

**Scottish Enterprise**

**Proof of Concept Programme**

**Evaluation – Rounds I to VI**

*Final Report*

*May 2006*

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**“The Proof of Concept Programme supports the pre-commercialisation of leading edge technologies emerging from Scotland’s universities, research institutes and NHS Boards..... It is not another source of research funding. Successful applicants must demonstrate that their ideas have originality and true commercial potential”**

## Executive Summary

### Introduction

The Proof of Concept Programme (“PoCP” or “Programme”) is a successful initiative that has met its original objectives and is likely to continue generating real benefit to the Scottish economy in the future. We recommend, therefore, that Scottish Enterprise continue the Programme.

This conclusion is drawn on the basis of the evidence and findings from the evaluation of four key questions:

- Have the objectives originally set for PoCP been realised?
- What are the benefits of the Programme over the first six rounds of funding?
- How have these benefits been generated? And,
- What can be improved in taking the Programme forward in the future?

### Objectives

The initial objectives for the PoCP were set in 1999. As illustrated, in Table One below, these objectives were focussed upon addressing the lack of available funding (or “market failure”) to support the development of research concepts into commercial products or services. As also illustrated, by Table One, the evaluation evidence suggests that PoCP is addressing this failure by meeting these objectives.

**Table One : PoCP Objectives**

Objectives	Met	Evidence
Improve the level and quality of commercialisation within Scotland's universities and research institutions.	✓	<ul style="list-style-type: none"><li>➤ Significant uplifts in commercialisation activity and net benefits.</li><li>➤ Initiation and growth of commercialisation offices in Universities has led to an increasing portfolio of PoCP and non PoCP projects.</li></ul>
Raise the profile of the Scottish capability in technology based research and development.	✓	<ul style="list-style-type: none"><li>➤ Development of new support mechanisms in response to growth in commercialised projects.</li><li>➤ Securing ERDF support for enhanced delivery</li><li>➤ Increased private sector interest and involvement in PoCP and non PoCP projects.</li><li>➤ PoCP is internationally recognised as a leader in its field</li></ul>
Enable the creation and securing of intellectual property in Scottish Institutions.	✓	<ul style="list-style-type: none"><li>➤ Uplift in patents, licensing and in particular, level of spin-outs across Scottish universities as a result of PoCP involvement.</li></ul>
Encourage academics to take forward commercial as well as academic opportunities.	✓	<ul style="list-style-type: none"><li>➤ Around 80% of projects surveyed would not have achieved a commercial outcome without PoCP.</li></ul>

Fund those applications with the highest level of economic impact to Scotland and create greater levels of employment (both quality and quantity).	✓	<ul style="list-style-type: none"> <li>➤ Rigorous application process (with rejection levels of up to 75%) focussed on commercial opportunities.</li> <li>➤ Significant proportion of spin-out companies.</li> </ul>
Encourage collaboration between Universities, Research Institutions and the NHS Boards.	✓	<ul style="list-style-type: none"> <li>➤ All NHS applications supported by partner Universities.</li> <li>➤ Evidence of new activity and cultural change in NHS as a direct result of PoCP.</li> <li>➤ Emerging 'bundling' of successful PoCP projects</li> </ul>
Contribute to the development of Scotland's clusters by facilitating the exploitation of technology.	✓	<ul style="list-style-type: none"> <li>➤ Alignment of PoCP support to Priority Industries and evidence of project clusters.</li> <li>➤ National and international recognition of PoCP as leading exemplar of commercialisation.</li> </ul>
Devise a Programme structure which meets the needs of institutions, clusters and Scottish Executive and other stakeholders.	✓	<ul style="list-style-type: none"> <li>➤ Consistent responses from all stakeholders surveyed of net and additional benefit of PoCP in meeting needs.</li> </ul>
Generate comprehensive coverage in the range of applications/funded projects in terms of size, type and location of institution.	✓	<ul style="list-style-type: none"> <li>➤ Receipt of applications from the majority of eligible organisations across all priority industry themes and related technologies.</li> </ul>
Generate comprehensive coverage in the range of applications/funded projects in terms of cluster areas and tackle those lacking in relevance, quantity and/or quality applications.	✓	<ul style="list-style-type: none"> <li>➤ Introduction of new 'cluster' areas over time.</li> <li>➤ Rigorous application processes that ensures relevancy of project awards.</li> <li>➤ On-going liaison with all commercialisation offices/SE network.</li> </ul>
Provide a simple, efficient and transparent applications process.	✓	<ul style="list-style-type: none"> <li>➤ Majority of project representatives confirmed efficiency of process relative to other funding regimes.</li> </ul>

