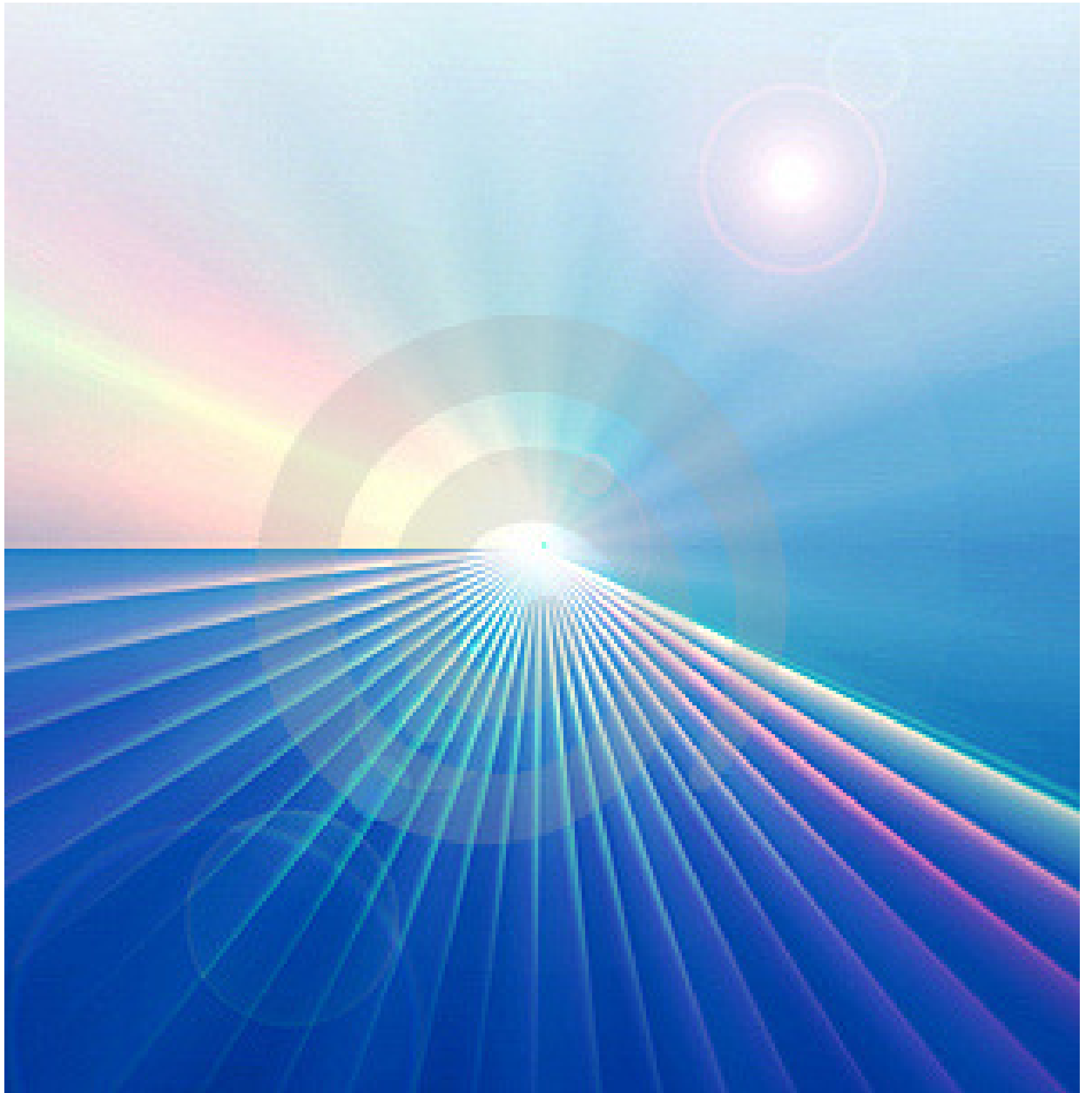


Scottish ICT Industry Strategy



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Foreword



Gerry Docherty, Chair of ICT Industry Advisory Group

The Scottish ICT sector is healthy and vibrant. It employs over 70,000 people, primarily in high-value jobs, directly contributing some £4bn per annum to the Scottish economy. Its contribution to the rest of the economy is extensive, as Scottish software underpins the innovation, competitive advantage and service delivery of many priority Scottish industries, including financial services, life sciences and energy, and is essential to the delivery of efficient government and public sector services.

