O'Herlihy & Co. Ltd

Evaluation of Wireless Innovation Project

A Final Report to Scottish Enterprise

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Executive Summary

Introduction

This report presents the findings of an evaluation of the Wireless Innovation Project (WIP - based at the Hillington Park Innovation Centre) that was undertaken during the summer and autumn 2008.

The rationale for intervention

The Wireless Project was established in 2003 to overcome barriers to entry for Scotland based firms operating in the Wireless space. These barriers were seen primarily to be: access to wireless technology support; access to wireless infrastructure; business development support (tailored to the needs of Wireless firms); access to key market partnerships. The project has received a total of £1,806,370 (£661,000 in 2003 and £1,145,370 in 2006).

Market Failure and Strategic Rationale

Information market failures are the key failures addressed by the Project and characterised by: small firms being unable to gain visibility with large customers; small firms unable to keep abreast of technological and hardware changes and thereby remain competitive; small firms and larger customers having difficulty engaging with each other. There is also a Market Power failure associated with small firms facing significant barriers to entry.

Benchmark comparisons

Our investigation of models elsewhere (globally) identified WINBC – an initiative in British Columbia. The key comparative conclusions that can be drawn from the review include: WIP's broad remit and strongly innovative client base; WINBC's clients proximity to North American markets and the consequential scale of its clients being much larger.

Project objectives and targets achieved

The Project's objectives have shifted over the two contract periods from a focus on technical support, market research and business development to mobile applications and content, enterprise mobility & RFID, and emerging technologies and machine to machine.

We would note that, at its simplest, the Team appears to adopt a Pareto approach to working with firms – a relatively small proportion receive intensive input while the majority receive light touch support – this is especially notable during the first contract period. The impact data would suggest that this approach is effective.

The Project's targets and achievements are presented in Table E.1

E.1 Targets and Achievements.

Measure	Target Number [03/06]	Target Number [06/09]	Target Number Total	Actual Achievements [03/08]
Start-ups Assisted	24	17	41	100
Existing Businesses Assisted	71	51	122	85
Net New Jobs Created	19	63	82	70
Additional GVA	£10.5M	£22.5M	£33M	£67M

Assess project benefits including Economic Impact Assessment

The project has generated Net Sales Increases for its clients of £3.67M and Net GVA of £3.6M. Given the project spend of £1.8M, Scottish Enterprise is deriving £2 of net additional GVA for every £1 it spends. The return on investment would appear reasonable value for money for SE, especially given the WIP plays a key infrastructure development role for the sector (e.g. hosting inward investment cases for SDI, running information events etc) – this uses its resources but does not generate a return that contributes to its targets.

Usage, quality and demand

Our survey indicated that 55% of firms first heard of the WI Project through their Account Manager. Account Managers play an important role in the referral process.

The client group are classic knowledge based businesses with high levels of R&D spend, very low levels of displacement, high levels of foreign customers.

Most firm's contact with the Project involved seeking advice on market contacts. In their feedback, firms cited two areas of particular value – Business Development support and Key Market Partnerships. Impartial introduction to third parties tends to be the most valued input by firms. There are few transformational inputs.

The WIP Team is seen to be of high quality, technically knowledgeable with commercial contacts that are useful to technology-strong firms. They are also willing to engage actively with firms (which is valued) although there is some evidence firms would have appreciated more in-depth engagement which they did not receive.

At first sight, access to the technology infrastructure does not appear to be as important now as it was earlier in the Project. That said, firms commented on the value of being able to access leading edge handsets free of charge.

The management and delivery

Feedback from firms suggests that, for many, their engagement with the project has been relatively light touch.

In terms of Management Information, the quality both of client participation and engagement data has been very good and better than most projects we have evaluated.

There is evidence that Wireless clients gain access to HPIC's commercial networks and this is mostly seen to be a strength. However, there is also evidence that there has been a fair degree of change within the Team over the course of the life of the project.

The fit and contribution to other SE activities and Priority Industry development

Increasingly, the project has played an active contribution to the activities of SDI in attracting investment to Scotland and building key partnerships with key strategic players in the sector. Feedback from our consultations with SDI emphasise the importance of the project to the organisation's promotion of Scotland's strengths. Our consultations with other areas of SE were broadly positive but there were some questions around the Project's fit with Digital Media support.

We would note that around 90% of the Project's clients are in Scottish Enterprise's West and East regions – just 7% are in Tayside.

There were two areas of consensus: there is a growing awareness of the importance of the Digital Media sector; the Wireless Project should be able to contribute to the sector's development.

It was striking that our consultations with the WIP's partners indicated the immense breadth of the 'wireless' sector. Firms' feedback mirrored this – while around half fell broadly within 'content development', the remainder covered a range of disparate activities which can use wireless technologies as an 'enabler'.

The contribution to the equity and equalities agenda

The Wireless Innovation project attracted ERDF funding and had to report on specific ERDF funding targets for example number of jobs created for ethnic minorities (three were achieved from 10 companies surveyed, from a total of 22 eligible companies supported 2005-2008). A separate report "ERDF Projects Review" was completed in June 2008 (available on www.evaluationsonline.org.uk).

Recommendations for the future direction and delivery of the project.

We foresee the Wireless Innovation Project being in a position to make a greater contribution to SE's Digital Media Sector development activities. In terms of our evaluation, we would make the following recommendations.

Strategic Interventions

We recommend that the team reviews the balance of light touch:intensive inputs especially where firms are open to receiving more intensive input.

Maintain Commercial focus

We recommend that the Team continues to focus on the commercial development of client firms as this is where they derive most value from the Team's input

Track 'light touch' referrals

There is scope to track/follow-up light touch interventions which utilise a referral, especially where this referral is to a potential commercial partner or customer.

Enhance continuity

We recommend the Team places greater emphasis on maintaining continuity with key clients

Continue key partner brokering

We recommend that it continues to prioritise building key contacts with commercial partners.

Consider the location

We recommend evaluating the location of the Project, both in terms of its geographic location (to the West of Glasgow) and its integrated position within the Hillington Park Innovation Centre.

Review Tayside coverage

We recommend that the Project takes steps to strengthen its presence in the Tayside region. If appropriate, we also recommend that SE helps the Project build stronger representation of the Project in Tayside

Overall

We recommend that the project is continued to be supported providing there is a clear contribution it can make to SE achieving its strategic goals.

Chapter 1

Introduction

1.1 This report presents the findings of an evaluation of the Wireless Innovation Project, based at Hillington Park Innovation Centre (in Renfrewshire). The evaluation was undertaken between August and October 2008.

1.2 In order to meet internal reporting deadlines, Scottish Enterprise requested in its invitation to tender that the review should be structured in two phases:

- *Phase one – a strategic consultative review engaging key contacts in Scottish Enterprise and preparing an interim strategy paper on its findings*
- *Phase two – a survey of client businesses assisted during the five years over which the project has been delivered.*

1.3 In addition to the stated brief's requirements, we facilitated a meeting with a cross section of staff associated with the project in advance of preparing the strategy paper.

Aims of the evaluation

1.4 The evaluation had 8 key objectives:

- *Assess the rationale for intervention;*
- *Assess project objectives and targets achieved;*
- *Assess project benefits including Economic Impact Assessment*
- *Assess the usage, quality and demand;*
- *Assess the management and delivery;*
- *Assess fit and contribution to other SE activities and Priority Industry development;*
- *Assess contribution to the equity and equalities agendas;*
- *Presentation of key findings and recommendations for the future direction and delivery of the project.*

Method

1.5 The process comprised the following elements:

- *Research of background papers*
- *Research of other 'benchmark' initiatives*
- *Consultations with Scottish Enterprise and Wireless Innovation Team*

- *A (telephone and face to face) survey of 27 assisted businesses coupled with a slimmed down on-line survey (which engaged 12 assisted businesses)*
- *Consultations with five of the Project's key Commercial partners.*

Wireless Innovation Project

1.6 In February 2003, SE Renfrewshire, with funding support from the SE E-Opportunities team, began a six-month wireless pilot project at the Hillington Park Innovation Centre. The early success of the pilot clearly showed the demand for a wireless innovation project of national scope.

1.7 The project has received a total of £1,806,370:

- *£661,000 in 2003*
- *£1,145,370 in 2006.*

1.8 WIP is positioned as Scotland's National Centre for Wireless / Mobile Development through a project funded by SE Renfrewshire and European Regional Development Fund – and delivered by a private sector partner Innovation Centres Scotland (ICS). It provides specialised business and technology exploitation support to Wireless/Mobile sectors across the SE area.

1.9 The WIP provides the following services:

- *Market Development – through understanding market dynamics and areas of opportunity and using this to develop routes to market. It has also built relationships with leading players as Commercial Partners.*
- *Technical Support in helping companies move into the new technology space WIP also provides technical appraisal of product roadmaps & value chains*
- *Market / Technical Research covering market information, forecasts and intelligence and dissemination of information on emerging technology and market opportunities through various events*
- *Test / Demo Lab which gives clients access to a wide range of devices, networks and tools. This enables WIP to demonstrate products to partners or clients and provides clients with the opportunity to meet other developers and share knowledge.*

1.10 The specialist support provided companies technical support, market research and commercial exploitation, which are delivered under three market groupings in which it is believed Scotland has significant strengths:

- *mobile applications & content,*

- ➲ *enterprise mobility & RFID (Radio Frequency Identification)*
- ➲ *emerging technologies & M2M (Machine to Machine)*

1.11 To date, Wireless Innovation has worked with a 185 companies at different stages in their lifecycle – from university spin outs at the embryonic phase through to larger Scottish companies at the growth phase who are already selling their products or services globally. For example, Wireless Innovation has helped Keypoint Technologies develop their product roadmap for their AdapTex software. The company has grown from a 2 person operation when they first moved into the Hillington Park Innovation Centre to a 46 person company.

1.12 Wireless Innovation facilitates SMEs' growth through introductions to partner organisations including Nokia, Qualcomm, Channel 4, Oracle, Microsoft, Vodafone, Motorola, Orange, and T-Mobile. These client introductions enable SMEs to reach a market that is difficult to access for young small companies. Wireless Innovation has also formed a relationship with Orange to base Scotland's Orange Developer Centre at the Hillington Park Innovation Centre. Separately, Nokia are providing handsets from their Forum Nokia programme across their full range.

Report Structure

1.13 The following Chapter presents a summary of our review of the Wireless Innovation Network of British Columbia. Chapter three presents a summary of our review of the Project, feedback from Scottish Enterprise Consultations and the Partner consultations. Chapter four presents our survey findings while the report concludes with a chapter covering Conclusions and Recommendations.

Chapter 2
Comparator Models

Benchmarking – Wireless Innovation Network of British Columbia (WINBC)

Background

2.1 The Wireless Innovation Network of British Columbia, (WINBC), is a Vancouver based association that brings together small, medium, large and start-up wireless companies to foster collaboration. For the past quarter century, British Columbia, (BC), has been the home to some of the wireless industry's leading players such as Glenayre, MPRTeltech, a division of Motorola as well as a large number of developing companies. WINBC represents approximately 100 member companies from across the spectrum of the wireless technology value chain, from infrastructure and device manufacturers to voice and data service providers. WINBC's value lies in its network of member companies, their potential customers, investors, analysts and other cluster organizations The following is taken from an IDC review of the WINBC undertaken in 2005

The Market Failure

2.2 The rationale for WINBC is that there imperfections in market information and access to technology. Small companies in particular lack the information required to make appropriate decisions. These market imperfections give rise to economic inefficiencies and justify public intervention.

2.3 The argument for WINBC focuses on the assertion that SMEs have less access to information than larger firms. This leads to them adopting best practice and new technology opportunities at a slower rate and is responsible for a performance gap between them. The main barriers are:

- *Disproportionate impact of regulation*
- *Lack of awareness of better technology*
- *Isolation from peers*
- *Lack of awareness of where to seek advice*
- *Scarcity of capital*

2.4 More specifically within the wireless sector market consolidation will limit the number of players in the market. Networking organizations provide an opportunity for small

companies looking to gain an advantage, helping to establish partnerships with larger telecommunications companies and attracting venture capitalists. Networking organizations will be able to offer this opportunity.

2.5 No one organization presently dominates this market, and thus, there are many smaller companies looking to gain an advantage. These small companies can benefit from the affordable access to market information and the opportunity to meet potential partners that networking organizations provide. Within the wireless market, the enterprise segment holds the greatest potential for growth, yet it has presented vendors with many challenges

Companies and Services

2.6 WINBC's wireless member companies cover:

Services - Wireless services in this category include voice and data. Voice includes revenue from non-fixed lines, while data includes revenue from mobile handsets, including short messaging services and wireless local area network. Revenue for wireless voice services worldwide represents the largest portion of the wireless market. In 2003, voice reached $351B and is expected to reach $456B by end of 2008. Wireless Data services revenue is also continuing to expand. Although this sector is only a fraction of the size of wireless voice, it is forecast to grow from $46.8B in 2003, to $137.7B by the end of 2008.

Equipment - Wireless equipment spans infrastructure, devices such as phones, PDA's, handheld devices and modems, as well as applications software. The market for wireless equipment is relatively small, but expansive, and no one organization presently dominates. Revenues in 2003 were $35.6B, and are expected to increase to $85.5B in 2008, a CAGR of 19 per cent.