### Benefits

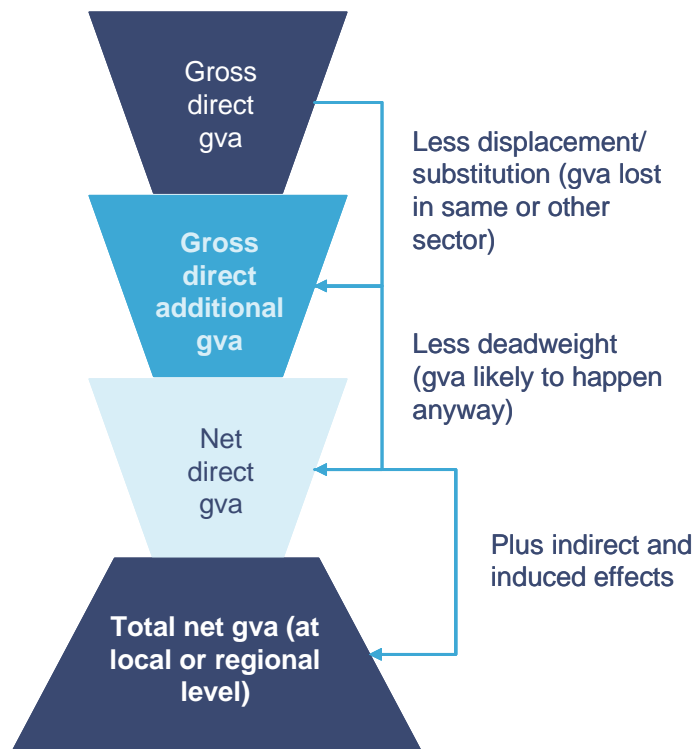
It is important, in evaluating a programme that is meeting its objectives, to understand the benefits that may also have been secured. The analysis of PoCP benefits, at a net level, has involved the use of the standard Scottish Enterprise economic impact framework. As illustrated, in Figure One overleaf, this framework seeks to distinguish:

- **Substitution or leakage effects;** where, for example, funding other than PoCP might have been sought and may have been available from alternative sources;
- **Displacement;** where, again as an example, PoCP projects may have displaced other economic activities outside of the University sector;
- **Deadweight;** that endeavours to capture the effects and impact of 'what would have happened anyway'; and,
- **Indirect and Induced Effects;** as a result of the 'knock-on' and 'multiplier' impacts of the PoCP (across suppliers, project staff, Universities and investors).

Using this framework PoCP has demonstrated “value for money” (i.e. the benefits of the Programme exceed the costs of implementation). Total net benefits from the initial and planned Programme expenditure of £28 million – **over the first six funding rounds** - are estimated to be **currently** in the region of £125 million gross value added (“gva”).

In addition there are likely to be more significant knock-on or **future impacts** as projects mature. The last PoCP Board approval paper (SE(05)64) suggested that, for **any given PoCP round**, such impacts, over a ten year period, could be in the region of around £40 million gva. Actual outcomes to date imply that this level is likely to be higher at around £100 million gva per round.

**Figure 1: Framework to Assess Total Impacts of PoCP**



### *Benefits Generation*

If objectives are met, and net benefits generated, it is important to understand why: what has worked well and what has not? The objectives set for the PoCP evaluation – in answering these questions – are detailed at Table Two overleaf together with the headline outcomes from the evaluation and the sections of the overall report which provide more detailed evidence to support and detail these outcomes.

**Table Two: PoCP Evaluation Scope**

Specific Objectives	Evaluation Outcomes	Report Section
Consultations with implementation personnel.	<ul style="list-style-type: none"> <li>➤ Comprehensive consultation programme across:               <ul style="list-style-type: none"> <li>- Scottish Enterprise staff</li> <li>- Project representatives</li> <li>- Wider stakeholders.</li> </ul> </li> </ul>	Context (Section II) Sample selection and survey programme (Section III)
Assessing performance against input and output forecasts.	<ul style="list-style-type: none"> <li>➤ Initial commitment of £28 million likely to be met.</li> <li>➤ Initial long term gva forecasts per round likely to be exceeded (from £40 million to £100 million).</li> </ul>	Context (Section II) Economic Impacts (Section IV)
Assessment of value for money/gross value added.	<ul style="list-style-type: none"> <li>➤ Identified initial value for money ratio of costs to benefits of 1:4.</li> <li>➤ Net gva levels of at least £125 million likely to be generated.</li> </ul>	Economic Impacts (Section IV)
How project outputs contribute to the outcomes required by objectives.	<ul style="list-style-type: none"> <li>➤ As evidenced by uplift in spin-outs and licensing leading to increased employment, gva and total income.</li> </ul>	Economic Impacts (Section IV)
Views on the selection criteria.	<ul style="list-style-type: none"> <li>➤ Transparent and efficient application process with relatively high success rate compared to UK (UNICO) commercialisation activity.</li> </ul>	Market (section II) Wider Spill over Effects (V)
Market adjustment or equity benefits.	<ul style="list-style-type: none"> <li>➤ Cultural change within Universities, NHS and other institutions</li> <li>➤ Increasing recognition of and interest in PoCP “brand” and projects by private sector.</li> <li>➤ Private investment in spin-outs of £14 million to date.</li> </ul>	Economic benefits (Section IV) Wider spill-over Effects (Section V)
Processes and channels used to deliver the project.	<ul style="list-style-type: none"> <li>➤ Consultations focused on the various steps involved from application, on-going support and outcomes.</li> </ul>	Wider Spill-over Effects (Section V) Conclusions and recommendations (Section VI)
Assessing the staffing/resources on the Programme.	<ul style="list-style-type: none"> <li>➤ Consultations also –across the above steps - focused on the roles and added value of relevant SE and other personnel.</li> </ul>	Wider Spill-over Effects (Section V)
Identified learning and translation to other network projects/policy developments.	<ul style="list-style-type: none"> <li>➤ Several potential changes – independent of PoCP – were identified that could (potentially) generate greater benefits from commercialisation.</li> <li>➤ Securing ERDF support to further develop the Programme and additional outputs.</li> </ul>	Conclusions and Recommendations (Section VI)
Risk from a lack of sustained change.	<ul style="list-style-type: none"> <li>➤ Unlikely given the evaluation identified 80% additionality rate and attraction of £14 million private sector investment and a further £2 million support from other (non PoCP) sources.</li> </ul>	Economic Impacts (Section IV)
Broader outcomes that may not have been anticipated.	<ul style="list-style-type: none"> <li>➤ These are captured by the wide range of beneficial spillover effects identified (over and above the direct benefits of the Programme).</li> </ul>	Wider Spill-over Effects (Section V)
Vision of potential programme impact.	<ul style="list-style-type: none"> <li>➤ Likely that initial expectations will be exceeded and long term effects sustained.</li> </ul>	Economic Impacts (Section IV) Conclusions and Recommendations (Section VI)



