EXECUTIVE SUMMARY

- Programme: May 2009 – March 2010:
  
  - With 20 technology-based businesses ranging from 2-45 employees;
  - The majority of businesses had limited amounts of turnover from international trade;
  - Companies wanted to participate in the programme to reduce knowledge gaps (50%), resource gaps (19%) or a mix of these (31%).

- Finance was a major barrier to R+D internationalisation with 40% agreeing the funding for overseas knowledge exchange was the most useful aspect.

- Most participants’ stated approaches to partnership were clarified and they felt better able to engage in favourable and practicable partnerships. Participants engaged in discussion or completed partnership deals during the programme.

- A key benefit was a better understanding of how to approach and plan international activities:
  
  - Need to select the right (geographical) market rather than that which appears most lucrative;
  - Clearer understanding of the burden on resources through international activity, particularly in terms of feasibility. Need to take interim steps to grow business and develop resources;
  - Need to balance opportunity with realistic understanding of specific constraints, barriers and level of investment available;
  - Rebalanced understanding of benefits and unlikely to lead to an instant increase in revenue; but a crucial step in growth which must be carefully planned to succeed.

- Key benefits:
  
  - Provided knowledge and built skills and capabilities;
  - Provided flexible resources to explore specific opportunities;
  - Provided space for reflection, discussion and opportunity to seek advice on specific aspects of R+D internationalisation, or specific problems/applications;
  - Catalysed internationalism by increasing confidence, providing practical tools, reducing risks of initiating exploratory activities and improving ability to win funding.

- 73% of participants had expectations fully met or exceeded:
  
  - 56% gained a tangible output (e.g. market assessment);
  - 44% gained intangible benefits (e.g. increased personal momentum or enhanced strategy).

- All participants felt the programme was generally suitable and that most material/support was applicable to their businesses.
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1. Context

Summary
This report details perceptions on the impact of the Advancing R&D Investments in the North West programme which ran between May 2009 - March 2010. The findings are based on semi-structured interviews with programme participants and gives information on programme activities, differences between participant expectations and experiences. The report also provides measures of success and learning outcomes which will shape future support.

Project background
UKTI North West and DSIC successfully bid to run a project encouraging international R&D collaborations amongst a group of 20 North West high-tech small firms. The aim was to assist companies to capitalise on their R&D investment through implementation of an internationalisation plan focused on R&D collaborations or Technology Development Agreements (TDA) with international partners or customers. By demonstrating the advantages of commercialising existing R&D companies will recognise the importance of further R&D investment and the positive effect on individual businesses as well as the regional economy.

Aims
- Determine the R&D internationalisation needs of participant companies;
- Provide targeted and tangible support through a combination of interactive group sessions and individual support (including a variety of grants for bespoke external expertise);
- Improve the level of R&D investment and progress the level of collaborative international activities;
- Enable companies to learn “best-practise” methods for international R&D activities.

2. Participants
Size, business lifecycle stage and wider context of the companies varied widely, although all were North West high-tech small firms. The section pertains mainly to information from the start of the programme.

Business sector
Participant companies belonged to a range of sectors. Figure 1 categorises the 20 firms in terms of their core product or business activity. A number of companies apply services or core technology to other priority sectors.

Figure 1. Business sectors of the 20 programme participants

The majority of participants (45%) belonged to the advanced engineering sector, reflecting the high-tech nature of companies supported through the programme. Within this area, however, there was further diversity with businesses varying from scientific instrumentation to energy storage solutions. All participants had technology-based offerings which required engagement in R&D activities. Products ranged from cable manufacturing to a weatherproof box to protect outdoor lighting equipment.
International experience
Participating companies also ranged widely in terms of phase of the business cycle and relevant experience of both R&D and international trade of the company and of individuals attending the sessions.

Business stage
A number of companies were at the start-up stage at the project outset. Roughly a third were pre-revenue and therefore primarily conducting R&D activities as they were not yet actively selling. A further four companies (20%) were at an early revenue generating phase, with turnover between £35,000 and £130,000. Some of these participants had experienced difficulties in exiting the development phase while others were beginning to have some commercial success following entry into the domestic market.

The remaining companies (50%) were more established with the highest turnover being more than £5 million per annum. However, two companies (10%) did not have any international sales. In summary, 60% of participants were micro businesses and the rest small businesses. The oldest company had been established for more than ten years.

Experience level of participants
The majority (60%) generated some revenue from export sales although the proportion of turnover varied from 2% to 95% (Figure 2). For the majority of companies international trade generated a relatively small proportion of turnover. In contrast, for three participants, international activity represented an overwhelming majority of revenue. Typically, those with a high proportion were operating in intrinsically global marketplaces. Those with lower proportions had in many cases yet to identify key markets.

A number of participants had considerable international business experience or an intimate knowledge of a specific high-tech sector. This did not correlate with business stage or financial measures as many participants were using personal experience for new ventures. Although many had considerable technical experience this did not lead directly to the ability to commercialise a particular concept.

![Figure 2. Turnover generated by export sales for 12 companies trading internationally.](image)

3. Results of post-project review
This section outlines the results generated from a post-project review to assess participant satisfaction with the scheme and the impact on the R&D internationalisation activities of the companies.

Data collection
Data were collected by telephone interviews which took place during October 2010, and gauged satisfaction with programme content and delivery. (See appendix B for a full list of questions). Two companies were no longer trading and were excluded from the analysis. Both were pre-revenue advanced engineering companies
closed due to lack of progress during recent difficult economic conditions. Of the 18 surviving companies, 16 were interviewed. Neither of the others could be contacted via phone or email during the data collection period (see Appendix C for further details of data collection).

**Participant feedback**

Nearly a third of participants were new to UKTI and only two had no plans to continue the relationship.

**Reasons for participating**

As indicated in Figure 3, participants gave a variety of reasons for joining the programme.

![Figure 3. Reasons for joining the programme](image)

**Knowledge and resource**

The main topics on which participants wanted information included Intellectual Property and managing overseas relationships. There was a split between those wanting specific information to enhance current activities and those requiring generic information to develop strategic plans. Those stating funding as the major reason typically had use for a number of different grant mechanisms. Those interested in funding were split between pre-revenue companies needing to reach the commercial phase and well-established companies hoping to exploit a market opportunity. The major advantage of additional funds was the addition of a dedicated resource and expertise to internationalisation without diverting resources from revenue generating activities.

**Strategy**

Tailoring a business or internationalisation strategy to a specific opportunity was another reason for joining the programme. In some cases, this involved applying a strategy that had proved successful in the UK to an international market. A key consideration was reducing the risk of making exploratory steps into new markets.

**Identifying or exploiting opportunities**

Many participants were already revenue-generating and wanted to establish trading relationships in new countries or sectors. Two pre-revenue companies were particularly interested in developing whole commercialisation routes, particularly to consolidate global position quickly, once patents were published.