We are part of a fast-growing industry that is host to unprecedented global demand, and which is accelerating the rate at which new products and services come to market. It is driven by the rapidly-increasing expectations of individual consumers, and by the demands of other industries it serves, while at the same time being fuelled by innovation in related sectors such as electronics and energy.

This unprecedented change brings unprecedented opportunity for Scotland. In line with the Scottish Government's Economic Strategy, our aim is to foster an ICT ecosystem in Scotland that provides sustainable economic growth for many years to come. That growth will come from improved commercialisation of Scottish ICT innovation in international markets.

In the Scottish ICT sector, there is much to be encouraged about. The ICT innovation base in our universities is world-class in many cases, with Scottish universities managing around 20% of the UK's research funding in Informatics and Computing Sciences, and we have many examples of Scottish ICT company success on the international stage. But we can, and must, do more. Building on these existing strengths in Scotland, we must focus our collective resources on a wholesale improvement of our ability to commercialise our research capability, and exploit it successfully on the international stage.

My thanks go to all of those individuals who have given freely of their time in the development of this strategy. I hope that they, and many others, will contribute with equal enthusiasm and skill to the implementation of this strategy in the years ahead.

Introduction

This strategy provides a framework for the development of the Scottish ICT sector. It has been created by the ICT Industry Advisory Group, representative of the constituent groups that make up the Software, Telecommunications and IT Services industries:

- *Indigenous Scottish ICT companies and indigenous employers of ICT staff*
- *Foreign Direct Investment companies: global ICT corporations with a presence in Scotland or corporations employing significant ICT departments in Scotland*
- *Academic institutions, including those Universities and Colleges with Informatics and Computer Science schools or departments*

These elements are supported by our Trade Associations and by various public sector organisations. This Strategy has been created and adopted by the primary and supporting elements of our sector.

The strategy complements the work done by the Enabling Technologies Advisory Group and the Digital Media Industry Advisory Group, and will contribute in part to the programme proposed by the ICT Forum for Scotland, aimed at closing Scotland's productivity gap with other nations.

This document should be read in conjunction with the ICT Strategy Implementation Plan, published in parallel.

Our Focus

Our strategy focuses on developing the capabilities and economic performance of the companies and institutions that comprise the ICT industry in Scotland, fostering an ecosystem which will make it more successful in a sustainable manner internationally, in line with the Scottish Government's Economic Strategy. In our work, we have concentrated on the "softer" elements of ICT (i.e., software products and applications, and embedded systems), as we believe that they provide the greatest opportunity for the growth of indigenous Scottish ICT companies.

Within this domain, we consider that replicable, scalable products and niche solutions provide Scottish ICT companies with the greatest likelihood of achieving significant growth and success internationally, and our strategy concentrates on how we can foster such offerings.

We do not address Scotland's electronics or component design capabilities, as these are addressed by the Enabling Technologies Advisory Group.

We have chosen not to address ICT as an enabler of economic improvement in other key sectors in Scotland. This is obviously highly significant for Scotland's economy, but it is already covered by the work undertaken by the ICT Forum for Scotland.

Lastly, our strategy does not address ICT communications infrastructure in Scotland. Investment in next-generation-access communications facilities in Scotland is a pre-requisite for maximising the success of Scottish ICT products and niche solutions internationally (particularly as software-as-a-service models become more prevalent), but this is a debate that is being taken forward elsewhere by various private and public sector bodies, and is not addressed further here.

Our Aim

The aim of this strategy is:

To radically improve the economic impact of the Scottish ICT sector

which will be measured by:

- An increase in the number of high-value jobs (employees in the ICT sector)

- An increased impact of Scottish ICT on the competitive success of other priority Scottish industries
- A significantly improved export performance for the ICT sector.

Our Vision

Our vision is that the Scottish ICT sector will have a reputation as one of the hottest and fastest-growing locations for ambitious technology companies globally. It will be founded on building and retaining one of the best talent pools in the world, with a compelling combination of industrial and academic excellence, allied to visionary entrepreneurial ambition.

The reputation will be realised by the development and international deployment of highly-commercial, market-led products and niche solutions, which regularly outsell those from our competitors.

