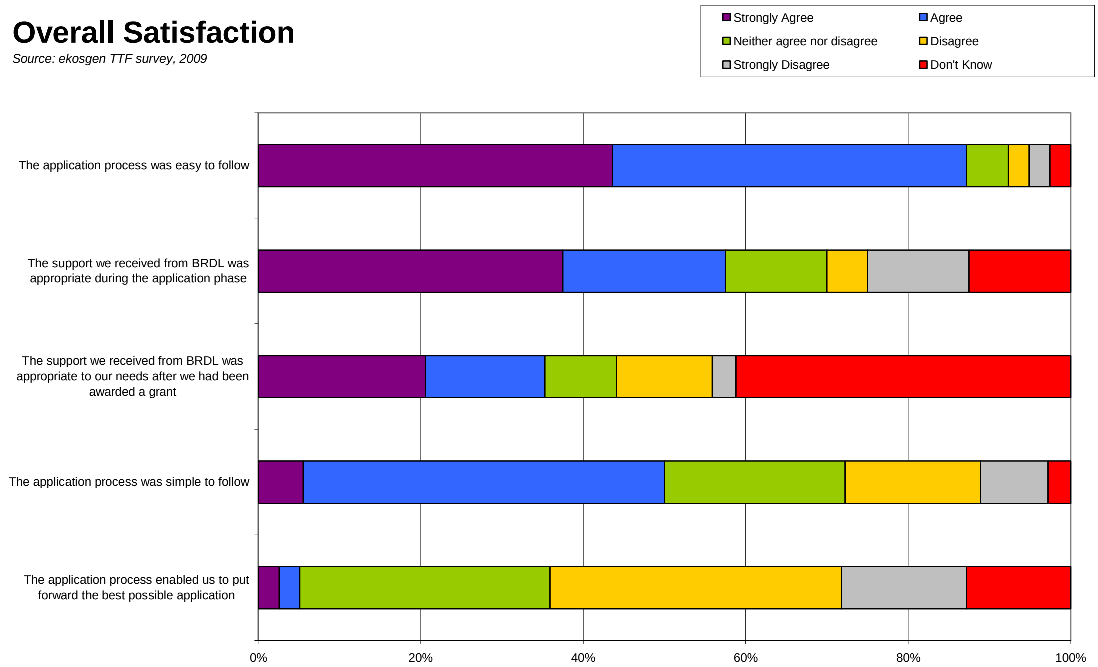
5.6 Nearly a third of all respondents became aware of the fund via AWM; a further 29% of respondents applied to TTF2 following a word of mouth recommendation. The region's Universities

3 The partial claim of awards made resulted in a total of £41,000 of funds not being claimed.

also played a key part in the recruitment processes, a fact reflected in the large number of University spin out companies that applied for TTF2 funds.

5.7 Notably, a direct approach to applicants from Alta Innovations Ltd accounted for only a small proportion of the applications received (just 10.4% / five applications were sourced through this channel). This relatively small proportion raises questions over the effectiveness and scope of the two events at Warwickshire and Worcester Cricket Grounds. Broader marketing may have helped to achieve a more even balance of companies from the target sectors applying to the Fund.

5.8 When asked to reflect on the application experience, the majority of respondents indicated that the process was simple to follow and that the support from BRDL / Alta Innovations Ltd was appropriate to their needs.



5.9 Whilst respondents found the application process easy to follow, just one respondent believed that it "enabled them to put forward the best possible application" (six strongly disagreed with this statement). Grossed up to the full beneficiary cohort this response would mean that just three beneficiaries would strongly agree with the statement whilst 20 beneficiaries would strongly disagree. These findings contradict the reasoning put forward by the BDMs and Investment Panel in support of the application process that was adopted.

Sample Profile

5.10 The table below captures the types of activities that beneficiary companies are engaged in.

Table 1: Areas of Activity

Area of Activity	No.
Medical Devices – design, development and / or manufacture of instruments, apparatus, appliance, software, material or other article for diagnostic and / or therapeutic purposes to be used for human beings.	14
Purpose Designed Materials - includes research and development in advanced materials, photo-voltaics, thermal barriers, specialist coatings, semi-conductors, (nano)powder technologies, plating technologies, smart materials, alternative construction materials and nano-technology.	13
Other Scientific Sectors – services and/or products that apply to other scientific sectors within the West Midlands.	8
Automotive technologies – includes development of new products / processes for the automotive industry e.g. new vehicles, sensors, new casting / forging processes, lighting systems, engine management systems, performance / efficiency improvements, development of new materials.	6
Bioscience – includes biotechnology, genetics, molecular biology, biochemistry, embryology and cell biology. Also includes bioinformatics.	6
Pharmaceuticals – includes medicinal chemistry, development of pharmaceutical drugs and the development of new and existing chemical entities suitable for therapeutic use.	5
Metals processing – development of new processes, alloys, casting processes, applications; reductions in hazardous materials e.g. beryllium used in casting processes.	5
Health Care – includes medical screening, research into disease, infection and its control, tissue engineering, regenerative medicine and biomaterials.	3
i-Health –defined as any service, system or equipment that uses programming (software or firmware) and / or electronics to present health benefits through application, monitoring, prevention, diagnostics or treatment.	3
Computational Science – includes security software development, fingerprint software, biometric control systems, process control monitoring.	3
Assistive Technologies - defined as assistive, adaptive and/or rehabilitative devices for people with disabilities or infirmities.	2
Molecular Technologies – including toxicity testing, diagnostic tools, neural regeneration.	2
Don't know	1

5.11 The degree of targeting of TTF2 resources is impressive, and clearly demonstrates the region's strengths in medical devices and purpose designed advanced materials. Other sectors – including automotive technologies - comprise a significant proportion of the total responses received.

Revenue

5.12 The survey asked respondents to identify whether they or their company was generating revenue from any of the new products that were funded as a direct result of the Technology Transfer Fund.

Table 2: Companies Generating Revenue

	Yes		Not yet but expect to do so in the next 6 months		No	
	No.	**%**	**No.**	**%**	**No.**	**%**
Advanced Materials	2	4	6	12	0	0
Medical technologies	9	18	16	32	9	18
Other science sectors	4	8	2	4	2	4

5.13 31% of the survey sample (equivalent to 48 companies) are generating income **as a direct result** of TTF funding. A further 47% (equivalent to 73 companies) anticipate doing so within the next six months. Just 23% (equivalent to 36 companies) are not generating income as a direct result of TTF.

Establishment Turnover

5.14 Beneficiaries were asked to provide details of the turnover that they achieved in the last financial year.

Table 3: Average Turnover by Business Sector

Sector	Number of Businesses	Average Turnover (£)
Advanced Materials	18	427,643[4]
Medical Technologies	18	122,880
Other	9	38,684
Don't Know	1	0

5.15 When two significantly outlying figures (reported by two companies within the Advanced Materials sector) had been discounted from the analysis, the survey revealed a significant difference between the turnover that was achieved. The average turnover of advanced materials companies was nearly three and a half times greater than that achieved by medical technologies companies. When considering the averages presented above, it should be noted that six medical technologies companies and six advanced materials companies were still in the "pre-revenue" stage which will have had an impact on the analysis.

5.16 The findings confirm the more established nature of the advanced materials sector within the West Midlands economy. They also reflect the relatively weak representation of high value i.e. bio-tech and advanced pharmaceutical companies within the medical technologies sector, with the majority of activity being concentrated on lower value medical devices.