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1 In one case, this was due to the specificity of the semiconductor sector, making generic support inappropriate. The other felt that they were doing ‘ok on their own’ and did not plan to seek additional external help.
Additional reasons for participating
A major driver for two participants was a recommendation from trusted business support contacts (Business Link and UKTI) and previous positive experience of UKTI initiatives. Other companies were driven by the need to obtain training in IP and international business to research-based employees, understand support available and sectoral trading requirements (e.g. medical). Reasons for joining the programme fell into three main categories:

- 50% of participants wanted to reduce knowledge gaps within the company;
- 19% of participants wanted to reduce a resource gap within the company;
- 31% of participants wanted to overcome a mixture of knowledge and resource gaps.

Extent to which initial reasons for joining were met
Most participants said that the programme had met their specific initial expectations:

- 13% said expectations had been exceeded as it had provided additional unexpected benefits;
- 67% said expectations that had led them to join the course had been met;
- 13% (two participants) said expectations had been partially met;
- On participant misunderstood the programme purpose and their expectations could not have been met.

In terms of partially met expectations, one company had tangible aspects for joining (purchase of a market report) met but found the workshops less useful due to the highly specific nature of the semiconductor industry. The other found the first workshop too dry and theoretical but felt remaining sessions were much more practical. This company is experienced in international trade and their expectations were otherwise met.

The participant who felt that they had misunderstood the programme title had anticipated that the content would help participants “do R&D better”. Having changed his expectations of the programme, he stated that it had been useful and participation had led to an international strategy review. Also, sessions on IP and international relationships enhanced the company’s international approach and practices.

International objectives
Participants were asked about their international objectives (Figure 4). Five (33%) stated internationalisation was vital to survival/growth. The category ‘no particular objectives’ represents established companies already trading internationally and wanting to expand activities and early stage companies needing to develop global commercialisation routes. In total, 60% of participants stated explicitly that international trade was fundamental to their business model.
All participants clearly viewed international expansion as a fundamental step in business growth but varied in the degree they understood how to enact ambitions/growth. Different levels of progress were shown by other stated objectives including finding/developing relationships with international partners and realising identified opportunities. Only one participant provided tangible objectives to quantify planned international growth.

Effect on internationalisation objectives
Companies varied in the degree to which the programme affected internationalisation objectives (Figure 5). Five participants stated the programme had not altered objectives. For two there had been no change because strategy and objectives were determined by niche sector and specific knowledge. Another stated lack of change was because international trade was necessary to exit the product development phase (no UK market) and economic conditions had slowed progress. Another had used the programme to explore market potential. The final participant had not changed their objective to ‘grow’ but was pleased with the programme support.

![Figure 5. Extent the programme influenced participants’ internationalisation objectives](image)

The two companies stating the programme had directly impacted objectives felt the benefits were linked to strategy development. For one this was through identifying contacts and developing a strategy and the other developed specific international objectives which had become “more realistic”. The programme had not altered objectives for 33% (which were relatively non-specific such as ‘finding more partners’ or ‘survival and growth’). However, the programme had clarified or shaped understanding of how to achieve those objectives and equipped companies to better achieve them (reducing knowledge gaps, elucidating constraints and providing better understanding of how to find/utilise contacts).

Regional targets
Participants were asked which regions or countries they were targeting for international trade or R&D collaboration (Figure 6). In the majority of cases, initial targets were based on existing customers, understanding of the sector or on the advice of existing contacts. However, 33% of the participants stated they had no specific geographical targets prior to the programme. Companies already trading internationally were interested in increasing export sales and were not focusing on developing specific regions. In some cases, regions were defined fully by a niche market in which the company already had some limited penetration.

Those stating a general need to trade internationally were typically pre-revenue and had identified a need for products to be sold on a global scale to achieve volume. Identifying suitable markets was a major aim for these companies especially those with more flexible or platform offerings. Two companies stated targets were not geographical which again demonstrates the diversity of participants. It included the semiconductor company and the company conducting pre-clinical research with CROs regardless of location.

The majority of companies had multiple international targets. Figure 6 shows more specific country responses for October 2010, reflecting programme effect on clarity of strategy. Companies that didn’t change targets had clear strategic reasons.
Main internationalisation needs
A key issue appears to be how to operate at a trans-national level (Figure 7). Responses also pointed to understanding business development by managing operations and collaborations overseas. This was common to both start-up and established companies. However, the latter were more likely to have specific requirements (e.g. pre-identified sector/region), and the former more general background knowledge.

Market research
Where the major need was market research the necessary resources were provided. Some businesses suggested that focusing on international markets actually diverted resources from day-to-day business activity. In one case, analysing the potential market would not have been possible without support; for another a market report helped to raise finance.

International nature of technology based companies
A number of companies identified internationalisation as a general business survival requirement, particularly start-ups and those in global industries. The former in particular had a wide variety of specific needs dependent on level of personal experience and stage of product development. Needs included, identifying key markets, how to develop partnerships, IP protection and international operational strategies.

Were needs met?
All tangible needs were met, however, participants also felt the programme made a valid contribution to meeting intangible needs. Exact positive contributions varied but generally related to greater clarification:
- “Focusing”;
- Provided a catalyst for internationalisation activities in general;
- “Raised the profile” of activities required to meet objectives/succeed;
- Altered company approach to the challenges of internationalisation;
- Greater control and prioritisation of internationalisation activities to allow quicker realisation of benefit.

In some cases, additional tangible effects were generated. One company discovered the technical specification for their product was insufficient to succeed against competitors and subsequently altered this before launch. Only two companies felt their main internationalisation needs had not directly been met. For one business this was because the particular programme did not help source contacts (identified through other UKTI support) but provided valuable information on how to use contacts, develop and manage strategic relationships.

Barriers to internationalisation
Participants were also asked about barriers to internationalisation activities experienced. Table 1 shows that for 67% of participants, people are a barrier. While several lacked some of the necessary knowledge, the greater issue was time to commit. For 10%, people barriers were linked to capabilities of potential partners. Of the 33% stating this was not a barrier, the reasons were high levels of internal sector knowledge, direct personal experience, or greater flexibility of resources in larger and more established businesses.

<table>
<thead>
<tr>
<th>Potential Barrier</th>
<th>% of interviewed participants giving response</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Yes</td>
</tr>
<tr>
<td>People</td>
<td>67</td>
</tr>
<tr>
<td>Finance</td>
<td>93</td>
</tr>
<tr>
<td>Networks and Contacts</td>
<td>60</td>
</tr>
</tbody>
</table>

Table 1. Responses to internationalisation barriers

Financial restrictions
Finance was a barrier for 93% although the exact restrictions differed between companies (Figure 8). Many participants (29%) felt this was a general business constraint rather than specific to internationalisation. This reflected the concerns of other participants, although a number felt they should minimise the importance of finance barriers given successful funding rounds: only one participant stated R&D funding directly as a barrier.

