EVALUATION OF THE MANAGEMENT DEVELOPMENT PROGRAMME FOR INVENTORS

Final Report to:
Scottish Enterprise Edinburgh and Lothian

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Quality checked by

Bruce Macdonald,
Associate Director

SQW Limited
economic & management consultants

19 Alva Street
EDINBURGH
EH2 4PH

Tel: 0131 225 4007
Fax: 0131 225 4077
Email: ehutchison@sqw.co.uk
Web site:**www.sqw.co.uk**

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Executive summary

1. This is the summary of an evaluation of the Management Development Programme for Inventors (MDP). It was commissioned by Scottish Enterprise Edinburgh and Lothian (SEEL) and undertaken by SQW Ltd during July through to September 2005.

2. The purpose of this study was to review the activities and the outcome of the MDP to date. The main aims of the study were to:

   ➢ estimate the economic impact to date and provide reasonable estimates of future impact of the project in terms of gross value added

   ➢ comment on the overall appropriateness of the initiative, and its chosen methodology, to address market failure

   ➢ make comparisons with the aims and the economic development performance of the initiative with best-practice in similar UK (and possibly international) initiatives, which are relevant to the support of inventors, early stage technology companies and the development of their teams

   ➢ make recommendations as to how the initiative might be improved in order to increase impact and performance

Change in focus

> **It is important to note that the focus of this study has changed from that outlined above. It became evident that obtaining information on how MDP participation affected performance and productivity and the measurement of economic impact on the wider economy was difficult. Participants suggested three main reasons for this 1) it was considered too soon to demonstrate a change in performance 2) it was difficult to attribute change to one factor alone 3) it was deemed unrealistic to attribute some form of quantifiable economic impact from one or two days attendance of the MDP. As a result, we have considered impact in a qualitative manner and present the results in this report on that basis.**

3. This study has analysed three forms of evidence which we use to inform our conclusions and recommendations. These include the feedback from the consultations, the survey responses and our desk research. However, we would preface these findings with an important "health warning". This relates to the relatively low response rate to both the consultations and e-survey. Nevertheless, we believe the conclusions and recommendations presented below are justified.

Conclusions

4. It is important to note that productivity and competitiveness are strongly influenced by the ability to innovate and exploit knowledge through commercialisation. The MDP forms a critical and extremely valuable part of this process by increasing awareness of the business environment in which product commercialisation takes place.

5. Overall, the MDP is considered to be a positive public intervention with a strong relevance to the current and future needs of technology projects and business ventures. Our consultations highlighted a real enthusiasm about the programme and there was a strong consensus that participating in the MDP is a valuable experience.

A programme for individuals not businesses

➢ it is important to emphasise that the MDP in its current form is a programme aimed at individuals not businesses. The overarching aim of the MDP is to provide individuals with a much clearer understanding of how to run and grow a successful technology business. Thus, targets and performance measures should reflect that MDP aims to change attitudes and behaviour by increasing participants' knowledge and understanding of the business issues involved in starting up and running a technology based business

Programme participation

➢ just 12% of MDP participants completed all the modules offered. Thus, it is clear that the MDP is not viewed as a programme as individuals are able to dip in and out and attend as few or as many modules as they so choose. In order for participants to gain maximum benefit from the training the MDP should be promoted as a programme of training with all modules compulsory

Timing – a significant issue

➢ the timing of the intervention has emerged as a significant issue. Those who participate in the MDP having just or in the process of forming a company, gain the most value from its content.   The links developed with PoC and EPIS mean that the programme is more effectively equipped to be able to address *when* people will benefit most from involvement in it

Additionality

➢ a reasonable level of *additionality*[1] has been achieved by the MDP. Most participants stated they would have in that as most consultees would have addressed the areas dealt with by MDP, but less effectively and at slower pace. From our best practice review and our knowledge of the commercialisation agenda it is not altogether clear how they would have managed to do so readily

➢ the Programme is delivered in a way in which individuals are able to proactively identify areas needing attention which they otherwise may not have done as effectively

➢ our analysis of training intentions highlights that a number of other forms of training were examined before participation in the MDP. However, the options considered relate to specific topic training rather than a package of training akin to the MDP, in other words, there is nothing quite like the training offered by SEEL to start-up technology businesses

Economic benefit

6. It is clear that MDP has had a strong, positive impact on consultees. This has had little measurable economic impact. The capacity of firms to be innovative is directly influenced by the confidence and capabilities of their managers. We consider that the attributes cited by consultees gained as a result of the programme will contribute towards additional growth and investment in technology based companies in Scotland.

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[1] Additionality is defined as, the net changes that are brought about over and above what would take place anyway. Source: *Additionality Guide, A Standard Approach to Assessing the Additional Impact of Projects, English Partnerships, 2004*

7. That said, the MDP forms part of the portfolio of support to the commercialisation agenda. Its greatest impact will be on the enhanced effectiveness of the outputs from PoC and EPIS. The MDP's main contribution needs to be measured accordingly.

Delivery

➢ the delivery of the MDP at an operational level is considered as excellent. However, there appears to be a lack a tangible output at the end of the Programme. Consequently, the scope to put into practice valuable knowledge gained has yet to reach its full potential. The Action Plan for participants should be made a more explicit component part of the MDP and that the onus is on the individual to document the lessons learnt

Market failure

➢ the MDP has taken steps to address market failure. The market failure for these individuals is apparent in having the skills and the ability to access appropriate knowledge and information. Although, the Programme does not change the 'skillset' of participants it does raise their awareness of business issues and provide them with the confidence to be more proactive in dealing with the challenges and issues facing a start-up technology business

Recommendations

8. This study has highlighted the positive components of the MDP as identified by clients and key stakeholders. We propose recommendations which build upon these to enhance the operation and performance of the Programme. These have already been discussed as part of the improved MDP developed in the previous chapter. In summary these include the following:

➢ **integrate** the MDP with the PoC and EPIS schemes. Since PoC and EPIS participants are the target market for the MDP, the Programme is a natural extension of such schemes and could be completed as a fundamental component of each respective initiative. However, the **timing** of referring individuals onto the MDP needs careful consideration. Our research has highlighted that the most appropriate time to participate in the MDP is during or just after company formation. We recommend close liaison between SEEL, PoC and EPIS operational personnel to ensure the most appropriate manner to address this

➢ the MDP should be promoted and undertaken as a **programme of training**, thus, all modules would become compulsory. This would bring a number of benefits to both MDP participants and SEEL. By completing the MDP in its entirety, individuals are addressing areas they may not have identified as useful but are in fact invaluable in running a successful technology start-up. For SEEL, completion of all the modules by participants would help to **minimise 'leakage'**. In other words, participants are less likely to go elsewhere for component parts of the training

➢ it is vital that the **performance mechanisms** and **targets** set by the operational team in order to measure the appropriateness of the MDP are revised to reflect the nature and aims of the programme. Whilst initial measures were appropriate when the programme was first introduced and targeted at account managed companies, individuals are now the focus and respective targets and measures should be changed to reflect this

➢ developing a more explicit **'tangible output'** in the form of an Action Plan for each participant. This will enable them to translate their learning into actual practice. This can be achieved through more explicit attention given to the Action Plan included in the training pack. Whilst onus is on the individual to fill out the Action Plan, SEEL should draw attention to the benefits of such a plan, throughout the duration of the programme. Enhancing the development of an Action Plan for MDP would also address market failure as individuals would be spending time considering their specific business activities in line with the formal requirements of a feasible business plan

➢ ensure a robust process of **monitoring and follow up** to track the impact of participation on individuals and their businesses. A regular monitoring and follow up process should be developed to track progress of individuals since the Programme. This is fundamental to the operation of the MDP and to provide feedback for future improvements to the Programme

➢ in relation to **marketing** the Programme should be clearly identified as Management Development Programme for Inventors and promoted directly to PoC, EPIS and other scheme participants as well as relevant commercialisation intermediaries, such as commercialisation offices at universities. It would be useful for PoC, EPIS and other commercialisation intermediaries to attend the MDP to experience the programme first hand to ensure such personnel are better informed when referring individuals and promoting the MDP

1   Introduction

1.1   SQW Ltd were commissioned by Scottish Enterprise Edinburgh and Lothian (SEEL) to carry out an economic impact study of the Management Development Programme for Inventors (MDP). The study was undertaken between August and September 2005.

Purpose of study

1.2   The purpose of this study is to review the activities and the outcome of the MDP to date. The main aims of the study were to:

➢ estimate the economic impact to date and provide reasonable estimates of future impact of the project in terms of gross value added

➢ comment on the overall appropriateness of the initiative, and its chosen methodology, to address market failure

➢ make comparisons with the aims and the economic development performance of the initiative with best-practice in similar UK (and possibly international) initiatives, which are relevant to the support of inventors, early stage technology companies and the development of their teams

➢ make recommendations as to how the initiative might be improved in order to increase impact and performance.

Change in focus

> **It is important to note that the focus of this study has changed from that outlined above. It became evident that obtaining information on how MDP participation affected performance and productivity and the measurement of economic impact on the wider economy was difficult. Participants suggested three main reasons for this 1) it was considered too soon to demonstrate a change in performance 2) it was difficult to attribute change to one factor alone 3) it was deemed unrealistic to attribute some form of quantifiable economic impact from one or two days attendance of the MDP. As a result, we have considered impact in a qualitative manner and present the results in this report on that basis.**

2   Background and context

2.1   The primary aims of the MDP are to increase business survival and growth rates of technology businesses. The Programme addresses both generic and sector specific issues by taking groups of individuals through a structured and practical series of workshop sessions, to provide them with a much clearer understanding of how to run and grow a successful technology business.

2.2   The main participants are inventors who have engaged with Proof of Concept (PoC) and the Edinburgh Pre-Incubation Scheme (EPIS). Between November 2002 and September 2003, 37 delegates from 26 companies attended the SEEL Management Development Programme and between February and June 2005, 35 delegates from 28 organisations attended.

2.3   SEEL currently wholly funds the Programme and by offering the Programme as a package to a group of delegates provides a cost benefit to SEEL rather than providing one-on-one training to individuals.

2.4   Originally, the Programme was aimed at account managed companies but in recent sessions the focus has shifted towards individuals who are engaged with PoC and EPIS. Thus, the target group has changed from businesses to individuals.

2.5   It is important to be aware of how the MDP came to fruition to help us understand how it has evolved. Bill Bryan developed and has successfully delivered a two day management development course, "The Ring of Success" which became the basis for this Programme. It was consequently agreed with SEEL that in order to meet the needs of early stage technology companies, further modules were added to detail in more depth areas, of special sectoral importance, this became the MDP.