2.7 Within the wireless market, WINBC addresses wireless vendors' need to:

- *Connect with investors, operators, equipment manufacturers and other wireless solution providers to combine their services and provide comprehensive solutions*
- *Understand market drivers, technical developments and government regulations*
- *Build skills and strategies through workshops and mentorship to better address customer needs and sell their products and services more effectively*

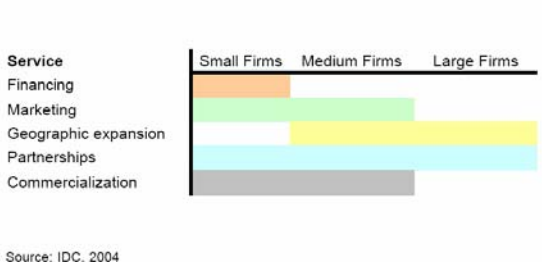
2.8 WINBC offers its members access to workshops, newsletters, industry reports and market intelligence materials, professional development opportunities, and events. Their newsletter provides member profiles, feature articles on current issues within wireless

technologies and related service industries, and lists the WINBC members who offer these services. Some of the featured articles have covered Radio Frequency Identification (RFID), Wireless Fidelity (WiFi), Wireless Local Area Network (WLAN), as well as guidance on securing early stage funding.

2.9 WINBC provides members with networking opportunities through their partnerships with other organizations such as the Service Providers Investment Forum (SPIF), Mobile Entertainment Forum and DemoMobile. WINBC assists members with government organizations such as the Industrial Research Assistance Program of the National Research Council, which provides emerging firms with support for developing innovation in BC. WINBC also works with other wireless associations such as the Canadian Wireless Telecom Association (CWTA), giving members the opportunity to attend events hosted by the CWTA.

2.10 British Columbia is the home to approximately 120 wireless companies at various stages of development. The industry in BC is young, with 76 per cent of companies involved in the wireless market five years or less. The industry is also diversified with companies offering enabling software, enterprise solutions, devices, and engineering services WINBC's members range from world-class leaders such as Sierra Wireless, MDSI, Glentel, to up and coming innovators such as Colligo, Dyaptive, Web Tech Wireless and Contec Innovations. Depending on their size, these firms look to WINBC for varying types of services (see Figure 2.1). Young companies look to WINBC for an affordable way to gain insight and advice on financial, marketing and sales matters. Larger firms on the other hand look to WINBC for the opportunity to network with complementary firms and grow their service offerings.

Figure 2.1: Types of Services supplied by WINBC



2.11 Industry associations help their members succeed in the following ways:

Creating Partnerships to Manage Cost and Complexity - Enterprise users require providers to evolve from selling wireless as a commodity product to packaging complex wireless solutions that offer a complete suite of applications. The cost and complexity of

integrating wireless services with existing enterprise IT systems has spawned numerous partnerships between IT hardware and software vendors, service providers and integrators who offer a more complete suite of wireless applications targeted to enterprise customers. The development of effective partnerships to address enterprise needs will be critical to success.

Quantifying the Benefits and Making the Sale –to promote the adoption of wireless within the enterprise, vendors must provide a solid ROI model that customers can use in evaluating wireless investments. They will need to target Director level positions and talk their language of business, rather than using straight technology pitches. Industry associations such as WINBC have helped vendors overcome these challenges. WINBC's Wireless Innovation Contest identifies successful wireless case studies and uses them to educate the market, supporting the drive for wireless adoption

Understanding the Vendor's Business - Enterprises have unique needs and challenges in their individual industries. Vendors need to address the distinct trends, issues and requirements of these industries, which may well differ between regions, as well as technology challenges. WINBC can provide vendors with access to market intelligence materials, seminars and workshops, to better address these customer challenges.

2.12 The table below illustrated the services offered and the benefits perceived to be gained by the membership of WINBC.

	Networking events	Workshops	Inter-organizational partnerships	ROI calculator	On-line surveys, reports, newsletters
Creating partnerships	*	*	*		
Quantifying benefits		*		*	*
Commercialization	*	*		*	
Understanding business trends	*	*	*		*
Geographic expansion			*		

The Challenges and another benchmark

2.13 The IDC report identified a number of challenges facing WINBC in future and also another potential benchmark for Wireless Innovation.

2.14 IDC found that WINBC has many members spanning many areas of wireless. It can be difficult to offer workshops and information in newsletters that address all of their members' needs. WINBC must balance the need for workshops that are granular enough to offer members specific and actionable advice, with the need for services that are applicable to more than just one of their members. As one of the few wireless industry associations, IDC believed WINBC should partner with other large networking

organizations around the world to enhance the services and industry contacts they offer their members. We understand through SDI that there are already contacts between WINBC and Wireless Innovation.

2.15 CommNexus San Diego, formerly the San Diego Telecom Council, is a non-profit network of communications industry companies, defense industry companies, service providers, professional trade organizations, and local government .It holds similar values and goals as WINBC, complementing WINBC's mission. CommNexus is home to approximately 180 members, including Cal [IT], a $500 million research institute that focuses on wireless extension of the Internet throughout the physical world. IDC believed that by partnering with another wireless industry association, WINBC would have access to a larger pool of resources and be better equipped to address its member's unique needs. Collaborating on their research reports, workshops and the Wireless Innovation Contest, are a few ways WINBC can increase their members' exposure, and provide them with information and guidance.

2.16 CommNexus San Diego works to accelerate the formation, growth, and success of communications technology and service companies in the San Diego region. As it says on its website this is done in several ways:

Facilitating New Business Relationships - Through our CommNexus MarketLink™ program, which provide a shortcut to new business opportunities by introducing regional companies to established multi-national corporations via high-tech speed dates, CommNexus provides an opportunity for business relationships to prosper.

Keeping the Best and Brightest in San Diego With over 11 colleges and major research universities in the San Diego region, InternNexus™ gives the talent that San Diego fosters a path to an exciting local career. Our JobNexus™ career site helps San Diego attract and keep the best talent by providing a focused venue to find and post jobs that are ONLY in the tech industry and ONLY in the San Diego region.

Providing Access to Capital and Preparing for the Pitch the CommNexus NextStage™ programme prepares emerging companies for the next step in the development of their business through a two hour '*scrub*' session featuring a panel of experts, specifically tailored for the participating company.

Educating the Community on Technology Trends, Markets, and Policies Regularly scheduled Special Interest Groups (SIGs) and special events examine key issues in the communications technology community. CommNexus also hosts committees that work to affect positive change in the business environment.

Showcasing the Region as a Leading Center for Innovation CommNexus works to spotlight the San Diego region, its companies, and its innovative technologies in the media and through our website. With over 450 companies currently in operation, our Silicon Beach Map showcases the diversity and size of the tech cluster with the biggest companies and the best surf.

So what does this mean for Wireless Innovation in Scotland

2.17 In Scotland, many of the consultees valued the impartiality of WIP that public funding gives it. Yet vendor neutrality does not seem to be an issue for WINBC's membership. **It is interesting to reflect upon this model in the light of the discussions on the contractual arrangements and management structure of WIP that occurred at the mid-project workshop. Here there was a view that the WIP contractor should be 'arms-length from Scottish Enterprise and monitored on a Service Level Agreement (SLA)**

2.18 WINBC's objectives are…*to accelerate the immediate commercialization capability of member companies as well as build long term capacity for growth and innovation in BC's wireless cluster*… The most recent statement from the WIP team is that its role is …*to deliver high quality business, technology and market development support that accelerates the growth of innovative wireless and mobile technology businesses.* Contrast this with WIP's original objectives:

- *Facilitate the creation and growth of firms operating in the Wireless Technology sector thus contributing to an improved business birth rate and a more entrepreneurial culture*
- *Enhance Scotland's e-business activity - the development of wireless (mobile) technology, applications and content was considered to be a critical part of the e-business supply chain, the development of which would positively impact the growth in e-commerce by individuals and businesses*
- *Increase Commercialisation of Research & Development – the project would encourage the development of intellectual property by client companies, improve linkages between clients and appropriate university research institutions and improve the client's level of research and development*
- *Improve Digital Connectivity – the project would facilitate the development of a strong base of innovative wireless companies and will help to ensure that Scotland is at the cutting edge of competitive, accessible communications technology*
- *Increase involvement in Global Markets – the wireless project through its involvement with SDI and the Innovation Centre's international connections could encourage clients to develop global ambitions, strategic alliances and strategic partnerships.*

2.19 This is clearly a wide ranging remit and it suggests that the original value proposition (of which there is no definitive version) may have been similarly diffuse – allowing the potential for 'project creep'. Consideration should be given to reviewing the statement of customer value – perhaps around the issue of vendor neutrality – and producing a concise mission statement.

Client Profile

2.20 The first difference between WIP and WINBC is the stock of companies. For WINBC they:

- *Encompass all elements of the value chain (WIP – focus on content and applications) WIP does not have the benefit of any large wireless player in the location*
- *The average age of companies is 11 years, excluding major carriers, Bell, Rogers, and Telus which gives it an 'older' profile than WIP.*
- *However, Forty-eight per cent of the WINBC wireless companies started after 2001.*
- *Forty-two per cent of companies are in a growth-stage, while 47% are pre-commercial, early-stage commercial, or in a restart position.*
- *More than half (52%) of the companies generate 80% to 100% of their revenues from wireless related products and services.*
- *Currently, 76% of BC's wireless companies are privately held; 18% are publicly traded.*

2.21 Thus WINBC represents a more coherent 'cluster' of wireless activity than WIP, with a significant number of companies being at a mature stage and being listed on the Stock Exchange. Like WIP, WINBC has a significant proportion of pre-revenue firms. More of the WINBC firms would appear to be wireless 'pure plays' – many of WIP's clients would not classify themselves as being in the wireless industry but rather users or developers of the technology.

Technology Focus

2.22 The BC wireless industry is diverse and is developing a wide range of wireless solutions from LBS to Wireless Data, SMS/MMS, mobile entertainment, mobile payment and RFID. The top five areas include Location-Based Services (31%), Enterprise Data Solutions (31%), VoIP/Voice (28%), Municipal Wi-Fi/ WISPs (27%), and Mobile Content (24%). Traditional telecom technologies prevail, with 48% of respondents using GSM and variants and 42% using CDMA and variants.

2.23 This is a far wider technological span than that of the WIP client base and may reflect the earlier issue of the cluster of operating companies that are in BC as opposed to those in Scotland.

Where the markets are

2.24 The top five markets for WINBC by industry are Telecom, Government, Consumer Products, Transportation and Technology-Software. Telecom is still the number one market segment, although strong markets are emerging in entertainment, banking & financial services, media, real estate, retail, health, and other industries. This is a reasonable parallel with the WIP client base.

2.25 Geographic markets are focused mainly to British Columbia, the United States, the rest of Canada, and Western Europe. Clearly having a demanding and knowledgeable customer such as the USA on your 'door step' is a strong driver for market-related innovation. However it is worthwhile noting that the WIP clients tend to be less 'inward looking' and go global, (or at least see the need to), at an early stage of development.

Intellectual Assets and R&D

2.26 WINBC's clients have an average of 3 patents and patent-pending applications per company. Eighty-six per cent of patents are registered in the United States. WINBC wireless companies also invest aggressively in R&D – approximately 10% of revenues – much higher than the UK or Canadian industry average. The exact figures for R&D investment for the WIP survey was that £10.2M had been spent on Intramural R&D suggesting investment at a level similar to the WINBC client base.

2.27 The client survey did emphasise the innovative nature of the firms being assisted by WIP. Just under 90% of firms cited intramural R&D activity and 42% cited

extramural R&D and Design activity. This indicates the WIP works with a relatively sophisticated or perhaps early stage client base in terms of innovation and is adding value to the quality of innovation-related activities undertaken by these firms.

Finance

2.28 We observed above that there was a significant number of publicly-quoted companies in the WINBC portfolio. In fact 40% of WINBC companies say cash-flow from operations is the most common source for funding growth. The top five revenue-generating activities include engineering services, enabling software and services, professional services, devices, and enterprise-class solutions. Companies are decreasing their reliance on founders and angel investors, and are turning increasingly to institutional venture capital and strategic investments from channel partners.

2.29 This is very different from the WIP cohort who appear to be more reliant on early stage funding and government support such as SMART innovation funding.

2.30 WINBC has a specific remit to help attract investment in partner firms and runs a Service Provider Investment Forum (SPIF) on an annual basis. This forum brings together international carriers and venture capitalists to Vancouver with the client base. This mechanism may be something that could be developed by WIP for its client businesses.

The People Dimension

2.31 In a 2007 study of WINBC, a quarter of companies who currently have 1 to 10 employees predict they will have 11 to 100 employees by 2009. Currently, 66% of companies have fewer than 10 employees and 28% have 11 to 100 employees. Only 6% of companies have more than 100 employees. This looks like a similar profile to the WIP.

2.32 When it comes to skills, the three management skills hardest to find locally are partner/channel development, executive management and sales. This is a challenge for almost all Scottish technology companies and one which would merit further development in any continuation of WIP. (N.B. SDI has a pilot initiative in this area utilising local consultants and the GlobalScot network).

Commercialisation, Innovation & Markets

2.33 The WINBC clients have changed focus from developing wireless platforms aimed at horizontal consumer markets to applications and technologies targeting vertical business markets.