We want Scotland to be seen as a top-tier destination for technology-related risk capital and entrepreneurial talent, and as a great place to live and work in ICT, attracting the best students, as well as more than its fair share of foreign direct investment.

Our Approach

Globally-successful ICT sectors are central to the economic strategies of many countries. The most successful countries and regions have established and/or fostered ecosystems in which ICT companies can thrive.

Any successful ecosystem has a number of characteristics – global markets to aim at, ambitious and successful companies, access to capital, commercialisation of world-class innovation, and highly-talented individuals. Our approach is to focus our strategy on the improvement of these key aspects of the ICT ecosystem in Scotland.

Our target is to produce sustainable economic growth in the Scottish ICT sector, in line with the Government Economic Strategy. The greatest economic impact will come from companies owned and headquartered in Scotland, trading internationally. The more that these companies can meet demand from their international customers through high-value jobs based in Scotland, the greater their impact on our economy. For that reason, our strategy focuses on how we should encourage and support companies that can take replicable product or niche solutions to the international marketplace.

Key Elements of Strategy

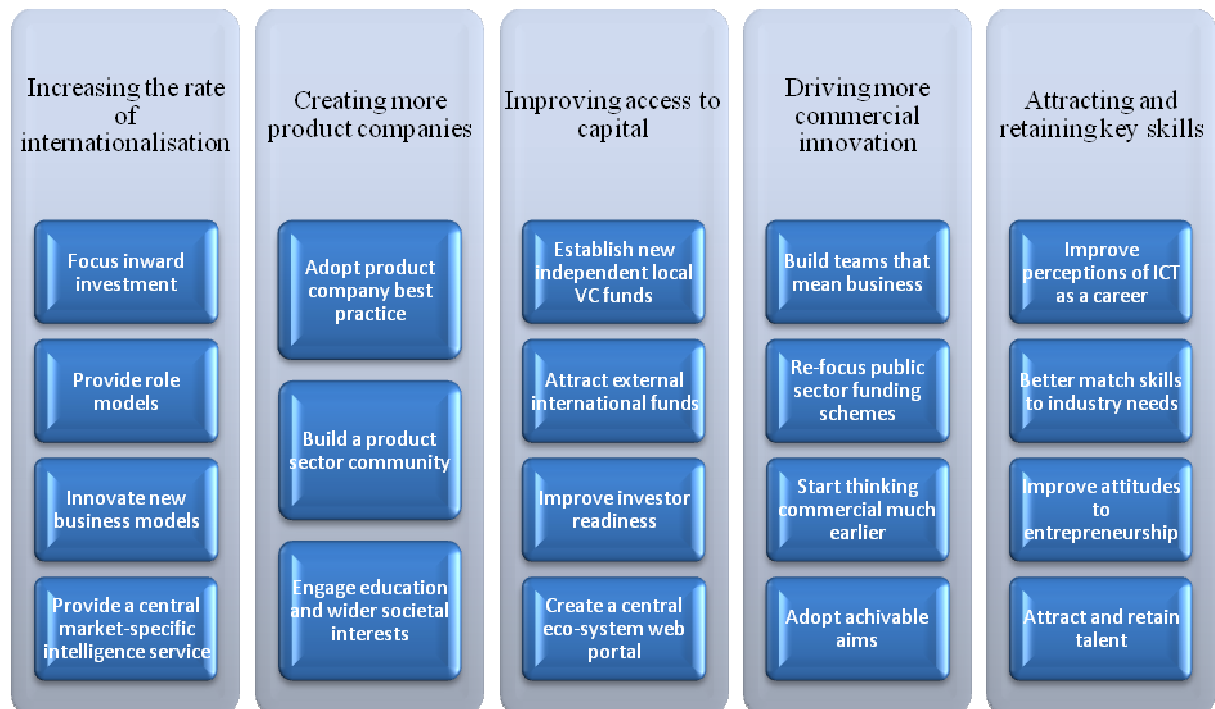
Our strategy addresses five key areas for development in the Scottish ICT ecosystem:

1. ***Increasing the Rate of Internationalisation:*** *most Scottish ICT companies derive their revenues from customers within the UK. We must educate more companies to adopt a global mindset, and encourage further FDI companies to operate (with high-value jobs) on a global scale from Scotland.*
2. ***Creating more Product Companies:*** *most Scottish ICT companies provide services and bespoke solutions to their customer base. Whilst these are valuable, they do not easily scale to global markets. We need to increase the number of companies that create replicable, scalable and distributable ICT product and niche solutions, by improving product management skills, and understanding of global market sales and distribution.*
3. ***Improving Access to Capital:*** *some capital sources exist in Scotland, but we need to foster the sector's relationships with those local sources, and attract more international sources of capital.*
4. ***Driving more Commercial Innovation:*** *our ability to innovate, through universities and our company base, is demonstrably successful, but we must increase the proportion of our ideas that progress to be commercialised product, and the proportion that is commercialised from within Scotland.*

5. **Attracting and Retaining Key Skills:** *the skill base is currently good, but we must increase the numbers of high-grade students from the Scottish school system entering ICT-related courses in Scotland, and attract more high-quality management capability from other industries.*

Implementing the Strategy

Our strategy identifies a range of measurable activities within each of the key areas of strategic development, as follows:



These activities are described in more detail in latter parts of this document.

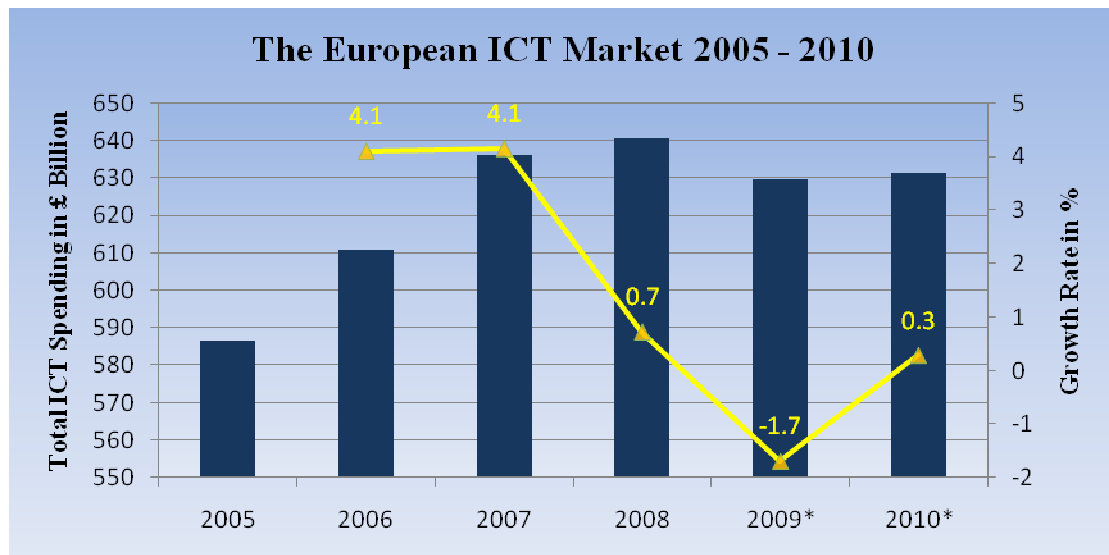
Global Software and ICT Market

The global market for ICT services and products is fast-growing and dynamic, showing resilience in the face of recent economic downturns in other sectors. Worldwide demand for technological innovation from consumers and business will continue to accelerate in years to come, providing accessible international markets for Scottish companies, with spin-off benefits to the Scottish economy as a whole.

Key Facts:

(from OECD - *Information Technology Outlook 2008* unless otherwise stated)

- In OECD countries, the ICT sector accounts for more than **8 per cent of business GDP** and employs more than **15 million people**;
- Total **worldwide ICT spending** reached **£2,076 billion** in 2007;
- More than **half of global ICT spending** in 2007 was on **communications services and hardware** (£1,185 billion), 21% on computer services (£430 billion), 14% on computer hardware (£282 billion) and 9% on software (£179 billion);
- **Software spending** has seen the **most rapid increase** across all industry sectors since 2003, having grown by an average of 10.9% per year;
- The **North American market** was the **largest**, accounting for 34% of worldwide ICT spending. Western Europe accounted for 30% (£623 billion) in 2007 and the Asia-Pacific region for 26% (£531 billion);
- The ICT industry in general is performing **considerably better** than the overall economy in the current economic downturn, with the European high-tech market “set for a **rapid rebound** following a growth intermission.”