Market failure

2.6   SEEL and respective network partners have in the past, spent a significant amount of time educating early stage technology companies on the basic aspects of running a successful business. The market failure for these individuals lies in having the skills and the ability to access appropriate knowledge and information. This Programme aims to address these issues and provide them with the knowledge and confidence to be more risk aware.

2.7   In short, early stage technology businesses often fail, not because of issues associated with their technology but because little or no time is spent considering the business activities and requirements of a feasible business plan.

Strategic fit

2.8   The MDP was implemented under the Growing Business theme of *Smart, Successful Scotland*.   Specifically, "taking forward entrepreneurial dynamism and research and development to deliver innovative companies growing in scale"[2].

2.9   The MDP has a strong strategic fit with the Scottish Executives drive to increase innovation and commercialisation of research.   In particular, the Enterprise Networks have a role in bringing together businesses with the desire to develop people who have a strong capability in this field and thereby promote learning.

2.10   SEEL's strategic objectives for the MDP are to:

> ➢ increase the management skills and capabilities of aspiring entrepreneurs who have engaged with programmes such as PoC or EPIS in order to help them put together a viable business proposition

> ➢ increase the business survival and growth rate by helping individuals to understand that they do not have the skills to do everything required to run a successful business and provide them with the tools to build a viable management team and a sound sustainable business

> ➢ tackle both generic and specific sector issues by taking groups of individuals through a structured and practical series of workshop sessions to provide them with a much clearer understanding of how to run and grow a successful technology business

> ➢ build teams, establish sustainable companies and ensure links and progress to other Scottish Enterprise business development programmes, including high growth

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[2] A Smart, Successful Scotland, Scottish Executive

Context

2.11   Since 2004, Programme activities have been coordinated and delivered by O'Herlihy and Company Ltd, who specialise in innovation and technology assignments. The delivery personnel involved have extensive knowledge in their respective fields, including; business ownership, commercial expertise, sales and marketing, business development, business planning and management.

2.12   The following section reports on the participation behaviour of all delegates since 2002. We have incorporated attendance data provided by SEEL into our analysis. Figure 2.1 illustrates the modules undertaken by delegates.

Delegate activity

Figure 2.1 The modules completed by delegates
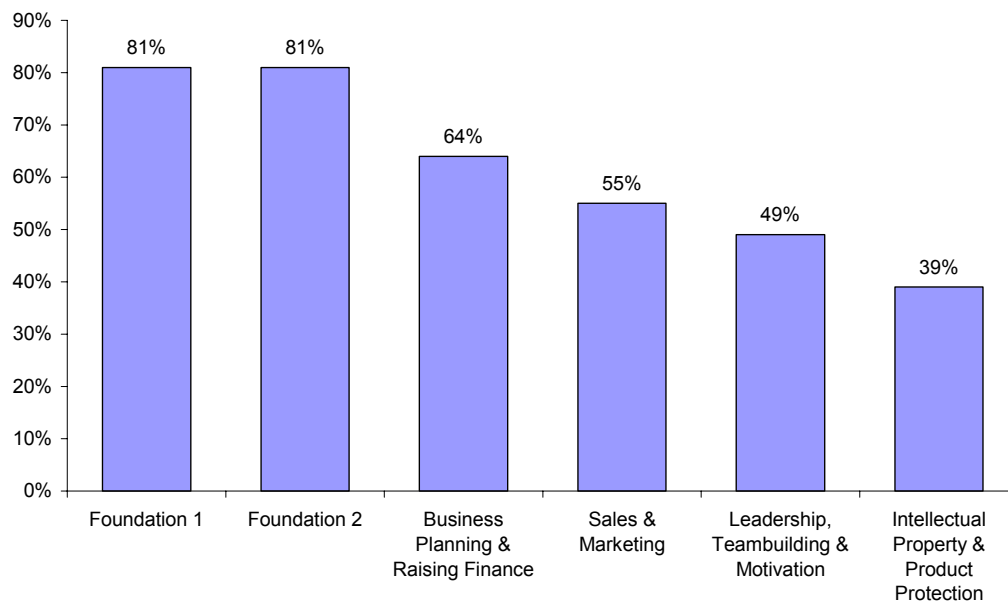
2.13   The records of activity show that almost all participants complete both the *Foundation* modules. Whilst, the most popular optional module is *Business Planning & Raising Finance* and the least popular undertaken was *Intellectual Property & Protection*.

2.2   It is interesting to note that just 12% of all delegates attended all six of the workshops. This contributes to the shift in focus of this study as it is unrealistic to attribute some form of economic impact based on the attendance at one or two workshops. As a result and as highlighted in the introduction of the report, our study focuses on the qualitative aspects of the MDP.

3   Methodology

3.1   A methodology for the evaluation of the MDP was agreed at the outset with SEEL and consisted of four main stages:
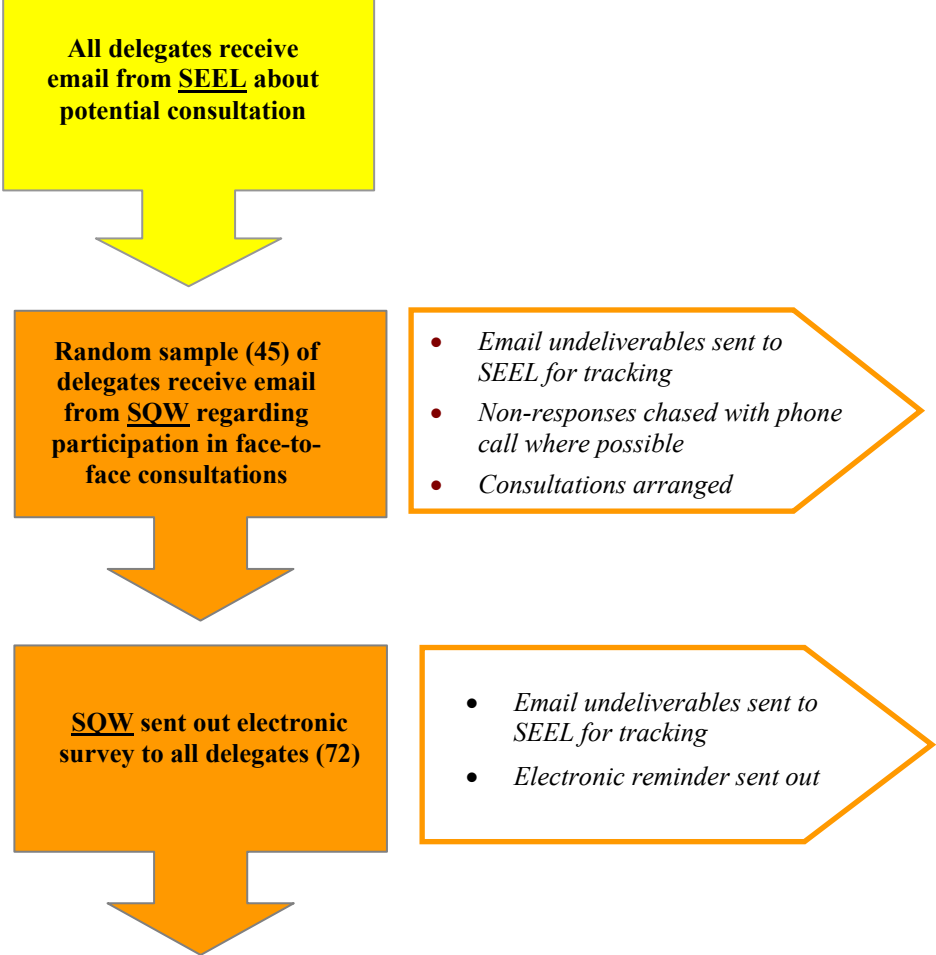
> *desk research* – the review of relevant papers and documents relating to the study and research into similar management development programmes

> *consultation with delegates* - to examine the impact of participation on delegates and to gauge satisfaction with MDP activities. We completed 6 face-to-face consultations and 2 telephone interviews with a cross section of delegates

> *consultation with key stakeholders* - telephone discussions were held will key personnel involved in the MDP; including the SEEL Project Manager and MDP delivery personnel

> *e-survey* - an electronic survey was sent to all MDP participants

3.2   However, the process of arranging consultations with delegates was fraught with difficulty and we highlight our process in Figure 3.1. We spent considerable time attempting to make contact with delegates using both email and telephone within the time constraints available.

3.3   Whilst consultations were problematic to arrange, many MDP participants politely responded to our request for feedback highlighting their reasons as to why they were unable to provide detailed comments. These reasons included:

> delegates from the Programmes held in 2002 and 2003 did not recognise the course or had forgotten that they had taken part

> a number of early delegates felt that because a significant amount of time had passed they had nothing of value to offer regarding feedback

> some delegates only participated in one or two modules and as a result felt they had little to contribute to the evaluation

> in many cases, the contact details of delegates had changed, which resulted in additional time being spent arranging alternative consultees

> simply, some delegates had other commitments and were unavailable to participate in the study

Figure 3.1. Consultation arrangement Process

All delegates receive email from <u>SEEL</u> about potential consultation

Random sample (45) of delegates receive email from <u>SQW</u> regarding participation in face-to-face consultations

- *Email undeliverables sent to SEEL for tracking*
- *Non-responses chased with phone call where possible*
- *Consultations arranged*

<u>SQW</u> sent out electronic survey to all delegates (72)

- *Email undeliverables sent to SEEL for tracking*
- *Electronic reminder sent out*

4   Views of clients and key stakeholders

4.1   In this Chapter we report on key findings obtained from our face-to-face and telephone consultations with MDP clients and key stakeholders, including the MDP Operational Manager and representatives from the Programme deliverers, O'Herlihy & Co Management Consultants. A full list of all consultees can be found in Appendix A. **It should be noted that the majority of consultations took place with individuals based at universities and largely from the 2005 programmes.** We acknowledge this in our analysis.

4.2   The aims of the consultations were:

➢   to understand whether the programme resulted in an improvement or change in the managerial behaviour within the companies

➢   to understand what the programme delegates and organisations they represent have gained from the experience

➢   report on the modules undertaken and how effective these were

➢   examine whether the delegates had taken any action based on the key learning themes e.g. business planning, raising finance, sales, marketing, intellectual property, product protection, leadership, teambuilding and motivation

➢   establish whether the participants are more entrepreneurial as a result of taking part in the programme and how this was demonstrated

➢   as a result of their increased management skills what has the added value been to each company in terms of turnover and the number of people employed

4.3   The sections to follow discuss delegate experience of the programme, views on programme delivery and the impact it has had on them individually and where relevant, their business.