2.34 Currently, 21% of BC's early stage companies indicate they have five or more reference customers, while 17% report they have 10 or more. Another 35% are still developing their technologies, or are looking for first customers. This mix is far in advance of WIP where a significant number of the clients would fall into the last category.

2.35 As survey of the WINBC membership say they would benefit from:

- *Product quality assurance/functional testing facilities and help (60%)*
- *Help with product marketing and demand creation (54%)*
- *Product lead testing/performance benchmarking facilities and help (50%)*

2.36 This assistance would speed up commercialisation. This is an interesting observation in the light of the ambivalent response on the benefit of the wireless test lab from the WIP clients. It may be a reflection of the stage of development of these companies but does highlight that a review of hardware and testing support would be beneficial. The WINBC study revealed that the two fastest growing areas for capital expenditure were:

2.37 Testing & Certification – increasing 44%, from $1.6 million in the past 12 months to $2.3 million in the next 24 months. Pre-commercial and early stage companies will show the largest growth for this type of expenditure 150%

2.38 Mature companies will increase their spending in both testing and certification and for testing equipment by 62% (from $16.7 million to $27.0 million)

2.39 In contrast the WIP clients are only investing an average of £37k per annum on capital equipment. This could be linked a number of factors such as the maturity of the company and technology, the size of the WINBC client base in comparison to WIP and the availability of finance.

2.40 The following chapter presents findings of our consultation feedback which was gathered during the first phase of the project.

Chapter 3
Consultation feedback[1]

Introduction

3.1 This chapter presents the findings of our consultations within Scottish Enterprise, those with the Wireless Innovation Team and also those with the Project's Key Partners.

WIP Client Base

Referrals [April 07 - March 08]

3.2 Broadly speaking, the sources of referral are:

- *47% - Existing Clients*
- *20% - Events*
- *19% - Other programmes*
- *14% - SE/Other Public*

3.3 A key point is that just under half of the Team's new clients in the past year were recommendations from existing clients. This suggests a high degree of satisfaction with the Team's service. The team estimates that between 50% and 60% of their clients also benefit from SE Account Management

Client Distribution

3.4 At 34%, *Mobile Applications, Content and Enterprise* is the single largest client group by some margin. The next most important groups are:

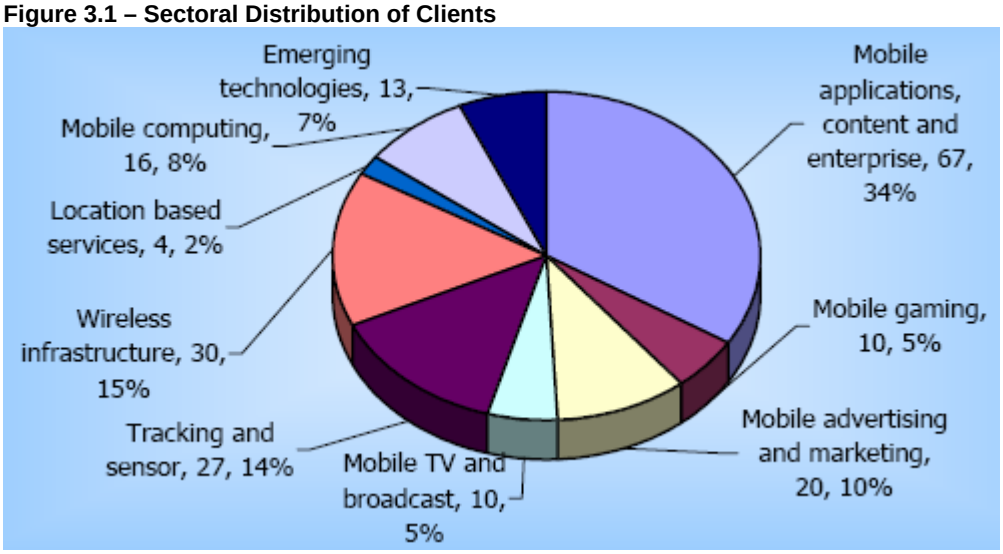
- *Wireless Infrastructure (15%)*
- *Tracking and Sensors (14%)*
- *Mobile Advertising and Marketing (10%).*

3.5 Analysis by the Wireless Innovation Team has identified nine separate client groupings that define its customer base. Reviewing the larges sectors above, the dominance of mobile content over *wireless infrastructure* is notable – there has been a shift towards mobile content as the project has evolved.

3.6 In recent months, there has been an increased focus on content, advertising and broadcast. This focus reflects changes in market dynamics and the emergence of greater interest among one of the key broadcast organisations (Channel 4).

3.7 Our consultation with the Team emphasised that their categorisation of clients is based upon the classes used by ***analysts*** rather than the firm's own categorisation of their business. This has generated some discussion among the firms, but the Team considers it is the most consistent and objective method of assessing the nature of the client group's activities.

Figure 3.1 – Sectoral Distribution of Clients



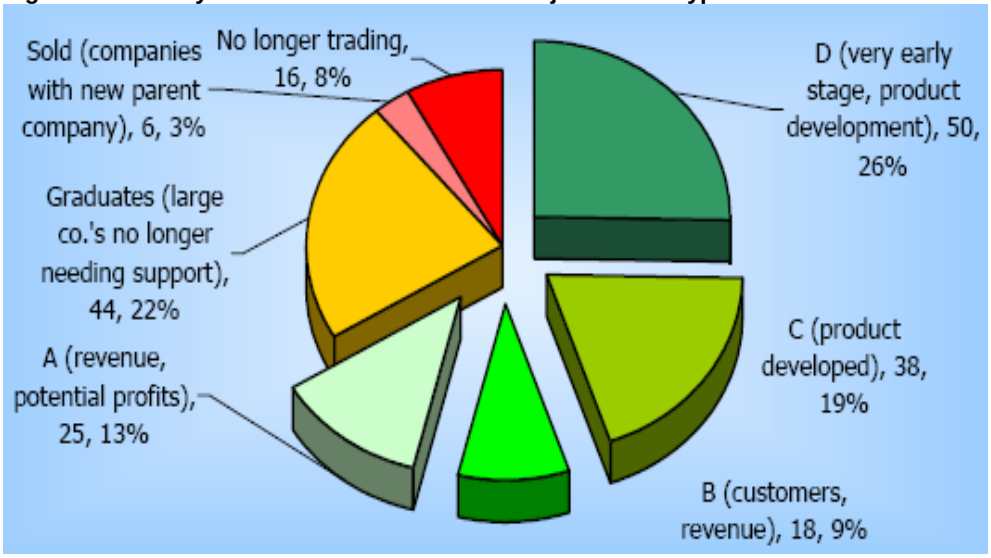
Source: Wireless Team

Maturity Profile of Clients

3.8 Figure 3.2 provides a clear overview of the maturity profile for the four principal active client types.

[1] Consultations and Desk Research comprised the first phase of the project and this section of the report is a summary of the resulting strategy paper produced in September 2008

Figure 3.2 – Analysis of Wireless Innovation Project Client Types



3.9 These client types can be summarised as follows:

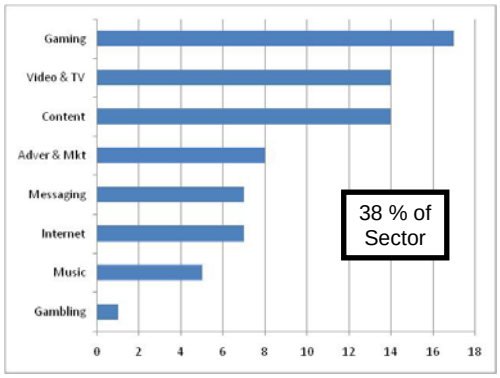
- *A - these firms are in market, trading successfully and have the potential to generate (or are already generating) profits [13% of active client base]*
- *B - these firms have customers and are generating revenue but may not be profitable [9% of active client base]*
- *C - these firms are younger, have a product developed but have yet to trade successfully in the market [19% of active client base]*
- *D - these firms are at a very early stage and are typically engaged in product development but have not yet generated any sales and consequently any profits [26% of active client base]*

3.10 An important point to note about the distribution in the pie chart is that there are a further 33% of firms that have either graduated (the largest grouping), have been sold or are no longer trading. Over one fifth of the Project's clients have graduated and no longer need support.

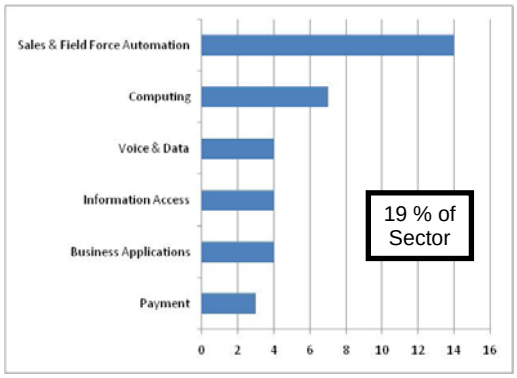
3.11 As presented in Figure 3.3, 57% of all clients are active in the Business or Consumer mobile sector. A further 20% are engaged in Tracking, Sensor and Design services.

Figure 3.3 – Consumer Mobility and Business Mobility Segments

Consumer Mobility



Business Mobility



Geographic Distribution of Clients

3.12 The bulk of clients are located in the Central Belt

- *West – 47%*
- *East – 42%*
- *Tayside – 8%*

3.13 The low coverage in Tayside is significant. Given the anticipated greater focus of the Project on Digital Media, it suggests that the Team will need to increase its engagement with clients in this area.

Core Services

Figure 3.4 Service Segmentation

3.14 The Project's services comprise four principal elements:

- *Business Growth/Development*
- *Market Intelligence*
- *Advice on the development of Products and Technologies*
- *Partnering/Brokering.*

Business Growth/Development

3.15 The Team has developed a stage-gated client management process that can be broadly speaking described as follows:

- ➲ *first meeting with the client*
- ➲ *form a view on business and proposition*
- ➲ *research and test with other team members, analysts, potential investors etc*
- ➲ *provide feedback to the firm*
- ➲ *scope to project*
- ➲ *implement the project*

3.16 In every case, they apply a screening process in which they assess/appraise the client for their potential fit. This looks at identifying the firm's uniqueness with regard to its:

- ➲ *hardware*
- ➲ *applications*
- ➲ *systems*
- ➲ *processes or*
- ➲ *services.*

3.17 The firm must exhibit some form of innovation. This can cover its product, process, business knowledge, innovative or novel approach of the management team or key people, innovative approach to marketing, novelty in financial/pricing models. If it does not show some form of uniqueness, the team won't work with it.

3.18 The process is designed to filter out "me too" firms.

3.19 Once this assessment of the innovative position has been completed, the team then assesses the firm's growth potential. This is roughly graded according to "Low-Medium-High". Generally, they focus on the Medium-High range.

3.20 The final appraisal criterion relates to management. There must be management engagement and a commitment to act on recommendations made by the Team - if this is missing, the team would generally back off.

Business Intelligence

3.21 The Business Intelligence service is tailored to the needs of individual businesses. A specification is prepared by the firm and developed through conversation with them by the Team's Research Manager.

3.22 The Research Manager makes use of a range of information sources depending upon the request being made. These include:

- *Business Gateway with whom they have a very good relationship and from whom they can gain access to Frost and Sullivan reports*
- *ScotBiz*
- *Strategy Analytics*
- *Gartner Group.*

3.23 The Team tendered for an information service that comprises access to leading market reports supported by telephone calls with market analysts. Gartner Group won the contract and included within their tender unlimited access to the analysts. The Wireless Innovation Team has made extensive use of this service for their clients over the past year.

3.24 The Team considers it can add considerable value through its access to market intelligence and appropriate research. Research Requests often come from the Team's company advisers following their initial interview with the firm. Our consultation identified several examples where the advisers discussed in depth with the firm its growth ambitions and aspirations, agreed a set of critical technological/commercial questions that needed to be answered and then arranged for the Wireless Innovation Team, and the Gartner Group analysts to discuss these over a conference call. These calls typically last up to one hour, have a structured agenda and have a clear set of outputs. As an example, one involved a firm that was undecided in the choice of operating system on which to develop their product. The discussion with the Team, coupled with a conference call with the Gartner Group analysts, identified the optimum future strategic direction of the company. Its Scotland manager put forward a case to their Group management team for the way forward. Feedback indicates that this raised (in a positive way) the profile and activity of the Scottish office.

3.25 It can be seen therefore that the Research activity is quite different in delivery to that from other information sources such as Business Gateway. Specifically, it appears to provide up-to-date information on the market structure, market dynamics and appropriate channels to market for firms that are typically strong on their technology but weak in its commercialisation.

Partnering/Brokering (pictured above as Networking and Conductivity).

3.26 An example of the Partnering/Brokering service delivered by the Project would be the recent engagement with QualComm. Qualcomm is a global technology company producing:

- *Wireless airlinks and networks*
- *Chipsets*
- *Consumer electronics and hardware*
- *Mobile content and software*
- *Developer (software) tools,*

3.27 The firm has grown through acquisition and in-house product and technology development.

3.28 The Wireless Innovation Team identified a QualComm supported EMEA Investment Fund for technology and innovation. The team contacted the QualComm fund manager in order to identify their areas of interest and their strategy for investing. Based upon this conversation, the Team passed a range of company profiles to QualComm for review.

