Innovation Through Collaboration - Programme Evaluation

Scottish Enterprise

optimat
strategies for success

Final Report

31 July 2009

J1930

Executive Summary

Innovation Through Collaboration (ItC) was launched in November 2007 as a way to, ultimately, encourage the development of collaborative projects between organisations in the Chemical Sciences sector in Scotland.

The Chemical Sciences Scotland (CSS) Innovation Group has emphasised the need to increase the level of R&D in Scottish companies and, more generally, to raise awareness of the opportunities for collaboration between business-to-business and business-to academia.

ItC was set up to address this issue and was managed on behalf of the CSS Innovation Group by Business Therapies.

This report presents the results of an evaluation of the ItC Programme.

The information collected for this study was gathered through a programme of primary research including consultation with the programme delivery agents, Business Therapies, the Chemistry Innovation KTN, companies that have been involved in ItC initiatives, companies that have had no involvement with the programme, academics undertaking research in the area of chemical sciences and Interface. In addition, we consulted a number of account managers and innovation specialists throughout Scottish Enterprise to understand their perspective from having worked with companies in this sector as well as investigating the wider innovation landscape.

The CSS Innovation Group highlighted that the levels of collaboration between organisations, both academic and industrial, in the Chemical Sciences sector was relatively low although some in the sector are already networking and collaborating. There are a number of reasons for this.

- The number of collaborations and linkages is being limited by a lack of information
  - Companies do not have sufficient information to know what skills, capabilities and technologies were available in Chemicals Sciences industry and academia
  - Companies do not have enough information to recognise the benefits that could be achieved as a result of innovation and collaboration with business or academic partners

- Companies, both large and small, do not have the time, resources or access to the information required and, subsequently, to facilitate and support networks and collaborations

- Innovation can be a low priority for companies, especially SMEs and, hence, its profile needs to be raised

- Public sector funding and support is critical to catalyse industry wide initiatives

The following table provides an overview of how the ItC programme sought to address these issues.

Issue	How Did ItC Attempt to Address This?	Outcomes
Lack of information on skills, technologies & capabilities	Shared interest / network groups	4 sub-sector groups set up to discuss innovation and collaboration specific to each sub-sector
	Speed-dating / networking events	2 successful networking events
Lack of information on the benefits of collaboration & innovation	Learning Journeys	3 learning journeys identified. An attempt was made to organise 1 but no industrial attendance so not pursued further
Facilitate collaborative networks & projects	Specific industry wide interest groups / projects with follow on plans	4 groups / projects identified and plans developed. The focus should be on progressing these to a successful conclusion
	Catalyse B2B and B2Acad linkages	58 linkages created
Raise the profile of innovation	Individual company Innovation Audits	20 innovation audits carried out with a focus on SMEs. Very few appear to have been followed up by the SE account managers

One of the key points to note is that the ItC programme has made considerable progress given that has been running for only 18 months, as demonstrated in the table above.

Primary research carried out during this study indicated that ItC has started to generate momentum with companies being more pro-active in their interactions with other companies and with academia. If the programme does not continue in the future, in one form or another, then this momentum would be lost and it is likely that things would revert to how they were in the past with limited business to business interaction in particular.

There was also a very strong message from companies, academics, the programme delivery agents and SE account managers and innovation practitioners alike that an industry specific programme like ItC his highly beneficial.

It did become clear, however, that there was a relatively low level of awareness of ItC as a stand alone programme and some confusion regarding what events and initiatives were part of this programme and not part of wider CSS, IChemE or other events. Indeed some companies contacted had never heard of the programme. This suggests that the visibility of the Innovation Through Collaboration "brand" is low and is becoming lost amongst all of the other information that companies receive on a daily basis.

Head Office: Optimat Limited Torus Building, Rankine Avenue, Scottish Enterprise, Technology Park, East Kilbride G75 0QF
Tel: +44 (0)**1355 272 800**   **Fax:** +44 (0)**1355 272 556**   **Email:** support@optimat.co.uk   **Web: www.optimat.co.uk**
Registered Office: 21 Hunter Street, East Kilbride G74 4LZ   **Registration No:** 141727

INVESTORS IN PEOPLE

It also became clear during this study that SE account managers have a very important role to play in the ItC programme and, indeed, in any industry wide initiative. Many of the companies contacted during this study specifically highlighted the limited account manager involvement noting that it was one of the weaknesses of the programme. The internal structure of SE is such that any company specific account managed company specific activities must be done through the account manager and other members of the Operations Team so it is very important that, if ItC continues in the future, then CSS and the SE Chemical Sciences Industry Team ensure that there is buy-in to the programme across SE.

Based on analysis of all of the input received from all stakeholders interviewed during this study, we have made the following recommendations on how ItC should go forward in the future.

1. Any future ItC programme should be clearly aligned with Chemical Sciences Scotland to avoid confusion

2. A clear brand, logo or typeface should be created to make the programme easily identifiable and recognisable

3. The programme marketing and communication should be improved to ensure that its visibility is raised in industry and across the SE network and also to ensure that a short, sharp, succinct message on the benefits of the programme to companies is delivered

4. The focus of future events should be on networking with events held at least every 6 months

5. Case studies / examples of collaboration and innovation best practice should be generated

6. SE account and innovation managers should be engaged to ensure that companies have the support they need to take any collaborative projects forward

7. Programme data management and record keeping needs to be more robust

Head Office: Optimat Limited Torus Building, Rankine Avenue, Scottish Enterprise, Technology Park, East Kilbride G75 0QF
Tel: +44 (0)**1355 272 800**   **Fax:** +44 (0)**1355 272 556**   **Email:** support@optimat.co.uk   **Web: www.optimat.co.uk**
Registered Office: 21 Hunter Street, East Kilbride G74 4LZ   **Registration No:** 141727

ESTORS IN PEOPLE

Table of Contents

Head Office: Optimat Limited Torus Building, Rankine Avenue, Scottish Enterprise, Technology Park, East Kilbride G75 0QF
Tel: +44 (0)**1355 272 800**   **Fax:** +44 (0)**1355 272 556**   **Email:** support@optimat.co.uk   **Web: www.optimat.co.uk**
Registered Office: 21 Hunter Street, East Kilbride G74 4LZ   **Registration No:** 141727

INVESTORS IN PEOPLE

1.   Introduction

Innovation Through Collaboration (ItC) was launched in November 2007 as a way to, ultimately, encourage the development of collaborative projects between organisations in the Chemical Sciences sector in Scotland.