Experience of the Programme

- the majority of consultees were referred on to the MDP having been engaged with either the Proof of Concept[3] or the Edinburgh Pre-Incubation Scheme[4]. As participants of these programmes, the course was highlighted as a useful opportunity to progress their project or business proposition

- there were mainly two groups of individuals involved in the MDP, university academics and individuals in business, thus, different reasons for participating in the Programme emerged. The academics lacked the necessary business skills required to set up and run a successful business. For example, they did not know how to make the "business case" for their particular product. Thus, participating in the MDP enabled them to enhance their business knowledge and address this issue. The other group, existing businesses, simply wanted to revisit the basics of business practice and build upon their existing knowledge

- all consultees reported that the MDP had met their expectations and all reported that experience had been positive. It was suggested by one delegate that the course was intended as; *"a sharp, succinct awareness raising programme highlighting the issues that need to be addressed early on in business formation"*. These included; appropriate terminology and the business planning process.

4.4 **In short, clients of the MDP became involved in the Programme to increase their knowledge of business in order to start up and run a successful technology business. Overall, the MDP itself had met delegate's expectations and was considered to be a positive public intervention with a strong relevance to the current and future needs of their projects and business ventures.**

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[3] The Scottish Enterprise *Proof of Concept (PoC)* Fund supports the pre-commercialisation of leading-edge technologies emerging from Scotland's Universities, Research Institutes and NHS establishments. It helps researchers to export their ideas and inventions from the lab to the global marketplace. The Fund finances projects with strong commercialisation potential and is not another source of research funding.

[4] The *Edinburgh Pre-Incubation Scheme (EPIS)* is a joint project between the University of Edinburgh, Scottish Enterprise Edinburgh and Lothian (SEEL) and the European Regional Development Fund (ERDF). EPIS is designed to give innovative and committed people with a bright idea for a new technology-based business, the time and relevant resources to bring that idea to a stage which it can be exploited in the marketplace.

Programme delivery

- in general, all consultees reported that the modules undertaken were very relevant to their needs in terms of raising their awareness of business issues and meeting the specific demands of a technology business

- the teaching style was considered appropriate for the nature of the course. In particular, the presentations from the MDP deliverers which included advice from personal experience were extremely effective. Conversely, some considered the duration of the modules to be *"fast and furious"*, with little time for reflection on the teaching material

- several consultees, mentioned that a form of assessment or 'tangible output' was lacking from the process. This approach was considered valuable to put into practice what was learnt in the context of their own venture or project. However, there was evidence of learning being reinforced through group discussion and question and answer sessions

- there was a strong consensus that on an operational level, the MDP was delivered extremely well. The modules were thought to be held at the right time, at a suitable venue and were of an appropriate duration

- the most useful modules were *Finance* and *Sales & Marketing*. Information on how to secure funding from different sources was vital for both academics and businesses. Also, the optional single day modules allowed individuals to choose some or none of the modules which address specific business problems. Advice on which of the optional modules individuals should attend was provided at the end of the two day foundation module. For those wishing more information this was considered a valuable opportunity to explore in further depth some of the topics covered briefly during the *Foundation* modules

- in terms of improving the modules, it was suggested that the interactive component of their delivery should be extended. For example, to include role play and "what if" scenarios to reinforce teaching, as demonstrated in the *Intellectual Property* module.

4.5 **There was strong consensus that the delivery of the MDP at an operational level was excellent. However, there appears to be a lack of a 'tangible output' by the end of the Programme. We note, this is in sharp contrast to the proposed delivery outlined in SEEL approval papers (November 2004). It states that individuals will develop a bespoke action plan, focussing on their areas of weakness for further development and will identify opportunities for exploitation. Consequently, the valuable knowledge gained has not been put into practice as effectively as it might have been.**

Individual impact

- prior to participating in the MDP, the majority of consultees had considered some other form of training but had not been involved in any similar initiatives

- as a result of participation in the MDP individual management behaviour was reported to have changed. Specifically, awareness of business issues have increased, highlighting particular areas to consider and what to look out for in the future. However, the Programme has not changed the 'skillset' of these individuals

- a number of delegates stated that their general activities and behaviours had remained the same, whilst others reported that their approach to recruitment had changed. Specifically, this was demonstrated in an increased level of professionalism when dealing with external people. However, these activities would have been undertaken anyway but unlikely to be at the same time or as effectively

- there has been no enhancement in entrepreneurial ability as a result of the MDP. The prevalent attitude among consultees is that becoming more entrepreneurial is not something which can be taught, but is inherent in individual personality. It was evident that, delegate expectations from the Programme related to awareness raising rather than enhancing their entrepreneurial ability.

4.6 **In short, participation in the MDP has influenced knowledge and awareness although this has not fed through to participants becoming more entrepreneurial.**

Business impact

- of the few consultees that had established business, none could attribute any impact on business performance in terms of sales, productivity, employment or reduced costs. This was the case for three reasons:

> ➢ it was too early to state any impact

> ➢ it was difficult to attribute change to one factor alone

> ➢ there was simply no tangible impact on business performance

- if the MDP did not exist, it was reported that the knowledge could have been gained from other forms of training and assistance, however, it would not have been available locally in a 'package' akin to the current Programme.

4.7 **Overall, participation in the MDP has not affected business performance but it has helped individuals and their businesses to be better prepared for future business needs.**

Stakeholder views

4.8 In order to fully appreciate the operation of the MDP we also spoke with key stakeholders to inform our evaluation. A summary of the points raised are detailed below:

- the consensus emerged that the Programme is primarily aimed at starting a technology business and working to position the venture as a solid proposition

- timing is critical in enrolling individuals on the MDP who are at a stage in their project where the information provided can be put into practice

- acknowledgement that the bottom line for SEEL is to maximise the development of both new technology businesses both from the private sector and university spin outs and the MDP helps to make individuals more capable of achieving this

- the *Foundation* modules provide a 360 degree view of business, not intended to provide in-depth information as this can be found elsewhere

4.9 Therefore, our consultations with key personnel have highlighted that individual perceptions are aligned with the overall intentions and strategic aims of the MDP, thus, all stakeholders are working in partnership towards the same goals.

5   Feedback from e-survey consultees

5.1   In this chapter we provide a survey-based profile of clients who have participated in the MDP and their experience of this. The survey was conducted electronically and sent out to all delegates of the Programme to date and a total of 15 responses were received, a response rate of 21%. **With this in mind, the client should take caution in the interpretation of these results which are based on a small sample.**

Profile of delegates

5.2   Figure 5.1 provides examples of the main market sector and the main product or service offered by a selection of survey respondents. Respondents are from a diverse range of backgrounds both from academia and the private sector.

| Figure 5.1 Profile of delegates	
Main Market Sector	**Main Product or Service**
Aquaculture	Aquaculture Technology
Oil and Gas	The removal of oil and other hydrocarbons from contaminated water
Optics and Laser Technology	High power lasers
Biomedical Research	Data Management Software
Telecom	Electronics/Software Design Services
3D Content Creation	Software Application Development
Molecular Diagnostics	Breath Ethane Monitoring: Oxidative Stress
Healthcare	Research

5.3   We asked delegates how they became involved in the MDP and as Figure 5.2 on the following page shows, the majority were referred from the Proof of Concept or EPIS Programmes. A small proportion (15%) heard about the course through word of mouth.

Figure 5.2 How participants became involved in the Programme
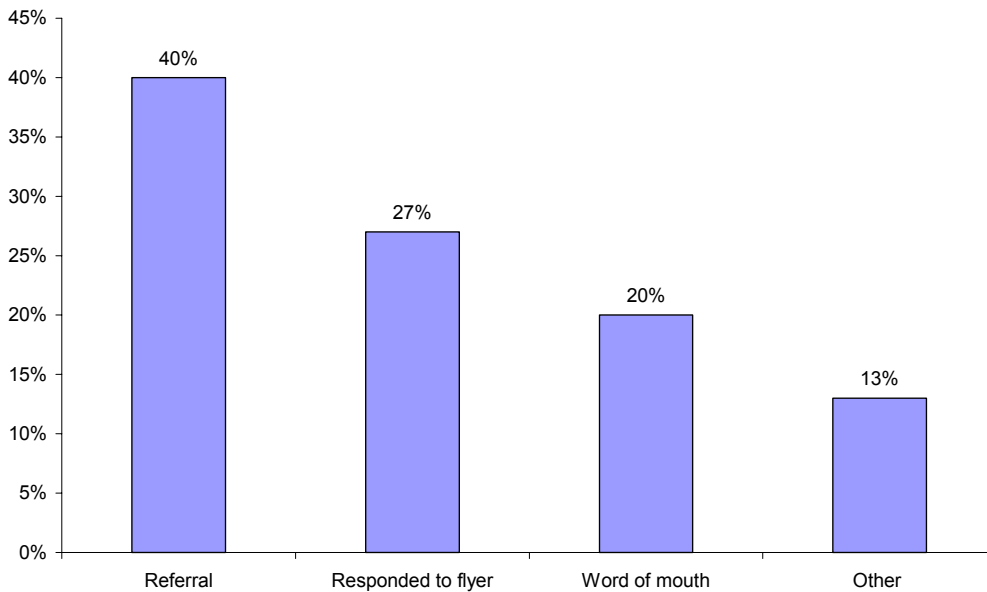
5.4   In order to explore delegate motivations further, we asked their reasons for participating in the Programme. By far the most popular reason was to learn about sales and marketing, reported by 53% of respondents. A significant proportion cited all of the options provided as motivation for participation (47%).

**Figure 5.3 Reasons for participating in the Programme**
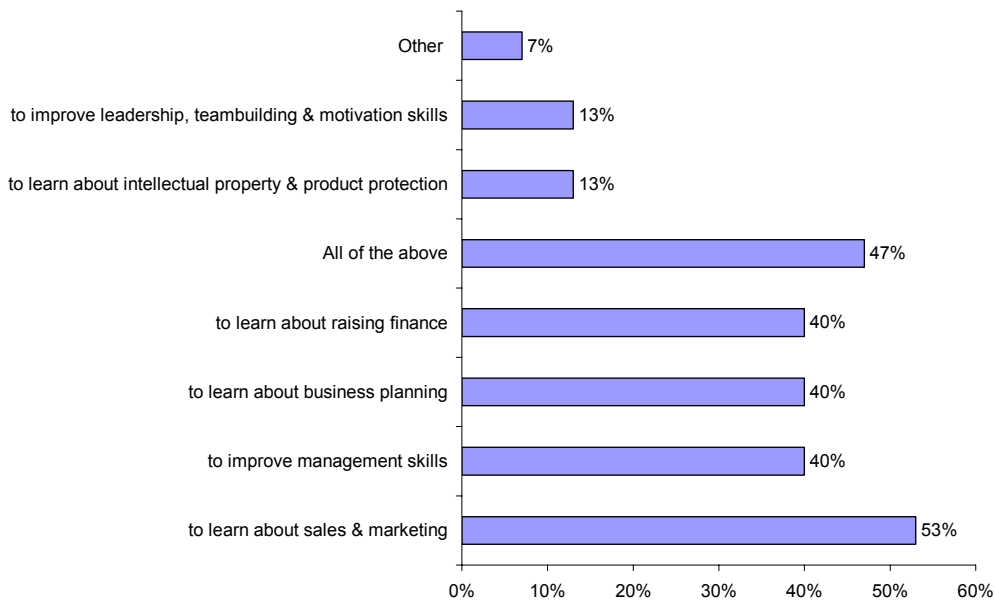
5.5 **The target market of the MDP has been reached and the individual motivation for involvement is strongly aligned with the overarching aims of the course and an enthusiasm to learn about the topics offered.**

Experience of the Programme

5.6 We asked delegates how their experience of the MDP compared to their expectations. Around 15% of respondents reported that it had exceeded their expectations, whilst almost two-thirds (62%) cited that their expectations had been met. Just under one-quarter (23%) stated these were partially met, and none reported that expectations had not been met.