3.29 Simultaneously, the Team informed SDI of contact and their proposal for bringing local firms and QualComm together. The team was keen to ensure that it did not break the SDI protocol for contacting potential inward investors. In the event, SDI was happy for the Team to lead this contact and asked to be kept informed of progress.

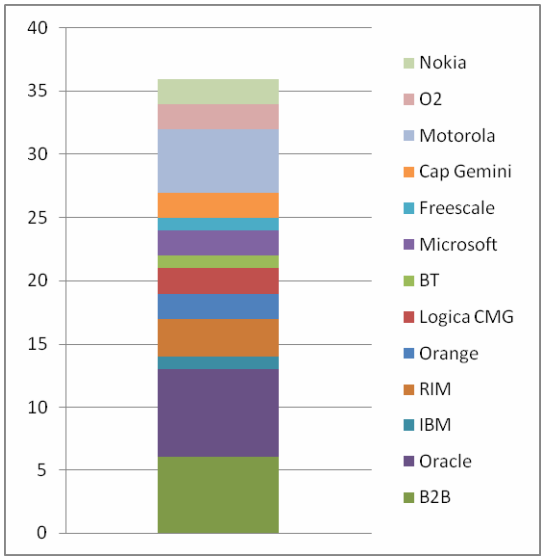
3.30 QualComm selected eight firms who may wish to meet in London for detailed discussion around potential investment and partnering. The Wireless Innovation Team identified an additional firm that QualComm had reviewed but did not select. Through its detailed understanding of its business, the Team recognised that this firm should have a significant opportunity to offer QualComm. It went ahead and included this extra firm within the visiting group, increasing its size to nine.

3.31 At a meeting in London, two of QualComm senior financial investment analysts attended. It was clear that in addition to identifying opportunities for investment, QualComm was also interested in opportunities to sell into Scotland. Following this meeting, QualComm chose three firms for further investigation and due diligence - one of these was the "extra" firm added to list by the Wireless Team. We feel that this is a good example of their detailed insight into both the technological and commercial potential of the businesses with whom they work.

3.32 One of the three target firms did not pursue the interest with QualComm as they were pursuing external funding in Scotland and had reached a critical stage of negotiations but the other two have advanced their negotiations. The commercial potential could be very significant.

3.33 The Team noted that all of the firms who attended the meeting in London derived considerable value through their day-long interaction with the QualComm team. In each case, the Team indicated that their client firms got useful commercial and market feedback on their products from QualComm that would be valuable to their future development and they would not have gained through other obvious sources.

3.34 The figure below provides information on the number of Client-Partner networking interventions facilitated by the Team. It does not include the nine firms engaged with QualComm as this has occurred more recently.



3.35 We present below feedback from consultations with five of the WIP's partners

Startup Advice

3.36 As seen above (Figure 3.2), around 25% of clients are at a very early stage of development with a further 20% having a product but not yet generating revenue. For these clients, the Team provides an important sanity check on commercial viability and routes to market. The team is distinctive from Hillington Park Innovation Centre in at it has its own client group who are specialised in market segments relating to wireless technologies. We understand that the Innovation Centre's team has a more technologically generic skills set and market approach.

Networking

3.37 The team has an active range of networking events, running about six per year. These are hosted either at Hillington or in Edinburgh/Lothian.

3.38 In our consultations, the Team noted that from time to time they can come across two firms with competing products. Given their confidentiality, they are unable to tell one firm of the other's existence or potential competitive threat. One approach they have adopted successfully in such cases has been to invite both firms to a networking event and to introduce them to each other. This allows each firm to become aware of the other's product. In several of the cases it has led to collaborations that have strengthened the Scottish presence.

Technology Advice

3.39 This covers issues such as defining system and product architecture, Proof of Concept (PoC) and feasibility studies, validation of products to systems level and Identification of technology and market value proposition of proposed products or services. This service is of use to the current client base and could be enhanced through wider and deeper consultations with the research base in Scotland. This is a theme highlighted by many of the consultees.

Risk Finance

3.40 Hillington Park Innovation Centre has built historically strong links with the venture capital and risk finance sectors in Scotland. The co-location of the Wireless Innovation Team within the Centre has provided an opportunity for wireless firms to gain access to potential investors. In its Annual Report from April 2007 to March 2008, the Team cite a range of firms that have benefited from private financial investment of over £7 million. These include:

- *Elonics - £2.5 million*
- *Rapid Mobile -£2 million*
- *Helixion - £650k*
- *Wireless Fibre Systems - £560k*

Links to Partners

3.41 The principal link to partners is through the SE Account Managers and Scottish Development International. As mentioned above, the Team estimates that between 50%-60% of their clients are Account Managed firms. That said, they get relatively few referrals.

3.42 The team has built a strong relationship with Scottish Development International. Our consultation with SDI indicates that they consider the Wireless Innovation Team to be a significant asset in Scotland's global offer to Mobile wireless projects and Mobile investment more generally.

3.43 The key commercial partnerships are with Orange, Oracle, 02, Channel 4 and QualComm. The findings of our interviews with these firms is presented below.

3.44 One of the key requests form the recent workshop was a description of the WIP model and how, if it is proven to be a successful intervention, it can be applied in other sectors. We have used the outputs of our consultations and the workshop feedback to put forward the following as the WIP business model. The uniqueness of the WIP model stems from its market specificity and the degree to which it accesses the industry supply chains. These differences may be the key to its success when transposed on another sector e.g. digital media.

3.45 The team *focus* is on wireless and mobile content technologies where they provide assistance to firms taking forward their exploitation. The team also *brokers* relationships across firms operating in the sector through using their knowledge of the key players' activities. This brokering role is mostly 'light touch'.

3.46 The following section provides details of our consultations with key partners.

Interviews with Key Partners

3.47 Interviews were held with five of the Wireless Innovation Project's key industry Partners. The principal findings are summarized below. We have presented these as a set of bullet point responses to specific questions – this reflects their unique perspectives as Partners.

3.48 Partners first heard of the Project through a range of channels:

- *Through colleague (2)*
- *Through contact from Scottish Enterprise (2)*
- *Contacted by Director of WIP*
- *Arose from on-going dialogue with HPIC*

3.49 Of note here is the referral role played by SE or the respondent having close contact with SE.

What is the Wireless Sector in Scotland

3.50 There has been considerable debate within SE on the definition of the Wireless Sector in Scotland. Consultees provided their views on its definition below but noted that Scotland was no different to elsewhere. Their definitions included:

- *Anything in telecommunications - ranging from operator infrastructure to consumer internet applications, for example Quallcomm Ventures invests in the whole value chain.*
- *Spectrum based technology - broadcasting could be of interest.*
- *Untethered connectivity from a device*
- *Fixed and mobile convergence with device based remote access to applications.*

3.51 It can be seen that these are very 'open' definitions and could cover a very broad scope.

What are the key issues facing the sector

3.52 The key issues facing the sector were considered to be:

- *Mobile applications offers scope for development but despite being a busy segment globally, Scotland (with HEIs and companies) appears to be well positioned.*

- *Few if any specific to Scotland. The only one to highlight would be the effect of the various departments of Scottish Government and the lack of co-ordination between them - this results in separation of facilities e.g. eHealth in Aberdeen and WIP in Glasgow. Need to look at a cross-sectoral, market-driven approach*
- *Ownership of the infrastructure (public/private) may affect development.*
- *Mobile network coverage is variable.*

Have you engaged in WIP?

3.53 Three of the Partners replied to this question as follows:

- *In a one- day event where we had the opportunity to review a wide range of businesses.*
- *Helped organise a tour of HEIs and companies and facilitated introductions regarding business opportunities,*
- *Have given presentations on GSM and have had a tour of the WIP facility and met some companies.*

3.54 This suggests their engagement has been relatively light touch.

What is the value of being a partner?

3.55 The value was seen to cover the following areas:

- *Gaining access to (qualified) opportunities and new technology.*
- *Contacts with new companies and technologies*
- *An opportunity of understanding the Scottish context and assisting partners who are working in the wireless space*
- *Gaining access to technology base/new ideas. The use of HPIC for meeting venue.*

3.56 While light touch, Partners see it as being valuable.

Has this value been delivered and are there any other benefits?

3.57 In terms of delivery and value, Partners noted:

- *Yes (4)*
- *Venture industry has a longer term outlook and is global so difficult to quantify given the short timescale. Would look at investing is Series B Funding rounds (i.e. mature start-ups) trading at €1-50m.*

How does WIP benefit from your company's input

3.58 Partners considered they offered considerable value to the Project:

- *Our company's Venture arm's feedback to firms presenting business plans and models has been highly valued. We can also act as a screen for ideas and business models and can champion a company or HEI within our corporate structure. Separately we can introduce companies to our Global supply chain (esp. customers) where there is no direct relevance to our own business.*
- *The companies gain access to our content procurement system*
- *We test business concepts and act as a door into the operator networks*
- *Companies gain access to our supply chain and gain insight into future plans.*

Are you aware of any similar projects elsewhere?

3.59 Most Partners commented that they received contacts and approaches from Regional Development Agencies in England. Specifically, one Partner noted three projects:

- *SetSquared Partnership (UK) - HEI collaboration*
- *Y Combinator (USA) - funding partnership*
- *Seedcamp (UK) funding event*

3.60 Thus, even though there is no similar facility elsewhere in the UK, there *is* competition for the Wireless Project in the UK.

Any Other Observations

3.61 Other observations included:

- *From a VC perspective it is very useful to have someone to pre-screen opportunities and WIP have done this well*
- *Very pleased with the support and the work that is being done (for us). Would be useful if the proactive marketing of WIP by SE happened elsewhere e.g. the West Coast USA.*
- *Need to have a physical presence beyond Hillington. HPIC seen as being on an industrial estate and not part of an integrated media quarter. Also need presence in other parts of Scotland i.e. Dundee*
- *Should focus on mobile communications services and act as an inroads to various Scottish Government Departments on this technology*

Whom/What do you consider to be the key companies and/or resources in the Wireless sector in Scotland ?

- *It is difficult to speak about Scotland specifically. There is good work in the HEIs but this is common throughout the world e.g. UC San Diego and work on power amplifiers*
- *University of Edinburgh (speckled computing). Codeplay, Mobile Accuity and KeyPoint. However contact has been limited to date and there may be other opportunities and groups.*
- *The world class academic institutions are not in Scotland. Edinburgh has good computing capability but is more academic than industry focused, Heriot Watt and Strathclyde are easier to approach but lack depth of Imperial or Surrey in the wireless space across sectors.*
- *The telecommunications providers are key to the sectors development*

3.62 The following Chapter presents our survey findings.

Chapter 4
Survey Findings

4.1 This chapter presents details of our WIP client survey.

Client Characteristics

4.2 27 client firms were interviewed using a mix of face to face and telephone approaches. The survey was designed to capture feedback from the key client types, namely:

- *Key networking opportunities with Channel 4, Qualcomm and Oracle*
- *Top 50 firms*
- *Other firms who have benefited from WIP support*

4.3 When undertaking the survey, we were obliged to avoid contact with firms that had been included in earlier surveys (such as Account and Client Management Review) and this limited the firms we could select for interview.

Table 4.1 Profile. Interviewer to code from spreadsheet, tick as many as apply[2]

Answer Options	Response Percent	Response Count
Top 50	48.0%	12
Channel 4	4.0%	1
Qualcomm	8.0%	2
None	48.0%	12
	answered question	25
	skipped question	2

4.4 It can be seen in table 4.1 that around half of the firms have been categorised as being Top 50 companies. These are firms which the Wireless Team considers its engagement has been more intensive over the period of the project.

4.5 There has been limited representation of those firms engaged in partner consultations with Channel 4 and QUALCOMM. Around half of those interviewed were classified as being in general clients – these are represented above as the 'None' categorisation. These firms had a need for market or technical wireless-related knowledge and approached the WIP team for that reason.

[2] A total of four companies met Channel 4 and nine met Qualcomm across the whole project.

4.6 This sample distribution broadly reflects the distribution of the population.

Table 4.2 When was initial contact (Contract Period)		
Answer Options	**Response Percent**	**Response Count**
Year 1 to 3 (Apr 03 to Mar 06)	55.6%	15
1H Second Contract Period (Apr 06 to Sep 07)	18.5%	5
2H Second Contract Period (Oct 07 to Mar 09)	25.9%	7
	answered question	27
	skipped question	0

4.7 The brief specified that the evaluation should establish the impact of the full six years of the Project's delivery. As can be seen from table 4.2, our sample was evenly balanced across the two three-year contract periods. We anticipated that we may get slightly greater representation from the first contract given that key firms would have been engaged relatively early in the project's life and that a relationship will be maintained ever since.

Table 4.3 Client's status of development		
Answer Options	**Response Percent**	**Response Count**
<1 year old	26.9%	7
Established	73.1%	19
	answered question	**26**
	skipped question	**1**

4.8 It can be seen from Table 4.3 that just under three quarters of assisted firms were 'established firms' at the point of assistance. However as will be seen later, even though they were established, a significant proportion have yet to generate any turnover. Thus, these firms reflected a typical startup profile for technology-based firms. Again, as will be seen later in this analysis, firms were willing to invest considerable amounts of resource (time and Finance) in Research and Development in advance of generating any sales.