Establishment Employment

5.17 The 48 companies responding to the survey employ 185 full time and 142 part time employees in 2009-10. This equates to 256 FTE[5] employees giving an average number of five FTE employees per company.

[4] The figure presented here excludes two significant outliers of £12m and £29m, both reported by companies operating in the Metals Processing sub-sector; including these companies would bring the total number of Advanced Materials companies to 20.

[5] Part time employment was converted to FTE based on the following ratio: 2 PT jobs = 1 FTE job

Table 4: Sample by FTE Employee Size

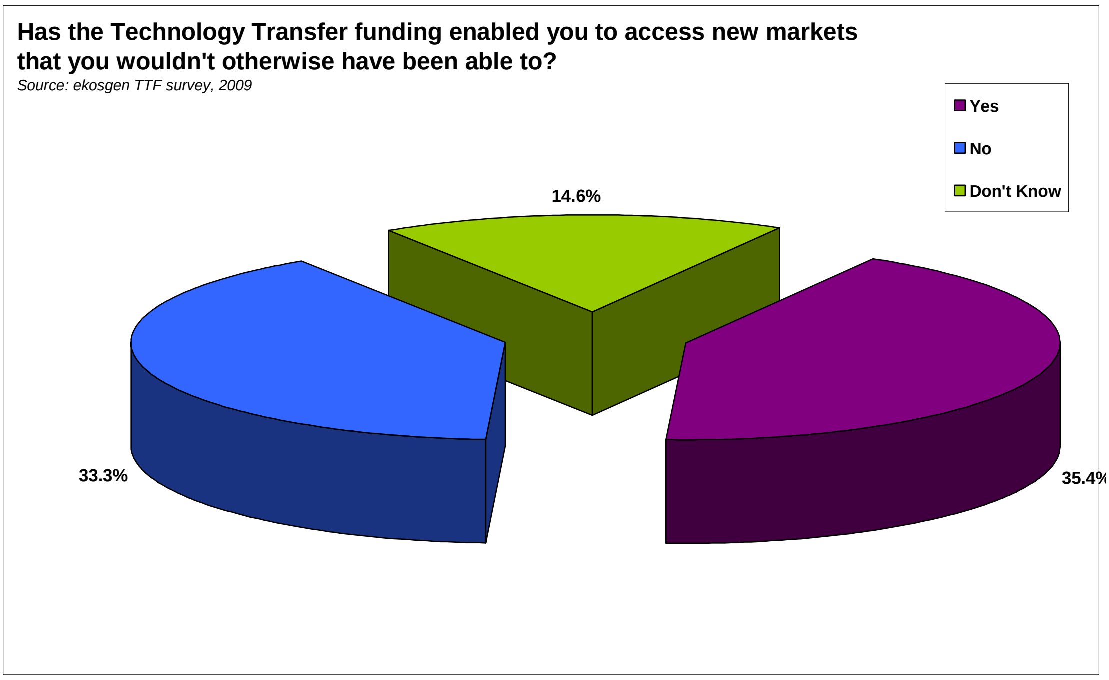
	No.	%
0 employees	5	10
1-4 employees	30	63
5-9 employees	8	17
10-24 employees	2	4
25-49 employees	2	4
50-99 employees	1	2
Total	48	100

5.18 Over 60% of the respondents had fewer than five FTE employees, reflecting the nature of the companies that TTF was designed to support i.e. spin-outs or start-up enterprises. The relatively high proportion of enterprises that reported no employees can be accounted for by those beneficiaries who received a grant to prove a concept but which are not yet trading.

Programme Level Impacts

5.19 The survey has identified that there are strong supplier linkages within the region, with very few of the companies surveyed being supplied from elsewhere in the UK or outside of the UK. There is also limited competition within the region (22 companies stated that fewer than 10% of their competitors are based within the region). Aggregating this to the full number of companies supported shows that 70 companies (45%) of all beneficiaries experience limited competition from within the West Midlands. This would suggest that levels of displacement are low. The degree of net additional GVA (i.e. the total economic benefit that has accrued to the region) is explored fully in Chapter 6.

Entry to New Markets

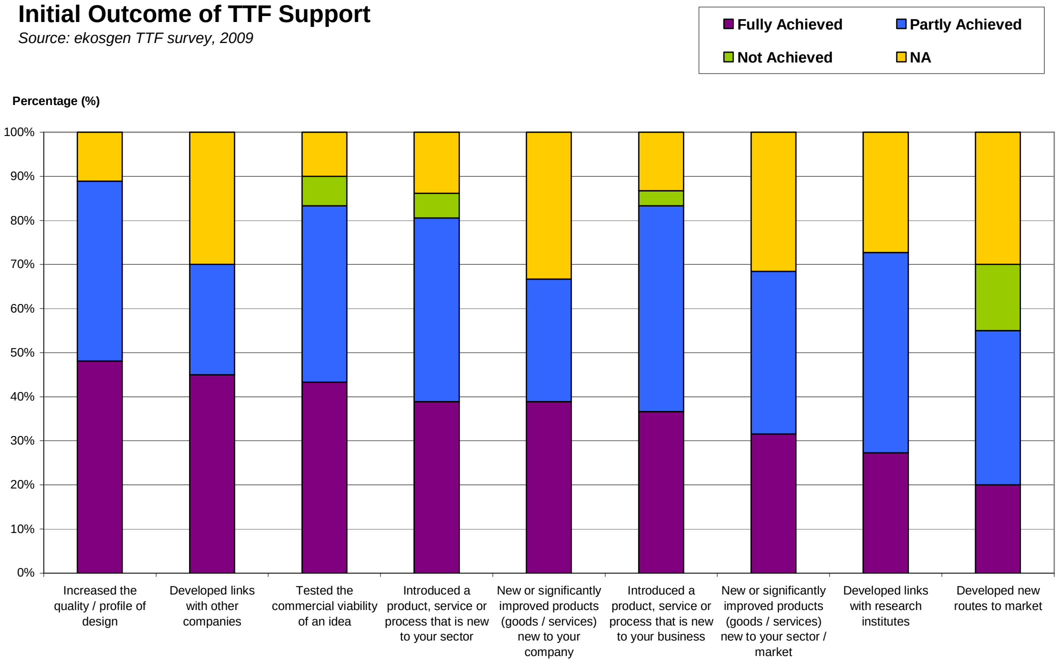


5.20 It is clear from the survey that TTF2 has been a major force in enabling companies to access new markets. Respondents variously stated that *"all developed sales and markets have been reliant on TTF"* and *"[we] would not have been able to access ANY without the support of TTF".*