5.7 As part of the evaluation we needed to build up a picture of the way the MDP has been attended to fully understand how it would benefit both individuals and their respective businesses. Figure 5.4 shows the attendance activity of survey respondents.

Figure 5.4 Attendance by Module
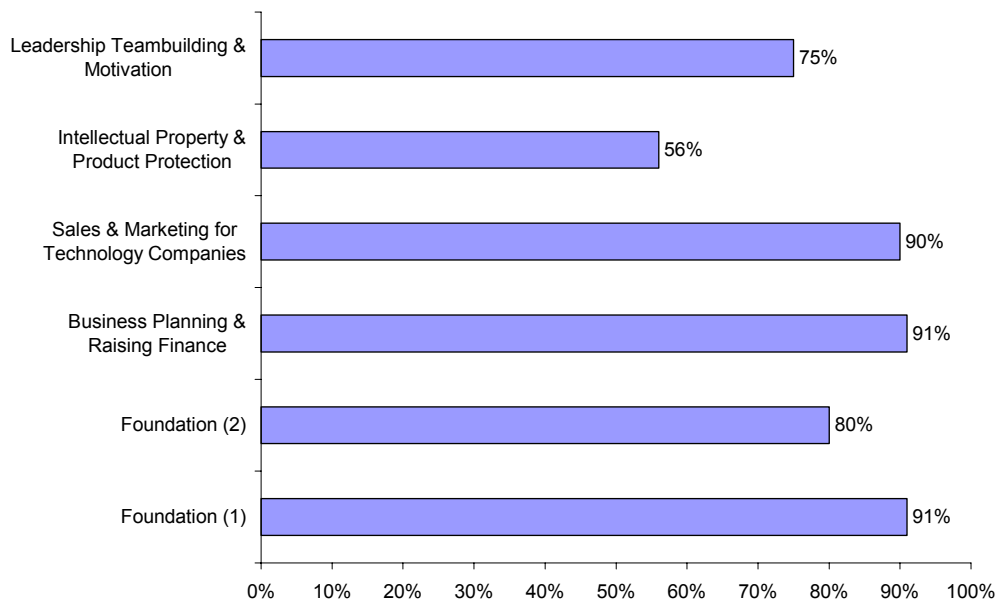
5.8 Our analysis shows that the most popular modules were *Foundation 1, Business Planning & Raising Finance and Sales & Marketing for Technology Businesses*. This highlights that participants are keen to learn about the wider business environment and less inclined to find out about technical specifics i.e. *Intellectual property*. This may reflect the make-up of the group, as most participants are from academic backgrounds and may already possess this knowledge or source the information from elsewhere. To investigate this further, we asked delegates which modules were considered to be the most useful, as shown in Figure 5.5.

Figure 5.5 How would you rate the modules you attended for usefulness? (1 = not useful 5 = very useful)					
	1	**2**	**3**	**4**	**5**
Foundation (1)	0%	0%	10%	50%	**40%**
Foundation (2)	0%	0%	12%	50%	**38%**
Business Planning & Raising Finance	0%	10%	10%	60%	**20%**
Sales & Marketing for Technology Companies	0%	0%	22%	33%	**44%**
Intellectual Property & Product Protection	0%	0%	60%	20%	**20%**
Leadership Teambuilding & Motivation	0%	0%	67%	17%	**17%**

5.9   From the responses received, S*ales & Marketing* and F*oundation 1* modules were rated as the most useful.   None of the modules offered were rated as not useful. This data highlights that the modules are geared towards the needs of start-up technology businesses with all modules considered useful to their operations and activity.

5.10   For those workshops reported as the <u>most useful</u> respondents were asked to provide reasons why. A summary of responses are as follows:

> ➢ *Foundation 1&2:* excellent introduction to many of the issues involved with spinning out and general appreciation of the wider business environment and its operation

> ➢ *Business Planning & Raising Finance:* good overview of the most relevant sources of finance, with real-life case examples discussed

> ➢ *Intellectual Property:* provided background on IP and suggested options on what could be applied for during and after PoC projects

> ➢ *Sales & Marketing:* good exposure of the sales perspective and focus on the customer

> ➢ *Leadership, Teambuilding & Motivation:* well delivered and excellent course materials including templates to apply to own business example

> ➢ *General comments:* encouraged discussion, good trainers with hands on experience, built a good rapport with participants and ability to communicate. The workshops focussed specifically on the individual needs of those attending

5.11   For those workshops reported as the <u>least useful</u> respondents were asked to provide reasons why. A summary of general responses is presented:

> ➢ "good background knowledge but not directly relevant to stage of project"

> ➢ "project at an early stage in commercialisation planning and therefore the requirements of sales & marketing were too unfocused to use the course material to a greater advantage"

> ➢ "have attended similar course albeit for different purposes – I feel this is more about personality and common sense than some of the other issues".

5.12   Overall, the majority of survey respondents (91%) cited that the modules offered, met the specific needs of an early stage technology business.

5.13   Delegates were also questioned about their views on the delivery of the MDP and whether they considered this appropriate. The consensus emerged that the modules were held at the right time, at an appropriate location and of an appropriate duration.

5.14   **In summary, experience of the MDP has been positive although timing has emerged as an issue. Those who participate in the MDP having just or in the process of forming a company gain the most value from its content. Overall, the modules meet the specific needs of an early stage technology company and are well delivered. However, it is evident that the MDP is viewed and experienced as an awareness raising activity to increase knowledge of the business environment.**

Individual impact

5.15   In order to assess the impact the MDP had on individual behaviour, it was important to understand participant intentions regarding training. Specifically, we asked delegates whether they intended some form of training anyway before participating in the Programme. Two-thirds (66%) of respondents had in fact considered some form of training and the options are identified in Figure 5.6. We also enquired whether they had participated in any other public support programmes including PoC, a total of 55% had done so.

| Figure 5.6 Other Training options |
| --- |
| **General Training Programmes** |
| MBA – part-time and full-time study |
| Leadership Course (Creative Entrepreneur Club) - tailored to individuals in the creative industries |
| Praxis Technology Transfer Training |
| Marketing by distance learning (University of Strathclyde) |
| **Public Support Programmes** |
| SMART |
| Marketing Advance Programme (Scottish Enterprise) |
| Association of Women Entrepreneurs (sponsored by Scottish Enterprise) |

5.16 **Our analysis of training intentions highlights that a number of other forms of training were examined before participation in the MDP. However, it is interesting to note that the options considered relate to specific topic training rather than a package of training akin to the MDP offered by SEEL.**

5.17 An important area of exploration of this study was to establish the individual impact that the MDP has had on the managerial ability of participants. The results are illustrated in Figure 5.7.

Figure 5.7 Impact on delegate managerial behaviour
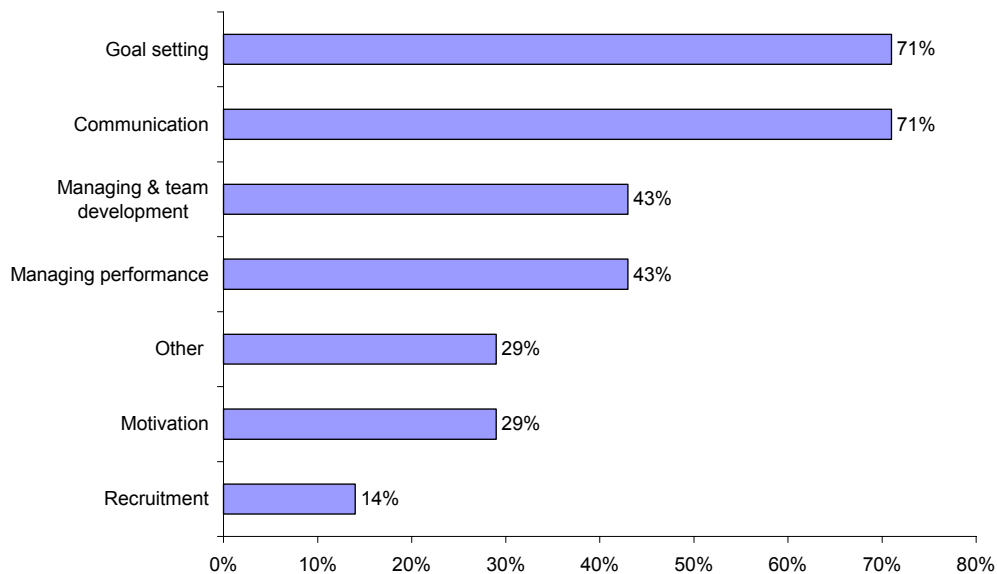
5.18   The main impacts on individual managerial behaviour relate to goal setting and communication. However, 67% of respondents reported that this would have been the case anyway, by learning the skills along the way, but many fewer (17%) thought that these would have been completed at the same time and as effectively.

5.19   In order to explore further the impact of the MDP on individuals, we asked what effect participation has had on activity and in particular their motivation to start a business. Almost one in three (30%) reported that their activity had remained the same, whilst there were zero responses for starting up a new business either independently or with others. The largest proportion cited 'other' impacts and these are outlined in Figure 5.8.

Figure 5.8 Other Impacts on Activity

"had already started up so using what I directly learnt on the Programme"

"helped a bit in developing my new business"

"changed the way we look at selling and marketing"

"have a better overview of requirements & greater confidence in ability to tackle commercialisation & business plans"

"more focused on what are realistic commercial opportunities"

"the extra knowledge & networking have provided confidence & the know-how is invaluable"

5.20   Of fundamental importance to this evaluation was to establish what individuals have done differently as a result of what they have learnt on the MDP. A range of responses were collected and detailed in Figure 5.9.