4.9 Further feedback from the survey indicates that the vast majority of firms (89%) were urban based.

Table 4.4 What does the firm do?		
Answer Options	**Response Percent**	**Response Count**

Mobile applications	50.0%	13
Content	23.1%	6
Enterprise mobility & RFID	19.2%	5
Emerging technologies & M2M	11.5%	3
Other	53.8%	14
	answered question	26
	skipped question	1

4.10 At 50%, Mobile Applications dominated the assisted firms' profile. However as is also evident from table 4.4, there were a range of "Other categorisations' made by firms indicating the broader range of business and sectoral coverage exhibited by the client base. These Other activities included:

- ➲ *GPS tracking and positioning (4 firms)*
- ➲ *Security related applications (3 firms)*
- ➲ *Mobile software and content (6 firms).*

Table 4.5 Do Firms activities benefit the following sectors

Answer Options	Response Percent	Response Count
Energy	50.0%	4
Tourism	37.5%	3
Reduction in carbon emissions	25.0%	2
Food and Drink	0.0%	0
	answered question	**8**
	skipped question	**19**

4.11 We were also keen to discover whether assisted firms were developing applications in Energy, Tourism, Carbon Emissions reduction, or Food and Drink sectors. A total of eight firms (30%) identified themselves as operating in these markets with energy applications being the most significant area.

4.12 In can be concluded therefore that these sectors are relatively lightly represented by assisted firms.

Operating and Market Context

Table 4.6 Thinking about the market conditions in your main area of business over the last 3 years, would you say that market conditions have...

Answer Options	Response Percent	Response Count

Declined strongly	3.7%	1
Declined moderately	7.4%	2
Are about the same	18.5%	5
Improved moderately	40.7%	11
Improved strongly	29.6%	8
Don't Know	0.0%	0
answered question		**27**
skipped question		**0**

4.13 Firms were asked to comment on the strength of their target market performance over the past three years. Reassuringly, 70% indicated that their market conditions are (with just under 30% indicating that they had "Improved Strongly"). Just 11% of respondents indicated a decline in market size.

4.14 This finding is positive. It indicates that the developmental activities of the assisted firms are targeted at market sectors which are growing. We will see later that these markets are significantly export focused. This indicates that these firms are developing competitive products that are anticipated will find global reach. It also suggests that these are growth-oriented companies.

4.15 As a further qualification, 28% of respondents indicated that none of their customers were based in Scotland, while the bulk of the remainder indicated that it was typically just one or two outlets. Again, this supports the view that these are growth oriented businesses.

Table 4.7 Do you have competitors in Scotland for your main area of business? Who?

Answer Options	Response Percent	Response Count
All the businesses I compete with are based in Scotland	3.7%	1
The majority of the businesses I compete with are based in Scotland	11.1%	3
Around half of the businesses I compete with are based in Scotland	3.7%	1
A minority of businesses I compete with are based in Scotland	29.6%	8
None of the business I compete with are based in Scotland, or, I have no direct competitors	51.9%	14
	answered question	**27**
	skipped question	**0**

4.16 Confirming their feedback on local customers, over half of the respondents indicated that none of their competitors were based in Scotland with a further 30% indicating a minority were based here.

4.17 15% of firms indicated that the majority of their competitors were Scotland-based. This would suggest that likely displacement levels will be low as the competition for any of the Wireless Innovation Project assisted sales will not have been achieved at the expense of other firms in this country.

Table 4.8 Thinking about the main supplies for your business, which of the following statements best describes your business?

Answer Options	Response Percent	Response Count
All our supplies come from Scottish-based suppliers	0.0%	0
The majority of our supplies, in terms of value, come from Scottish-based suppliers	29.6%	8
Around half of our supplies, in terms of value, come from Scottish-based suppliers	3.7%	1
A minority of our supplies, in terms of value, come from Scottish-based suppliers	55.6%	15
None of our supplies come from Scottish-based suppliers	11.1%	3
Don't Know	0.0%	0
	answered question	27
	skipped question	0

4.18 Table 4.8 indicates that the balance of Scotland-based supplies to assisted cases will be relatively low:

- ➲ *11% indicate that none of their supplies to come from Scotland*
- ➲ *56% indicating that a minority of supplies will come from Scotland*

4.19 This profile is unsurprising given the technological focus of the firms interviewed. These firms are relatively small and (at this stage of their development) are investing most resources undertaking R&D on their product or refining its design. For those who were yet to trade, there was mixed feedback on whether they would be sourcing substantive quantities of raw materials in Scotland.

4.20 This business profile (concentrating on design strength and subcontracting manufacture to lower cost countries) is evident more widely in Scotland. In 2005 we undertook research into the competitiveness of High Value Electronics in Scotland, interviewing a range of medium and large-sized firms. All indicated a notable shift away from volume manufacture locally with a constant strategic assessment being made of the viability of manufacturing subcomponents in Scotland. There was clear feedback through this research that Scotland had considerable design strengths that were recognised globally. Firms were increasingly concentrating on exploiting these strengths while divesting lower value manufacturing processes abroad.

Table 4.9 Factor Market Displacement.		
Answer Options	**Response Percent**	**Response Count**
No other firms / demand affected	74.1%	20
Other firms/ demand affected to a limited extent 10%	7.4%	2
Other firms/ demand affected to a limited extent 20%	11.1%	3
Other firms/ demand affected to a limited extent 30%	7.4%	2
About half of the activity is displaced 40%	0.0%	0
About half of the activity is displaced 50%	0.0%	0
About half of the activity is displaced 60%	0.0%	0
A high level of displacement takes place 70%	0.0%	0
A high level of displacement takes place 80%	0.0%	0
A high level of displacement takes place 90%	0.0%	0
All of the activity generated is displaced 100%	0.0%	0
Don't Know	0.0%	0
	answered question	**27**
	skipped question	**0**

4.21 Factor market displacement was not cited as being a key factor among assisted firms.

4.10 SE Account Manager		
Answer Options	**Response Percent**	**Response Count**
Yes	48.1%	13
No	33.3%	9
Don't Know	18.5%	5
	answered question	**27**
	skipped question	**0**

4.22 Just under 50% of respondents indicated that they had a nominated Account Manager. A total of 13 firms identified the Manager by name, four identified a representative of the High Growth Start-up Unit at Scottish Enterprise.

Table 4.11 How did you become aware of WIP		
Answer Options	**Response Percent**	**Response Count**
Contact from SE or Business Gateway	40.9%	9
Contact from SE account/client manager	13.6%	3
Direct contact from WIP	36.4%	8
Attending an event	9.1%	2
Through Trade Association/Professional Body	4.5%	1
	answered question	**22**
	Skipped question	**5**

4.23 Referral or contact from Scottish Enterprise is the dominant promotional route of the Project. Just under 55% learned of its existence through this route. Interestingly, the next most significant promotion channel was via direct contact from the Wireless Innovation team. This reflects the underlying nature of the project:

- *Given its profile within Scottish Enterprise Network, Account Managers will refer firms to it as appropriate*
- *The team also reviews the structure and firms' presence within the sector and will target those it considers are important*

4.24 By providing detailed feedback, firms noted the role played by:

- *Alba Centre*
- *MX Alliance*
- *High Growth Start-up team*
- *Scottish Developing International.*

What did the wireless team do for you?

4.25 All of the respondents provided feedback on the Wireless Innovation Project's input to their business. A large majority were positive in their feedback of both the project in general and the specific services they gained.

4.26 Reviewing this feedback, it is apparent that much of the team's support is targeted and relatively specific. From the firm's viewpoint, this can be seen as "light touch". For example, firms frequently noted that they met with the Wireless Team on "a few occasions" when they discussed their technology and considered how it might be developed. The Wireless Team usually provide suggestions on how the firm can take forward their product idea. The Team provides specific pieces of strategic advice on the market and the firm's positioning within it.

4.27 In selected cases, the team facilitated contact with other firms (either partners with whom to develop their technology, or potential customers). Examples of this include:

- *selective introductions to T Mobile, Orange, Vodafone*
- *links to Orange Development Team,*
- *links to QUALCOMM*
- *introductions to Channel 4*
- *Introductions to Xylinx Design Centre*
- *potential subcontracting manufactures in the Far East*
- *Introductions to Microsoft*

4.28 The feedback suggests that the Team makes two types of intervention:

- ***technical appraisal*** *of the firm's technology or product, providing feedback on its likely potential - this appears to have been the input made to most cases (initially at least)*
- *a* ***business assessment*** *that links the potential commercial opportunity to the firm's technology - this is a more strategic discussion, usually involves greater input by the Wireless team and often leads to 1-1 meetings between the firm and potential customers and commercial partners.*

4.29 Fewer of the second type of interaction were noted by the interview respondents, but when they were, their feedback was unanimously positive.

Table 4.12 How important are the WIP services.

Answer Options	Very important	Less important	Not important	N/A	Rating Average	Response Count
Access to a wireless infrastructure	10	5	11	1	1.96	27
Wireless technology support	7	10	9	1	1.92	27
Business development support	12	8	6	1	2.23	27
Key market partnerships.	14	4	8	1	2.23	27
Link with HPIC and Alba (eg to rent space)	4	7	13	2	1.62	26
Link with SE	4	9	13	1	1.65	27
Gartner group discussion	8	6	10	3	1.92	27
answered question						27
skipped question						0

4.30 The data in table 4.12 provides a valuable insight into the areas where client firms consider the Wireless Innovation Team can make the greatest impact. The table

presents the range of services (of which there are seven) and the importance ranking given to these by clients. The table also includes an average rating - the higher the average rating, the more "important" the services deemed to be with the highest rating been 3.

4.31 A review of the data presented in table 4.12 emphasises the importance placed by firms on access to Business Development Support and Key Market Partnerships. This reflects the anecdotal feedback from firms that the Wireless Team provides an important bridge between the "technology-based" firm and the "commercially focused" market. Providing this technology translation service (technology to market potential) is valuable to firms. This is complemented by the relatively high rating of the Gartner Group discussions. We would note that several firms were not aware of this service (but were positive of its potential value) while others may well have rated it of 'low importance' as they did not understand the potential contribution this input could make to their business.

4.32 While the market related knowledge is seen as being particularly important by firms, a sizeable number also rated the technical aspects of the Wireless Team's support as being important – this covered both access to infrastructure and technology assessment. The access to infrastructure is probably the longer standing element of assistance offered by the Team and this feedback suggests that there is still a market need being addressed through its provision.

Table 4.13 How do you rate these aspects of WIP's input?

Answer Options	Excellent	Acceptable	Unacceptable	N/A	Rating Average	Response Count
Understanding your business	17	6	1	3	2.67	27
Working with you/your team	15	2	3	6	2.6	26
Skills and experience to support your firm	15	6	1	4	2.64	26
Resources available to support your firm	9	8	4	5	2.24	26
answered question						**27**
skipped question						**0**

4.33 In terms of *business understanding*, *customer interfacing* and the *skill set of the Wireless Team members*, feedback scores are high (with an average score of 2.6/3 which equates to a satisfaction level of around 86%).

4.34 However when respondents were asked to comment on the level of resources available to them, the score is slightly lower at 2.2. This mirrors two details in the supporting feedback. First, that the input has been relatively light touch in many cases and second

where the team understood the challenges facing the firm but did not have the resources available to help the firm address these challenges. The latter point also supports the view that project interventions are tightly defined but, as discussed in Chapter 2, its remit is broad.

Table 4.14 Substitution effects such as labour/skills, land and property, capital and finance.

Answer Options	Response Percent	Response Count
No substitution takes place	92.6%	25
There are some substitution effects 10%	3.7%	1
There are some substitution effects 20%	3.7%	1
There are some substitution effects 30%	0.0%	0
About half of the activity is substituted 40%	0.0%	0
About half of the activity is substituted 50%	0.0%	0
About half of the activity is substituted 60%	0.0%	0
A high level of substitution takes place 70%	0.0%	0
A high level of substitution takes place 80%	0.0%	0
A high level of substitution takes place 90%	0.0%	0
All of the activity is substituted 100%	0.0%	0
Don't Know	0.0%	0
	Comments	4
	answered question	**27**
	skipped question	**0**

4.35 The data suggest that there is a very low level of substitution occurring.

Turnover profile of firms

4.36 Table 4.15 presents the turnover profile of WIP Client firms. Note that the average and median turnover figures for 'All Firms' include those firms that have yet to generate sales.

Table 4.15 Firms' Turnover Profile

Firm Types	Turnover
Trading Firms	
Average	£660,067
Median	£200,000
All Firms	
Average	£450,045
Median	£142,500

4.37 It can be seen that the typical client is relative small with an average turnover of less than £500k.

Deadweight

4.38 The recommended question-set from Scottish Enterprise suggests that absolute Deadweight should be calculated through assessing the influence of the support on the creation or overall growth of the business. Table 4.16 provides a summary of the answers to this question.

Table 4.16 What has been WIP's impact on the development of your business? (Absolute Deadweight)

Answer Options	Response Percent	Response Count
Definitely would have started / continued	81.5%	22
Probably would have started / continued	14.8%	4
Probably would not have started / continued	3.7%	1
Definitely would not have started / continued	0.0%	0
Don't Know	0.0%	0
	answered question	27
	skipped question	0

4.39 In terms of absolute deadweight, four fifths (81.5%) of firms would have continued in a similar manner and the Team's input did not influence the firms' performance in this regard. However, the Team's support did influence five cases in their decision to establish the business, one notably.