Initial Outcomes of TTF2 Support

5.21 Beneficiaries were asked to identify the outcomes they hoped to achieve as a result of using TTF2 funds:

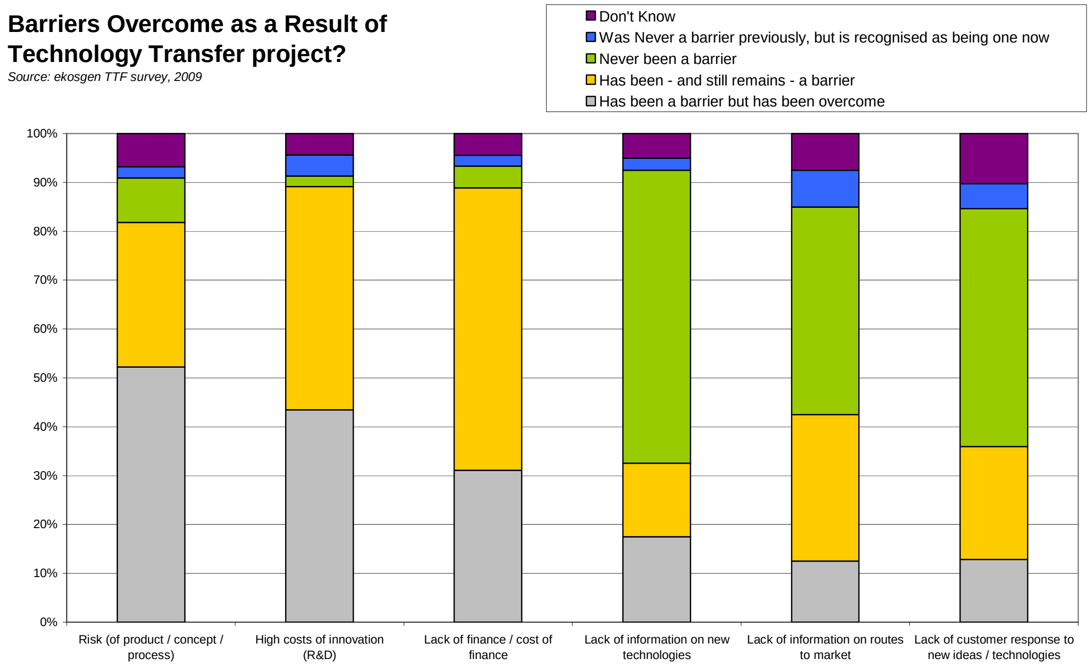
- Over half (55%) sought to introduce a product, service or process that was new to the sector in which they operate;
- nearly half (48%) sought to introduce a products, service or process that was new to their business;
- 33% wanted TTF2 to assist them to test the commercial viability of an idea.



5.22 The most significant impacts were reported in terms of increasing the quality and the profile of a design. Nearly 50% of the respondents stated that they had fully achieved this objective and a further 41% claimed that they had partially achieved it. Testing the commercial viability of an idea or concept and the introduction of products, services or processes that were new to the business were also highlighted as being significant Programme impacts. This reinforces the importance of the Fund in helping businesses overcome the barrier of taking forward untested products and ideas.

5.23 More widely, the Fund has facilitated a stronger culture of risk taking. It is clear that TTF2 enabled beneficiary companies to reduce the aversion to risk, particularly in the development of new ideas and concepts, and overcome the high development phase costs that are associated with innovation. It is evident, however, that for a substantial number of firms, particularly given many are new starts, the perceived and actual costs of innovation remain high. Whilst information and future demand/market appetite remain important considerations, access to finance/cost remains the critical source of market failure.

Barriers Overcome



Conclusions

5.24 The results show that the majority of companies benefiting from TTF2 were in the cohort specifically targeted by AWM i.e. start up companies and SMEs. The effects of the initiative are continuing to be felt, with 31% now generating revenue as a direct result of receiving TTF2 funding, with a further 50% anticipating doing so within the next six months. These are encouraging figures given the time that has elapsed since the Fund closed, and taking account of the economic challenges that have been faced over the past 12 months.

6 Economic Impacts of TTF2 Funded Interventions

Introduction

6.1 The aim of this chapter is to assess the impacts of the TTF2 funded interventions on business turnover and employment in the West Midlands and the CTB. The analysis is based primarily on the results gained from the online business survey.

6.2 The aggregate monitoring data collected by Alta Innovation provides an initial insight into the benefits generated by the Fund. The combined gross employment effect is 66.5 jobs and it is notable that even after the closure of the TTF2 to new applicants, the fund has continued to have an impact on the number of jobs safeguarded into 2008. Conversely, the new sales generated figure of £0.9m significantly understates the income/turnover generated from TTF support and does not correspond with the reported job impacts.

	Jobs Created - both >/< 12 months	New Graduates Employed in Private Sector	Jobs Safeguarded	New sales (£m)
Total 2006-2008	27	3	29.5	£0.922
	100%	**100%**	**100%**	**100%**

6.3 The survey results enable the net impacts of TTF2 to be calculated, taking account of deadweight, displacement, leakage and multipliers. Consideration is also given to the likely future impacts of TTF2 support on beneficiary businesses.

6.4 Data has been grossed up to calculate the net additionality of the Fund over its two year lifetime for the whole population of 155 companies supported. The same process is followed to calculate the impacts of TTF2 interventions on employment in the West Midlands.

Actual Turnover Impacts

6.5 A total of 48 businesses responded to the survey, providing enough data on turnover for detailed analysis. Two significant outlier figures of £29m and £12m were removed from the analysis. Average annual reported turnover (excluding outliers) was £213,699 across all companies and both sectors supported. Turnover ranged from £0 (for businesses that were pre-revenue) to £5m.

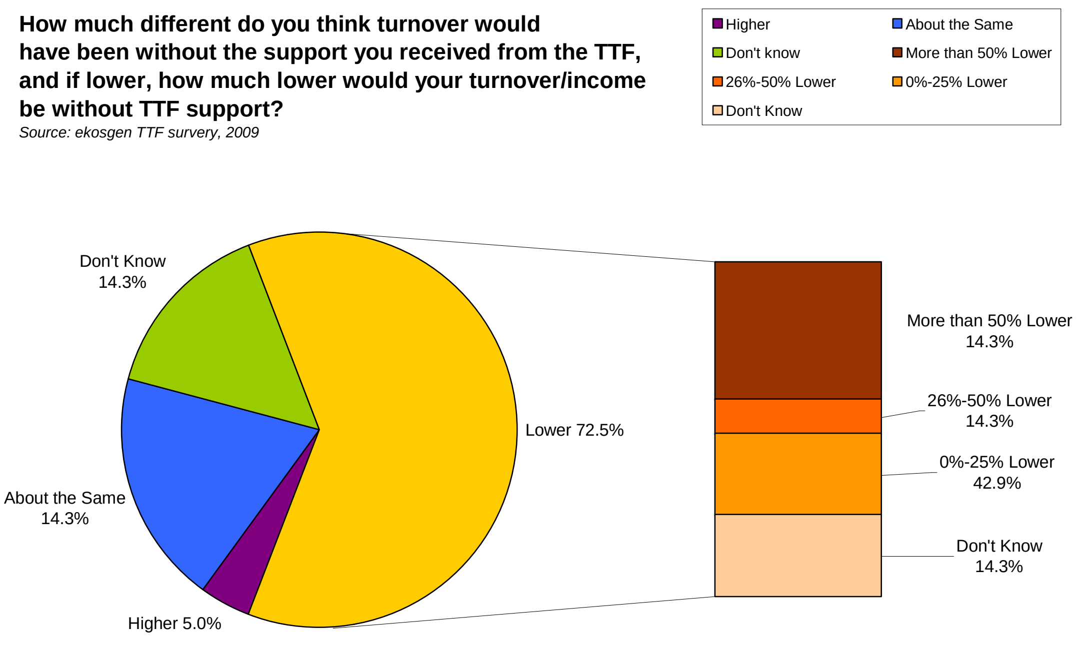
6.6 Companies were asked to identify whether turnover was lower, the same or higher in 2007-08 than it is currently. The results show that a total of 58 companies (gross) i.e. 37% of the total assisted increased turnover between 2007-08 and 2008-09, resulting in an additional £1,233,693 of turnover. This equates to an average increase in turnover of £25,700 per company supported.

6.7 Grossed up, this represents £3,947,817 of additional turnover generated across all companies supported by TTF. Whilst the figure of £25,700 may not appear to be large, it is significant when over 60% of those companies supported by TTF2 have fewer than five FTE employees.