<table>
<thead>
<tr>
<th>Potential Barrier</th>
<th>% of interviewed participants giving response</th>
</tr>
</thead>
<tbody>
<tr>
<td>Difficulty prioritising/testing international options</td>
<td>29%</td>
</tr>
<tr>
<td>Lack of R&amp;D funding</td>
<td>7%</td>
</tr>
<tr>
<td>Need to consolidate UK market</td>
<td>14%</td>
</tr>
<tr>
<td>Sector specific issues</td>
<td>14%</td>
</tr>
<tr>
<td>Generic business issue/economic conditions</td>
<td>7%</td>
</tr>
<tr>
<td>Difficulties moving from development stage</td>
<td>7%</td>
</tr>
</tbody>
</table>

Figure 8. Participants’ responses to financial barriers to internationalisation

Risk and confidence
Pressure as a result of the current global economic climate also impacted on the ability to prioritise international opportunities (29%), largely due to demands on human resources. Two companies (14%) specifically needed to consolidate the UK market before attempting to undertake internationalisation activity. Companies in specialised industries had specific sectoral financial concerns. The company stating finance was not a barrier is
well established and generates 40% of turnover from exports. Further expansion plans had been sidelined due to a large contract to sell another company’s products in the UK. Although this meant international development is on hold the additional revenue minimises current financial pressures.

**Networks and contacts**
The lack of networks and contacts represent internationalisation barriers for 60%. Although all participants agreed that finding and managing productive relationships with contacts or networks at international level was extremely important, 40% did not find this restrictive due to established contacts, customers or industry experience. Identifying and developing relationships to add value was seen as the major difficulty. Locating potential partners was problematic due to restricted knowledge and access to information about companies operating in specific markets. However, understanding the options and being able to identify synergies in capabilities, skills and technology appear to be even more problematic. This was compounded for high-tech companies: partner fit is influenced by technical understanding and, in some cases, the need for sector specific knowledge to develop new applications. Local knowledge was also seen as vital to successful internationalisation and required access to relevant networks. One participant stated that being able to leverage the international infrastructure and networks of UKTI is crucial to a small business; identifying potential partners, smoothing operational issues and generally help to “get things done”.

**Additional barriers**
A number of other barriers were also cited by participants including:

- Ability or confidence to decide where to allocate limited resources;
- Cultural issues and understanding the varying requirements of different markets (none country specific; particularly in terms of analysing to identify the most suitable international market to target);
- Requirement for a strong, local sales organisation for technically based products;
- Risk of becoming a marginal product for an agent or distributor;
- Understanding competitor as well as potential collaborator strategies particularly when preparing to commercialise a novel product;
- Understanding the barriers to entry for individual countries and sectors.

All participants stated the programme helped to overcome internationalisation barriers to some degree. These ranged from helping to make contacts to developing/enhancing strategy or development of better contractual practices, prioritisation of international efforts or shaping final product development for a specific market. A major theme was minimising knowledge gaps to provide clarity on how to allocate resources.

**Partnering requirements**
Before the programme 27% were seeking distribution partners for new geographical regions, reflecting the technical basis of offerings (Figure 9). This also shows a tendency for high-tech firms to see international partnership purely as a sales channel rather than opportunity for direct collaboration to add value. The 20% defined by sector required specific partners, such as software or energy companies and generally centred on sales type activities. This also relates to those seeking end users where the company collaborates over a long period with the customer to deliver bespoke solutions (e.g. semi-conductors; seeking partners with complementary components to co-develop for a new application and jointly take into the supply chain).

The single company focusing specifically on R&D partners concerned a specific project and involved targeting the world technological leader. This company already conducts substantial trade overseas, making partner search to
access geographical marketplaces a minor consideration. Four (26%) participants were not clear on partners sought. This included owners new to a business, start ups yet to identify target markets/applications and the company exploring a specific geographic market opportunity.

![Partner types sought by participants, May 2009](image)

**Partnership forms**

Participants had little idea of the type of partnership required to meet international objectives. More than a quarter stated they had no idea of forms to take but a further quarter stated it was determined by industry norms or business models. Participants tended towards a general preference for long term, formal arrangements, linked to necessity for end user collaboration, long lead times or concern around IPR.

**Effects of the programme**

Twelve (80%) participants had engaged in discussions or completed partnership deals during the programme. For two pre-revenue companies, participation had defined target markets and partner types through development of internationalisation strategy. For one, partnership discussions are ongoing; for the other the programme identified how to add value to the technology and an initial target application. This company is now collaborating with technical specialist partners relating to the application identified. Another company stated, “change to partners sought” as one of the major effects of participation. Whilst the company had initially been targeting a large company in China to take the technology, they are now seeking partners looking to find a solution for their specialist market. Partner types had not changed in 40% of cases, due to internal factors.

The programme also had a positive effect on understanding how to develop and formalise partnerships, particularly where IP was involved. Most participants stated their approach to partnerships had been clarified and felt better equipped to manipulate favourable and practical partnerships. This included both early stage participants and those with experience of trading abroad. Exact impacts included:

- “Opened eyes to different types of partnership possible”;
- “Need to match the form of the relationship to the type of partner collaborating with, not just the contract”;
- “Clarified formalities, such as country specific pitfalls” (cultural);
- “Affected approach to IP in terms of partnerships, such as the value of reaching the market quickly, rather than using time consuming and costly patent protection”;
- “Clarified approach and how to manage practical elements”, such as Non Disclosure Agreements (NDAs).
Practicality of the programme

All participants were satisfied with consultancy provided by UKTI specialists: grant based support was bespoke and so directly met specific needs of each participant. Participants were also asked about practicality of workshop sessions, which is more subject to individual company context.

The general form of the programme (and workshops particularly) were practical for high-tech small firms according to 60% of participants. Others indicated that not all the information was new to them due to previous personal experience. However, these participants accepted the programme was available to a wide diverse range of businesses with different requirements and that sessions were still useful:

- “Useful to revisit, to be able to take a more rational viewpoint to use in enhancing strategy”;
- “Good to hear from a different perspective, particularly through applying to specific country contexts”;
- “Variety of speakers and content relating to specific target markets useful”;
- “Focused on practitioner’s personal experience, not academic theory”.

The 20% who found sessions somewhat practical had been disappointed with specific topics but overall felt the programme was practical and relevant. One company felt barriers to entry were not covered in enough detail, having personally been through a “hard learning curve” in this area.

Peer-to-peer learning

Group work with other companies had direct benefits for 53% of participants with some stating this was a key element of programme practicality (Figure 11). Typically, benefits included reassurance from discussing similar problems or experiences or by stimulating ideas for pertinent questions to put to expert presenters.