Figure 5.9 What has been done differently as a result of participation

"nothing – not reached start-up phase yet"

"brought more clarity into process for strategic planning as a result of having better overview of the interconnectness of management sectors"

"generally have a better idea of commercial issues & how to communicate without the science dominating!"

" the effect for me is with regard to my personal development – I feel I have more confidence to assess whether ideas or projects are commercially viable"

5.21   **Overall, the impact on individuals has been positive with business awareness increasing among participants. However, managerial behaviour has not fundamentally changed as a result of the MDP. The Programme has developed in a way in which individuals are able to proactively identify areas needing attention which they otherwise may not have**

done as effectively. Once again, timing has been highlighted as a critical issue and as a result many participants are unable to directly put into practice what they have learnt at this stage of their project.

Business impact

5.22   In addition to understanding the impact on individual behaviour we also explored, where possible, what effect participation has had on their business and in particular, sales and employment. **We must add a note a caution to these findings. Most of the survey respondents were yet to form a business and therefore the results are based on a small sample.** The results are detailed in Figure 5.10.

Figure 5.10 Business Impact				
	Major Effect	**Minor Effect**	**No Effect**	**Negative Effect**
Increased Sales (%)	0%	12%	88%	0%
Increased Sales (no. of responses)	*0*	*1*	*7*	*0*
Increased Employment	0%	12%	88%	0%
Increased Employment (no. of responses)	*0*	*1*	*7*	*0*

5.23   The results show that 7 respondents reported that there had been no effect on increasing the level of sales or employment as a result of their participation in the MDP. One respondent cited a minor effect on sales and employment level. Although, this data is useful in our identification of the impact of the MDP it is important to acknowledge that the impact may manifest itself in a variety of ways such as the 'intangible issues' of confidence building and may not be measurable in the short term.

5.24   In addition to this, we asked delegates what effect non-participation would have had on their business. The results are illustrated in Figure 5.11

Figure 5.11 Impact on Business Activity
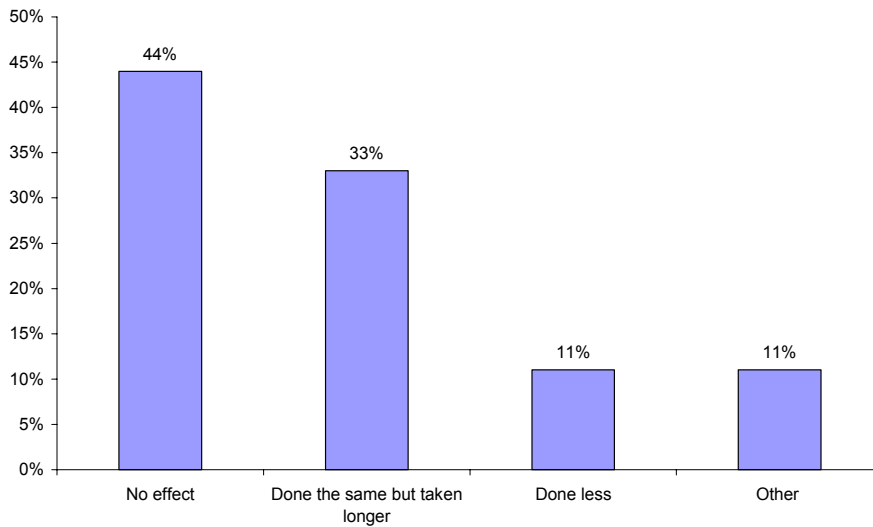
5.25   Respondents were most likely to state that non-participation would have had no effect (44%) on their business, whilst one-third would have done the same but taken longer to do so and 11% would have done less.

5.26   Delegates were also asked what overall impact the MDP has had on their business venture. One-third (33%) of respondents reported that the Programme was useful, whilst just over one in ten (11%) stated that it was vital and one-fifth suggested that it had no impact upon their business at all (22%).

Figure 5.12 The overall importance of participation to business performance
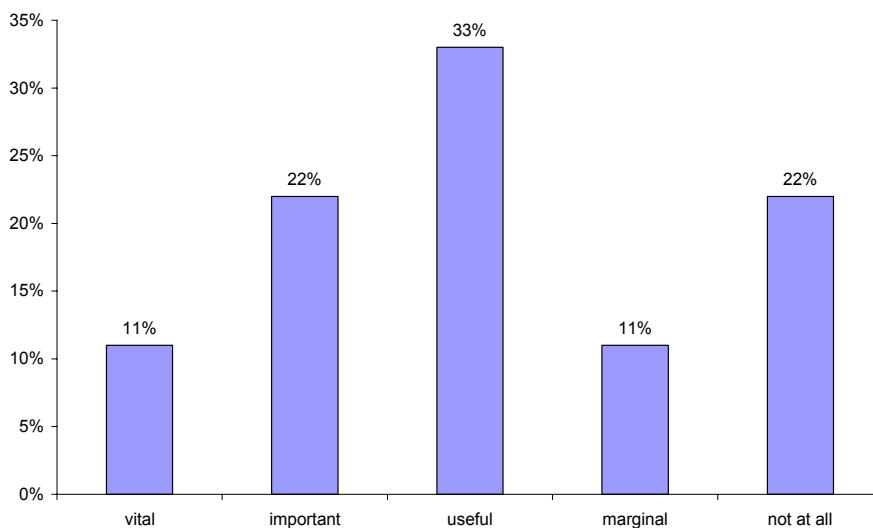
5.27 **The MDP has been very useful to the demands of early stage technology businesses yet has not had a significant impact on their performance. However, it has enabled them to address areas in a more efficient way, than would otherwise have been possible.**

6   Learning and development

6.1   We wished to obtain companies' views on the strengths and weaknesses of MDP and suggestions on how it might be improved.   The feedback from the e-survey on strengths and suggestions for improving MDP are summarised in Figures 6.1 and 6.2 respectively.

Figure 6.1 Key strengths of MDP
1.   *"Good content and trainers. Small group. Same group for each session in series".*
2.   *"Relevance of content; real life examples. Opportunity to ask questions & discuss different speakers, thus giving breadth of different views. Opportunity to meet & discuss with others in a similar position. The one-day sessions spread over time avoids disrupting other work".*
3.   *"Small groups good instructor, flexible (able to cover group/ individual concerns/ questions) good material for further reference".*
4.   *"Focused topics in small groups allows for discussions and ensuring that all relevant points are taken on board. It is also good to meet with other people in similar situations. The notes provided are excellent".*
5.   *"Relatively small size of groups (~10) made discussion possible. Good flexibility. Restaurant provided a less formal arena for further discussion".*
6.   *"From what I have attended the course is very useful for people with little or no commercial experience. It is pitched at the right level for that. The speakers are very good".*

Figure 6.2. Suggestions on how MDP could be improved
1.   *"Possibly consider, putting extra courses on following day(s) to foundation – reduces travel/ accommodation costs and keeps free focus. Maybe have multiple tracks".*
2.   *"As I feel that part of the Programme was timed right and one part was a bit early for my specific needs, perhaps more specific information about when in a PoC project's/ business's start-up period the Programme would be most useful, or else the course staggered over a slightly longer period.   Although it is still a bit early for "sales and marketing" for may project I presume it was right for others in the group".*
3.   *"An extra day for the Foundation course. Better ventilation for the Haymarket venue. Subsequent re-attendance when more appropriate (team building, business development, re-financing etc)".*

6.2   In relation to weaknesses, there was only one cited, which related to *"the poor logistical communication of SEEL"*.

Feedback from consultations

6.3   As part of the face-to-face and telephone interviews we asked MDP participants questions relating to learning and development. A summary of the main findings are as follows:

➢   the key strengths include the well planned structure of the Programme; teaching style, the opportunities for networking; relevance and quality of Programme content and the small group size

➢   the key weakness related to not having any form of 'tangible output'. A few of the consultees had also participated in the Marketing Advance Programme (MAP) provided by Scottish Enterprise. In MAP a practical marketing plan has to be developed by the end of the course. A similar type of 'tangible output' would have been beneficial to MDP participants, as it would have translated the knowledge gained into practice and provided a focus for the Programme

➢   the MDP could be further improved if the topics covered went into more depth especially for those participants who wanted to find out more. This may require increasing the length of the Programme or providing further signposting of where the relevant information could be obtained. Other suggested improvements include:

  ▪   greater publicity of the Programme

  ▪   at the start of the MDP some time should be spent on explaining and clarifying business terminology

  ▪   more information on how to pitch a product to businesses using the correct business language would be beneficial

  ▪   drop the word 'optional' to ensure the MDP is intended as a Programme – "in reality you don't know what you don't know". In other words, all workshops should be compulsory

- need more of a mix of participants – "currently one dimensional with just academics attending", bring in more start-up businesses to share experience and information

- make the Programme available across the University sector – not just to those focussed on starting a technology business

➢ there is evidence of contacts being maintained between participants after the completion of the Programme

7 Review of similar programmes

7.1 As part of this study we have completed a desk review of other schemes akin to the MDP. This section outlines their aims and provides a platform from which we can identify best practice. Both UK and international initiatives are discussed, which are relevant to the support of inventors and early stage technology companies.

7.2 This section does by no means provide an exhaustive list but outlines a number of similar courses and programmes available to inventors and early stage technology companies, as summarised in Figure 7.1. These programmes were identified as being similar to the MDP offered by SEEL.

Figure 7.1 Summary of Similar Programmes for Inventors		
	UK	**International**
Technology Entrepreneurship – *University of Strathclyde*	●	
Business Development for Technology Start-ups– *SNA Consulting*	●	
'The Business Map' – *Glasgow Opportunities*	●	
Science Entrepreneurship – *Oxford Science Enterprise Centre*	●	
Advice & Counselling for Inventors - *ICASS*	●	
Business Development – *Biotechnology Business Consultants (BBC)*		●
Small Business Management & Entrepreneurship – *DeVry University*		●
NxLeveL Entrepreneurial Training – *Fairfax Small Business Development Centre*		●
New Enterprise & Designing & Leading the Entrepreneurial Organisation – *Massachusetts Institute of Technology Enterprise Centre*		●

UK Initiatives

7.3 The ***University of Strathclyde*** offers a Postgraduate Taught Course in Technology Entrepreneurship at the Hunter Centre for Entrepreneurship.

7.4 However, this course is only accessible to those individuals with a good scientific, engineering or technology-based first degree. The aim of the course is for individuals to research the possibility of setting up their own technology-based business. There are full and part-time options of study.