6.8 Beneficiaries were asked to identify how much different they thought their turnover would be without TTF2 support. The results are shown in the figure below:

How much different do you think turnover would have been without the support you received from the TTF, and if lower, how much lower would your turnover/income be without TTF support?

Source: ekosgen TTF survery, 2009



6.9 Of the 48 businesses who responded:

- 22 believed that turnover would have been lower without TTF2 support.
- 9 believed that turnover would have remained the same without TTF2 support
- 7 did not know

6.10 When this was expanded further, 14.3% of those who stated that turnover would have been lower without TTF2 support identified that it would have been at least 50% lower.

6.11 A key factor of the TTF2 support is that for 35% of those companies reporting an increase in turnover, TTF2 support has accelerated the achievement of this figure.

Net Additional Impact

6.12 To calculate the proportion of this additional impact that is net additional, it is necessary to account for three factors:

- ***Displacement:*** a weighted displacement factor was calculated for each business, based on the proportion of that business' competitors that are based in the West Midlands. The displacement factor is positively related to competitors (i.e. the higher the proportion of a business' competitors that are based in the West Midlands, the higher the displacement.
- ***Leakage:*** assumed in this case to be 5%. The survey did not consider in detail the structure of each company sampled and the extent to which turnover/profit is retained within the West Midlands.
- ***Multipliers:*** a composite multiplier of 1.25 has been assumed, based on survey responses and benchmark evidence from elsewhere. The composite multiplier encompasses both indirect (supplier linkages) and induced (income linkages) effects.

The results of this analysis are shown in the table below.

	2006/07	2007/08	2008/09
Total Gross Turnover			10,257,563
Additionality	10,057,308	9,756,985	9,027,636
Displacement	2,985,763	2,896,605	2,680,079
A-D	7,072,000	6,860,380	6,347,557
Leakage	353,600	343,019	317,378
A-D-L	6,718,400	6,517,361	6,030,179
Multiplier	1.25	1.25	1.25
Net Additional Impact	8,398,000	8,146,701	7,537,724
Source: ekosgen Business Beneficiary Survey, December 2008			

6.13 The net additional impact of the TTF2 support is to have created £24.08m of turnover in between 2006/07 -2008/9.

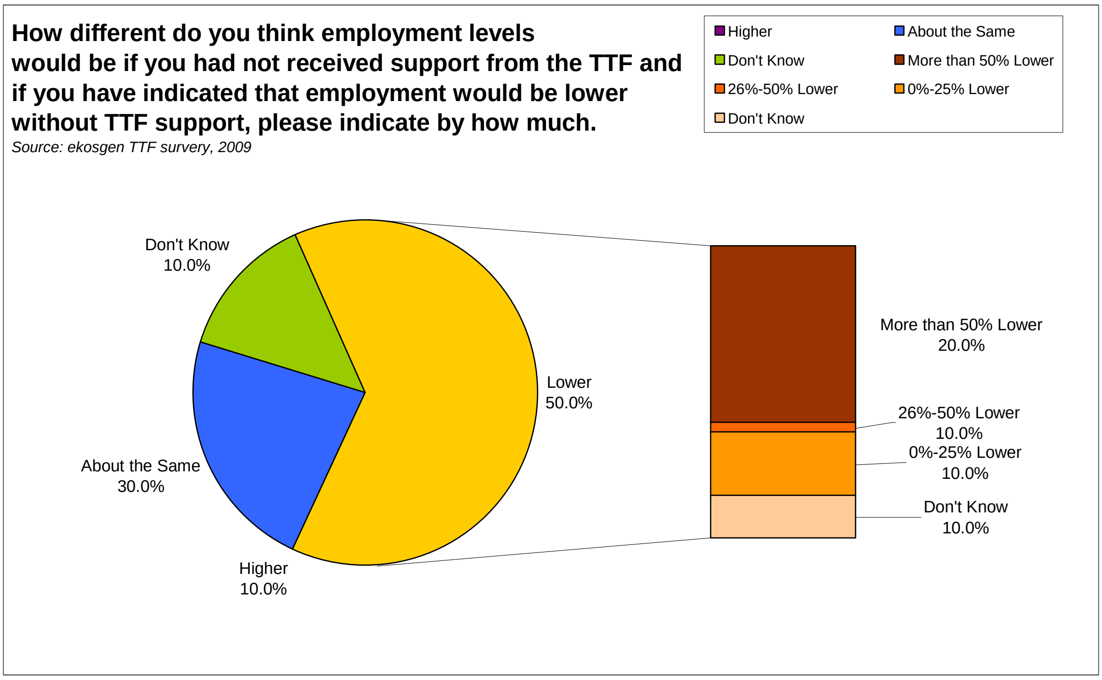
Actual Employment Impacts

6.14 To calculate the proportion of the jobs that are net additional, it is necessary to account for three factors:

- ***Displacement:*** This was calculated on the same basis as for turnover, (i.e. using a weighted displacement factor for each business, based on the proportion of that business' competitors that are based in the West Midlands.
- ***Leakage:*** a leakage factor of 5% was used, reflecting the results of the survey which did not capture the residence of employees.
- ***Multipliers:*** a multiplier of 1.25 has been assumed, based on responses to the survey. The multiplier takes into account both indirect (supplier linkages) and induced (income linkages) effects.

	2007/08	2008/09	2009-10 (present)
	217 (FTE)	310 (FTE)	256 (FTE)
Additionality	19	7	28
Displacement	6	2	8
A-D	13	5	20
Leakage	5%	5%	5%
A-D-L	0.7	0.25	1
Multiplier	1.25	1.25	1.25
Net Additional Impact	15	6	24
Source: ekosgen survey, October 2009			

6.15 Applying the gross to net adjustments amongst the sample, the TTF2 Programme accounted for 45 net jobs between 2006/7 and 2008-9.



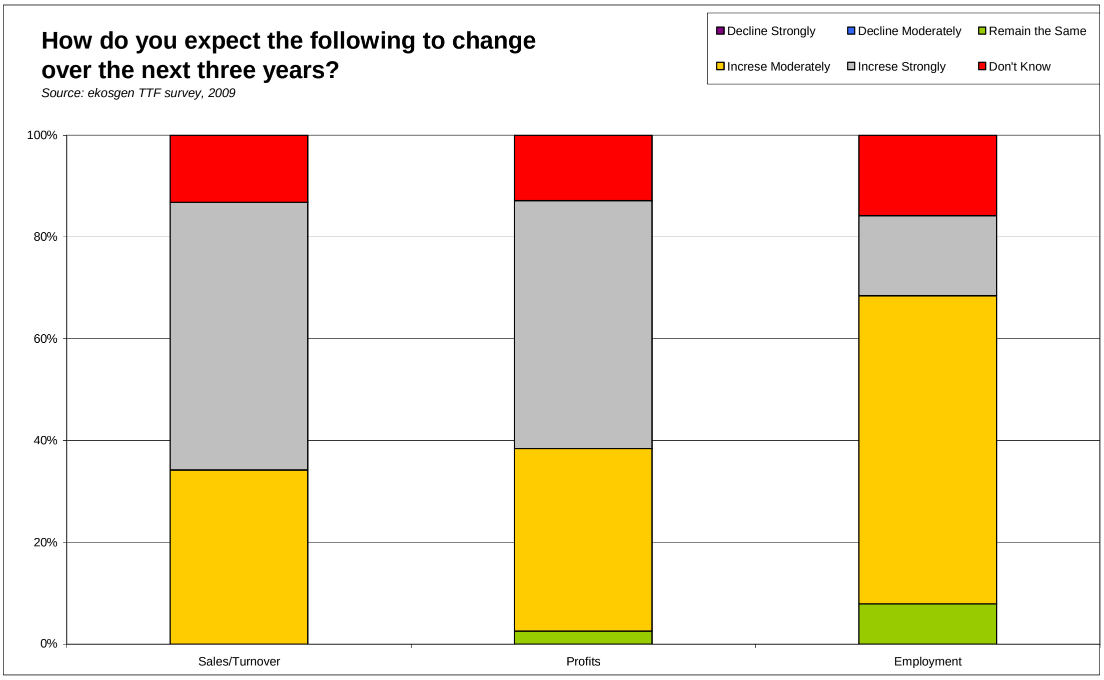
6.16 TTF2 therefore resulted in significant levels of additional employment being created within the region. Of the 48 companies responding to the survey, 24 respondents indicated that employment levels would be lower without them having accessed TTF2 funds, with 20% of these stating that employment levels would be more than 50% lower than they currently are.