The 40% who found peer interaction somewhat useful stated they generally had a positive view of this type of learning but did not gain any tangible benefits. In some instances, this was due to sector specificity or lack of similar businesses on the course. However, one participant suggested the diverse range of companies was actually beneficial and increased the value of the peer learning element of the workshops. The single company stating peer learning had not been useful had been unable to attend any workshops following the launch.
Ease of applying materials
Participants were asked about the practicality of materials and information provided in terms of how easily it could be applied directly into their business; 66% of participants stated that the material could be easily applied:

- “Yes, 100%”;
- “Make[s] you think about a lot of things [...], don’t necessarily apply right away, but later trigger things. It’s also useful to listen to an expert for 15 minutes, and know you can go back [...] for advice at a later point”;
- “We have applied it!”;
- “Could easily apply, but there was so much content I had to make sure I got copies of everything to refer back to, so I didn’t lose any”.

Two companies stated content was not applicable: one was the semiconductor company and the second had been unable to attend the sessions. The remaining companies felt they could not answer the question, either because the sessions dealt with subjects in which they were knowledgeable or, in one case, as business context shifted so rapidly and unpredictability it was impossible to say if any form of input was applicable.

Most useful elements
Participants were asked to state which elements of the programme had been most useful (Figure 12).

Perhaps unsurprisingly, 40% felt the most useful element was funding. Resource constraints meant bespoke elements and tangible benefits of grants had a more immediate and overt effect than workshops. However, another participant stated that despite tangible outputs from funding and wider satisfaction, he would have been able to generate more revenue if time had been spent on normal business activities. Despite this, it was felt it had been well worth his time investment, although it was difficult to define exactly how it had helped. According to 27% of participants the major benefit was redressing the knowledge gaps that directly limited internationalisation activity or reducing progress with internationalisation strategy.

The most useful aspect for 13% was the impact on their mindset and approach to refining strategy. This was echoed by a further 13%, who felt the discussion elements resulted in most benefit. Although some was due to peer discussion, this largely referred to opportunities to discuss with experts on crucial topics.

<table>
<thead>
<tr>
<th>Use or impact of funding perceived as most useful element of programme</th>
<th>% participants who stated funding was the most useful element</th>
</tr>
</thead>
<tbody>
<tr>
<td>Getting specific project off the ground</td>
<td>17</td>
</tr>
<tr>
<td>Purchase of market report to pitch for finance/scope market viability</td>
<td>17</td>
</tr>
<tr>
<td>Obtain product-specific knowledge (consultant, visits)</td>
<td>33</td>
</tr>
<tr>
<td>Focusing efforts</td>
<td>17</td>
</tr>
<tr>
<td>Website build</td>
<td>8</td>
</tr>
<tr>
<td>Identifying gaps in business plan/strategy</td>
<td>8</td>
</tr>
</tbody>
</table>

Table 2. Participants’ use of funding
Least useful elements

When asked to identify the elements of the course they found least useful, 20% stated the time lapse since the start of the programme meant it was difficult to recall specific sessions (Figure 13). A further 20% stated that topics which overlapped with their own knowledge and experience were the least useful. Another 20% stated some material was too theoretical and felt remote from the business context. All of these companies already had considerable international experience.

![Figure 13. Participant views on the least useful element of the programme](image)

Timing was also considered an issue. The two companies, unable to attend the majority of sessions, stated this as the least useful element. Another participant struggled to identify impact as the programme timing did not fit with their business situation. However, the company now has a clear understanding of a target international market they are unable to progress due to a lack of resources: programme impact will be felt at a later point.

Perceptions of business support

Participants were asked if the programme had affected knowledge, attitudes or involvement with support agencies. Nine (60%) participants had engaged in further activity with UKTI and perceptions were extremely positive with several stating they planned to take up services in future. One company plans to access paid-for services praising UKTI for providing a gate to global contacts to help international operations. Other specific examples involved UKTI liaising with Consulates to follow-up unpaid invoices and providing suggestions for reputable local partners. Companies also stated they had become aware of how to make use of R&D tax credits and other grant funding. Awareness of other agencies was limited:

<table>
<thead>
<tr>
<th>Support gained from agencies other than UKTI</th>
<th>Number of participants</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td>2</td>
</tr>
<tr>
<td>Would like to know more</td>
<td>1</td>
</tr>
<tr>
<td>Other Agencies through UKTI</td>
<td>3</td>
</tr>
<tr>
<td>Support too generic</td>
<td>1</td>
</tr>
<tr>
<td>Chamber of Commerce (export advice)</td>
<td>1</td>
</tr>
<tr>
<td>Sector specific agencies</td>
<td>1</td>
</tr>
<tr>
<td>British American Business Council</td>
<td>1</td>
</tr>
</tbody>
</table>

Table 3. Responses relating to agencies supporting internationalisation activities

Access to other agencies was primarily through UKTI (20%) and included NWDA, Business Link, British Embassies and China British Business Council. Another company, which works extensively with UKTI, stated they had accessed support from a wide range of agencies at the concept stage but had found these of less use: they now work only with UKTI. Several participants also gained increased awareness of DSIC and the support available to high-tech firms and hoped to develop closer links in future.
Effect on plans for internationalisation
All but one company (semiconductor) felt the programme had a positive impact on internationalisation plans. Another felt it was difficult to say how it would change strategy but that impact would be felt in 2-3 years.

![Figure 14. Effects on internationalisation strategy of participating companies](image)

A number of participants (29%) specifically stated they had gained tools or knowledge that would help them undertake plans for internationalisation and additional resources to help take first steps in strategic areas:
- “Concentrated and clarified our approach to the market... a template for future international growth”;  
- “Highlighted need to ensure we have the right level of resourcing. Didn’t need to know how, needed to know what to do to go about it”;  
- “We always had plans, but it helped us clarify them, and take a huge step forward in the market we concentrated the funding on”;  
- “Reinforced that we have to remain an international company, and changed the way we go about it”;  
- “Helped us believe we were doing the right thing”.

Impact on business activities
Participants were asked detailed questions about changes in business activity since May 2009 (Table 4/Appendix D). As 33% of participants were still at pre-revenue stage there was no impact on sales revenues or customers. A major impact for these companies was development and refinement of strategy to complete launch into international markets. The remaining established companies struggled to quantify impact on business activities. In some cases, participants stated economic conditions had reduced ability to capitalise on programme effects.