4.17 Turnover Scale Deadweight. How much different do you think turnover would have been without WIP support?

Answer Options	Response Percent	Response Count
A lot lower	15.4%	4
Moderately lower	11.5%	3
About the same	69.2%	18
Moderately higher	0.0%	0
A lot higher	0.0%	0
Don't know	3.8%	1
answered question		26
skipped question		1

4.40 In terms of turnover scale deadweight, just over one quarter of firms (27%) indicated a moderate or significant influence. This supports the findings above relating to the intensity of the Team's input - it was relatively light touch from most clients (low attributable impact), but intensive for a few key firms (high attributable impact).

4.41 Further analysis of the responses indicates that those firms who were assisted earlier in the project (years 1-3) tended to receive less intensive inputs than those assisted more recently, although this is not a consistent shift. This likely reflects the Project's change in focus during the second contract period

4.18 Providing your best estimate, how much different do you think the percentage turnover would have been without WIP support?								
Answer Options	**0%**	**1-20%**	**21-40%**	**41-60%**	**61-80%**	**81-100%**	**Over 100%**	**Response Count**
Lower	20	3	2	2	0	0	0	27
Higher	27	0	0	0	0	0	0	27
answered question								27
skipped question								0

4.42 The data in table 4.18 indicated that the Project has had a moderate influence on increasing turnover for the sample, although the percentage increases have been significant in selected cases. This, coupled with the finding (table 4.19) indicating that the Team's input brought forward the achievement of firms' turnover in over a third (37%) of cases, points to the Wireless project having significant influence on firms' bottom line performance.

4.19 Turnover Time Additionality - Thinking about your turnover for the latest complete financial year, has support by WIP brought forward or delayed achievement of this figure?				
Answer Options	**Over 2 years**	**1 and 2 years**	**Up to 1 year**	**Response Count**
Delayed	0	0	1	1
Brought Forward	0	2	8	10
answered question				11
skipped question				16

4.43 Turnover Additionality indicated 'No Difference' in 16 cases. Again, these firms are likely to be those for whom the input was light touch. That said, it will be seen later that the Team's input also influences Innovation activities. Thus, a firm may have low turnover timing additionality but higher innovation additionality.

Employment

4.44 Firms employment profile is summarised in Table 4.20

Table 4.20 Firms' Employment Profile

Firm Types	Full Time	Part Time
Average	9.15	1.7
Median	4	2
Mode	2	0

4.45 In line with the relatively low turnover levels, employment is also low. Mean employment per firm is 9.2 full-time staff and 1.7 part-time staff being.

4.46 This small size reflects the prevalence of special start-up and early stage companies within the sample.

4.21 Employment Time Additionality

Thinking about the achievement of your current employment level, has support from WIP brought forward, delayed or made no difference to the achievement of your current level

Answer Options	Over 2 years	1 and 2 years	Up to 1 year	Response Count
Delayed	0	0	0	0
Brought Forward	0	1	5	6

4.47 Mirroring the findings for turnover, respondents in selected cases also noted significant influence of the Wireless Team's input on employment levels, with two cases estimating these to be up to 60% greater than they would have been had a support not been available.

4.48 The WI project had no difference on the employment over three quarters (21 firms or 77%) firms (Table 4.22).

4.22 Thinking about the number of employees at this establishment for the last complete financial year, how much different do you think the number would have been without WIP support?

Answer Options	0%	1-20%	21-40%	41-60%	61-80%	81-100%	Over 100%	Response Count
Lower	22	1	2	2	0	0	0	27
Higher	27	0	0	0	0	0	0	27
answered question								27
skipped question								0

R&D Expenditure

4.49 Table 4.23 presents the findings on R&D expenditure

4.23 Innovation Expenditure. **Please provide the amount of expenditure (as % of turnover or amount), for each of the following innovation activities in the last complete financial year, either from management accounting information or using estimates.**		
Answer Options	**Response Percent**	**Response Count**
Intramural (in-house) R&D	88.5%	23
Acquisition of R&D (extramural R&D)	42.3%	11
Acquisition of machinery, equipment and software	38.5%	10
Acquisition of external knowledge	26.9%	7
Training	19.2%	5
All forms of design	42.3%	11
Market introduction of innovations	50.0%	13
Total	26.9%	7
answered question		**26**
skipped question		**1**

4.50 These findings are striking. They emphasise the innovative nature of the firms being assisted. Just under 90% of firms cited intramural R&D activity and 42% cited extramural R&D and Design activity.

4.51 These are innovative firms.

Details of Innovation Expenditure

4.24 Details of Innovation Expenditure by WIP Firms [Multiple Answers possible]							
Answer Options	**Intra – Mural**	**Extra Mural**	**Acquire Eqpt**	**Acquire external knowledge**	**Training**	**Design**	**Market Intro.**
Total	£10.9M	£2.1M	£258K	£72.6K	£167K	£2.45M	£592K
Average	£608K	£264K	£37K	£24K	£55.6K	£307K	£59K
No. Firms	18	8	7	3	3	8	10

4.52 Table 4.24 presents the summary of the expenditure profile over the period 2005-2008 by WIP assisted firms – note that firms may provide data for more than one type of innovation activity. There are some key points to note:

- *There is a broad spread across the sample of innovation related activity*
- *The level of intramural innovation is high at £10.9M – especially given the finding above that a quarter of those who were interviewed were yet to trade.*
- *Design expenditure was also relatively high £2.45M*

➲ *In addition to undertaking research in-house, firms also 'bought in' £2.11 M of research (extramural R&D)*

4.25 Thinking about innovation expenditure at this establishment for the last complete financial year how much different do you think innovation expenditure would have been without WIP support								
Answer Options	0%	1-20%	21-40%	41-60%	61-80%	81-100%	Over 100%	Response Count
Lower	22	2	1	1	1	0	0	27
Higher	25	2	0	0	0	0	0	27
answered question								27
skipped question								0

4.53 The engagement of WIP has had a moderate influence on the innovation related activities of firms.

4.26 Innovation Time Additionality Thinking about the achievement of your current level of innovation expenditure, has support from WIP brought forward, delayed or made no difference to the achievement of this level				
Answer Options	Over 2 years	1 and 2 years	Up to 1 year	Response Count
Delayed	0	0	1	1
Brought Forward	0	1	7	8
answered question				9
skipped question				18

4.54 A total of eight firms (30%) identified an influence of the WI Team in bringing forward the innovation expenditure, mostly by up to one year. However, while the level of influence has been moderate on influencing firms actions, it has been more significant in terms of the quality of their research (Table 4.27)

4.27 Innovation Quality Additionality Has support from WIP made the quality of your main innovation activities…		
Answer Options	Response Percent	Response Count
A lot worse	0.0%	0
Moderately worse	0.0%	0
No different	48.1%	13
Moderately better	29.6%	8
A lot better	22.2%	6
Don't know	0.0%	0
answered question		27
skipped question		0

4.55 Over half of respondents (52%) noted that the Wireless Team's input enhanced the quality of their innovation activity with 22% of these indicating a significant influence.

4.56 This is an important finding as it indicates that not only does the Wireless Innovation team work with a relatively sophisticated client base in terms of innovation, but it is adding value to the quality of innovation related activities undertaken by these firms. This would appear to be through 'steering' or 'guiding' activities via their consultative, market research and market 'knowledge' inputs.

On-Line Survey

4.57 The findings above relate to the 27 interviews with client firms that were undertaken by the consulting team. In addition, there were a further 12 responses gained through an (reduced question-set) on-line survey. The feedback from the online survey was similar in nature to that of the more detailed interviews conducted by the consulting team:

- *One third of respondents had an SE Account Manager*
- *42% cited an increase in trade*
- *46% were introduced by SE to the Project*
- *Key Market Partnerships and Business Support were the two areas where firms cited the WIP as being of most value*
- *The Team's input was rated very highly with 'Understanding Our Business' scoring 2.75/3 and 'Working with Your Team' and 'Having Skills to Support Your Firm' scoring 2.66*
- *The firms were innovative as during the past three years: six had introduced a new product; seven had introduced a new service; five had introduced a significant new process.*

4.58 Overall, when providing feedback on the Project, the on-line respondents were particularly positive noting that the service offering was very good given the resources available.

ERDF Evaluation

4.59 An Evaluation of ERDF supported projects, of which the Wireless Innovation Project is one, was undertaken earlier this year (2008). It was noted that the Wireless Innovation Project is a national Project providing specialised support to companies in the wireless and mobility industries. The specific project objectives were noted as being to:

- *Improve the ability of the companies to exploit wireless and mobile opportunities*
- *Facilitate interactions with suppliers, customers and intermediaries*
- *Work with SDI to promote the wireless industry*

- ➲ *Develop linkages with organisations developing new technologies e.g. ITI's, Universities, Innovation Relay Centre and*
- ➲ *Provide a showcase for Scottish wireless technologies through the wireless lab facilities at Hillington.*

4.28 Summary Impacts.

Questions	Gross outcomes (based on 10 survey responses)	Averages based on total companies supported (22)	Averages per company surveyed Based on Non DRM Companies (10 responses)
Number of businesses owned or managed by ethnic minorities	0	0	0
Number of assisted businesses owned or managed by women	2	9%	20%
Increase in investment in innovation by assisted SMEs	£770,000	£35,000	£77,000
Increase in sales	£520,000	£23,636	£52,000
Total number of jobs created	31	1.4 per co.	3.1 per co.
Number of jobs created for ethnic minorities	3	0.13 per co.	0.3 per co.
Number of jobs created for women	5	0.22 per co.	0.5 per co.
Number of jobs directly related to environmental activity	5	0.22 per co.	0.5 per co.

4.60 The findings are summarised here for information and context. We have not attempted to incorporate them into out impact assessment due to methodological differences in data gathering and analysis.

Impacts

Sample characteristics

4.61 The impacts presented are those cited by firms 'to date'. These impacts related to the sales, profit increases and cost reduction (not accounted for by increased profit) cited by the firms who have been assisted since the project commenced.

4.62 The derivation of net impacts is based on the responses of the 27 firms in the sample of firms interviewed by the consulting team.

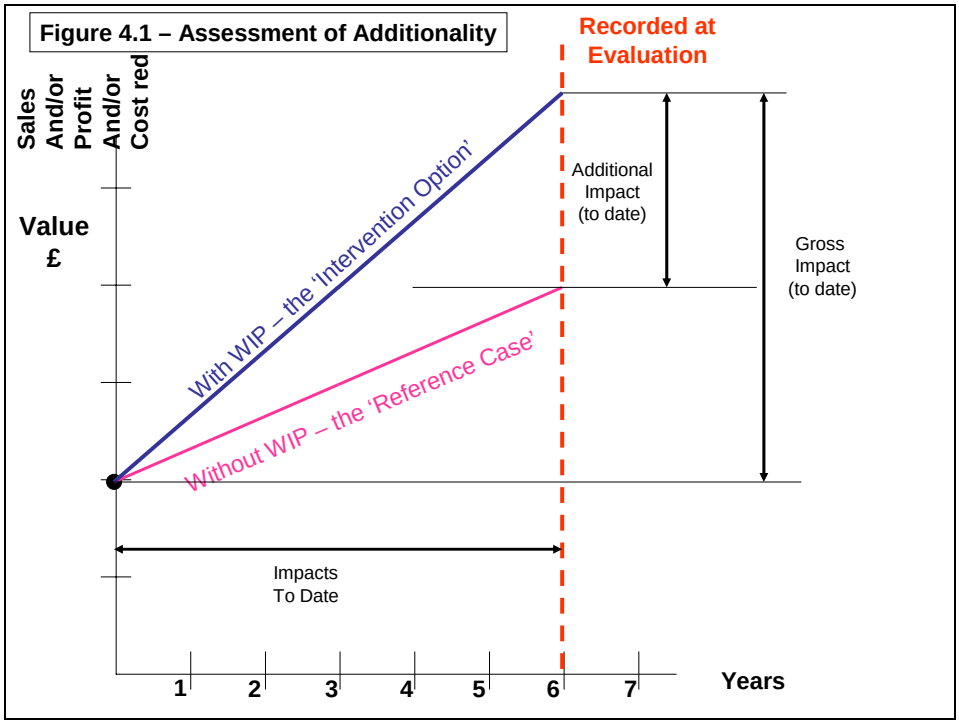
4.63 The impact of the assisted firms has been calculated using the Scottish Enterprise Additionality Guidance and Scottish Government Input Output Tables for Type II Multipliers (2004) which are the most current. Note that we have calculated net impact on a case by case basis as recommended by the current Guidance. Multipliers are matched as closely as possible to the firms' activities. In each case, the firm's

description of its core business was used to select the Type II multiplier that most closely aligned to its activities.

Converting gross to net impacts

4.64 The methodology used to convert gross impacts (as identified by firms) to net impacts follows that of current Scottish Enterprise Guidance. The approach involves the calculation of the performance for a 'Reference Case' (what would have occurred had there been no support) which is then deducted from the 'Intervention Option' (the actual performance which has occurred) to leave the net impact. The Reference Case is in effect the extent of anticipated deadweight. The difference in this method compared to earlier approaches is that displacement and multipliers are applied to the Reference Case *as well as* to the Intervention Option to provide an accurate interpretation of net impact (Figure 4.1).