* Estimates. Adapted from EITO – *European ICT Market Overview September 2008* and EITO – “European ICT market to resume growth in 2010”.

Growth in Scotland's Software and ICT Industry

Scotland's software and ICT industry is well-established and successful, and provides an excellent base from which to develop its international aspirations. We have a maturing stock of vigorous, growing, Scottish-owned ICT companies, and a vibrant community of non-indigenous businesses which does much to cultivate the skill base in, and provide a global business perspective for, the Scottish ICT industry.

Key Facts

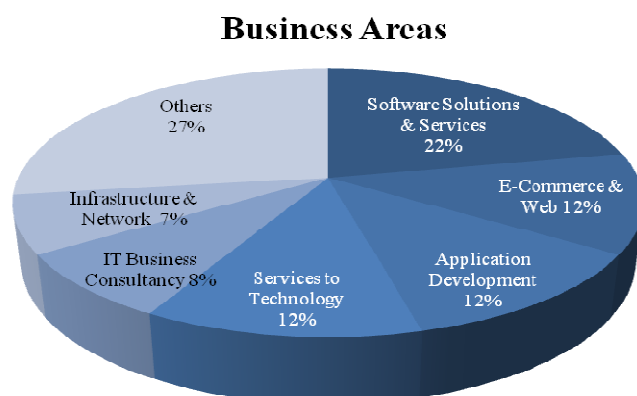
The total ICT workforce in Scotland comprises over 70,000 individuals - primarily in high-value jobs.

There are nearly 6,000 businesses in Scotland's ICT industry.

Scotland's ICT industry accounts for 5% of the country's total output.

(Sources: ScotlandIS, *e-skills UK. Technology Counts: IT & Telecoms Insights 2008*)

Data taken from *Scottish Technology Industry Survey 2009*, ScotlandIS, indicates that the Scottish supply base comprises software, telecoms and IT businesses delivering products and services, at home and abroad, from world class products for major corporations, to specialist services enabling smaller businesses to improve productivity and reach global markets, and in-house technology developments for corporate functions. The leading categories by size are shown below:



The ScotlandIS *Scottish Technology Industry Survey 2009* notes:

- For most companies, 2008 was a year of continuing growth, with 72% reporting an increase in sales over 2007 levels;
- Almost 80% of respondents have some business in the rest of the UK – the first “export” market for many. Europe is an increasingly important market (for over 40% of respondents), and over a third are doing business in America.

Outputs – Increasing the Rate of Internationalisation

Increasing the number of Scottish ICT businesses with significant international operations will serve a multiplicity of goals. We will improve our export earnings, and build more sustainable businesses as a result. Scotland's international image will be improved. We will attract more foreign capital, and potentially more incoming human talent to complement local skills. We will focus on 4 key areas.

1. Focus inward investment

- To found a hub of international businesses that nurtures the local Scottish business community, while increasing the strategic importance of existing Scottish operations of international businesses.
- To identify targeted inward investors that will add significantly to Scotland's overall strategy for growth in the ICT market.

2. Provide Role Models

- To provide a base of knowledge that can inspire and guide Scottish business people to build international businesses.

Founded in 1999, Livingston based **Craneware Ltd** now employs 70 people developing and selling billing software analysis tools to a client base of more than 1,000 healthcare facilities in the US healthcare services sector from its key sales operation based in Orlando, Florida.

3. Innovate new business models

- To increase the awareness of emerging business models available to execute the internationalisation of Scottish businesses, with marketing and channel management to support the implementation of these models.
- To introduce, through training and education, ICT industry best practice and convey an understanding of the suitability of each business model to the types of value propositions being brought to market.
- To assure a means of being at, and remaining at, the cutting edge of thinking regarding business models at a global level.

4. Provide a central market-specific intelligence service

- To improve the ease, efficiency and accuracy with which a Scottish SME assesses specific foreign market opportunities and needs.

Outputs – Creating More Product Companies

Creating more product and niche solutions companies in the Scottish ICT sector will allow us to capitalise on the demonstrable wealth of technology-based ideas and creativity coming out of Scotland's universities, colleges and businesses. Product and niche solutions companies can achieve significant scale and reach international markets far more easily than service companies. We must improve the sector's understanding of how to structure, build and grow such companies. We must also improve the understanding of market requirements and large-scale opportunities, and how to grow international sales and distribution channels.