<table>
<thead>
<tr>
<th>Pre-revenue stage company</th>
<th>Employees</th>
<th>R&amp;D activities</th>
<th>Patents filed</th>
<th>Partnerships established</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aventura</td>
<td>No change</td>
<td>Same</td>
<td>No</td>
<td>Still in discussion stage</td>
</tr>
<tr>
<td>Bradford Pharma</td>
<td>Some, but due to funding round</td>
<td>Increased through funding round</td>
<td>Three</td>
<td>Three</td>
</tr>
<tr>
<td>eo-semi</td>
<td>Two</td>
<td>Increased through funding round</td>
<td>Two applications</td>
<td>Two being established, through own industry links</td>
</tr>
<tr>
<td>Heptron</td>
<td>Current staff on part time/ voluntary basis</td>
<td>Steady, approximately £40,000</td>
<td>Five</td>
<td>Four under discussion – “positive international leads” (China, Canada, US and Ireland).</td>
</tr>
<tr>
<td>YR Free</td>
<td>No change</td>
<td>Increased (largely outsourced)</td>
<td>Likely to file soon</td>
<td>Contracts with technology companies to develop for identified application</td>
</tr>
</tbody>
</table>

Table 4. Summary of effect of the programme for pre-revenue stage participants
Employees
Of the remaining companies, 56% had increased employee numbers although the majority could not be linked directly to the project. For one company, employee numbers had grown enormously in the UK due to their successful distribution contract. However, employee numbers were also increasing in Australia due to a subsidiary set-up following participation in the programme, which was “the right thing” for the business, leading to development of an international growth strategy. One company had taken on 12 employees, of which two were attributable to the programme. Another had hired 10 and planned to recruit more but could not say whether this was due to the programme: the majority of impact was felt on a personal level, with tangible impacts likely to occur in two to three years.

Sales and customers
An increase in sales and customer numbers was experienced by 56% of participants although most were not able to directly attribute this to the programme. In some cases the increase was due to strategic shifts driven by participation in the programme. A number stated positive effects from the programme had not yet translated into sales increases. Recent economic conditions and current stage within the business (e.g. use of the programme for exploratory work) were given as reasons why positive effects had not yet been exploited.

R&D investment
Increases in R&D expenditure had been experienced by 78% of participants; for three participants this was enabled through successful funding rounds following completion of the programme. A number of participants noted that having access to close-to-market knowledge and early stage partner discussions are extremely influential in gaining R&D funding. Ability to prove concept, market fit/size and collaboration/partnership can play a major role in bringing new funding streams into high-tech businesses. In many cases, R&D had increased in a specific area, such as initial steps to create a new technical application. Some participants had increased expenditure due to a strategic shift to more in-house R&D. Others were primarily concentrating on developing a deeper engagement with international marketplaces (e.g. trade shows). One pre-revenue participant was investing heavily in R&D but was mostly outsourcing to reach market quickly.

Only two participants were able to estimate R&D investment. The 22% who had not increased R&D investment stated it had stayed roughly the same. R&D is a fundamental part of the business model for these companies and investment is maintained at the highest possible level.

Patents
Patents had been filed by 33%. One of these had heard back from the assessor and was considering whether or not to amend and resubmit, based on programme materials. Another had an ongoing patent application, submitted before the programme began and a further company was considering protection for new internally developed products to support the strategic shift influenced by the programme.

Partnerships established
All of the companies had been in partnership discussions with some yet to be finalised.

Extent to which the programme met overall expectations
In total, 73% of participants felt their expectations had been met taking into account all programme elements (Figure 15). ‘Somewhat’ met expectations were attributed to the company who had misunderstood the programme and the individual who felt that the barriers to entry issues had not been dealt with explicitly. The
participant who stating they had no specific expectations, said that they had simply thought the sessions sounded interesting and that the programme might provide a spark for a collaborative R&D project.

Figure 15. Extent to which the programme met the overall expectations

4. Overview and key learning points

R&D internationalisation needs
While participants were influenced by differing business contexts and varying level of individual experience the review has identified several key needs for high-tech small firm R&D internationalisation:

- **Background information and knowledge.** Highly contingent on experience and relating to topics such as IP, partnership forms, cultural differences, legal requirements;

- **Identification of viable target markets.** Typically, UK-based high-tech small firms have very limited experience of conducting business in international markets. Distance from the potential target market can make it hard to assess viability, without expert advice;

- **Developing routes to market.** Partner search activities are complicated by distance, language, cultural and institutional barriers. Technical understanding, matched expertise and the effect of multiple routes to market add to this. Existing international trade is frequently based on personal or opportunistic contacts, rather than a strategic market approach.

This shows a need for guidance in developing or qualifying internationalisation strategies and exploring specific opportunities. It also suggests distinctions should be made between pure R&D collaboration, co-development, joint marketing and international sales-based activities. This would reduce the chance of companies misunderstanding support on offer, maximise impact and increase likelihood of R&D based, value-adding partnerships, rather than sales channel interactions.

Suitability of programme content
All participants felt they received clear benefits through the programme. According to 53% there was a tangible output (e.g. market assessment; strategy review). For 40% it was more abstract effects such as increased personal momentum or understanding how to implement strategy. Other participants received a mix of these benefits. Additional impact involved improved ability to manage the constraints of recent economic conditions.

Applicability of content
Programme content was directly applicable to participants. A major factor was overcoming knowledge gaps created by limited resources and difficulties seeking information on remote markets. Some pre-revenue participants identified target markets and others were able to begin preparation for entry. More experienced participants gained either better practical understanding of how to manage international activities or enhanced
strategy. This was largely based on better evaluation of potential for technical and marketplace synergy and therefore increased ability for better strategic decisions on where, when and how to target.

**Structure of the programme**

Participants gave unanimously positive feedback on the mix of activities with presentations from experienced speakers mixed with small group activities and discussion. The peer-to-peer element was particularly useful to:

- Gain new perspectives on both generic business problems and R&D internationalisation issues;
- Gain confidence in own value proposition and potential of (specific) international markets;
- Gain skills, techniques and awareness not directly relevant to the core subject, such as sales skills or raised awareness of technical specialism;
- New linkages and collaborations between individual businesses.

Knowing that they could go back to an expert presenter at a later date was seen as particularly useful. Workshops provided an opportunity to gain key background knowledge both of specific international marketplaces and background skills (IP), partnership development and sourcing relevant information. Participants were able to question how this fitted into their businesses through bespoke support.

**Programme timeframe**

The relatively short timeframe had both a positive and negative impacts on participants. For some, sporadic timing meant they were unable to attend sessions. However, a restricted timeframe was a useful driver of progress, pushing participants to allocate resource to develop internationalisation activity in parallel to other business activities. Pre-revenue participants were able to develop plans more quickly, reducing time to market or risk of inappropriate product development/launch into unfeasible markets. For more established companies, the programme created impetus to explore or initiate new international opportunities.

**Variability of high-tech small firms**

There were common problems associated with small high-tech firms trying to internationalise. In particular, all companies identified resource and knowledge gaps which reduced the ability to internationalise. These include difficulties associated with physical remoteness, different cultures and the practical aspects of conducting activities abroad. However, exact needs and support to meet these is entirely dependent on the exact type of technology, applications, business stage, internal experience and resources available in each company.