<p><b>Positive identification of factors that are critical to PoCP process.</b></p>	<p>➤ <b>Consultation with SE staff, project personnel and wider stakeholders identified positive attributes across:</b></p> <ul style="list-style-type: none"> <li>- Application process</li> <li>- Project implementation</li> <li>- Final outcomes.</li> </ul>	<p><b>Wider Spill-over Effects (Section V)</b></p>
<p><b>Recommendation to continue/modify the project.</b></p>	<p>➤ <b>Recommendation to continue programme (with consideration of various modifications).</b></p>	<p><b>Conclusions and Recommendations (Section VI)</b></p>

As evidenced by Table Two the evaluation of PoCP has been detailed and wide ranging in examining what has worked, why and what has resulted to date. The findings, in regard to the evaluation and thus Programme outcomes, suggest that the:

- Application process works well and ensures projects are approved that offer high potential benefit;
- Implementation and support mechanisms in developing projects to commercialisation offer significant ‘added value’ to realising beneficial outcomes; and,
- Outputs, now and in the future, are likely to support sustained and sustainable growth in commercialisation across Scotland’s academic base.

Moreover the Programme has – as a result of the above – supported significant change within institutions towards the development of commercialisation activities (both within Universities and in partnership with these bodies and the NHS) as well as the encouragement of private sector interest, support and funding in these activities through Business Angels.

It was apparent that when the Programme was first established, in 1999, there were no comparable initiatives within the UK or mainland Europe. Subsequently programmes have been developed (or are being developed) elsewhere in the UK (most notably the North East of England, Wales, and Northern Ireland), and in Canada, the Republic of Ireland, France, Australia, Korea, the Netherlands, the USA, and more recently in Sweden and Denmark.

Many of these programmes have been established following consultation with Scottish Enterprise as the Programme is seen as a ‘best practice model’ that employs staff with considerable experience and knowledge of commercialisation. The importance of the work being undertaken by the Programme, and its success in securing increased commercialisation activity within the University sector, is also reflected by UNICO’s recent election of the Head of Programme as their first Committee member to represent affiliates.



Furthermore, the securing of over £10m of ERDF support in 2004 to enhance Programme activities is testament to the confidence of other funders in the Programme.

From our consultations with a range of private sector funders it is also apparent that:

- Without the PoCP some of these funders may not have considered investing in Scottish University projects at all;
- The PoCP brand and the quality of PoCP projects has led to funders considering support earlier than they might have otherwise; and,
- Future successes – across the whole PoCP portfolio – are likely to attract a wider range of potential funders from both the rest of the UK and, in certain disciplines, abroad.

### *Improvements*

Finally, the evaluation evidence suggests the PoCP could deliver even greater benefits more efficiently by consideration of:

- A 'pre-PoCP' whereby successful applicants receive support over a reduced (or concentrated) time period to assess market potential and resource requirements in order to increase 'project successes' for reduced initial funding support;
- Reducing the input (and thus cost) from non PoCP SE staff in project support activities given the benefits of other advisors in both developing **and** managing project outcomes;
- Tailoring the Programme by varying the terms of support, stakeholder and advisory inputs according to the project theme and development profile (i.e. proof of concept or proof of validation or proof of commercialisation), again to reduce costs and improve outcomes;
- Development of mechanisms to increase the number of project applicants from academia (and thus the quantity and quality of projects) and interest from the private sector (and thus volume and sources of private investment);and,
- The potential to enhance outcomes as well as derive economies of scale in operation and outcomes – and reduce investor risk and thereby increase interest by the private sector– by “bundling” projects across similar themes and support needs.