6.17 To date, the Fund has directly influenced the creation of 107 FTE jobs across all of those companies supported.

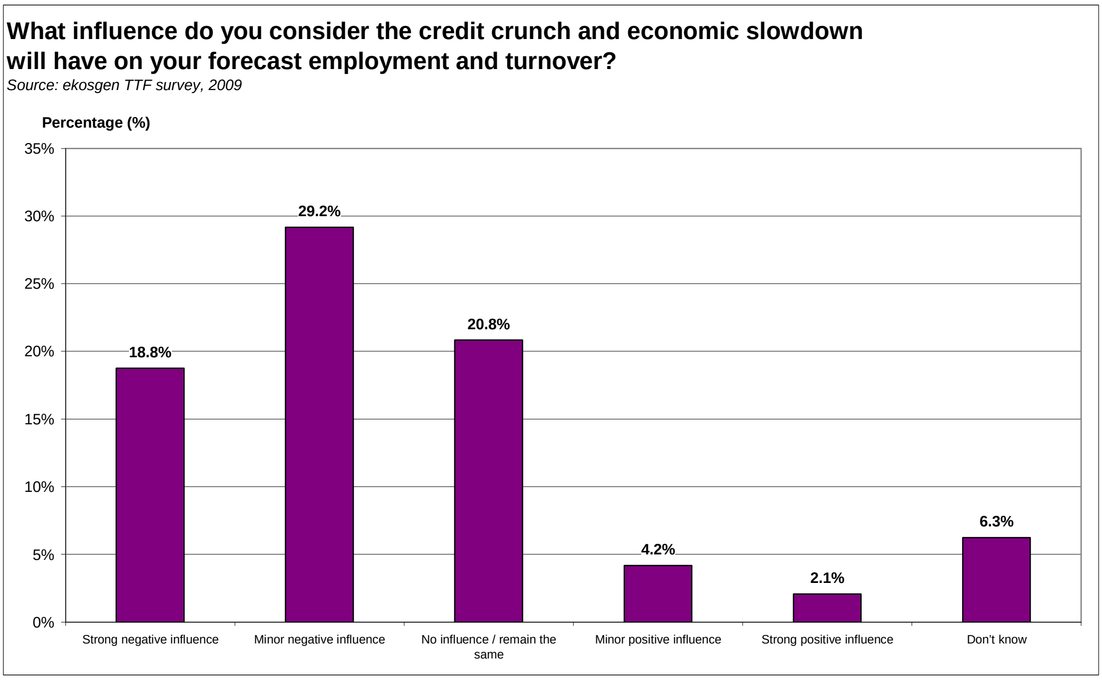
Persistence Effects

6.18 Businesses were asked how they anticipate the effects of TTF2 to persist and evolve over the next three. The results are shown in the figure below. Substantial persistence effects are predicted as a result of TTF2 support. The figures indicate that an aggregated additional turnover of £37.9m is forecast, with an associated uplift in employment levels of 902 jobs.

6.19 The majority of businesses indicated that the benefits would peak within three years, tailing off in subsequent years.



6.20 The survey responses show that sales, turnover and profit are anticipated to experience similar levels of growth over the next three years. Employment levels are only expected to increase moderately over the same period. This is supported by the proportion of respondents for whom the recession will have a negative impact (illustrated below). Nearly 30% will experience a minor negative effect as a result of the recession; a further 19% will experience a strongly negative effect on both turnover and employment.



Conclusions

6.21 The results generated by our research highlight a diversity of impacts, particularly in relation to persistence effects. Some sector differences are evident, in part reflecting the potential contribution which the level of funding would make. On average, stronger and longer lasting impacts have been reported from the advanced materials beneficiaries than the medical technologies firms. The correlations are not, however, significant reinforcing the limitations of a purely sector driven.

6.22 The scale of the persistence effects in comparison to reported impacts highlights the time lag between proof of concept/feasibility and commercial returns. This reinforces the case for longitudinal tracking of firms to examine progression and understand how the platform created by the Fund has enabled them to grow and develop.

7 Wider Impacts and Overall Assessment

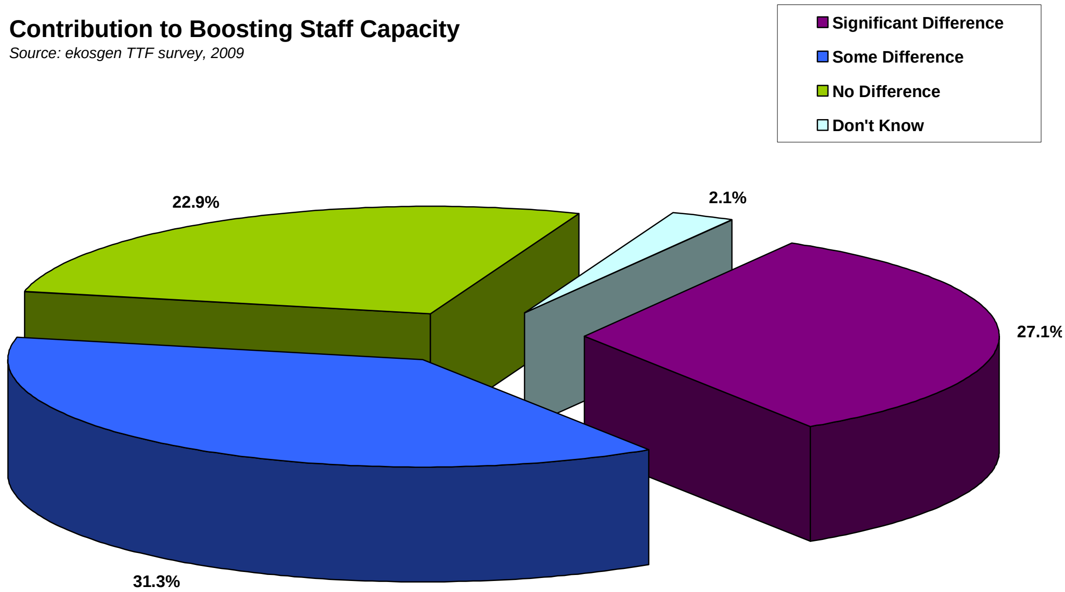
Introduction

7.1 A wide range of impacts will have accrued from TTF2 funded business support interventions that are in addition to turnover and employment change. This section examines the broader influence of TTF2 interventions and considers the overall contribution to boosting business competitiveness in the West Midlands.