The Chemical Sciences Scotland (CSS) Innovation Group has emphasised the need to increase the level of R&D in Scottish companies and, more generally, to raise awareness of the opportunities for collaboration between business-to-business and business-to academia.

ItC was set up to address this issue and was managed on behalf of the CSS Innovation Group by Business Therapies.

This report presents the results of an evaluation of the ItC Programme.

The objectives of this study were as follows:

1. Inform on the nature and severity of market failure in industry-research linkages in chemical sciences

2. Assess whether there really is market failure or just a lack of information within the industry

3. Examine the value of collaborative activity

4. Consider the strategic fit and potential overlap with other Scottish Enterprise initiatives

5. Assess the contribution of ItC to knowledge transfer

6. Offer guidance on key success factors of ItC, areas for development and design of the programme going forward

The information collected for this study was gathered through a programme of primary research including consultation with the programme delivery agents, Business Therapies, the Chemistry Innovation KTN, companies that have been involved in ItC initiatives, companies that have had no involvement with the programme, academics undertaking research in the area of chemical sciences and Interface.   In addition, we consulted a number of account managers and innovation specialists throughout Scottish Enterprise to understand their perspective from having worked with companies in this sector as well as investigating the wider innovation landscape.   We acknowledge with gratitude (Appendix A) the time and valuable insight of everyone who participated in this study.

2.   Why Did Industry Need the ItC Initiative?

2.1   An Investigation into Market Failure

Business-to-business and business-to-academic collaborations are increasingly important for industry in general and for Chemicals Sciences in Scotland, in particular. The benefits of such collaborations include:

- A general increase in the level of R&D carried out in companies

- New product and process development

- Decreased time to market

- Technology and knowledge transfer between organisations resulting in
    - an up-skilling in companies
    - academic institutions having a better understanding of industry and business processes and, as a result, becoming more entrepreneurial

- In the longer term, an increase in the number of spin-out and start-up companies

All of which will help to improve the long-term competitiveness of the sector in Scotland.

Despite these obvious benefits, the CSS Innovation Group highlighted that the levels of collaboration between organisations, both academic and industrial, in the Chemical Sciences sector was relatively low although some in the sector are already networking and collaborating. There are a number of reasons for this.

- The number of collaborations and linkages is being limited by a lack of information
    - Companies do not have sufficient information to know what skills, capabilities and technologies were available in the Chemicals Sciences industry and academia
    - Companies do not have enough information to recognise the benefits that could be achieved as a result of innovation and collaboration with business or academic partners

- Companies, both large and small, do not have the time, resources or access to the information required and, subsequently, to facilitate and support networks and collaborations

- Innovation can be a low priority for companies, especially SMEs and, hence, its profile needs to be raised

- Public sector funding and support is critical to catalyse industry wide initiatives

This latter point, in particular, is a market failure that can only be addressed by public sector intervention. The ItC programme was, therefore, an attempt to overcome this fundamental market failure as well as to address the issues surrounding lack of information.

2.2   How Did ItC Address Market Failure?

As has already been highlighted, some market failures can only be addressed by public intervention. It is reasonable to suggest, therefore, that if it was to rely on being funded by the private sector, an initiative like Innovation Through Collaboration would not happen so, in that respect, it has addressed a fundamental market failure.

The following table provides an overview of how the ItC programme sought to address the issues highlighted above.

Issue	How Did ItC Attempt to Address This?	Outcomes
Lack of information on skills, technologies & capabilities	Shared interest / network groups	4 sub-sector groups set up to discuss innovation and collaboration specific to each sub-sector
	Speed-dating / networking events	2 successful networking events
Lack of information on the benefits of collaboration & innovation	Learning Journeys	3 learning journeys identified. An attempt was made to organise 1 but no industrial attendance so not pursued further
Facilitate collaborative networks & projects	Specific industry wide interest groups / projects with follow on plans	4 groups / projects identified and plans developed. The focus should be on progressing these to a successful conclusion
	Catalyse B2B and B2Acad linkages	58 linkages created
Raise the profile of innovation	Individual company Innovation Audits	20 innovation audits carried out with a focus on SMEs. Very few appear to have been followed up by the SE account managers

Figure 1 – Key Programme Outcomes

As this shows there have been a number of very positive outcomes including:

- the speed-dating / networking events

- the number of business-to-business and business-to academia linkages created

- the development of four industry wide collaborative projects addressing specific issues. It has been suggested that work is done to further progress these projects to a successful conclusion

Many of the companies that provided input to this study stated that the benefits and outputs of the programme were intangible – companies had benefited by increasing their knowledge of the industry in Scotland and widening their network of contacts but could not identify specific outcomes. Nonetheless, a small number of companies were able to highlight specific and tangible outputs and these are summarised below.

- One company has identified two specific business opportunities with two local companies

- Two companies are in discussion about working together to develop a new process

- As a result of attending a speed-dating event, two companies are discussing a collaborative research project

- An SME has recently signed a non-disclosure agreement with a large company and the two will be working together in new product development

- One company has started collaborating with academia

- One company identified an equipment supplier

- One company has seen an increase in the number of hits on its website after attending a networking event

The main weaknesses in the programme involve the learning journeys and the lack of follow up on the Innovation Audits by some of the SE account managers.

Although the learning journeys were suggested by the sub-sector groups for inclusion in the programme, in reality the time commitment required – at least one full day – meant that they were impractical. A more practical solution to demonstrate the benefits of collaboration might be a series of case studies.

The account managers have a very important role to play in the ItC programme and, indeed, in any industry wide initiative. Many of the companies contacted during this study specifically highlighted this issue (and this is discussed in more detail in the following sections of this report) noting that it was one of the weaknesses of the programme. Many companies would have welcomed the chance to discuss the findings of the Innovation Audit with their account manager but were not given the opportunity and, in fact, it is not certain that all of the account managers passed on the innovation reports to the companies. The internal structure of SE is such that any company specific account managed company specific activities must be done through the account manager and other members of the Operations Team so it is very important that, if ItC continues in the future, then CSS and the SE Chemical Sciences Industry Team ensure that there is buy-in to the programme across SE.