1. Adopt product company best practice

- To identify existing companies at all stages of development, with strong sense of the 'product' or 'niche solution' offering; especially those with technologies in expanding markets which have a high potential for productisation.
- To support companies to grow in a process which recognises productisation needs from the outset and aims at producing global companies.
- To help /support companies to apply product and niche solution marketing disciplines.

2. Build a product sector community

- To create a new sector forum designed by product and niche solution experts for product and niche solution experts.
- To create a Scottish Product Technology Forum to represent this sector.
- To build activities to nurture the sector, create a skills resource and mentoring programme, support learning journeys and benchmarking.

Formed in 2000, **McLaren Software** is one of only 17 companies in the world on Microsoft's Partner Advisory council. McLaren develops enterprise scale asset document management and change control applications. Its product, Enterprise Engineer, is sold into some of the biggest companies in the world: Pfizer, BP, Exxon Mobil and Nestle. Paul Muir has been the CEO of McLaren Software since its inception in 1997, successfully raising over \$20M in private equity finance.

3. Engage education and wider societal interests

- To create interest and acceptance of ICT product or niche solution innovation as a valuable economic and social activity within Scotland.
- To influence educationalists at university and school level to provide greater emphasis for product and niche solution creation and development
- To generate activities/events/web presence which let people engage with the product creation and innovations process and capture the imagination of Scotland with the idea of ICT product innovation.
- Establish a national ICT product development lab to provide a melting pot for people with ideas, those with the technical skills to implement them, and entrepreneurs

Outputs – Improving Access to Capital

We aim to attract capital and open access to investors by creating an environment in which opportunities flourish. Investors cannot be cajoled into investing in Scotland. They must be inspired to do so by good returns. Those returns come from great ideas and a workable business model built around the technology. It also demands supporting expertise, including legal, corporate finance, technical, HR, market research and management development. Improving access to capital in Scotland over the next five years will require, in essence, the stimulation of an entire, national ecosystem of private and public sector support and resonating with the Government's strategic goal of creating a supportive business environment. We will focus on 4 key areas.

1. Establish new independent local VC funds

- To provide education and support for smart, early stage venture capital in Scotland that understands how technology companies work and can bring experience and contacts to bear.

2. Attract external international funds

- To market the emerging Scottish ICT ecosystem to international VCs, raising external awareness and increasing their interest in Scotland.

3. Improve investor readiness

- To help our early stage technology companies to become less naïve and more commercially sophisticated and capable of truly understanding what investors expect to see, so that they can compete successfully for these funds.
- To stimulate market awareness among SMEs, particularly international market awareness, through direct education and by facilitating direct SME exposure to potential customers.
- To create compelling and investor-ready management teams.

Scotland's biggest private equity deal of 2009 created the largest independent IT company in the country: the **Amor Group**, which acquired Sword Group's Aberdeen-based Pragma and Glasgow-based Real Time for almost £28 million. Amor has 330 staff and forecast revenues of £32 million. John Innes, CEO of the new group, commented that the new business has the "ideal platform for organic and acquisitional growth and assures continuity of service quality for our customers by maintaining our existing people, ethos and values." He argues that new Scottish IT companies can be successful but only "if there's any demand out there for their product . . . and we teach folk the necessary ABC of how to sell ICT products and services."

4. Create a central eco-system web portal

- To create a central self-sustaining web-based resource by which all current and future participants in the emerging Scottish ICT ecosystem can connect and share information.
- To engage VCs, angel networks, legal advisers and other support industries with the portal
- To provide a 'deal' platform through which SMEs seek advice and contacts

Outputs – Driving more Commercial Innovation

Our leadership position in innovative research has not translated into leadership in company growth and job creation for Scotland. The rapid changes endemic in the global ICT industry demand that we focus our efforts on building more commercially capable management teams, equipped to exploit new routes to market, and able to adopt new business models. We will focus on 4 key areas.

1. Build teams that mean business

- To build a more concentrated community of entrepreneurs and technologists so that strong teams emerging naturally.
- To support start-up team assessments, identifying areas of weakness and helping to source additional talent

2. Re-focus public sector funding schemes

- To allocate public sector funding so that a greater proportion of support goes directly to the entrepreneurs taking product and niche solutions to the international market, on a co-investment basis.
- To streamline the number of different programs, focusing on those which have been proven effective.