Measures of Wider Impact	
Human Resources	▪ Improve higher level skills
Productivity & Competitiveness	▪ Develop, maintain and/or grow a market position
	▪ Understand the needs of your customers and regularly review service provision
	▪ Safeguard sales
	▪ Make links with the local supply chain
	▪ Network and collaborate more extensively and/or collaborate with other firms and organisations on innovation
	▪ Invest time in R&D strategy and invest resources in R&D activities
Innovation & Change	▪ Routinely exploit new ideas and/or develop a culture of innovation
	▪ Undertake novel combinations of existing technologies / processes and/or improve performance from new-to-the-firm practices
	▪ Apply processes, materials and expertise developed in other sectors
	▪ Try new organisational forms or business models
Industrialisation & Corporate Social Responsibility (CSR)	▪ Improve environmental performance ▪ Invest more in new technologies

Wider Impacts and Effects – Staff Capacity

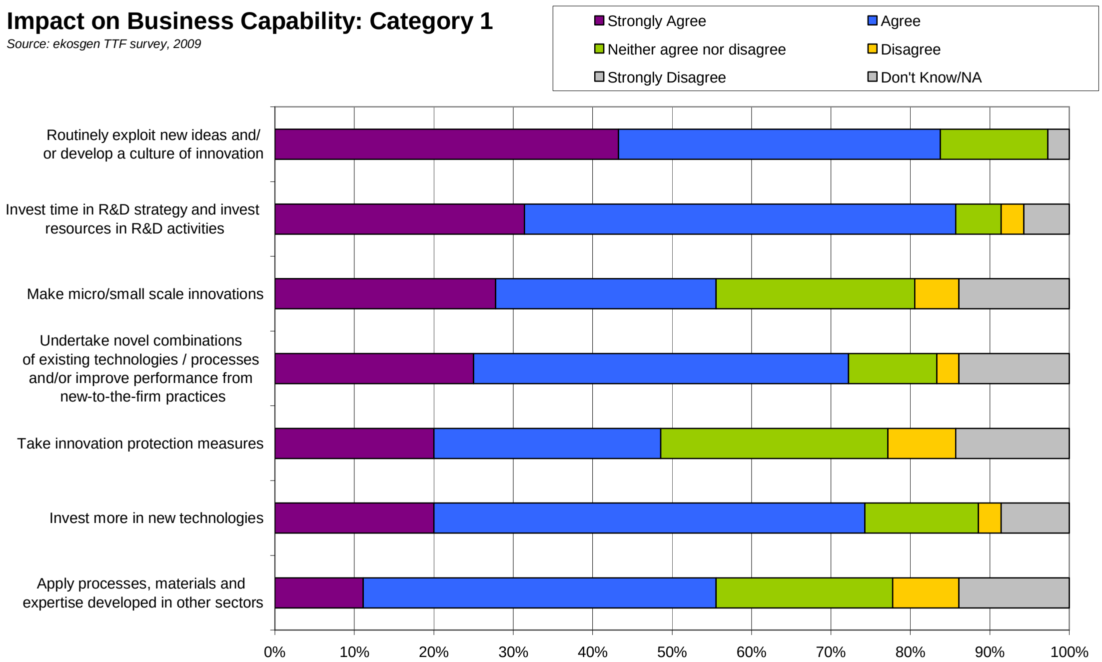
7.2 In addition to the economic benefits that were delivered by TTF2, beneficiaries were asked to identify any additional effects and benefits that had accrued to their company which could be directly attributed to TTF2.



7.3 The impact of the £25k grant was significant in terms of boosting the capacity of staff. 27% of respondents observed a significant difference to their staff capacity, with a further 31% identifying that TTF2 had made some difference. The figures would suggest that nearly half of all those companies that benefited from TTF2 had their capacity boosted.

Impact on Business Capability

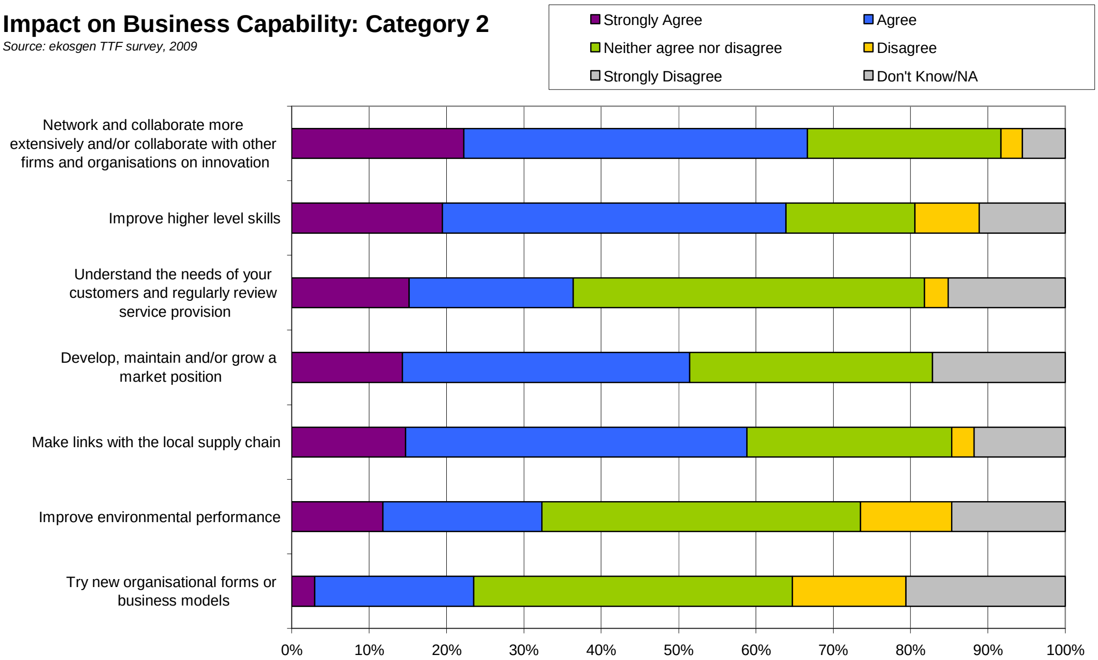
7.4 Boosting staff capacity is one element of the benefits businesses realised. Other impacts on the business capability were also identified. The following two tables capture the responses that were identified.



7.5 The greatest impacts that were identified concern the routine exploitation of new ideas, the development of an innovation culture, and the investment of time in developing R&D strategies and activities. Investment in new technologies was another area where TTF2 achieved very positive results, with 40% of respondents agreeing that TTF2 had helped them to invest more in new technologies.