2.3   Key Findings

One of the key points to note is that the ItC programme has made considerable progress given that has been running for only 18 months, as demonstrated in Figure 1 above, and discussed in more detail in the following sections of this report.

Primary research carried out during this study indicated that ItC has started to generate momentum with companies being more pro-active in their interactions with other companies and with academia. If the programme does not continue in the future, in one form or another, then this momentum would be lost and it is likely that things would revert to how they were in the past with limited business to business interaction in particular.

There was also a very strong message from companies, academics, the programme delivery agents and SE account managers and innovation practitioners alike that an industry specific programme like ItC is highly beneficial. There are a number of reasons for this:

- Most SE innovation focused products, such as Winning Through Innovation, are generic and, in some instances, do not address the specific issues faced by particular industries.

- Industry focused networking allows organisations to find out more about what is going on in their particular industry in Scotland as well as being a platform for smaller companies to raise their profiles

- Industry specific networking and collaboration is a very appropriate thing to do as it allows people to talk about innovation using their own language – innovation means different things to different industries

It did become clear, however, that there was a relatively low level of awareness of ItC as a stand alone programme and some confusion regarding what events and initiatives were part of this programme and not part of wider CSS, IChemE or other events. Indeed some companies contacted had never heard of the programme. This suggests that the visibility of the Innovation Through Collaboration "brand" is low and is becoming lost amongst all of the other information that companies receive on a daily basis.

In the future, therefore, the programme marketing and communication should be improved to ensure that its visibility is raised in industry and across the SE network and also to ensure that a short, sharp, succinct message on the benefits of the programme to companies is delivered.

3.   Consultation With Delivery Agents

A meeting took place on Tuesday 17th March 2009 between Optimat and the Delivery Agents, Business Therapies. Our discussions were aimed at identifying:

- From an industrial perspective – why a programme like ItC was required

- The most successful aspects/events of the programme and reasons for that success

- Less successful / unsuccessful events and reasons for these failing to attract interest

- Any challenges encountered with the actual delivery of the programme

- Areas for development, based on the experience of the programme delivery agents

- Opportunities to add value to the ItC programme in the future

- Key organisations that participated in the programme and that would be suitable for interview

- Organisations that were approached but declined to take part in the programme or did not respond to invitations

3.1   Summary of Project Deliverables

Prior to the contract being awarded to Business Therapies, a steering group was set up to identify a number of deliverables for ItC. These original targets are shown in the table below.

One of the first activities of ItC was to hold a number of workshops based on five themed areas namely:

- Fine Chemicals LS

- Fine Chemicals ICA

- Industrial solvents

- Miscellaneous

- Petrochemicals

Over 100 people were invited to this workshop but only 20 attended and the original five groups were reduced to four. Feedback was gathered at meetings of these special interest groups as well as at a Royal Society of Chemistry/Institute of Chemicals Engineers event in Grangemouth in January 2008. As a result of this feedback, a better understanding of industry's requirements was developed and the deliverables changed to reflect this. The status of progress towards these deliverables by January 2009 has also been assessed by Business Therapies. Again this is summarised in the table below.

Deliverable	Original Targets (Nov 07)	Revised Targets (June 08)	Achieved (Jan 09)
Innovation/shared network groups established	7-10	5	4
Specific interest groups with follow on plans	20-30	7	4
Innovation diagnostics	5-10	20	20
Potential collaboration projects under development	20-30	20-30	58
Collaborative projects under development	Max 5	5	5
Innovation products / mechanisms being accessed	To be determined	Removed	Not applicable
New collaborative ventures	2	2	3
Licences acquired	1	0	0
Knowledge intensive starts	2	0	1
Product sales	New category	3	1
Identify learning journey	New category	3	3
Organise speed dating events	New category	2	2

Figure 2 – Summary of Deliverables

3.2   Programme Successes

Based on their experience of delivering the ItC programme and some of the feedback they have had from companies, Business Therapies believe that the following initiatives were particularly successful:

- Speed Dating Events – in particular the first event where 8 large or medium sized companies played "host" giving other companies the opportunity to speak to each of these companies within a specified time limit. The second speed dating event was not so successful. The "hosts" in this case were mainly academics and support organisations (e.g. SMAS, SDI and SE)

- The individual company Innovation Health Checks – carried out with 20 companies

- Workshops - although attendance at these was lower than Business Therapies would have liked

Additional input was sought from Richard Philpott of the Chemistry Innovation KTN (CIKTN), in particular his views on the Innovation Health Checks, which CIKTN was instrumental in delivering.

The Innovation Health Check was a tool developed by the CIKTN as it believes that companies want and/or need to be more innovative but they don't know how. This tool was trialled as part of the ItC programme.   In total 20 companies went through the process and the resulting

health check reports given to the SE account managers to pass on to the companies and to follow up as appropriate. An event was held in November 2008, after all of the health checks had been completed, to follow these up with companies that expressed an interest. 75 individuals were invited to this event and over 90 attended.

Although there were some issues associated with the outputs of these health checks being followed up, and these are discussed below, the general view is that this initiative, and the wider ItC programme has been very successful especially given the constraints faced by Chemicals Sciences Scotland, the SE Chemical Sciences team and CIKTN.

In fact, the CIKTN has already started to roll out a programme of Innovations Health Checks in the chemicals cluster in the North West of England and is in discussion with Yorkshire Forward to do something similar in the Yorkshire region.

More generally, the CIKTN believes that Chemical Sciences Scotland has been pioneering in the work it has done through ItC and, as a result, is discussing with the Technology Strategy Board the potential of developing a similar, UK wide initiative.

3.3   Unsuccessful Initiatives

The biggest disappointment was the Learning Journeys. Three learning journeys were identified. The first, to Saint Gobain Glass UK Ltd in Selby was arranged and significant financial support provided by SE. Only one company agreed to attend and, despite alternative dates being offered, this event had to be cancelled due to lack of interest. The two other learning journeys have not been pursued as a result.

3.4   Issues and Areas of Constraint

The Delivery Agents and CIKTN also highlighted a number of issues which they believe placed constraints on the programme and how they were able to meet its aims and objectives. These include:

- The original company contact details provided by Scottish Enterprise for companies and organisations in the sector contained a lot of inaccuracies. This meant Business Therapies had to invest a high number of additional hours at the start of the project to create its target database.