7.5 Specifically, the core modules of the course include:

> opportunity recognition

> accessing resources

> technology venture management

> company-based investigation

7.6   There are also a range of other modules to choose from and a dissertation must be completed which can be related to a business plan for a new business. A range of assessments are used for the teaching, and considerable emphasis is placed on enhancing and assessing those written and oral communications skills that are essential for entrepreneurship. Course details are available online at: **http://www.strath.ac.uk/huntercentre/pg-info/techcenter.html**

7.7   The strengths and weaknesses of the Technology Entrepreneurship course are outlined below:

Strengths	Weaknesses
> the course relates to specific issues of technology entrepreneurship	> requires significant commitment in terms of both time and money
> a range of assessments are used to engage with participants	> structured course – no flexibility to 'dip' in and out with relevant topics

7.8   ***SNA Consulting*** based in Cambridge, are a consultancy providing a number of training programmes for early stage companies, in the following areas:

> business development for technology based start-ups

> strategic marketing

> business models

> sales development

> building the entrepreneurial team

> managing relationships

> customer care

> managing the transition from start-up to a growing business

7.9   Course details are available online: **http://snaexecutive.com/services/early_stage/index.htm**

7.10   The strengths and weaknesses of the Business Development course are outlined below:

Strengths	Weaknesses
➢ the course relates to specific issues of technology entrepreneurship ➢ range of additional training courses to supplement specific knowledge	➢ requires significant financial commitment ➢ each training course is delivered in isolation – no 'package' option

7.11   ***Glasgow Opportunities (GO)*** is one of Britain's largest and most successful enterprise trusts. Based in Glasgow, and operating locally, nationally and internationally, GO have been specialists since the-mid eighties in start-up, business growth and knowledge transfer for SMEs.

7.12   GO provides a management development programme, 'The Business Map'. The programme is aimed at business owners, managing directors and senior managers who are keen to develop their personal skills and significantly improve the performance of their business. The course is structured to minimise individual time away from respective businesses, with sessions held at weekends.

7.13   Training is delivered in interactive group sessions and at the end of each session, individuals create an action plan to help put their new knowledge into practice.   The Programme is delivered in 14 sessions over 5 months and held in central Glasgow.

7.14   The modules include:

➢ *Focus on the fundamentals* – identifying your greatest business challenges and identifying what you need from the programme to transform your business

➢ *Know yourself* – recognising your strengths, addressing your weaknesses and identifying areas for development

➢ *Know your market* – learning about practical marketing principles and how they help exceed customer expectations

➢ *Manage your operations* – examine, analyse and transform your operating systems and measure business performance

➢ *Know your people* – how to recruit the best talent, develop, motivate and inspire them

- *Improve your grasp of the numbers* – learn more about business performance and profit streams and how to improve management of finance in your business

- *Develop your strategy* - develop a focussed strategy and practical operating plan to drive your business to where you want it to be

- *Now make it happen* – develop an action plan to take the business forward

7.15   Although this Programme is not designed specifically for inventors or early stage technology companies it provides a solid platform of information for anyone in business or thinking of starting a business.

7.16   Course details are available online: **http://www.thebusinessmap.co.uk**

7.17   The strengths and weaknesses of *'The Business Map'* are outlined below:

Strengths	**Weaknesses**
➢ tangible output at the end – business plan	➢ not specific to technology businesses
➢ structured to minimise time away from the office	➢ not tailored to address the particular needs of start-up businesses
➢ presented as a 'package'	

7.18   ***Oxford Science Enterprise Centre*** offers business courses and skills training based around science entrepreneurship. The course, Building a Business is free and runs for 8 weeks. Aimed at scientists in the local business community, it is designed particularly around technological enterprise.

7.19   Course content includes:

- *Taking the first steps* – setting the scene for a science-based business

- *Intellectual property* – patents and how to protect and control your ideas

- *Negotiation skills* – relationships with customers, suppliers and the bank

- *Raising capital; doing deals* – specialist technology venture capitalist advice

- *Markets; finding, reaching, satisfying* – marketing, R&D and sales advice

➢ *Product development* – designing for the market: how to turn your raw idea into a product for a specific market

➢ *Understanding financial control* – profit & loss, balance sheets and cash flow

➢ *Entrepreneurship and the ideal business plan* – creating a winning business plan

7.20 Course details are available online: **http://www.thebusinessmap.co.uk**

7.21 The strengths and weaknesses of the Science Entrepreneurship programme are outlined below:

Strengths	**Weaknesses**
➢ focussed on science entrepreneurship	➢ no tangible output on completion of the course
➢ range of modules – presented in a 'package'	
➢ free course	

7.22 ***ICASS*** is a government initiative, funded by the Scottish Executive, which provides specialist advice and counselling for Scotland's inventors and small innovative companies. A network of counsellors cover the whole of Scotland providing a service that is free and completely confidential.

7.23 ICASS helps anyone who wants advice on commercialising an innovative idea. The service is available throughout Scotland at a time and place convenient to you. They can help to investigate the originality of the idea, establish and protect the Intellectual Property Rights, signpost:- Patent Agents, Technical Advisors, R&D, Model Makers, Draughtsmen, Potential partners and Sources of finance.

7.24 They will also guide individuals through the process of commercialisation. This may be done by introducing individuals to appropriate business advisers within and out with the Enterprise Network, to potential public and private sector funders and business angels.

7.25 The service is available via Scottish Enterprise, the Highlands and Islands Enterprise Local Enterprise Company and local Business Gateways.

7.26 Further details are available online at: **http://www.icass.co.uk**

7.27 The strengths and weaknesses of ICASS are outlined below:

Strengths	Weaknesses
➢ focussed on inventors	➢ operates as a broker – directed elsewhere for advice
➢ free advice and counselling	➢ no opportunity to network with others and share experience
➢ flexibility of approach	

7.28   Internationally, there are many examples of similar initiatives for inventors and early stage technology companies; we provide discussion on a few in the next section.

International Initiatives

7.29   ***Biotechnology Business Consultants (BBC),*** through the Michigan Technology Tri-Corridor Fund (MTTC), provide commercialisation consulting services to technology entrepreneurs and early-stage technology companies throughout Michigan.

7.30   Through a combination of seminars, training sessions, one-on-one meetings and intensive consulting assistance (incubation services), BBC assists entrepreneurs and early-stage technology companies to progress toward the goal of commercialisation of novel products and technologies.

7.31   Costs to provide these services are covered in whole or in part by the MTTC. Further course information can be found at: **http://www.bioconsultants.com/business_dev.html**

7.32   In particular they provide a series of Business Development workshops for early stage technology companies and entrepreneurs. The workshops include:

➢ Business organisation and start-up

➢ Human resources for start-up

➢ Intellectual property issues: patents and beyond

➢ Technology contracting

➢ General business planning

➢ Developing a marketing plan that supports your business strategy

7.33   The strengths and weaknesses of these Business Development Workshops are outlined below:

Strengths	Weaknesses
➢ focussed on early stage technology companies	➢ available only to those in the local community
➢ flexibility of approach – mix of teaching styles	➢ training is not presented in a 'package'
➢ free course	➢ no 'tangible' output

7.34   The ***Entrepreneur Centre at the Northern Virginia Technology Council*** provides listings of higher level education courses aimed at nurturing and developing technology entrepreneurs. A few examples are outlined in the following section:

7.35   DeVry University's Small Business Management and Entrepreneurship course provides individuals with the skills and methods needed to launch a new enterprise, take over an existing business, or be a dynamic manager who can make a dramatic difference to the future of a small business. Courses in Small Business Management and Entrepreneurship can be undertaken during the day, evenings and weekends with online options as well. By learning with staff who can share their own, real world experiences, individuals will better understand the excitement as well as the risks and requirements involved in creating and implementing new business plans.

7.36   Specifically, individuals learn how to find initial funding and the financial resources for later expansion, how to build a solid customer base, and how to identify new opportunities. The course also provides the essential skills for planning and implementing budgets, managing payrolls and dealing with staffing issues.

7.37   Further course details are available at:
http://www.devry.edu/programs/small_business_management_and_entrepreneurship/about.jsp

7.38   The strengths and weaknesses of the Small Business Management & Entrepreneurship course are outlined below:

Strengths	Weaknesses
➢ flexible approach to study	➢ not specifically geared towards start-up businesses
➢ experience of teaching personnel	➢ no tangible output

7.39   The *Fairfax Small Business Development Centre*, Virginia offers the NxLeveL Entrepreneurial Training Programme. NxLeveL is designed to help potential and existing entrepreneurs learn the skills needed to create and strengthen successful business ventures. NxLeveL addresses the special needs of entrepreneurs by providing a practical, hands-on approach to developing small business whether just starting out or ready to grow.

7.40   NxLeveL for Entrepreneurs is a 12-session, 15-week course designed for entrepreneurs who want to expand an existing business and need the skill to make it grow. Participants develop a comprehensive business plan during the course to act as a roadmap for future growth. Modules include; planning and research, management and legal structure, marketing, financial planning, financing your business, negotiation and managing growth.

7.41   Further course details can be found at:
        http://www.sbdc.org/business_education.asp?action=nxlevel&link=3

7.42   The strengths and weaknesses of the NxLeveL course are outlined below:

Strengths	Weaknesses
➢ develop a comprehensive business plan as part of the course	➢ not specifically geared towards start-up businesses
➢ practical, 'hand-on' approach to teaching	➢ significant time commitment

7.43   The *Massachusetts Institute of Technology Enterprise Centre* offers a wide range of courses in launching, managing, and growing technology-based businesses. We present just a few examples here:

➢ *New Enterprises* - in this course, participants will, create a technology-based enterprise and all the essential parts of a business plan and investor pitch. Participants will work in teams to launch companies, working through issues of market analysis, technology viability assessment, competitive positioning, team-building, product life-cycle planning, marketing strategy, sales channel analysis, and a strong emphasis on the entrepreneur as a sales person

➢ the course covers the process of identifying and quantifying market opportunities, then conceptualizing, planning, and starting a new, technology-based enterprise. Specific topics include; opportunity assessment, value propositions, the entrepreneur, legal issues, entrepreneurial ethics, the business plan, the founding team, and seeking funds. Each participant develops a detailed business plan for a start-up

➢ this course is intended for those who want to start their own businesses, further develop an existing business, be a member of the management team in a new enterprise, or

understand better the entrepreneur and the entrepreneurial process.

The strengths and weaknesses of the *New Enterprise* course are outlined below:

Strengths	Weaknesses
➢ helps to plan the business process without actually taking the risk	➢ time commitment
➢ strong component to team working and shared learning	➢ intensive course – significant ground covered in short period of time

7.44   ***Designing and Leading the Entrepreneurial Organisation*** - this course is about building, running, and growing an organisation. It has four central themes: (1) How to think analytically about designing organisational systems, (2) How leaders, play a critical role in shaping an organisation's culture, (3) What really needs to be done to build a successful organisation for the long-term; and (4) What one can do to improve the likelihood of personal success.