**Impact of support**

Table 5 clearly shows participants experienced multiple and varied effects on R&D internationalisation. The most common were reduction of specific knowledge gaps and identifying, initiating and influencing creation of international partnerships. Key programme impacts were a provision of:

- Sound knowledge and guidance on pertinent issues;
- Flexible resources to explore bespoke, relevant opportunities;
- Space for reflection, discussion and opportunity to seek specific advice on aspects of R&D internationalisation;
- A catalyst to get activities underway, through increased confidence, and practical tools/advice for managing international activities.
<table>
<thead>
<tr>
<th>Company</th>
<th>Filled knowledge gaps</th>
<th>Influenced targets, objectives or approach to strategy. New perspectives</th>
<th>Initiated or influenced partnerships or partnership discussions</th>
<th>Detailed evaluation or initiation of previously identified opportunity</th>
<th>Identified international market opportunities or provided an international strategy</th>
<th>Enhanced processes for international activities</th>
<th>Generated awareness of/helped to win funding opportunities</th>
<th>Developed ad hoc international activities into strategy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aventura</td>
<td></td>
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<tr>
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<td></td>
</tr>
<tr>
<td>% participants experiencing type of impact</td>
<td>73%</td>
<td>67%</td>
<td>80%</td>
<td>40%</td>
<td>40%</td>
<td>40%</td>
<td>33%</td>
<td>20%</td>
</tr>
</tbody>
</table>

Table 5. Types of impact on R&D internationalisation on individual participant companies (a filled cell indicates the impact was experienced by the company)
Barriers to measuring impact
Companies consistently reported the programme had been beneficial, although it was difficult to measure direct increases in business activity. There were a number of reasons:

1) **Nature of interventions.** Most aimed to develop skills, capabilities, knowledge or strategy. Although these included activities such as marketplace evaluation, most was exploratory. Support consisted of interventions which provided a basis to initiate or improve international activities.

2) **Approach of high-tech small firms to R&D activity.** The majority of participants were unable to quantify R&D activities based on level of investment or collaboration value (making impact evaluation difficult). Additionally, companies appear hesitant or unwilling to pursue opportunities without external stimulus, suggesting resources required are a greater demand than might be expected.

3) **Timeframe.** Operationalisation of activities can take a long time due to time/resources required for exploration of international partners. Consequently, impact cannot be measured in the short-term.

4) **Global economic conditions.** Impact of the programme was limited by the global recession through its impact on finance, confidence and business climate. Many participants had been unable to pursue internationalisation plans as they had to refocus on basic business survival. Additionally, economic conditions had an adverse effect on general business performance. However, some participants suggested they would have performed less well without the initiative or felt better placed in difficult conditions.

Many companies suggested impact would only be seen longer term due to the nature of the support and constraints on small firms in finding resources to capitalise on opportunities. Additionally, participants expressed interest in undertaking similar programmes in future. Such programmes are seen as vital to support international activity, whereas R&D is seen as more dependent on direct grants and tax credits. A clear programme impact was gaining knowledge and confidence to win future funding opportunities.

Other key impacts included providing individual participants with knowledge and support to develop practical strategies. Participants were helped to identify partners and understand how to manage collaborations absolutely necessary in developing and implementing international strategies. This was particularly important where participants had identified or refocused strategy to exploit the most viable international opportunities. Tangible impacts included the fact that all participants retained the same level or increased R&D investment as a result of emerging international opportunities despite a challenging economic climate.

Key learning points

**R&D internationalisation**

- Typically, high-tech small firms appear to act opportunistically when initiating international activities. Where there is strategy, this tends to be based on pursuing the largest or most lucrative market that can be identified which may not be feasible with constrained resources;

- Internationalisation activities (including exploratory work) put significant additional pressures on limited resources. Although collaboration is typically difficult and resource intensive this is accentuated with cultural, language and time zone barriers;
- Low awareness of factors required to assess suitability of target markets including the role of IP strategy (to balance protection and time to market\(^2\)), legal and cultural requirements, expertise and availability of partners and investment required to manage distant partnerships;

- Relatively low understanding of opportunities for strategic international partnerships. Many companies initially sought purely commercial relationships with distributors. It is also reflected in an extremely restricted understanding of different partnership forms, legalities and defining deliverables.

**Needs**

- High-tech small firms are dependent on international marketplaces in order to survive and grow due to the niche nature of their offerings;

- Needs, expectations, barriers experienced and speed of progress with R&D internationalisation are influenced by diverse business stages (pre-revenue/ established), sectors, business models and other factors (e.g. applicability of previous experience). New skills, capabilities and contacts may be needed to exploit emerging opportunities, even for internationally experienced companies or individuals;

- There is a high level of concern amongst businesses about future sources of business support\(^3\);

- Lack of resource and knowledge (both local knowledge and areas such as IP, partnership forms, barriers to entry) are extremely limiting to internationalisation and R&D activities of high-tech SMEs.

**Impacts of R&D internationalisation initiatives**

- Impact of this type of support is generally felt to be medium to long term;

- Effects on international and R&D activity has been detrimentally impacted upon by the recession;

- Support is crucial to allow high-tech SMEs to overcome knowledge gaps and give confidence to pursue international R&D activities by reducing risk, providing resources and building internal capabilities.

**Improving future internationalisation support programmes**

**Classifying high-tech small firms**

Although participants in the programme accepted that it was unlikely all material would be of direct relevance, provision of support would be more efficient if all elements were applicable. The issue is whether it is possible to tailor support to meet the exact needs of different firms which are dependent on business stage, technological basis or sector and individual experience. This review suggests a better classification might be based on the stage of internationalisation:

1) **Companies needing to know ‘what to do’**. Start-up companies with novel technologies that can be developed for many different applications and UK-established businesses. Support would concentrate on building more general knowledge and capabilities around R&D subjects and international contexts.

\(^2\) Participants appeared to hold one of the following views prior to the programme 1) must do without IP protection; 2) must protect all IP to the highest level or 3) cannot develop into the commercialisation phase until can afford IP protection. Strategies to assess value of IP protection was cited by a high proportion of participants as useful, both for its practicality and the fact that this particular aspect had not been perceived as part of the knowledge gap.

\(^3\) Although this was not a question within the interview framework, the majority of participants expressed an eagerness to take part in similar programmes or expressed concern as to the availability of business support initiatives and their accessibility in light of changes to regional budgets, support agencies and the Comprehensive Spending Review in general.
2) **Companies needing to know ‘how to do’**. Largely start-ups with intrinsically global niche products and companies already established internationally. Support would focus on bespoke knowledge, refining strategy and developing capability to more effectively access international markets.