- The programme was launched during a period of significant restructuring for Scottish Enterprise. They believe this had a negative impact on the number of SE representatives who came along and supported events.

- The involvement of Key Account Managers was minimal despite invitations to participate. It was felt that a greater involvement from these individuals may have increased company participation in the Programme.

- The structure of Scottish Enterprise presents several issues including, in some cases, a lack of communication between account managers and innovation practitioners

- Marketing of the Programme was very limited with no publications or links provided via the website to direct companies to ItC.

- There has been very limited feedback from Account Managers regarding the companies that participated in the Innovation Health Checks and this includes confirmation that each of the Innovation Health Check reports that were produced by the CIKTN and Business Therapies' have actually been received by the relevant companies.

This final point was re-iterated by the CIKTN. As an organisation, it was reliant on the SE account management and innovation support system to follow up the outputs of the innovation health checks with the company involved and, in many cases this has not happened.

As has been highlighted above, the CIKTN has started to roll out a programme of health check across other regions of the UK and based on the lessons learned in ItC has stipulated that there must be buy-in across the regional development agency (RDA) to ensure that companies get the support that they need even if it simply a courtesy call from an appropriate RDA representative to check that the report has been received and to identify if there is anything that company would like to follow up.

A final observation made by the CIKTN was that ItC was a Chemical Sciences Scotland initiative; it was delivered by Business Therapies, CIKTN got involved to deliver the innovation health checks the outputs of which have been handed over to the SE account managers to follow up. This is likely to have resulted in companies being confused and not associating events / initiatives with ItC. This was reflected in the comments made by many of the companies contacted during the primary research phase of this study and discussed in more detail in Section 5 of this report.

Generally, Business Therapies' role was to facilitate the linkages between organisations and then step back to allow the SE account manager to take over. Ideally Business Therapies would have liked a structure in place to allow them to continue to work with organisations to ensure that the linkages continued to develop, or at least to ensure that this was being done by the account managers.

3.5   Additional Challenges

Our discussions with Business Therapies and the CIKTN also identified a number of wider industry issues that affected the effectiveness of the ItC programme:

- SME's are usually enthusiastic about participating in support initiatives like ItC but simply don't have the resource to allow staff the time to attend events

- Larger companies often don't see the relevance of participating in such schemes

- General market downturn in the UK and worldwide is affecting all industries and in many cases, participation in initiatives like ItC may be viewed as a "nice to do" rather than as something that can have a direct impact on the business

- There is an underlying need to change the "mindset" and improve support available in general to companies in the chemicals industry. Proof of Concept and the R&D Grant are good examples of this

- Many of the large chemical companies in Scotland are cost centre or subsidiaries of large multi-nationals and, as a result, have little or no autonomy in terms of innovation. Recently, however, more innovative SMEs are emerging and innovation is high on their agenda. This is evidenced by applications to the proof of concept fund. From 1999 to 2007 there were no applications from chemical companies. In the past 2 years, however, there have been six applications funded and another four applications have been submitted this year.

4. Primary Research Activities

4.1 Company Database

As outlined in our proposal, we intended to carry out the following primary research:

- Five face to face and 15 telephone interviews with programme participants

- In depth follow up interviews investigating collaboration best practice with at least 5 organisations

- Telephone Interviews with at least 5 organisations that were approached about participating in one of the programme events but did not pursue this invitation

The data presented by the delivery agents was slightly challenging in its original condition and required some modification to collate it into an easily referenced database for the interview programme.

Although ItC is a very recent initiative, already there have been issues with companies who participated where the original contact has now left or indeed where the company is no longer operating. Our greatest challenge however, was clarification of which companies had been involved and at which event due to a poorly structured database of information and insufficient record keeping.

Another difficulty faced was actually being able to make contact with individuals in companies and to try to arrange a suitable time to talk. This was compounded by the timing of the study which coincided with the end of the financial year and the Easter holiday. As a result, the number of company interviews completed was as follows:

- Companies that participated in ItC   14

- Companies that declined to participate in ItC   2

- Academics that participated in ItC   3

In addition, as highlighted in the Introduction to this report, we consulted with other stakeholders including SE account managers, innovation experts and Interface.

4.2 Interview Topics List

A copy of the topics list devised to elicit high quality, qualitative data is included in Appendix B. It was designed to ensure that interviews were carried out in a structured, consistent manner. In reality however, many of the interviews took the form of semi-structured interviews with a number of themes and guiding questions. This approach allowed for the discussions to investigate in greater detail relevant areas of the programme (or collaboration more general) participants felt it appropriate to comment on.

Appendix C shows the topics list that was to be used during the interviews with companies that had not participated in ItC. Again, in reality, the interviews were conducted in semi-structured way in order to generate as much relevant information as possible and develop better understanding of the reasons preventing companies from participating.

5.   An Evaluation of Innovation Through Collaboration

5.1   Initial Observations

Throughout the interview programme it became apparent that there was a relatively low level of awareness of ItC as a stand alone programme and some confusion regarding what events and initiatives were part of this programme and not part of wider CSS, IChemE or other events. Indeed one company contacted that had been involved in the programme made the following comment:

"When I got your e-mail and then you phoned I actually wasn't sure what ItC was and if we took part in it."

A representative of a company that had not been involved in any ItC initiatives indicated that he had never heard of the programme before and being interviewed as part of this study was the first time that he had become aware of it.

This reiterates the points made by the CIKTN, and discussed in section 3.4 above, that the lack of continuity and involvement of several organisations in the delivery of the ItC programme is resulting in confusion.

More importantly, it suggests that the visibility of the Innovation Through Collaboration "brand" is low and is becoming lost amongst all of the other information that companies receive on a daily basis.

Indeed even some SE account managers did not appear to know much about ItC as, like companies, they also receive a lot of information on various initiatives from across the network. Unless this is communicated in a short, sharp and succinct way then the message is not getting across – and this does not appear to be happening with ItC at the moment.

5.2   Why Companies Participated in ItC

For the most part, organisations got involved in ItC because they were already involved with the SE Chemicals Sciences Team, they were involved with Chemicals Sciences Scotland or they were directly approached by Business Therapies and they found out about the various initiatives that way.