In particular, the course addresses the principles of organisational architecture, group behaviour and performance, interpersonal influence, leadership and motivation in entrepreneurial settings. The course is delivered through a series of case studies, lectures and exercises.

Further information on the range of courses offered is available at: **http://www.cambridge-mit.org/cgi-bin/default.pl**

The strengths and weaknesses of the Designing & Leading the Entrepreneurial Organisation are outlined below:

Strengths	Weaknesses
➢ acknowledges the individual as part of a successful company	➢ not specifically geared towards start-up businesses
➢ mix of delivery approaches	➢ less focussed on business practice, more on individual ability and attitude

7.45   At the request of SEEL we have sought to obtain further details on these programmes. Some of the UK providers have responded, others have not. We have discussed alternative management development programmes in detail in this section and we provide a summary in Figures 7.2 and 7.3.

Figure 7.1 Similar Management Development Programmes for Inventors (UK)						
Organisation	**Course**	**Aimed at**	**Modules**	**Delivery**	**Cost**	**Contact details**
UK Initiatives						
University of Strathclyde	*Technology Entrepreneurship* Postgraduate Taught course	Those with a scientific, engineering or Technology based first degree	➢ opportunity recognition ➢ accessing resources ➢ technology venture management ➢ company based investigation	Full & part study options	Fees payable	Dr. Jonathan Levie ***j.levie@strath.ac.uk*** 0141 5483502
SNA Consulting	*A range of training programmes*	Early stage companies	➢ business development for technology based start-ups ➢ strategic marketing ➢ business models ➢ sales development ➢ building the entrepreneurial team ➢ managing relationships ➢ customer care ➢ managing the transition from start-up to a growing business	Full-time day options	Fees payable	***info@snaexecutive.com*** 01954 719009
Glasgow Opportunities	*'The Business Map'*	➢ Business owners ➢ Managing Directors ➢ Senior Managers	➢ focus on the fundamentals ➢ know yourself ➢ know your market ➢ manage your operations ➢ know your people ➢ improve your grasp of the numbers ➢ develop your strategy	Sessions held at weekends 14 sessions over 5 months Action plan on completion	Free	***info@thebusinessmap.co.uk*** 0845 6066372
Oxford Science Enterprise Centre	*Building a Business*	Scientists	➢ taking the first steps ➢ intellectual property ➢ negotiation skills ➢ raising capital ➢ markets; finding, reaching, satisfying ➢ product development ➢ understanding financial control ➢ entrepreneurship & the ideal business plan	8 week Programme	Free	Jasmin Levy ***Jasmine.levy@sbs.ox.ac.uk*** 01865 288845
ICASS	*Specialist advice & counselling*	Inventors	➢ investigation of the originality of the idea ➢ intellectual property rights	Flexible location	Free	Carol Rollo 0845 6011718

Figure 7.2 Similar Management Development Programmes for Inventors (International)				
Organisation	**Course**	**Aimed at**	**Modules**	**Delivery**
Biotechnology Business Consultants (BBC)	*Commercialisation Consulting services*	Technology entrepreneurs & early stage technology businesses	➢ business organisation & start-up ➢ human resources for start-up ➢ intellectual property ➢ technology contracting ➢ general business planning ➢ developing a marketing plan that supports business strategy	Free programme
DeVry University	*Small Business Management & Entrepreneurship*	Technology entrepreneurs	➢ launch a new enterprise & initial funding ➢ funding for expansion ➢ how to build a solid customer base ➢ how to identify new opportunities ➢ essential skills for planning & implementing budgets ➢ dealing with staffing issues	Study options include; day, evenings, weekend and online
Fairfax Small Business Development Centre	*NxLevel Entrepreneurial Training*	Potential & existing entrepreneurs	➢ planning & research ➢ management & legal structure ➢ marketing ➢ financial planning & financing your business ➢ negotiation ➢ managing growth	12 sessions over 15 weeks Develop a business plan over the course
Massachusetts Institute of Technology Enterprise Centre	*New Enterprises*	Pre-starts & those wishing to further develop an existing business	➢ opportunity assessment ➢ value propositions ➢ the entrepreneur ➢ legal issues entrepreneurial ethics ➢ the business plan ➢ the founding team ➢ seeking funds	Create a fictional company & develop a business plan
	Designing & leading the Entrepreneurial Organisation	Building & growing a business	➢ designing organisational systems ➢ leadership & culture ➢ building a successful organisation in the long term ➢ improving the likelihood of personal success	Delivered through a series of case studies, lectures & exercises

8 Success factors: a good practice model

8.1 In this Chapter we bring together the learning and best practice from the various elements of the study to develop an approach for an improved MDP. In doing so, we incorporate two main elements 1) the critical success factors from the current MDP and 2) relevant learning from the similar programmes presented in the previous chapter. This methodology is shown in Figure 8.1 below.

Figure 8.1 Developing Methodology for Improved MDP
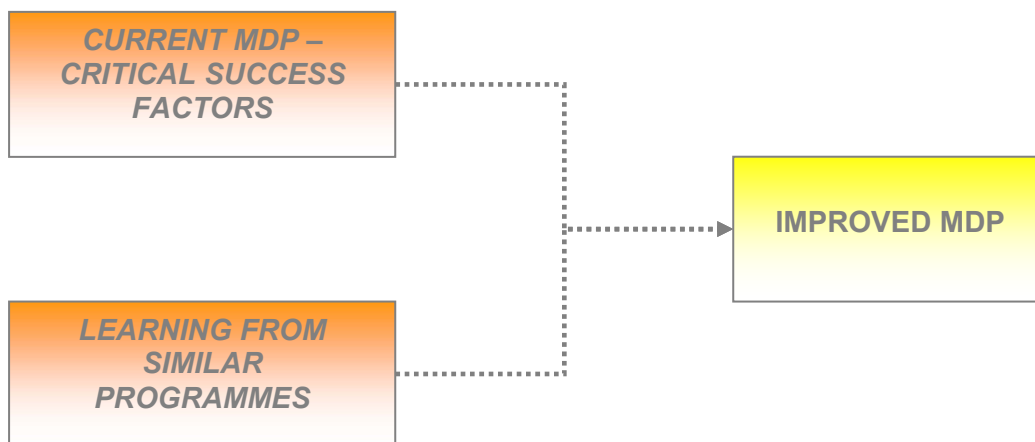
8.2 The following sections outline the three main components of our methodology:

Critical Success Factors of the current MDP

- *delivery format – 'package'* – design of the MDP ensures added value throughout the process of the Programme. For example, the foundation modules present an overview of the business environment and provide an opportunity to reflect on what specific areas need further attention. The optional modules then build upon the basic foundation modules to provide more actionable learning. The 'package' promotes a joined up approach to learning, rather than topics taught in isolation

- *geared towards technology start-ups - 'Like minded people'* – the MDP presents a unique focus on inventors and technology start-ups. It recognises that this group of individuals has a distinct set of needs and requirements and addresses them in an appropriate context

- *builds on other Scottish Enterprise initiatives* - the MDP is aligned with the PoC programme and adds value to the PoC approach, building upon knowledge learnt

- *delivery personnel* – there was a strong and unified consensus that the presenters were fundamental to the effectiveness of the Programme. In particular they taught from personal experience and were able to relate to participants on an appropriate level

- *tailored approach – small group* – presents opportunities for individuals to pose questions based on their specific situation and encourages discussion which inevitably leads to enhanced learning and sharing of experience

Learning from similar programmes

8.3   Whilst the MDP is achieving its aims and objectives and is taking steps to address market failure, we are however able to learn from other similar management development programmes both in the UK and internationally (discussed in Chapter 7). In particular:

- *development of a 'tangible output'* – such as a business or action plan

- *greater 'interactivity'* – to engage with participants in a more effective way

- *knowledge sharing* – acquired from the 'make up' of the group, mix of new business owners and academics

- *flexible delivery options* – to minimise time away from the office, such as evening and weekends

Improved MDP

8.4   Based on our analysis an improved MDP which incorporates the best practice outlined previously is presented. We build upon the current MDP model by adding two additional components to the process (stages 2 and 3), as illustrated in Figure 8.1. In particular we build upon several best practice examples from the current MDP, including:

- ***'additional support'*** – trainers are on hand to answer questions and provide support out with the workshops

- ***'performance measurement & follow up'*** – tracking of individuals once they have taken part in the MDP at regular intervals to monitor their progress

- ***'feedback process'*** – building upon the procedure where suggestions provided are investigated further

8.5   In the following section we discuss each of the three stages proposed in the improved MDP.

Figure 8.1: Improved MDP
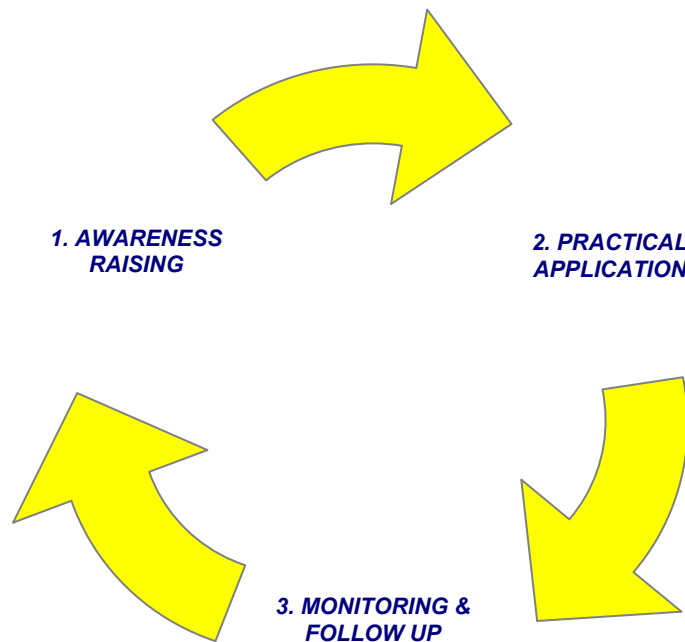
8.6   **Stage 1 – Awareness raising:** From this study it has become apparent that the outcome of the current Programme has been to raise awareness and knowledge of the business environment. This has involved a very structured process to learning, which is effective in itself but not sufficient to develop participants on to the next stage whereby they can apply this knowledge in practical terms. With this in mind, we propose a second stage to the MDP.

8.7   **Stage 2 – Practical application:** A 'tangible output' in the form of a practical action plan will provide participants with the opportunity to translate their learning into actual practice. Consequently, there will greater added value in two main ways. Firstly, the individual participant will become more confident in his or her business skills. However, the MDP must explicitly promote this form of learning as responsibility of the learner in order for it to be effective. Secondly, there is a greater chance of some form of economic impact on not only business performance in terms of certain parameters such as sales and productivity but also to the wider economy.