**Flexibility**

Future programmes could be more flexible to generate greater impact on high-tech SMEs. As the majority of participants also undertake other work with UKTI, a practical suggestion could be for a rolling programme of workshops which International Trade Advisors can mix-and-match to meet individual company needs:

1) **Basic elements**. Skill and capability building in key areas such as IP, partnership structure, high-level cultural and legal differences;
2) **Region-specific**. Sessions detailing individual country contexts, barriers to entry, size of etc;
3) **Partner and collaboration specific**. Detailed sessions on partnership forms and generating maximum value through strategic approach largely based on discussion and expert advice.

More flexible programmes would still fit easily with the grant elements that are seen to provide a valuable catalyst to overcome barriers to exploring and undertaking R&D internationalisation activities.

5. **Conclusions**

This report shows that the *Advancing R&D Investments in the North West* programme was highly successful, with all participants stating a positive impact on their businesses. By providing matched resources, building capabilities, access to further knowledge and seed funding the programme greatly increased the ability of high-tech small firms to internationalise their R&D activities. Major impacts included:

- Reducing knowledge gaps on key topics such as patenting, cultural differences and partnership forms;
- Identification and management of partnerships with international partners;
- Identification of key international markets;
- Increased strategy for internationalisation activities, building capabilities to evaluate opportunities provided by different international markets, applications, partnering routes and IP strategies;
- Reduced barriers to initiating new R&D activities, including enhanced ability to win further R&D funding;
- Companies increasing (78%) or maintaining levels of R&D investment during tough economic conditions.

Exact impact depended on type, stage and existing capabilities of each company. However, 92% of participants felt the programme was largely practical and applicable for them. The combination of group and bespoke support enabled diverse participants to extract knowledge and support specifically needed for their business.

This report recommends future support is based on classification of businesses through need: those needing to know what to do to internationalise and those who need help with how to undertake required activities:

- Classification could take place through discussions with ITAs;
- Companies could attend most relevant sessions from a categorised rolling programme of workshops, tailored to different aspects of R&D internationalisation need;
- Greater flexibility of required attendance, could mean relevant materials would be less likely to be missed through business commitments, and could be undertaken at the most suitable time;
- Take-up of grants could be tied to company need and the length of the ‘mix and match’ elements considered relevant, allowing participants to maximise tangible outputs;

- Spaces on workshops would be available for companies that could benefit from participation. Mix and match sessions could more effectively mix business types/stages, creating better value from peer-to-peer learning.

- Companies would be better able to take up support activities at a suitable stage, increasing the likelihood of applying materials, directly undertaking new activities and maximising their impact.

Support initiatives such as this were seen as vital by participants for the following reasons:

- Technology-based products often need global scale to achieve volume;

- Small firms do not have the knowledge or resources to move into international markets without support;

- Enable companies to make initial steps into international markets by developing capabilities, reducing risk and increasing knowledge to allow internationalisation strategy development.

Overall, the programme made a valuable contribution to the participant companies although this proved difficult to quantify.
Appendix A - Delivery

Planning

**Brief:** Develop/deliver 4 workshops at DSIC to develop international business development skills and expertise.

**Duration:** 9 months to allow participants to capitalise on learning experiences and bespoke support.

Initial topics were suggested, where gaps might exist for high tech SMEs trying to internationalise R&D. Relevance of topics was confirmed through inclusion of participating companies in the planning process. This took place through discussions at a launch event on 15th May 2009 and interviews with all 20 companies.

**Pre-programme interviews**

Took place May and June 2009; consisted of semi-structured face-to-face interviews and aimed to understand key requirements, aspirations and constraints of SMEs around International Business. These gathered information on the nature of participating companies, objectives for the programme, existing internationalisation strategies of participants and style and content preferences for the programme.

**Content Development**

Participants were highly variable in terms of technology, size, need and other characteristics, meaning a distinction was made between general and specific needs of participants.

General needs included improving levels of knowledge and understanding of international markets. However, some participants had very specific needs. It was felt these could not be met through group based workshops; such needs were taken into account during allocation of individual consultants, to ensure these were also met.

Content was developed through collaboration between representatives of UKTI, DSIC and the ULMS. Sessions were delivered by experts, academics and practitioners from these and private professional specialists.

**Material delivered**

The workshop sessions were delivered at DSIC between June 2009 and February 2010.

**Workshop One – Internationalisation Strategy – 16th June 2009**

**Topics:** joint venture, international strategy and managing international property.

**Delivery:** Presentations, case studies.

**Presenters:** Professor John Wilson, Dr David Williams and Dr Jason Ferdinand.

Presentations were followed by participant-presenter discussion to identify topics for the remaining sessions.

**Workshop Two – Intellectual Property Strategy – 29th September 2009**

**Topics:** Issues for small firms developing internationalisation strategy, template for internationalisation, IPR

**Delivery:** Networking lunch, presentations, breakout sessions.

**Presenters:** Professor Tom Cannon, David Booth, Karl Wilson (UKTI), Tony Brown (UKTI) and Dominic Schiller of patent and trademark attorneys, Harrison Goddard Foote.

**Workshop Three – Cross-cultural Business Strategy – 11th November 2009**

**Topics:** National cultures (US, Western Europe and China), gaining value from trade shows and exhibitions.

**Delivery:** Networking lunch, presentations, breakout sessions, Q&A sessions.

**Presenters:** Professor Oswald Jones, Mike Taylor (Liverpool Vision), David Booth, Roger Frampton, Chris Tucker, John McMuldroch, Aldo de Leonibus and Ray Bird.

**Workshop Four - Organisational Growth and Financial Investment – 3rd Feb 2010**

**Topics:** Challenges of international expansion on organisational and financial resources; equity funding and growth; partnership arrangements.
**Delivery:** Networking lunch, presentations, breakout sessions, plenary session.

**Presenters:** Dr Roger Pegum, Graham Bond (UKTI), Julian Birchett (Strategic Alliance Advisor, UKTI), John Leake.

**Appendix B – Semi-structured interview questions**

1. Can you briefly explain why you decided to participate in the UKTI project
   a. *Did the programme meet your expectations?*

2. What regions were you targeting?
   a. *Have these regions/countries changed as a result of the programme?*

3. What were your main needs in relationship to R&D internationalisation?
   a. *Did the programme meet these needs?*
   b. *If no, then why not?*

4. What were your main barriers to internationalisation?
   i. People (skills &/or technical knowledge)
   ii. Finance
   a. *Did the programme help you overcome these barriers?*

5. What were your objectives in terms of internationalisation?
   a. *Have those objectives changed as a result of the programme?*

6. Ideally, with what kind of organizations did you want to establish partnerships?
   a. *Did this objective change as a result of the programme?*

7. What was the intended nature of those partnerships (formal/informal; short-term/long-term)?
   a. *Has your view changed about the type of partnership?*

8. What agencies have you used (or intend to use) to help internationalise?
   a. *Did this change as a result of the programme?*

9. To what extent did the programme meet your expectations?

10. How practical did you find the sessions – were they applicable to the size and type of your business?
    a. *Peer to peer learning?*
    b. *Case study relevance?*
    c. *Ability to apply the knowledge?*