Another key reason given for companies participating in ItC, and in particular the networking events, was to find out more about the chemicals industry and the research base in Scotland. For example, one respondent stated that his company had always been under the impression that their key customers and commercialisation partners would be based in the USA or Europe. At one of the networking events, two local Scottish partners were identified and, if the work goes to plan, these partnerships could result in major business opportunities. Without ItC it is

unlikely that these linkages would have been made as the companies involved new very little about one another.

A number of other specific reasons were given, and these included:

- Being heavily committed to pursuing collaborative opportunities and, therefore, ItC was good fit with this objective

- Signing up to a programme like ItC was a commitment that would help to underline the need for companies to continue with and improve collaborative ventures

- Being involved with ItC would be a way of helping Scottish Enterprise to understand more about how innovation works and why it is important to promote collaboration

- Trying to identify opportunities or partners for a Knowledge Transfer Partnership (KTP) project

- Wanting to know how the company scored on innovation – through the Innovation Health Check

It was also highlighted that the ItC delivery agents were seen as credible. The key personnel from Business Therapies are well known by many companies in the Chemical Sciences sector and their involvement was also viewed as having a positive effect.

5.3   The Value Gained by Companies Participating in ItC

When questioned about the value that has been gained as a direct result of participation in one or more ItC event, respondents gave a mixed response.

For the most part, people were not able to identify tangible benefits, although there were some exceptions and these are discussed further in Section 6 – Summary of Programme Outputs. By far, the main benefit highlighted was that individuals have been able to extend their network of contacts in other companies and, more generally, have a better insight into what other companies are doing and the capabilities and technologies available. A number of interviewees from smaller companies highlighted that making links to larger companies has been very useful as they see working with larger companies as being very beneficial.

By far, the events that were highlighted as being most successful and providing the most value were the speed-dating events as these gave the widest opportunities for networking. This type of event appears to be unique to ItC. Several respondents indicated, however, that they did not like the term "speed-dating" and that in itself deterred them from attending. "Speed-networking" appeared to be a more acceptable name to use.

The Chemical Sciences Scotland dinner and conference were also highlighted as being a success and there was a desire to see this continue on an annual basis.

We also investigated knowledge transfer and whether ItC has contributed to knowledge transfer between organisations. In the main respondents were unable to provide any insight

in this area and could not say specifically whether or not there had been knowledge transfer. One company highlighted that it developed linkages with two academic organisations after participating in one of the networking events that may lead to knowledge transfer in the long term. It may be the case, therefore, that it is too early at this stage for effective knowledge transfer to have occurred.

Although a number of companies did cite both tangible and intangible benefits there were also several that indicated that they gained no value at all from the programme. For example, one company stated that it will focus on collaborating with the companies or academics that have the best expertise that meets its requirements wherever they are based. No potential Scottish partners were identified.

5.4   Management of the Programme

In general terms, the input received from interviewees did not highlight any specific issues with the personnel involved in the delivery of the ItC programme. Indeed the individuals involved are known by many in the industry and have a reasonable level of credibility. The main issues highlighted were directed more at the execution of programme with the key points being raised, as follows:

- Lack of follow-up on the innovation health checks – this was the single biggest complaint raised during the interview programme

- The programme managers could have facilitated more successful collaborations

- Not enough evidence on successful collaborations has been produced and there is a belief that there were a number of opportunities that didn't materialise

- The length of time between events and initiatives resulting in a lack of momentum

One respondent went so far as to ask who was managing the programme, again highlighting the level of confusion about ItC in industry and, once again, there was also the recurring issue of the lack of visibility, branding and marketing of ItC.

It is clear that, from an ItC participant's perspective, the issues raised were, in the most part, associated with wider constraints placed on the delivery agents. There was no opportunity for Business Therapies to do a more in-depth follow-up with companies – this had to be done via the SE account manager and, in many cases, it was not apparent that this was happening.

From an evaluation perspective, the main issue that we faced was the lack of effective record keeping by the delivery agents. This made it very difficult to identify what companies had taken part in which events. As a result, many of the interviews got off to a difficult start as the respondents were often not aware that they had participated in an ItC event and we had limited or no information on what events or initiatives they had been involved in, other than that they had been involved to some extent.

5.5 Collaborative Behaviour in the Scottish Chemical Sciences Industry

As part of the interviews with companies we focused on general collaboration within the Scottish chemicals sector and, where appropriate, sought information on how individual companies approach collaboration. We believed that this would enhance the understanding of the sector and help in shaping future initiatives and programmes.

It was suggested by a number of companies that, in general, the levels of collaboration in the sector are rather low, especially business to business collaboration. Furthermore, it was generally accepted that more could be achieved from an innovation perspective if the levels of collaboration were increased.

It became clear, however, that most of the respondents perceive collaboration as essential for the future of their business. Small and medium size companies are usually considered as more innovative but there is a problem in making the right connections. Large players are not aware of the expertise that is available in these small companies and the small companies themselves are often restricted by their resources in pursuing collaborative opportunities or attending networking meetings.

There is a clear polarisation amongst the companies that were interviewed during this study with some respondents being much more active and skilled in pursuing collaborative opportunities and others only acknowledging the need for engagement but not actively pursuing them. In two cases collaboration was high on the company's agenda

"...it's part of our business model to work with other parties."

making it more likely for collaborative linkages to be pursued and established. This translates into both participating in events such as ItC and engaging with other companies. Less active companies tend only engage if there is a clear and obvious benefit and, in many cases, the benefits do not become apparent until the two parties enter into discussion.

Two respondents explicitly pointed out that there is a need to support local companies both in developing collaborative skills and in instilling pro-collaborative attitudes. The following quote gives a good example:

"I always encourage people to think what a collaborative partnership can achieve. If you have a small resource then collaboration is a skill set that you want to instil into some of the executives running the business."

Some of the larger companies in the Scottish chemicals industry are restricted by company policies and strategies in pursuing local collaborative linkages. In some cases, R&D facilities and technical centres are based elsewhere in the UK or overseas and engagement tends to be

with companies and academic institutions close to these centres. Some of the respondents from large companies suggested that more effort should be made to highlight local expertise (not necessarily through networking events but through, for example, a technology directory) and, where possible, encourage the larger players to change the corporate policies. Not all of the large companies are the same, however, and a number of other respondents from larger companies pointed out that they are always open to discussions with local partners and, within their companies, the corporate behaviours and attitudes towards collaborative projects are slowly changing.