8.8   This is supported by evidence from similar Programmes such as MAP as delivered by Scottish Enterprise which do have at its core the development of an actionable business plan. Developing an action plan for MDP would also address market failure by spending time considering the business activities and requirements of a feasible business plan. To complete the cycle we propose one final stage in relation to monitoring and follow up.

8.9   **Stage 3 – Monitoring & follow up**: A regular monitoring and follow up process should be developed to track progress of individuals since the Programme. An evaluation of individuals was intended by SEEL to be carried out on completion of the Programme and then three, six and twelve months after. It is important to monitor progress and to determine whether individuals feel they are now better equipped to run a sustainable business. This is fundamental to the operation of the MDP and to provide feedback for future improvements to the Programme.

9   Conclusions and recommendations

9.1   This study has analysed three forms of evidence which we use to inform our conclusions and recommendations. These include the feedback from the consultations, the survey responses and our desk research. **However, we would preface these findings with an important "health warning". This relates to the relatively low response rate to both the consultations and e-survey.** Nevertheless, we believe the conclusions and recommendations presented below are justified.

Conclusions

9.2   It is important to note that productivity and competitiveness are strongly influenced by the ability to innovate and exploit knowledge through commercialisation. The MDP forms a critical and extremely valuable part of this process by increasing awareness of the business environment in which product commercialisation takes place.

9.3   Overall, the MDP is considered to be a positive public intervention with a strong relevance to the current and future needs of technology projects and business ventures. Our consultations highlighted a real enthusiasm about the programme and there was a strong consensus that participating in the MDP is a valuable experience.

A programme for individuals not businesses

➢   tt is important to emphasise that the MDP in its current form is a programme aimed at individuals not businesses. The overarching aim of the MDP is to provide individuals with a much clearer understanding of how to run and grow a successful technology business. Thus, targets and performance measures should reflect that MDP aims to change attitudes and behaviour by increasing participants' knowledge and understanding of the business issues involved in starting up and running a technology based business

Programme participation

➢   just 12% of MDP participants completed all the modules offered. Thus, it is clear that the MDP is not viewed as a programme as individuals are able to dip in and out and attend as few or as many modules as they so choose. In order for participants to gain maximum

benefit from the training the MDP should be promoted as a programme of training with all modules compulsory.

Timing – a significant issue

➢ the timing of the intervention has emerged as a significant issue. Those who participate in the MDP having just or in the process of forming a company, gain the most value from its content. The links developed with PoC and EPIS mean that the programme is more effectively equipped to be able to address *when* people will benefit most from involvement in it

Additionality

➢ a reasonable level of *additionality* has been achieved by the MDP. Most participants stated they would have in that as most consultees would have addressed the areas dealt with by MDP, but less effectively and at slower pace. From our best practice review and our knowledge of the commercialisation agenda it is not altogether clear how they would have managed to do so readily

➢ the Programme is delivered in a way in which individuals are able to proactively identify areas needing attention which they otherwise may not have done as effectively

➢ our analysis of training intentions highlights that a number of other forms of training were examined before participation in the MDP. However, the options considered relate to specific topic training rather than a package of training akin to the MDP, in other words, there is nothing quite like the training offered by SEEL to start-up technology businesses

Economic benefit

9.4   It is clear that MDP has had a strong, positive impact on consultees. This has had little measurable economic impact. The capacity of firms to be innovative is directly influenced by the confidence and capabilities of their managers. We consider that the attributes cited by consultees gained as a result of the programme will contribute towards additional growth and investment in technology based companies in Scotland.

9.5   That said, the MDP forms part of the portfolio of support to the commercialisation agenda. Its greatest impact will be on the enhanced effectiveness of the outputs from PoC and EPIS. The MDP's main contribution needs to be measured accordingly.

Delivery

➢ the delivery of the MDP at an operational level is considered as excellent. However, there appears to be a lack a tangible output at the end of the Programme. Consequently, the scope to put into practice valuable knowledge gained has yet to reach its full potential. The Action Plan for participants should be made a more explicit component part of the MDP and that the onus is on the individual to document the lessons learnt

Market failure

➢ the MDP has taken steps to address market failure. The market failure for these individuals is apparent in having the skills and the ability to access appropriate knowledge and information. Although, the Programme does not change the 'skillset' of participants it does raise their awareness of business issues and provide them with the confidence to be more proactive in dealing with the challenges and issues facing a start-up technology business.

Recommendations

9.6 This study has highlighted the positive components of the MDP as identified by clients and key stakeholders. We propose recommendations which build upon these to enhance the operation and performance of the Programme. These have already been discussed as part of the improved MDP developed in the previous chapter. In summary these include the following:

➢ **integrate** the MDP with the PoC and EPIS schemes. Since PoC and EPIS participants are the target market for the MDP, the Programme is a natural extension of such schemes and could be completed as a fundamental component of each respective initiative. However, the **timing** of referring individuals onto the MDP needs careful consideration. Our research has highlighted that the most appropriate time to participate in the MDP is during or just after company formation. We recommend close liaison between SEEL, PoC and EPIS operational personnel to ensure the most appropriate manner to address this

➢ the MDP should be promoted and undertaken as a **programme of training**, thus, all modules would become compulsory. This would bring a number of benefits to both MDP participants and SEEL. By completing the MDP in its entirety, individuals are addressing areas they may not have identified as useful but are in fact invaluable in running a successful technology start-up. For SEEL, completion of all the modules by participants

would help to **minimise 'leakage'**. In other words, participants are less likely to go elsewhere for component parts of the training

➢ it is vital that the **performance mechanisms** and **targets** set by the operational team in order to measure the appropriateness of the MDP are revised to reflect the nature and aims of the programme. Whilst initial measures were appropriate when the programme was first introduced and targeted at account managed companies, individuals are now the focus and respective targets and measures should be changed to reflect this

➢ developing a more explicit **'tangible output'** in the form of an Action Plan for each participant. This will enable them to translate their learning into actual practice. This can be achieved through more explicit attention given to the Action Plan included in the training pack. Whilst onus is on the individual to fill out the Action Plan, SEEL should draw attention to the benefits of such a plan, throughout the duration of the programme. Enhancing the development of an Action Plan for MDP would also address market failure as individuals would be spending time considering their specific business activities in line with the formal requirements of a feasible business plan

➢ ensure a robust process of **monitoring and follow up** to track the impact of participation on individuals and their businesses. A regular monitoring and follow up process should be developed to track progress of individuals since the Programme. This is fundamental to the operation of the MDP and to provide feedback for future improvements to the Programme

➢ in relation to **marketing** the Programme should be clearly identified as Management Development Programme for Inventors and promoted directly to PoC, EPIS and other scheme participants as well as relevant commercialisation intermediaries, such as commercialisation offices at universities. It would be useful for PoC, EPIS and other commercialisation intermediaries to attend the MDP to experience the programme first hand to ensure such personnel are better informed when referring individuals and promoting the MDP.

APPENDIX A

LIST OF CONSULTEES

CONSULTEES

Consultee	Organisation	Participation
Robert Boyce	Ice Robotics	Nov-02
Bill Bryan	Programme Delivery Personnel	
Alexis Enright	University of Strathclyde	Jun-05
Edward Gallagher	MRC Technology	Jun-05
Nigel Goddard	Axiope	Mar-03
Sunil Kadri	University of Glasgow	Jun-05
Robert Kay	Microstencil	Dec-02
Roy McBride	Powerphotonic	Feb-05
Scott McMeekin	Glasgow Caledonian University	Jun-05
Campbell Melee	Project Manager - SEEL	
Lesley McMillan	University of Dundee	Feb-05
Lynn Morrice	University of Glasgow	Jun-05
Alan Nesbitt	Glasgow Caledonian University	Jun-05
Donal O'Herlihy	Programme Delivery Personnel	
Neil Pilgrim	Aberdeen University	Feb-05
Neil Polwart	Hydrosense	Nov-02
Alison Reith	University of Glasgow	Jun-05
Iain Robinson	Oil Remediation Technology	Feb-05
David Ross	A2E Ltd	Sep-03
Ann Marie Shillito	Tactitus & Hands on Projects	Feb-05
Paul Slavin	University of Strathclyde	Jun-05
Tong Teh	Heriot-Watt University	Feb-05

APPENDIX B

CONSULTATION AIDE MEMOIR

Aide Memoir - Economic Impact Study of Management Development Programme for Inventors

A   BACKGROUND

- *Name*
- *Organisation*
- *Position*

B   EXPERIENCE OF THE PROGRAMME

1. How did you become involved in the Programme?

2. Why did you become involved in the Programme?

3. What did you hope the Programme would be like?

4. How did your experience of the Programme compare to your expectations?

5. How relevant was the Programme to the current and future needs of your business?

C   PROGRAMME DELIVERY

6. How useful were the modules that you completed?

7. What do you think about the teaching style, was it appropriate?

8. Were the modules held at the right time, at an appropriate location and of an appropriate duration?

9. Did the modules offered address the specific needs of a technology business?

10. Which modules would you consider to be the most useful & why?

11. In what ways could the modules be improved?

D   IMPACT

INDIVIDUAL IMPACT

12. Did you intend some form of training anyway before engaging with the Programme? If so, what options were considered?

13. Have you been involved in any similar initiatives?

14. Did you put together a viable business proposition as a result of the Programme?

15. As a result of participation in the Programme, have your management skills improved? If so, in what ways?

16. Do you think you have become more entrepreneurial *(interviewer will define)* as a result of the Programme? If so, how has this been demonstrated?

17. What have you done differently as a result of what you have learned on the Programme?

18a. If you had not participated in the Programme, would you still have undertaken the same activities anyway, at the same time & as effectively?

18b. If not, what would you have done instead?

BUSINESS IMPACT

19. Has participation in the Programme significantly affected the performance of your business in Scotland? (i.e. increased sales/productivity, increased employment or reduced costs – *measurable impacts where possible*)

20. What do you think would have happened if there was no Programme?

21. Overall, how important has participation in the Programme been to the performance of your company?

E   LEARNING & DEVELOPMENT

22. What are the key strengths & weaknesses of the Programme?

23. What else should the Programme have involved?

24. How might the Programme be improved?

25. Have you maintained contained contact with anyone you met on the Programme?

26. In your opinion, do you think the Programme should be extended?

F   COMPANY PROFILE (If relevant)

27. Main business activity (main product/service & main market sector)?

28. When was the company formed?

29. Turnover (last financial year)?

30. Current total number of staff?