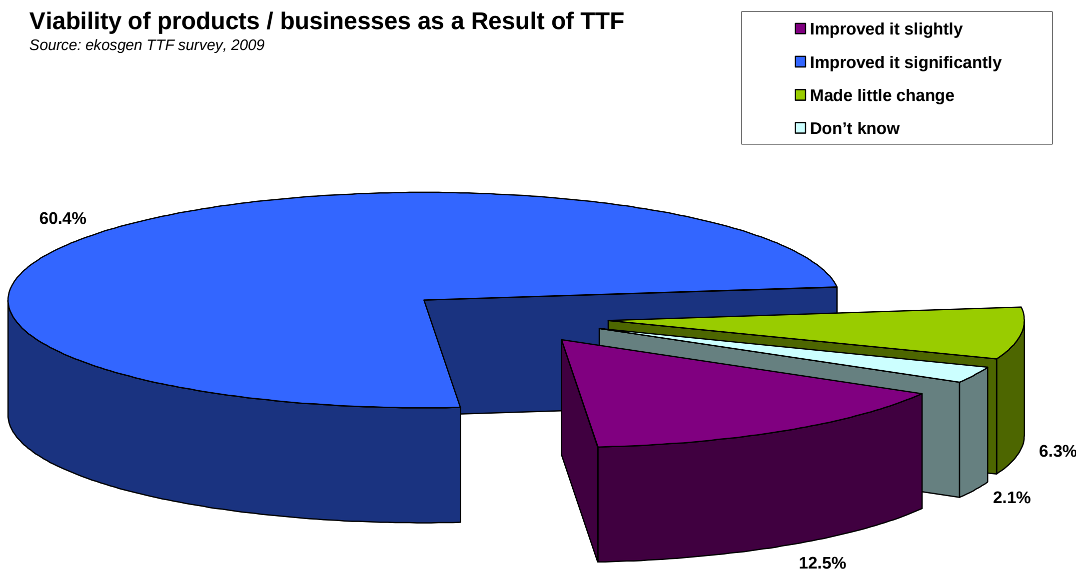
Impact on Business Capability: Category 2

Source: ekosgen TTF survey, 2009



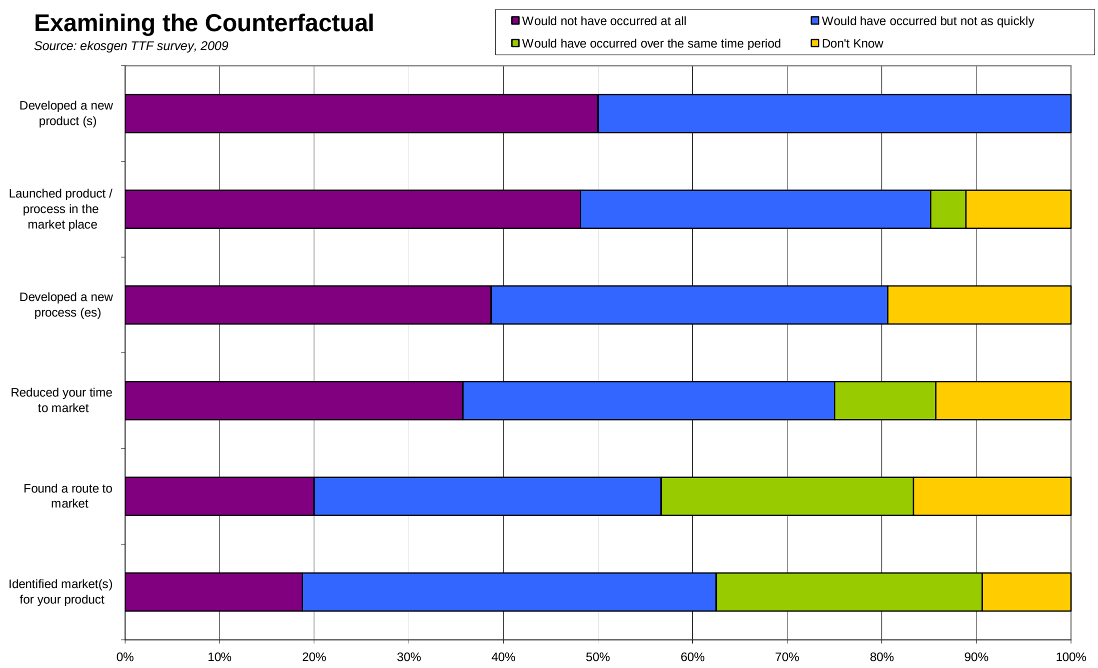
7.6 Improved networking, better skill levels within the workforce and more extensive links with the local supply chain were also influenced by TTF2. The fund achieved least impact in encouraging organisations to try new organisational forms or business models. This study has helped to confirm that many subtle effects of the investment are apparent, and its impact goes beyond the traditional employment and return on investment criteria.

Product Viability



7.7 TTF2 directly helped to improve the viability of products and businesses. 61% of the sample, (95 companies of the total supported) experienced a significant improvement in the viability of their product or business. Just 6.3% of the sample i.e.10 beneficiaries stated that it made little change to their product or business. The degree of improvement, especially in the viability of the businesses supported, is positive in the current economy.

The Counterfactual Position

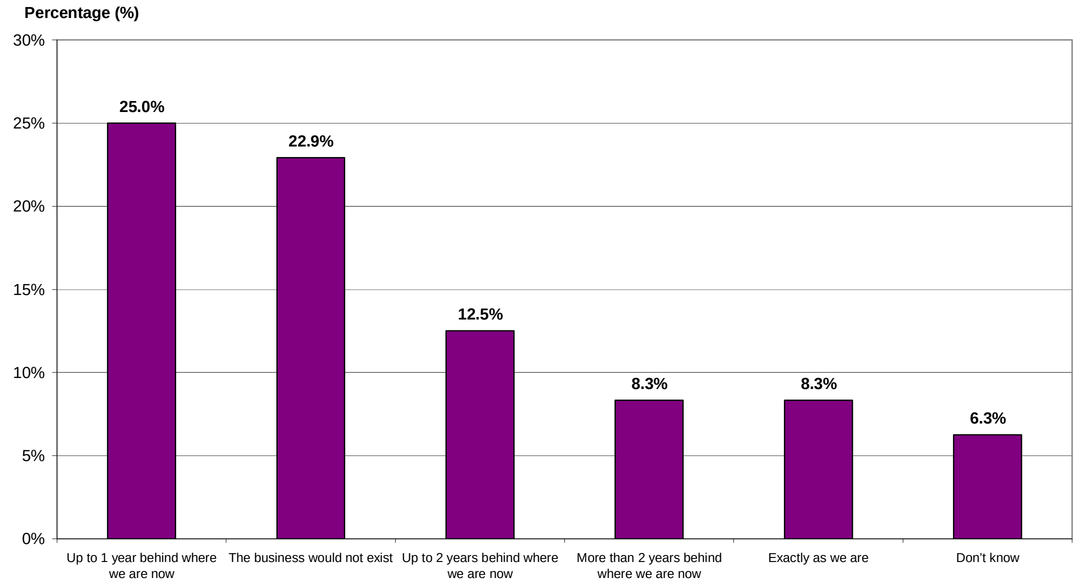


7.8 Perhaps the most significant response captured in the diagram above is that showing that 50% of respondents (i.e. 78 companies in total) would not have been able to develop a new product without the support of TTF2. The same proportion indicated that whilst the development of a new product would have occurred, it would not have occurred as quickly.

7.9 This indicates that the TTF2 initiative has achieved very high levels of additionality; higher than is typically achieved elsewhere. In two recent ekosgen evaluations, one in Merseyside and one in Scotland, non-additionality levels of 55% and 59% were reported.