Most of the respondents pointed out that business to academia collaboration is at a reasonable level due to a number of programmes (e.g. SPIRIT and KTP) and the availability of public sector funding to support this type of working in partnership. Furthermore there is also funding available for single company research. It was pointed out, however, that there is little funding available to support business to business research and development and that this may also be limiting the levels of collaboration between companies.

Finally, a number of companies expressed their concerns about the levels of conservatism and risk aversion with regard to innovation in some sectors of the Scottish chemicals industry. This translates into slow progress in pursuing ideas, a lack of responses from potential project partners and, as pointed out by one respondent, it is often easier to get things done overseas. Another effect of this is inertia in pursuing new opportunities for the whole sector (e.g. biofuels or plastic waste utilisation). One of the solutions suggested was more involvement by SE and the Scottish Government to support new ideas and technology developments by pulling the industry together and pre-investing in the areas of that could present Scottish industry with a potential competitive advantage.

5.6 The Wider Innovation and Collaboration Landscape

A number of the individuals contacted indicated that they also participate in other initiatives focusing on innovation and collaboration. These include:

- CPACT (Centre for Process Control and Analytical Technology)

- Chemical Sciences Scotland working groups and committees

- SPIRIT – this scheme which placed 31 PhD students was highlighted as particularly successful

- KTP (Knowledge Transfer Partnerships)

- Relationships with education establishments – universities and colleges – and the CIKTN

- Joined Forces Scotland

- ScotChem

Within SE, there is an increasing focus on innovation as evidenced, for example, by the Winning Through Innovation programme. This programme appears to be more focused on the innovation process e.g. new product development, market evaluation, IP protection and the development of skills and is not specific to any one industry.

ItC focuses much more on networking and collaboration and on bringing together businesses and academia which, hopefully will result in innovation. Industry specific networking is a very appropriate thing to do as it allows people to talk about innovation using their own language – innovation means different things to different industries. As such, ItC is complementary to the wider innovation activities carried out by SE and feeds into the innovation aspects of the account development plans being developed for account managed companies.

The fact that ItC is industry specific has been highlighted as huge benefit by companies, academics, delivery agents and SE account managers alike.

6.   Summary of Programme Outputs

As has already been discussed, the main benefits to companies that have participated in ItC events has been to find out more about the chemicals sector in Scotland and what other organisations are doing or can offer in terms of innovative products and/or processes. The programme also gave many companies some insight into what was happening in other sub-sector of the chemicals industry – e.g. fine chemicals finding out about what is going on in petrochemicals.

It was clear, however, based on the input from those interviewed as part of this study, that many of the companies were unable to define tangible outputs that were a direct result of their participation in an ItC event.

Nonetheless, a small number of companies were able to highlight specific and tangible outputs and these are summarised below.

- One company has identified two specific business opportunities with two local companies

- Two companies are in discussion about working together to develop a new process

- As a result of attending a speed-dating event, two companies are discussing a collaborative research project

- An SME has recently signed a non-disclosure agreement with a large company and the two will be working together in new product development

- One company has started collaborating with academia

- One company identified an equipment supplier

- One company has seen an increase in the number of hits on its website after attending a networking event

As part of its delivery of the ItC programme, Business Therapies undertook a project review to identify the key outputs[1]. These are summarised in Figure 3 – Linkages Created and the company specific outputs discussed in more detail below.

The key objective of ItC was to:

"...increase the competitiveness of Scotland's chemicals industry through collaboration."

---

[1] Innovation Through Collaboration Project Review, January 2009, Business Therapies

As a result, the aim was to stimulate innovation and collaboration by facilitating business to business and business to academia linkages. In total, 58 of these linkages were generated as shown in the table below.

Company	Linkage
Almac Sciences	1. Aptuit 2. Interface
Aptuit	1. Almac
Bardyke Chemicals	2. Interface 3. CIKTN – contact details for plastics masterbatcher 4. SE – website design 5. SEPA (REACH Directive) 6. SMAS 7. IChemE 8. BRITEST 9. SDI
Ceimig	1. GR Advanced Materials 2. Stratosphere 3. Glycerol Challenge 4. Interface 5. SPIRIT Award 6. NiTech Solutions 7. Mentoring of staff
Ciba Speciality	1. Fujifilm (BRITEST)
Craig and Rose	2. CIKTN provided contact details for polymer research company 3. Interface 4. Scottish Colleges Consortium
DuPont Teijin Films	1. Novel Polymer Solutions Ltd 2. HydraPolymers Ltd 3. CIKTN link to Materials KTN abd Bioscience for Business KTN 4. Interface
EKC Technology	1. CIKTN provided details on printed electronics company 2. NiTech Solutions 3. BRITEST 4. SPIRIT Award
Fibre Photonics	1. Interface 2. SPIRIT Award 3. Helia Photonics 4. SE Innovation team 5. SMAS
FujiFilm	1. KTP – Heriot Watt 2. BRITEST 3. Interface/KTP 4. Scottish Colleges 5. Silberline 6. Ciba Speciality Chemicals
GR Advanced Materials	1. CIKTN contacts – Rockwood Additives and Novel Polymer Solutions Ltd. 2. Ceimig
Impact Labs	1. Interface for experts in materials testing 2. CPACT 3. SE Innovation team 4. CIKTN
Ingenza	1. Interface 2. SPIRIT Award 3. AM Technology

Ineos	1. C-Tech 2. Facilitated market assessments 3. Interface 4. SMAS 5. SE Innovation team 6. SDI 7. Excelsyn
ISP Alginates	1. Interface to identify expertise in alginates and other substances 2. Scottish Colleges Consortium 3. SMAS 4. SE Innovation Team 5. SDI
Kemfine	1. Ingenza 2. Ineos 3. KTP 4. Interface 5. SMAS
Lab Support	1. SE Innovation Team
Link Technologies	2. University links through Interface 3. Scottish Colleges Consortium 4. Scottish FE Colleges 5. SE Innovation Team 6. CIKTN 7. Excelsyn
Lux Technology	1. Interface 2. Energy ITI
Mabbutt	1. Interface – possible KTP
Microsphere	2. Akzo Noble 3. Qinetiq 4. Environmnet KTN 5. SMAS 6. SDI
NiTech Solutions	1. Ceimig 2. Shasun 3. Interface 4. SMAS 5. SDI 6. CPACT
SAB Miller	1. Interface
Shasun Pharma	2. Interface 3. AM Technology 4. NiTech Solutions 5. 2 SPIRIT Awards
Surface Active Solutions	1. KTPs 2. RSC 3. Mabbutt
Tan International	1. Networking opportunities – CSS meetings
TR Bonneyman	1. HSE (REACH Directive)
William Tracey	1. Envirotreat 2. Enviros – membrane biorectors 3. Aguacure – electrostatic coagulation 4. Interface 5. SE Innovation Team 6. SMAS 7. CIKTN