Figure 4.1 – Assessment of Additionality



4.65 Appendix 1 presents a case by case explanation of the analysis we used. The Appendix comprises:

- *The Additionality Criteria at the top of the table for each assisted case*
- *The Intervention Option calculations for each assisted case*
- *The Reference Case for each assisted case.*

4.66 The key points emerging from the analysis can be summarised as follows:

- *Deadweight (average) is very high – most firms noted that their turnover was the same following the WI Team's input*
- *Displacement is very low – the average is 18%*
- *Leakage and Substitution are very low – we have used a nominal figure of 5% but this is typically higher than the firms suggested*
- *Multipliers are between 1.5 and 1.7 (but are matched to each firm's activity).*

Gross Value Added

4.67 In 15 cases, firms provided information on the four key factors that allow an estimate of Gross Value Added (GVA) to be estimated. For the purposes of our calculations, GVA is calculated using the equation *GVA = Operating Profit+Employment Costs+Depreciation+Amortisation.* The data for one firm was partial so its data was excluded.

4.68 For the 14 remaining cases, the ratio of GVA:Turnover was found to average 0.98:1. Each case has been reviewed in detail and the nature of the firms' activities is broad-ranging as is their scale and growth profile. We consider that this sample reflects the profile of the wider population.

4.69 In order to estimate the GVA of the sample, the GVA:Sales ratio was applied to the net Sales figure for the sample. This figure is presented for each case in Appendix 1 and the results of these analyses are summarised below in Table 4.28.

4.70 At first sight, this ratio of 0.98:1 seemed very high especially when compared to manufacturing firms which average around 0.36:1. The critical difference for the WIP sample (and we would argue population) is that the *cost of sales* element of their Profit & Loss is very low whereas for manufacturers it is typically 60-65% sales. We reviewed each WIP case to ensure that the data were correct and reflected the firms' descriptions of their operations.

Grossing up to the level of the population

4.71 Population level impacts have been calculated assuming an assisted client base of 185 cases (which is the number of active cases assisted over the period by the WIP team). Thus, the Net Sales (Appendix 1) figures for the sample were multiplied by 6.85 (185/27) to derive net impacts for the population.

4.72 To calculate net GVA, we have applied the ratio of GVA:Turnover to the Net Sales impact to derive Net GVA as described above.

4.73 Given the balanced sample that engaged a cross section of the client base, there are no weightings used.

Sample Characteristics and Confidence

4.74 The confidence interval depends upon the sample size chosen and its relationship to the population. There are several key factors that need to be considered:

- *Population – the total number of assisted cases over the period which in this case was 185*
- *Confidence Interval – this is the band within which the population might be expected to choose a specific answer and is calculated below*
- *Confidence Level – this is how often the true percentage of the population picks an answer that lies within the confidence interval – a Confidence Level of 95% has been used to calculate the Confidence Interval below*
- *Percentage – the survey accuracy also depends on the percentage of your sample that picks a particular answer. If 99% of your sample said "Yes" and 1% said "No," the chances of error are remote, irrespective of sample size. However, if the percentages are 51% and 49% the chances of error are much greater. It is easier to be sure of extreme answers than of middle-of-the-road ones. When determining the sample size or confidence intervals, we use the worst case percentage (50%).*
- *Sample – this is the sample size used and in the case of WIP was 27*
- *A Sample Size Calculator has been used to work out the required Confidence Interval (http://www.surveysystem.com/sscalc.htm).*

4.75 Using the on-line calculator, the Confidence Interval was 17.48 for the survey.

Summary

4.76 We summarise these data below (Table 4.28)

4.28 Summary Impacts.

Metric	Sample	Population
Turnover	£9.95M	£68M
Gross GVA	£8.7M	£67M
Turnover for firms providing GVA data	£8.8M	£60.5M
GVA:Sales Ratio	0.98	0.98
Deadweight (Average)	90%	90%
Displacement (Scotland level)	18%	18%
Leakage (nominal)	5%	5%
Substitution (nominal)	5%	5%
Multipliers (case dependent)	1.5-1.7	1.5-1.7
Net Sales	£536K	£3.67M
Net GVA	£526K	£3.60M
Net Sales per £ funding	-	£2.04
Net GVA per £ Funding	-	£2

4.77 The Additionality Factors (Deadweight, Displacement, Leakage, Substitution) in Table 4.28 are averages for the sample – consequently it is not possible apply the above averaged additionality factors to derive the net impact. To review the actual calculations, please refer to Appendix 1 where they are presented in detail case by case.

4.78 Thus the project can be seen to have generated £3.67M of net sales and £3.6M GVA.

4.79 The following chapter presents our conclusions and recommendations.

Chapter 5
Conclusions & Recommendations

The rationale for intervention

5.1 The Wireless Project was established in 2003 to overcome barriers to entry for Scotland based firms operating in the Wireless space. These barriers were seen primarily to be:

- *Wireless technology support*
- *Access to wireless infrastructure*
- *Business development support (tailored to the needs of Wireless firms)*
- *Access to key market partnerships.*

5.2 The project has received a total of £1,806,370:

- *£661,000 in 2003*
- *£1,145,370 in 2006.*

Market Failure and Strategic Rationale

5.3 The principal market failures were those which manifest themselves in the barriers described above. The focus of the project has evolved over the years, reflecting to an extent the development of the wireless sector but also the response required to meet the needs of the firms operating within it. Initially, the project tended to focus on infrastructure, then embraced content and is now likely to refine its prioritisation again on Digital Media (in response to SE's focus on this priority sector).

5.4 It is valuable to consider this evolution in more depth. The principal elements of market failure are:

Table 5.1 – Market Failure **Market Failure**	**The Wireless Team's Role**
Information (commercial) – large organisations such as the Network Operators receive many contacts from SMEs offering their services. These firms are often small, newly formed start-ups with little track record. They are often under-capitalised, still working on developing their product, and can therefore be perceived as being a high risk by larger customers	The Wireless Team has acted as a safe intermediary and can give credibility to SMEs and security to larger firms engaging SMEs as suppliers
Market Power – small technology based firms are usually specialist. Larger customers can prefer firms that offer several complementary services (as it allows them to rationalise their supplier base and makes supplier management more straightforward). This favours larger scale suppliers	The Wireless Team has brought together groups of firms to 'showcase' local expertise and offer the potential for consortia offers.
Table 5.1 – Market Failure	

Market Failure	The Wireless Team's Role
Information (Technical) – the market for wireless technologies and mobile content has evolved globally at a rapid rate over the past six years and continues to accelerate. It can be hard for smaller firms in particular to keep abreast of the fast-changing needs of the very large Network Operators (who can have many different buyers)	The Team organises regular seminars and networking meetings to address this issue
Information (Commercial) – SMEs and large firms can effectively speak different 'commercial languages' and mis-communicate.	The Wireless Team has acted as a 'Translator'. It can broker links between both parties.
Externalities/Public Goods – There is a need for a 'bridge' or broker between Scotland's SMEs and large technology (hardware and software) but a single firm is unlikely to act as a broker as *both* they and other firms will benefit.	The Wireless Team has acted as a broker. It has also supported SDI in attracting inward investment to Scotland.

5.5 It will be clear from Table 5.1 that there are several different types of market being addressed. Similar *types* of market failure exist today as existed when the Project was established but the nature of those failures are different. For example, a key hurdle (Information Market Failure) faced by firms six years ago was gaining access to mobile handsets and hardware. Currently, this hurdle has reduced in scale but other barriers have emerged around gaining access to platform and software technologies. Both are Information (Technical) market failures, but their nature is different and reflects the very dynamic nature of the global mobile market. Key changes in the market have been driven by technology drivers and technology convergence. Convergence has been broad-ranging and covers hardware (handsets and consoles), software and services.

Benchmark comparisons

5.6 Our investigation of models elsewhere (globally) identified WINBC – an initiative in British Columbia. The key comparative conclusions that can be drawn from the review include:

- *WIP's remit is very broad in comparison with WINBC and its focus has expanded over time – the early funding Approval papers do not suggest that the role played by the project in acting as infrastructure support would be as broad as it has evolved to be*
- *WIP's clients are very strong innovators, making very significant investments in new product development*
- *WINBC represents a larger and more coherent grouping (or cluster) of firms locally – whereas the number of firms actively involved in wireless technology development and application is relatively small in Scotland*
- *Critically, WINBC's clients are on the North American Continent – this means that they have access to a large pool of leading edge customers which gives them an advantage in terms of market demand and market positioning*

- *WINBC has a specific remit to attract investment to its client firms. It does this through organising an annual partnership meeting. WIP also fulfils this role, but tends to do this through brokering 1-1 introductions with potential investors.*

Project objectives and targets achieved

5.7 At the start, its principal objective was to provide three clearly defined services:

- *Technical support*
- *Market Research*
- *Business Development*

5.8 For the revised Approvals paper in 2006, it was recognised that the project needed to have a sharper focus on three market groups:

- *Mobile Applications and Content*
- *Enterprise Mobility & RFID*
- *Emerging Technologies and Machine to Machine.*

5.9 In parallel with the first three year period, our recent consultations indicate that the focus has been refined further with greater emphasis on Mobile Applications and Content. Strategic consultations within SE identified the key potential role the project could make to furthering the organisation's development of Digital Media which is one of the six priority sectors being addressed by the organisation.

5.10 Our evaluation covered the six year period of funding. It is clear that firms have benefited from support with Business Development, Market Research and access to the technological infrastructure. We would note that, at its simplest, the Team appears to adopt a Pareto approach to working with firms – a relatively small proportion receive intensive input while the majority receive light touch support – this is especially notable during the first contract period. The impact data would suggest that this approach is effective.

5.11 The 2003 Approvals paper recorded an expressed aim to assist 53 SMEs while the 2006 Approvals Paper identified within its Objectives the aim to support 68 new client companies to exploit wireless and mobile opportunities. Our review of the client database indicates that::

- *Approximately 85 firms were assisted between 2003 and the end of 2006*
- *Approximately 100 firms were assisted since January 2007 to summer 2008.*

5.12 This suggests that in terms of activity, the Project has exceeded its activity targets in both periods and the extent of this achievement is increasing over time. This is a positive finding

Assess project benefits including Economic Impact Assessment

5.13 While the activity rates may be increasing, it is necessary to assess the effectiveness of the project. The economic benefit derived by the project is summarised in the Table below (5.2).

5.2 Summary Impacts.

Metric	Sample	Population
Turnover	£9.95M	£68M
GVA	£8.7M	£67M
Turnover for firms providing GVA data	£8.8M	£60.5 M
GVA:Sales Ratio	0.98	0.98
Deadweight (Average)	90%	90%
Displacement (Scotland level)	18%	18%
Leakage (nominal)	5%	5%
Substitution (nominal)	5%	5%
Multipliers (case dependent)	1.5-1.7	1.5-1.7
Net Sales	£536K	£3.67M
Net GVA	£526K	£3.60M
Net Sales per £ funding	-	£2.04
Net GVA per £ funding	-	£2

Note: Additionality factors are averages. Net impact has been calculated on a case by case basis (Appendix 1).

5.14 Given the project spend of £1.8M, the GVA return of £3.6M would appear to be reasonable, especially given the 'infrastructural' role the project is designed to play. Scottish Enterprise is deriving £2 of net additional GVA for every £1 it spends. The return on investment would appear reasonable value for money for SE, especially given the WIP plays a key infrastructure development role for the sector (e.g. hosting inward investment cases for SDI, running information events etc) – this uses its resources but does not generate a return that contributes to its targets.

Anticipated performance

5.15 The ITT included a summary of the target metrics the Project was set to achieve when funding was initially provided (Table 5.3)

5.3 Targets and Achievements.

Measure	Target Number [03/06]	Target Number [06/09]	Target Number Total	Actual Achievements [03/08]
Start-ups Assisted	24	17	41	100
Existing Businesses Assisted	71	51	122	85
Net New Jobs Created	19	63	82	70
Additional GVA	£10.5M	£22.5M	£33M	£67M

5.16 The table above requires explanation:

- *The figure for new start businesses assisted is based on a total of 185 firms being assisted and 54% of these being pre-revenue (see Figure 3.2, Chapter 3)*
- *The figure for Existing businesses is based on 185 firms being assisted and 46% of these trading (see Figure 3.2, Chapter 3)*
- *Net New Jobs is the gross number identified by the sample, grossed up to the level of the population, whose creation was attributable to the WIP input*
- *GVA net of additionality is £3.6M. Gross GVA for the population is estimated to be £67M. For target measurement, it is usual practice to use Gross figures.*

Usage, quality and demand

5.17 There is an interesting difference between the analysis of the WIP team of client introductions and the feedback from firms gained through our survey. Based on the Team's analysis, around 47% of new client referral is through an existing client. This is a very high level of private sector referral and can be assumed to reflect a high degree of satisfaction among existing clients. By contrast, in our survey, 55% of firms indicated that they first heard of the WI Project through their Account Manager. The reason for this difference is not clear but emphasises the key role that partners are playing in referring firms to the Team. It could be that clients first hear of Project from their peers (who are existing clients) but then discuss it with their Account Manager who in turn refers them to the Team. Regardless, it is important for the Team to appreciate the importance of the Account Managers to the referral process.