11. What were the most useful elements of the programme?

12. What were the least useful elements of the programme?

13. To what extent did the programme influence your future plans about internationalisation?

14. Did the programme lead to increases in business activity:
    a. *More employees?*
    b. *More sales?*
    c. *More customers?*
    d. *Increased expenditure in R&D?*
    e. *New patents filed?*
    f. *New business partnerships established?*

15. Were there any other effects from participating in the programme? (networking, UKTI/intermediaries, universities)

16. Do you have any other comments about your participation in the programme?
## Appendix C – Data collection and participant companies

### Companies ceased trading

Smart Life Technology  
Advanced Heat Engineering

### Participant companies

<table>
<thead>
<tr>
<th>Name of company</th>
<th>Interviewed?</th>
<th>Method of contact(s)</th>
<th>Context (If required)</th>
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<tbody>
<tr>
<td>Aventura</td>
<td>Yes</td>
<td>Phone and email</td>
<td></td>
</tr>
<tr>
<td>BEP Surface Technologies</td>
<td>Yes</td>
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<td></td>
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<td>Yes</td>
<td>Phone</td>
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<td>Colourlord</td>
<td>Yes</td>
<td>Phone</td>
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<td>eo-Semi</td>
<td>Yes</td>
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<td>Festive Lights</td>
<td>Yes</td>
<td>Phone</td>
<td></td>
</tr>
<tr>
<td>Gobito</td>
<td>No</td>
<td>Phone and email</td>
<td>Unable to get in contact with. Currently out of the country.</td>
</tr>
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<td>Heptron</td>
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<td>Stanian</td>
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## Appendix D – Summary of Participant Business Activities

<table>
<thead>
<tr>
<th>Company</th>
<th>Comments</th>
<th>Employees</th>
<th>Sales</th>
<th>Customers</th>
<th>R&amp;D expenditure</th>
<th>Patents filed</th>
<th>Partnerships</th>
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<td>n/a</td>
<td>Approximately same</td>
<td>No</td>
<td>Still in discussion stages</td>
<td></td>
</tr>
<tr>
<td>BEP Surface Technologies</td>
<td>No change, due to recession – ridden out and in good shape</td>
<td>n/a</td>
<td>n/a</td>
<td>Increased</td>
<td>One</td>
<td></td>
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<tr>
<td>Bradford Pharma</td>
<td>Some taken on, due to recent funding round</td>
<td>n/a</td>
<td>n/a</td>
<td>Increased through funding round</td>
<td>Three</td>
<td>Three – work exclusively with Contract Research Organisations</td>
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<td>Colourlord</td>
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<tr>
<td>Edit Technologies</td>
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<tr>
<td>eo-semi</td>
<td>Two</td>
<td>n/a</td>
<td>n/a</td>
<td>Increased through funding round</td>
<td>Two</td>
<td>Two being established, through own contacts</td>
<td></td>
</tr>
<tr>
<td>Extronics</td>
<td>Minimum 80% business activity would have happened anyway. Personal impact, tangible in 2-3 years.</td>
<td>10 in last year, still recruiting. Skilled jobs</td>
<td>20% increase. Massive profitability increase - strategic move to own products over resale</td>
<td>Increased</td>
<td>Increased</td>
<td>No</td>
<td>Yes – collaborative development of technology for new applications.</td>
</tr>
<tr>
<td>Festive Lights</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes – increased market research and own product development</td>
<td>Ongoing since before programme</td>
<td>Established with distributors. Some market penetration, expect to snowball soon.</td>
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<tr>
<td>Gobito</td>
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<tr>
<td>Heat Trace</td>
<td>12 in last year. 1-2 directly as a result of programme</td>
<td>Not from the programme, as was exploratory market research for a particular application of technology</td>
<td>As before</td>
<td>Funding enabled to increase R&amp;D for the application project dealt with</td>
<td>Submitted - not novel. Considering resubmission</td>
<td>Yes – with key competitor in market for technological/marketplace collaboration.</td>
<td></td>
</tr>
<tr>
<td>Hepron</td>
<td>Current staff all on voluntary/part time basis</td>
<td>n/a</td>
<td>n/a</td>
<td>Steady, approximately £40,000</td>
<td>Five</td>
<td>4 ‘positive international leads’ – China, US, Canada and Ireland. China most progressed, with imminent</td>
<td></td>
</tr>
<tr>
<td>Company</td>
<td>Description</td>
<td>UK Performance</td>
<td>International Performance</td>
<td>Partnerships/Strategy</td>
<td>Notes</td>
<td></td>
<td></td>
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<tr>
<td>Instrument Science</td>
<td>Led to more actively seeking partners, shaped strategy. Refocus of regions and partnerships targeting</td>
<td>One</td>
<td>Large increase (majority of trade international)</td>
<td>Increase from one customer to 123</td>
<td>Approximately the same, but research intensive company One Not yet. Discussions in China during programme didn’t conclude. Programme refocused on Europe as more manageable, and discussions ongoing</td>
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<tr>
<td>MHA Integrated Electronic Services</td>
<td>International activities sidelined by UK non-core activity contract</td>
<td>Huge growth on UK side, some increase in core business due to set up of Australian subsidiary</td>
<td>Grown massively on UK, slow increases in core/international element. Expect spike early next year</td>
<td>(UK) 2 good leads in Australia, hoping to convert to major customers</td>
<td>Some, beginning to develop own products. Typically collaborate with customers and sell them IP Considering patenting independently developed products Various – Australian subsidiary, discussions for China partnership.</td>
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<td>Molecular Control Systems Ltd</td>
<td></td>
<td>Small increase</td>
<td></td>
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<td>Discussion with representatives</td>
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<tr>
<td>NSC Programming</td>
<td>Still consolidating UK – prepared for internationalisation, but no sales yet. All figures for core UK business.</td>
<td>More part time/consultancy</td>
<td>Increase</td>
<td>Increase</td>
<td>Increase</td>
<td>In discussion with multinational corporation, which could lead directly to international activity</td>
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<tr>
<td>Pro Bio Healthcare</td>
<td>Explored legal requirements for sale of product type across EU, ahead of legislation (delayed).</td>
<td>No</td>
<td>Increase</td>
<td>Increase</td>
<td>Increase through Innovation Vouchers No Contacts with specialist consultants. Early stage market discussions.</td>
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<tr>
<td>Stanian</td>
<td>End user deeply affected by recession. Between development &amp; full commercialisation.</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>Increased, approx £38k in past year. No 8 new associates, to help deliver product/services.</td>
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<tr>
<td>YR Free Labs</td>
<td></td>
<td>No change</td>
<td>n/a</td>
<td>Increased, largely outsourced</td>
<td>Likely to file soon Contracts with tech companies to develop for application identified through programme</td>
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</tbody>
</table>