Figure 3 – Linkages Created

The analysis by Business Therapies also identified additional tangible outputs, namely:

- New collaborative ventures – 2 new collaborative ventures have been set up following networking meetings
  - University of Strathclyde and CIBA
  - University of Strathclyde and DSM

- Product Sales – FujiFilm purchased photonics equipment from Intense. Both attended a networking event

In addition to specific business-to-business and business-to-academia linkages, one of the key outcomes of ItC was to:

…identify, assess, prioritise and develop key collaborative projects.

As a result the following projects were identified and assessed:

- Continuous Processing, Crystallisation and Process Analysis Technology
  - The view was that two organisations, Britest and the Centre for Process Analytics and Control Technology (CPACT), could provide the research and technical skills to solve many of the issues faced by the Scottish Chemicals sector in these areas. There is, however, a lack of awareness of the resources available to industry.
  - It was recommended that funding was made available to account managed companies to run a number of feasibility studies with the aforementioned organisations and the results disseminated to industry in the form of case studies to highlight the opportunities in this area.

- Concentrated Dyes and Inks
  - This project was discussed in detail with Ciba and FujiFilm, two of the major manufacturers of inks, dyes and pigments in Scotland. These companies have looked at concentrates in the past but, although there are benefits (e.g. quicker to disperse, more homogenous), there was little interest from customers as it would mean changing existing processes.

- REACH Product Legislation
  - Bardyke Chemicals identified an opportunity that will result form the introduction of this legislation. This company feels that there is a need for Chemical Sciences companies in Scotland to form consortia, develop closer links with the Chemical Industries Association (CIA) Scotland and survey chemicals companies in Scotland
  - It was recommended that Bardyke Chemicals was supported to further develop a compliance model that is most appropriate for Scotland

- Solvents Survey
  - A team was set up to look at whether there was opportunity for a commercial venture in Scotland to deal with waste solvents. Waste solvents and solvents containing waste are very expensive to deal with and, as a result of Scotland's hazardous waste regulations, these bulk of these waste streams are shipped to England for treatment. In order to determine the feasibility of a commercial venture, significant data on the volumes of waste solvents produced in Scotland would be required.
  - It was recommended that a detailed solvents survey should be carried out to identify and quantify the estimated 20,000 tonnes of solvent waste shipped to England every year and to assess the opportunity for local treatment and use.
  - It was also recommended that work should be done to identify research opportunities within Universities that could support alternative uses of waste solvents.

More generally, several companies indicated that ItC has started to generate momentum and that if it did not continue in the future, in one form or another, then this momentum would be lost and it is likely that things would revert to how they were in the past with limited business to business interaction in particular.

6.1   Contribution to Scottish Enterprise Targets

Scottish Enterprise records data on a number of pre-defined targets, on of which is Participation in Innovation Activity.

ItC's contribution to these targets was:

97 individuals participated in innovation activity in 2008/2009

11 individuals participated in innovation activity so far in 2009/2010

7.   The Future of Innovation Through Collaboration

The general view was that, in essence, the intentions of the ItC programme are very good and there is a danger of losing the momentum that has been created if it does not continue in the future.

It was suggested that, at the very least, there should be biannual networking meetings for organisations working in, or having an interest in, the chemical sciences sector to discuss strategy and opportunities for collaboration in the future. There were a number of suggestions on how this might be done including, for example:

- More "speed dating" – although consideration should be given to changing the name to "speed networking", for example, as the notion of speed dating discouraged some people from attending these events

- Events that give companies opportunities to present a short overview on what they are doing in terms innovation, skills, capabilities, etc followed by an opportunity to network

Some other specific examples of future initiatives and activities included:

- A greater focus on business to business collaborations

- More focus on projects that will be successful and can be brought to fruition

- Examples / case studies of best practice in collaboration to achieve innovation

It is clear, therefore, that there is an enthusiasm within industry for ItC to continue in the future but a very strong message regarding the branding and visibility of the programme came through.

Innovation Through Collaboration needs a much stronger brand as evidenced by the following comment:

"…just a logo or recognisable typeface would be helpful."

As has already been highlighted, a number of individuals contacted during this study were not aware that the events / initiatives that they were involved in were part of the ItC programme. Rightly or wrongly, interviewees believed that the programme had not been advertised strongly enough and, for many, was unrecognisable.

Both companies and SE account managers alike are bombarded with invitations to participate in events and initiatives so, if ItC has to make an impact it must be clearly identifiable and get its message across in a short, sharp succinct manner.

A number of respondents noted that it would be useful to have more industry participation and, especially, to encourage large companies to get involved. Again, many felt that this came back to visibility and branding of ItC.

Who is managing and delivering the programme must also be more clearly defined. As has already been discussed, ItC is a Chemical Sciences Scotland initiative, delivered by Business Therapies with specific initiatives delivered by CIKTN and then a hand-over to the SE account manager – some of whom followed up with the company whilst others didn't. In the future, the public face of ItC must be clearly aligned with one single organisation, with Chemical Sciences Scotland being the most appropriate. How it is delivered and by whom should not be allowed to cause the confusion that has become apparent during this study.

From an internal SE perspective ItC would appear to be complementary to wider innovation activities rather overlap with what is currently being done. It became clear, however, that some account managers were more engaged than others with the initiative and, therefore, more willing to follow up specific outputs with companies. Input from SE stakeholders indicates that, for account managed companies, the account development plan is a key document and this has been improved recently to give innovation a higher priority. The current SE structure is such that specific company developments, including those relating to innovation, are the responsibility of the account manager with support from the innovation manager where appropriate. So to ensure the success of any future ItC programme, it will be important that account and innovation managers are engaged to help support companies bring collaborative projects to fruition.