Glasgow's **Vamosa** secured £1 Million investment from Capital for Enterprise Fund in August 2009 to support its future growth and development plans in Scotland and internationally. Vamosa is a sector-defining software and solutions company specialising in the emerging area of Enterprise Content Governance, in which it is recognised as a global leader. The company has been built by George Knox, CEO since 2000, on his strengths in starting, growing and building innovative technology companies that understand the value proposition and requirements of large enterprises. George is evangelical in his commitment to building companies that are of exceptional value in their fields.

3. Start thinking commercial much earlier

- To develop commercial considerations, market-oriented perspectives, and channels to market much earlier in the innovation cycle.
- To support academics to participate directly in spin-offs, without compromising their academic careers
- To teach best practice in designing sales channels to very early-stage companies.

4. Adopt achievable aims

- To direct entrepreneurs to niche areas of opportunity and introduce more realistic targets.

Outputs – Attracting and Retaining Key Skills

There is a wealth of technical talent in the Scottish ICT market, and yet the industry faces a long-term skill supply shortage that could hamper its ability to reach its full potential, because of the decline in domestic uptake of academic ICT courses. In addition, the sector requires to attract more commercial and entrepreneurial talent from other industries, to complement its technical expertise. Reflecting one of the major axes of the Government Economic Strategy, attracting and retaining key skills is essential to delivering on this strategy. We will focus on 4 key areas, to complement and support the work already being carried out by e-Skills UK in Scotland and Skills Development Scotland.

1. Improve perceptions of ICT as a career

- To reverse the decline in interest in ICT as a career for School leavers and native Scottish university students.
- To encourage Scottish professionals to be early adopters of the BCS Chartered IT Professional scheme.

2. Better match skills to industry needs

- To better understand and publicise industry needs, so as to ensure a sustained supply of the right skills to create, attract and retain talent and investment, both local and overseas. This will include the commercial skills needed to run technology companies, along with channel development and product marketing skills.

3. Improve attitudes to entrepreneurship

- To help more people in Scotland to understand the benefits of starting their own company in the Scottish ICT sector, because innovation will come from new ideas and products, and from new companies.

Codeplay Software of Edinburgh works with clients in the US and Japan, supporting them entirely from its Edinburgh base. With one exception, all of their clients are based outside the UK – and Codeplay is better known in Silicon Valley than it is in Silicon Glen. Codeplay has shown that it is possible to take a small Scottish-based company (turnover in 2004 was only £8K) and be credible in selling around the globe. They are living proof that Scottish companies need fear no barriers in selling overseas – the markets are there and ready to be exploited.

4. Attract and retain talent

- To attract and retain suitably qualified experienced individuals in academia and business to grow and develop the ICT industry in Scotland.
- To identify mechanisms that will lead to a redeployment of managerial skills from other industries into early growth companies in our ICT sector.
- To retain the home-grown talent which is required for growth, especially graduates: a top-class source of ICT talent is essential for the workforce of the future.

Implementation Plan

This plan is published in parallel with (and should be read alongside) the ICT Industry Implementation Plan, which outlines the steps taken to deliver on the strategy, identifying the private and public sector bodies responsible for collaborating and delivering on the strategy ideas.

The Implementation Plan is available online at www.zzzzzzzzz.org.uk.

Contacts

Key Organisations

- **ScotlandIS** is the trade association representing the ICT sector.
- **Interface** assists with bridging the gap between industry and academia
- The **Scottish Intellectual Asset Centre** provides specialist assistance to help with the protection of intellectual property and assets.
- **Scottish Development International** promotes inward investment and helps Scottish companies to compete in overseas markets.

Government Support Initiatives

Scotland has evolved a sophisticated portfolio of support initiatives to support the indigenous software industry and encourage inward investment:

- Regional Selective Assistance (RSA) supports job creation in the areas of Scotland designated for regional state aid. Now more applicable to software development operations.
- SMART:SCOTLAND provides financial assistance to SMEs to support the technical development and commercialisation phases of projects.
- The R&D Grant supports businesses developing new products, processes and services to improve company competitiveness.
- The Scottish Co-Investment fund provides risk capital to encourage and complement private investment in Scottish businesses.

Links

Insert links and or references to key documents or web sites (where they exist)

- Insert link to TAG strategy
- Insert link to DM strategy
- Insert link to GES
- Insert link to ICT Forum