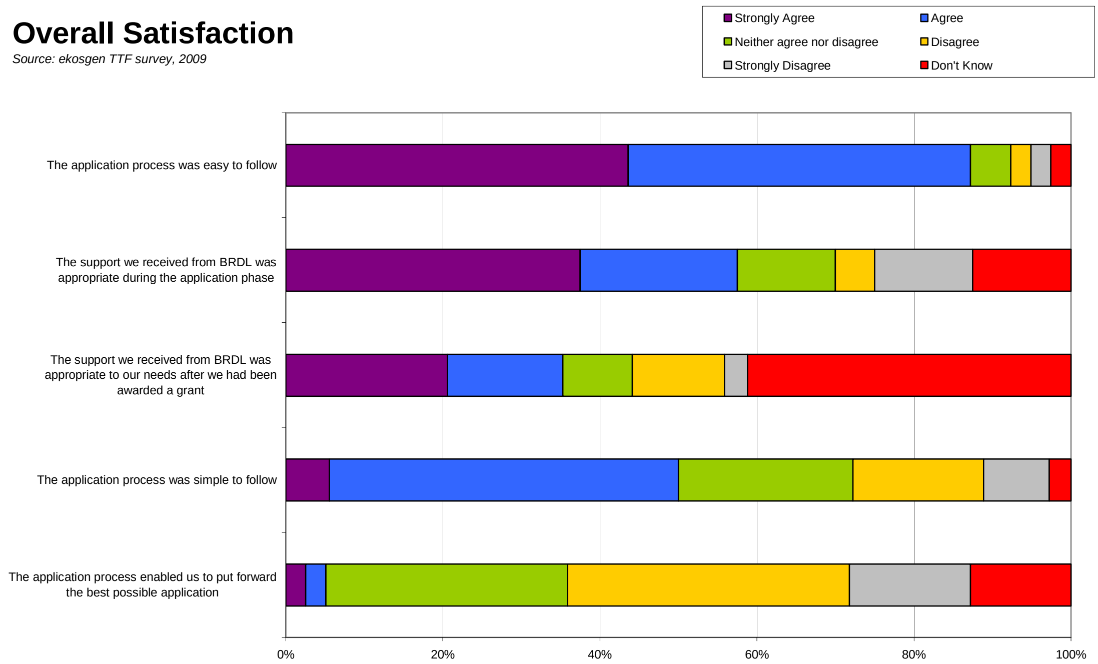
Overall Effect on Business Performance

Overall Effect of TTF on Business Performance
Source: ekosgen TTF survey, 2009



7.10 The overall effect of TTF2 has been to accelerate the development of the majority of beneficiary companies. Nine in ten companies that responded to the survey stated that they are further ahead than they would otherwise have been without TTF support. In other words, TTF has accelerated their development.

Overall Satisfaction



7.11 Survey respondents were positive when asked to gauge their level of overall satisfaction. Beneficiaries were very satisfied with the ease of application, the support offered by BRDL during the application phase and the support from BRDL after the grant had been awarded.

7.12 When asked to expand on their experience, several core messages were able to be identified, a selection of which are presented below:

- "Without the assistance of the TTF this company would not have been able to progress as far as it did";
- "100% funding was appreciated".

Access to Other Business Support

7.13 At the end of the survey beneficiaries were asked whether they wished to add in any additional commentary about TTF2. Many identified that without TTF2 support, they would not have been able to progress with the development of their products or the launching of their businesses. Statements such as *"Such funds are invaluable to self funded small start ups and SMEs…without funding at crucial times we would not have been able to continue"* were commonplace.

8 Conclusions and Recommendations

Introduction

8.1 The preceding chapters have presented a wealth of information on the impact of TTF2. This chapter draws together the evidence and results to present some conclusions on the TTF2 programme, before going on to highlight implications for future innovation support schemes, including Advantage Proof of Concept.

What We Found

8.2 The principal objective of the Technology Transfer Fund was to realise the commercial potential of scientific and technical knowledge held by businesses, universities and other research institutions in the West Midlands. In doing so, it sought to overcome a number of market failures, including risk aversion relating to investment in feasibility, exploratory and related activities.

8.3 The primary conclusion of the evaluation is that the core objectives of the Fund have been met. Significant gross and net economic benefits have been achieved/forecast, including:

- Total net additional turnover of £24.1m; and
- Total net additional employment of 45 jobs created.

8.4 Core value for money is impressive, with the Agency expected to secure a return of £11.10 in GVA for every £1 invested in the scheme. Additionality was higher than in many similar business support schemes. This reinforces the rationale for targeted public sector investment in proof of concept and early stage commercialisation activities.

8.5 The delivery model was broadly effective. A portfolio approach which balanced risk/potential return and a streamlined application process were two very positive features. Whilst some problems were experienced, latterly the processes worked well with the support provided by the BDMs being highlighted by beneficiaries as a particularly positive feature. With only a small number of exceptions, the work of the BDMs combined with the Appraisal Panel appears to have been effective in testing the quality of proposals and in ensuring that only those which met the selection criteria were awarded funding.

8.6 The award of grants enabled monies to be deployed flexibly. Given the bulk of beneficiaries were new starts and/or involved in the early stages of commercialisation, a grant and loan mix or other financial product would have limited the scope for participation. In doing so, it would have, in some cases, had an adverse effect on the ability of beneficiaries to secure other sources of finance. It would have been appropriate, however, to vary the grant sum that was awarded in order to more closely link funding to the scale of the opportunity/need.

8.7 As well as delivering substantial quantified economic benefits, TTF2 made an important contribution to fostering an innovation culture, encouraging new partnerships and different ways of working. Significant catalytic effects are evident in embedding innovation practice across participating businesses. The cumulative effect is that the Fund has enabled the vast majority of participants to accelerate their growth and exploit opportunities which otherwise would have happened in a much more piecemeal or ad-hoc manner.

8.8 A strong contribution is evident to CTB objectives and wider innovation policy. The results highlighted the role of the Fund in boosting innovatory capacity and encouraging participants to take a more proactive approach to using innovation as a tool to develop all aspects of their organisation.

The start up/micro characteristics of many of the participants mean that substantial clustering effects are likely in the future.

8.9 The cost of and access to finance remains the key barrier to business investment in innovation, based on the TTF experience. Whilst information deficiencies remain a constraint in many cases, the results of this evaluation reinforce the role for the public sector in financially supporting investment in innovation.

Implications for Future Practice

8.10 The evaluation has highlighted the effectiveness of TTF2 and there is a need to disseminate the results across partners in the West Midlands, including cluster and sector networks as well as Business Link and other key stakeholders. Going forward, the BSSP Grant for Research and Development product will support similar activities, and it is important that the lessons learned from this evaluation are fed in as part of the next phase of access to finance products in the region.

8.11 The key lessons and learning points from the evaluation are:

- Whilst the results varied considerably between participant firms, there was no direct correlation between sector and impact generated. This reinforces the limitations of sectoral targeting.
- The award of the maximum £25,000 grant in the majority of cases appeared somewhat arbitrary. More sophisticated selection criteria is needed to tailor funding more closely to the opportunity being put forward. This will help to minimise deadweight.
- The BDMs played a key role in supporting participant firms through the process, a role which was generally valued. Whilst a team of experienced BDMs is highly desirable, it is important that the balance of ownership remains with the applicant firm. It would be beneficial for the applicant, supported by the BDM, to present the case to the decision making panel.
- The ability to support both capital and revenue costs and activities needs to be retained so as meet the needs of establishing and early stage SMEs. In parallel, clarity on the portfolio approach and selection criteria is needed from the outset, in order to minimise the potential for abortive work being undertaken.
- Effective monitoring is a time consuming and resource intensive process and the TTF2 experience indicates that expectations were not as clear as they needed to be at the outset. It is essential that systems are in place to capture the support provided to companies and beneficiaries fully sign up to monitoring and audit requirements. In some cases, a wider suite of outputs may be required.
- The scale of persistence effects highlights the long term nature of many of the benefits. A more longitudinal approach to tracking the progression and development of beneficiary firms is needed.