Finally, however ItC is delivered in the future and by whom, it will be important that there is much better company databases and record keeping. Not only will this mean that there will be better day to day management of the programme, it will mean that it will also be easier to evaluate the programme in the future and identify tangible outputs.

8.   Conclusions and Recommendations

Based on analysis of all of the input received from all stakeholders interviewed during this study, we have come to the following conclusions and recommendations on how ItC should go forward in the future.

8.1   Conclusions

1. There is a strong message that industry focused networking is very useful and has been beneficial for many companies in terms of finding out more about what is going on in Chemical Sciences in Scotland as well as being a platform for smaller companies to raise their profiles

2. The "speed-dating" / networking events have been identified as being most beneficial to companies although the term "speed-dating" did deter a number of individuals

3. The involvement of multiple stakeholders in the delivery of ItC has resulted in a degree of confusion across industry in terms of who should be doing what and who companies should contact if they wanted further information

4. The view of those involved in this study is that the ItC programme has been poorly branded, marketed and communicated both externally to companies and internally across the SE network

5. There needs to be stronger engagement with the programme and its aims and objectives both from industry (current participants would like to see more companies involved) and from SE account and innovation managers

6. Very few companies were able to identify tangible benefits associated with their participation in ItC events the time periods involved have been too short.   A number of companies have identified that they are entering into collaborative projects but it will be in the medium term before any tangible business benefits will emerge

7. A number of companies have identified that both innovation and collaboration are very important to the future competitiveness of their companies and, as a result of participating in ItC will be more active in pursuing collaborative projects

8. ItC is complementary to wider SE innovations activities especially the focus on industry specific networking and collaboration

9. It is unlikely that an initiative such as ItC would go ahead without public sector intervention

10. In the main, the levels of collaboration, business to academia and business to business linkages were being limited by a lack of information rather than complete market failure

11. There is a strong message from those interviewed that ItC should continue in the future to ensure that the momentum generated by the current programme is developed further

8.2 Recommendations

1. Any future ItC programme should be clearly aligned with Chemical Sciences Scotland to avoid confusion

2. A clear brand, logo or typeface should be created to make the programme easily identifiable and recognisable

3. The programme marketing and communication should be improved to ensure that its visibility is raised in industry and across the SE network and also to ensure that a short, sharp, succinct message on the benefits of the programme to companies is delivered

4. The focus of future events should be on networking with events held at least every 6 months

5. Case studies / examples of collaboration and innovation best practice should be generated

6. SE account and innovation managers should be engaged to ensure that companies have the support they need to take any collaborative projects forward

7. Programme data management and record keeping needs to be more robust

Appendix A – Acknowledgements

[not included in published report]

Appendix B – Discussion Topics for Participating Companies

Innovation through Collaboration (ItC)

Programme Evaluation

Participating Organisation Topics List

Company Name:

Contact:

Events participated in:

Brainstorming	YES/NO
Focus Groups	YES/NO
Sector Specific Groups	YES/NO
Speed Dating	YES/NO
Other	YES/NO

Please specify:

<u>Experience of ITC</u>

Why did you participate in the ItC Programme?

(*Discuss if there is market failure or just lack of information. If believed to be market failure what is the nature and severity?*)

What did ItC offer that other SE initiatives/programmes didn't?

(*Discuss overlap with existing SE initiatives and gaps in the "market"*)

Why did you participate in certain ItC initiatives and not others?

(or have they participated in more than one?)

Has collaboration resulted in any competitive advantage for you?

Did your initial ItC interaction result in your participation in further initiatives organised by the programme?

If "yes", why;

If "no", why not?

Based on your experience of ItC:
- What was good?
- What didn't work so well?
- What could be done better?

What value has your company gained from participation in ItC?

(*Explore both "hard" and "soft" values – e.g. has there been an increase in turnover, new product/process developed, new knowledge acquired – has ItC contributed to knowledge transfer*)

Is collaboration likely to lead to future KT, and will this be of commercial benefit to you?

Will you undertake any new collaborative activities or change existing activities as a result of participation?

(e.g. have you entered into any collaborative ventures?)

Did you observe any changes in the way you approach collaborating with other companies?

> Are you more willing to consider looking for partners before you actually need it?

> Did the way you search for partners change? (e.g. personal network, internet)

> Did the way collaborations are organised and managed change? (e.g. less or more stringent management)

Describe your experiences of collaborating with Scottish partners so far. Can you think about a couple of lessons learnt?

Would you actively look for partners again – or only if you have no other choice?

Recommendations for ITC

Do you have any suggestions on any other initiatives that could be done under the ItC programme?

More generally – from your perspective how has the ItC process been managed? Could anything be done better?

Would you like to see ItC continue in the future – in its current format or modified?

Appendix C – Discussion Topics for Non-Participating Companies

Innovation through Collaboration (ItC)

Programme Evaluation

Non-Participating Organisation Topics List

Company Name:

Contact:

Experience of ITC

1. Why did you not participate in the ItC Programme?
   Examples:

   a. Timing   YES/NO
   b. Company Policy   YES/NO
   c. Lack of resource   YES/NO
   d. Lack of sufficient Information   YES/NO
   e. Market Conditions   YES/NO
   f. Other (please specify):   YES/NO

2. Are you participating in any alternative "collaboration" schemes?
   YES/NO

   Please provide details as appropriate:

3. Are you collaborating using any other methods/routes?
   YES/NO

   Please provide details as appropriate:

4. Would you be interested in the future in finding out more about the ItC initiative and future events/activities?
   YES/NO

   Please specify particular events/groups of interest:

Are there any specific changes that could be made to the scheme that would increase your chances of participation in the future?

business
growth

economic
development

technology
commercialisation

Head Office

Optimat Ltd.
Torus Building, Rankine Avenue
Scottish Enterprise Technology Park
East Kilbride G75 0QF

tel: +44 (0)**1355 272 800**

fax: +44 (0)**1355 272 556**

web: **www.optimat.co.uk**

Optimat Ltd.
Faraday Wharf, Holt Street
Aston Science Park
Birmingham B7 4BB

tel: +44 (0)**121 260 6165**

fax: +44 (0)**121 260 6167**

optimat