5.18 The client group could best be described as classic knowledge based businesses:

- *Significant levels of R&D spend with feedback for the sample indicating*
  - *Just under £11M intra mural spend (2006-2008)*
  - *£2.4M spent on Design (2006-2008)*
  - *£2M spend on extramural R&D*
- *A quarter pre-trading*
- *Very low levels of displacement*
- *70% citing growing markets over the past three years (30% indicating this growth is Strong)*
- *Around a quarter with Scotland-based customers (the rest elsewhere, including abroad)*
- *Highly technical and market leading products being introduced.*

5.19 Most firm's contact with the Project involved seeking advice on market contacts. In their feedback, firms cited two areas as being particularly valuable – Business Development support and Key Market Partnerships. When describing these areas, firms tended to note the value they could gain through being able to discuss their product or business with someone who understood the technology but who could also make links to appropriate commercial parties – customers and partners. These interventions by the Team were often short in length, and once made, firms had little subsequent contact. They are often valuable in a strategic manner for firms.

5.20 Impartial introduction to third parties tends to be the most valued input by firms.

5.21 There are few transformational inputs. A small number of firms cited significant benefit deriving from the Team's input.

5.22 The WI Team is seen to be of high quality, technically knowledgeable with commercial contacts that are useful to technology-strong firms. They are also willing to engage with firms (which is valued) although there is some evidence firms would have appreciated more in-depth engagement which they did not receive.

5.23 At first sight, access to the technology infrastructure does not appear to be as important now as it was earlier in the Project. That said, firms commented on the value of being able to access leading edge handsets free of charge. One firm noted that each new handset costs around £400 - £500 and they had tested their content on around 150 handsets through the Project. This firm had yet to generate any sales so this was a particularly valuable area of saving.

The management and delivery

5.24 The delivery of this Scotland level project from Hillington (Renfrewshire) has evolved over time, although there has been a reasonably consistent team structure covering:

- *Business Development*
- *Technology-market advice*
- *Market Research.*

5.25 Feedback from firms suggests that, for many, their engagement with the project has been relatively light touch. In the cases we interviewed who received in-depth support, firms commented that just as they were getting to the point where the Team was adding real value, their contact moved on. This happened more than once to some firms.

5.26 Separately, other firms commented that they would hear from the Project relatively intensively over a short period, then the contact would die away only to be reignited by a different person subsequently.

5.27 Both of these sets of feedback suggest that there may be an issue around continuity which could be enhanced.

5.28 In terms of Management Information, the quality both of client participation and engagement data has been very good and better than most projects we have evaluated.

5.29 There is evidence that Wireless clients gain access to HPIC's commercial networks and this is mostly seen to be a strength. However, there is also evidence that there has been a fair degree of change within the Team over the course of the life of the project. Based on consultee feedback, it appears that its integration with other ICS Limited activities can lead to WI Team members providing inputs to other activities from time to time. This can be both positive and negative.

The fit and contribution to other SE activities and Priority Industry development

5.30 Increasingly, the project has played an active contribution to the activities of SDI in attracting investment to Scotland and building key partnerships with key strategic players in the sector. Feedback from our consultations with SDI emphasise the importance of the project to the organisation's promotion of Scotland's strengths. SDI see the Wireless Project as being a key resource that is very valuable and should be retained for the future.

5.31 Our consultations with other areas of SE were broadly positive. However, there was individual feedback indicating the fit was less clear:

- ➲ *Scottish Enterprise's support for a Digital Media Quarter at Pacific Quay could have a key influence on the future positioning of the Wireless Innovation Project but it is not clear where the Project will be position relative to DMQ*
- ➲ *The contribution to the Digital Media firms in Tayside – Interactive Tayside was viewed as being more relevant and cost effective*
- ➲ *The proposed Wireless Testbed for Scotland could reshape the Wireless sector but the Project's fit and role is unclear if the Testbed project gains support*
- ➲ *There was a specific issue around geographic location*
  - *The project is seen by many to be a 'West Coast' project – this was a specific issue for firms in the Tayside area*
  - *The project is seen to integrated within the Hillington Park Innovation Centre*
- ➲ *There is a good fit for the project within SE's revised Innovation support approaches.*

5.32 We would note that around 90% of the Project's clients are in Scottish Enterprise's West and East regions – just 7% are in Tayside. This is likely to be a specific issue for the future positioning and delivery of the Project.

5.33 There were two areas of consensus that emerged through our consultations:

- ➲ *There is a growing awareness of the importance of the Digital Media sector*
- ➲ *The Wireless Project should be able to contribute to its development.*

5.34 It was striking that our consultations with the WIP's partners indicated the immense breadth of the 'wireless' sector. Firms' feedback mirrored this – while around half fell broadly within 'content development, the remainder covered a range of disparate activities which can use wireless technologies as an 'enabler'.

The contribution to the equity and equalities agenda

5.35 At the start of the Wireless Innovation Project, its relevance to the Scottish Enterprise Equality Scheme was assessed against criteria covering race, gender and disability. The aim of this assessment was to test whether the project would affect any of these groups unfairly or otherwise compromise SE's duties.

5.36 The Project was assessed as being of low relevance and was to be monitored by the Project Manager with action taken as appropriate to address any under-represented groups. These actions took into account:

- ➲ *national baselines*
- ➲ *populations and*

- ➲ *the specialism of this sector.*

5.37 The Scottish Enterprise Scheme shows that an Equality Impact Assessment was intended to be prepared in 2008 (refer to http://www.scottish-enterprise.com/publications/network_equality_scheme_2006.pdf). We understand that these are normally separate exercises from economic evaluations. As the Assessment is not currently available, it is not possible to conclude whether the results or any actions arising have any attributable economic implications.

5.38 The Wireless Innovation project attracted ERDF funding and had to report on specific ERDF funding targets for example number of jobs created for ethnic minorities (three were achieved from 10 companies surveyed, from a total of 22 eligible companies supported 2005-2008). A separate report "ERDF Projects Review" was completed in June 2008 (available on www.evaluationsonline.org.uk).

Recommendations for the future direction and delivery of the project.

5.39 In terms of the project's 'direction' and positioning, this is reliant on a strategic decision being taken at Scottish Enterprise on the focus being adopted for Digital Industries (and Digital Media).

5.40 Once this decision is made, we foresee the Wireless Innovation Project being in a position to make a greater contribution.

5.41 In terms of our evaluation, we would make the following recommendations.

Strategic Interventions

5.42 Most of the support comprises light-touch interventions. We recommend that the team reviews the balance of light touch:intensive inputs. This is especially true where the firms are open to receiving more valuable input.

Maintain Commercial focus

5.43 The client base tend to be technically strong firms. The Team adds a commercial perspective. We recommend that the Team continues to focus on the commercial development of client firms as this is where they derive most value from the Team's input

Track 'light touch' referrals

5.44 There is scope to track/follow-up light touch interventions which utilise a referral, especially where this referral is to a potential commercial partner or customer. There may be scope to add more value, again in a targeted and resource efficient manner.

Enhance continuity

5.45 We recommend the Team places greater emphasis on maintaining continuity with key clients

Continue key partner brokering

5.46 The Team has gained recognition from both firms and SDI for its work building key contacts with commercial partners. We recommend that it continues to prioritise this activity.

Consider the location

5.47 We recommend evaluating the location of the Project, both in terms of its geographic location (to the West of Glasgow) and its integrated position within the Hillington Park Innovation Centre. There are clear merit of the integrated approach but these should be formally appraised by SE, particularly around ensuring that client firms gain access to the full range of commercial opportunities.

Review Tayside coverage

5.48 Should the future focus of the Project be on Tayside, it will be necessary for the Project to strengthen its presence there. We recommend that it takes steps to do so. If appropriate, we also recommend that SE facilitates helps the Project build stronger representation of the Project in Tayside

Overall

5.49 We recommend that the project is continued to be supported providing there is a clear contribution it can make to SE achieving its strategic goals.

Appendix 1 – Additionality Calculation

Detailed Impact Calculations

Impacts to Date

	Case 1	Case 2	Case 3	Case 4	Case 5	Case 6	Case 7	Case 8	Case 9	Case 10	Case 11	Case 12	Case 13	Case 14	Case 15	Case 16	Case 17	Case 18	Case 19	Case 20	Case 21	Case 22	Case 23	Case 24	Case 25	Case 26	Case 27
Deadweight [%]	67%	100%	100%	50%	100%	100%	85%	85%	100%	100%	85%	100%	100%	100%	100%	85%	100%	75%	50%	60%	100%	80%	100%	100%	100%	80%	100%
Displacement Scotland	0%	25%	0%	0%	80%	0%	0%	0%	0%	75%	0%	25%	50%	0%	100%	0%	25%	2%	0%	5%	0%	0%	10%	10%	80%	5%	0%
Substitution	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%
Leakage	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%
Multiplier	1.5	1.6	1.6	1.5	1.6	1.5	1.5	1.6	1.5	1.6	1.6	1.7	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.7	1.5	1.5

Turnover																											
Gross Impact	**£0**	**£0**		**£250,000**	**£270,000**	**£350,000**	**£0**		**£0** **£2,700,000**	**£0**	**£50,000**	**£0**	**£15,000**	**£0**	**£0**	**£238,000**	**£200,000**	**£573,000**		**£100,000**	**£4,500,000**	**£0**	**£200,000**	**£30,000**	**£100,000**	**£185,000**	**£190,000**
Leakage	£0	£0	£0	£237,500	£256,500	£332,500	£0	£0	£2,565,000	£0	£47,500	£0	£14,250	£0	£0	£226,100	£190,000	£544,350	£0	£95,000	£4,275,000	£0	£190,000	£28,500	£95,000	£175,750	£180,500
Displacement	£0	£0	£0	£237,500	£51,300	£332,500	£0	£0	£2,565,000	£0	£47,500	£0	£7,125	£0	£0	£226,100	£142,500	£533,463	£0	£90,250	£4,275,000	£0	£171,000	£25,650	£19,000	£166,963	£180,500
Substitution	£0	£0	£0	£225,625	£48,735	£315,875	£0	£0	£2,436,750	£0	£45,125	£0	£6,769	£0	£0	£214,795	£135,375	£506,790	£0	£85,738	£4,061,250	£0	£162,450	£24,368	£18,050	£158,614	£171,475
Multiplier	£0	£0	£0	£338,438	£77,976	£473,813	£0	£0	£3,655,125	£0	£72,200	£0	£10,830	£0	£0	£343,672	£216,600	£810,864	£0	£137,180	£6,498,000	£0	£259,920	£38,988	£30,685	£237,922	£257,213
Reference Case																											
Deadweight	£0	£0	£0	£125,000	£270,000	£350,000	£0	£0	£2,700,000	£0	£42,500	£0	£15,000	£0	£0	£202,300	£200,000	£429,750	£0	£60,000	£4,500,000	£0	£200,000	£30,000	£100,000	£148,000	£190,000
Leakage	£0	£0	£0	£118,750	£256,500	£332,500	£0	£0	£2,565,000	£0	£40,375	£0	£14,250	£0	£0	£192,185	£190,000	£408,263	£0	£57,000	£4,275,000	£0	£190,000	£28,500	£95,000	£140,600	£180,500
Displacement	£0	£0	£0	£118,750	£51,300	£332,500	£0	£0	£2,565,000	£0	£40,375	£0	£7,125	£0	£0	£192,185	£142,500	£400,097	£0	£54,150	£4,275,000	£0	£171,000	£25,650	£19,000	£133,570	£180,500
Substitution	£0	£0	£0	£112,813	£48,735	£315,875	£0	£0	£2,436,750	£0	£38,356	£0	£6,769	£0	£0	£182,576	£135,375	£380,092	£0	£51,443	£4,061,250	£0	£162,450	£24,368	£18,050	£126,892	£171,475
Multiplier	£0	£0	£0	£169,219	£77,976	£473,813	£0	£0	£3,655,125	£0	£61,370	£0	£10,830	£0	£0	£292,121	£216,600	£608,148	£0	£82,308	£6,498,000	£0	£259,920	£38,988	£30,685	£190,337	£257,213
Additionality	£0	£0	£0	£169,219	£0	£0	£0	£0	£0	£0	£10,830	£0	£0	£0	£0	£51,551	£0	£202,716	£0	£54,872	£0	£0	£0	£0	£0	£47,584	£0

Appendix B Interviewees (Face to Face/Telephone)

Abelon Systems
Ambisense
Applied Wireless Technology Ltd
Beyond Capture Wireless
Binary Fable Limited
Bitwise
Blue Sky Telemetry
Calico Jack Ltd
Calton Hill
Ciqual
Codeplay
Cradlesafe
Culthill Innovations
Dreampact Limited
Dynamo Games
Elonics
Envigour
Escrivo
Essential Viewing Systems Limited
Flexpansion Limited
Fourways Innovations (medicalphone)
Helixion Ltd
Inceptium
JHL Communications
Journey Plan
Justfone
Keypoint Technologies
Lackie Design
Maps4Mobiles
Organic Digital
Patrick Farfan
Phabling
Pointshift
Pulsion Technology Ltd
Puurgen
Spartan Solutions Ltd
VIP Systems Limited
Visible Ink Television
Zeroed In