ENTERPRISE IRELAND

Accessing Innovation

Hard Facts on a Soft Topic

IRC NETWORK

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Ever considered licensing-in an existing technology to grow your business?

Contents

Introduction

Innovation is the key to growth in a successful business. It applies not just to new products, but to business processes and human resources as well. Firms throughout Europe are grappling with how exactly to harness and exploit this somewhat intangible process. The approach is to understand the form and substance of innovation, then you can begin to manage it.

This booklet will help you to understand the key elements of innovation so that you can manage it successfully in your business. Based on the seminar series, Accessing Innovation, it draws on the work of leading practitioners in the field. Innovation is revealed to be a four-dimensional process comprising strategy, linkages, systems and organisation, with the thread of creativity woven through it. Proven methods of creativity and innovation management are explained, along with the national and EU supports available, and a self-assessment audit will help you to measure the innovation climate in your firm. We also address the EU dimension and why innovation is at the heart of economic success in Europe.

The Innovation Relay Centre, hosted by Enterprise Ireland, has prepared this guide as part of its innovation services to industry. The Centre works on behalf of SME's throughout the country, linking them to technology transfer partners in Europe via the 70 other Centres in the Innovation Relay Network. You can view our services and contact the Irish centre at **www.irc-ireland.ie.**

Section 1 - The EU Strategy For Innovation

Launching the EU's Innovation Communication in March 2003, Mr Erkki Liikanen, EU Commissioner for Enterprise and Information Society said that:
"Innovation is viewed as a multi-dimensional concept, which goes beyond technological innovation to encompass for example, new means of distribution, marketing or design. Innovation is thus not only limited to high tech sectors of the economy, but rather an omnipresent driver for growth."

Thus you can see the importance the EU places on innovation and how it should penetrate all sectors of the economy. In fact the EU places it at the heart of economic development in Europe.

- At the level of the citizen it allows individual and collective needs to be satisfied e.g. education, health, leisure, working conditions
- In company start-ups, every new enterprise is created through a process of innovation, i.e. taking an idea and turning it into commerciality.
- Within companies, they need to innovate constantly if they are to remain competitive. e.g. Products, culture, retention of employees.
- At the level of countries their strategies for growth need to be innovative, e.g. Ireland's approach to industrial development initiated in the 1960's and reviewed in each decade since, has served the country well, placing Ireland among the most successful economies in the world.

But there are constraints which have to be tackled if innovation is to flourish. The fact is that Europe and its Member States have built up a set of rules and habits which, taken together, sometimes fetter initiative and the essential mobility of ideas and people, and curb enterprise formation and development. Foremost among these obstacles is administrative red tape, but there is also inadequate co-ordination of research efforts, which are in any case less well developed in Europe than among its rivals, and a degree of short sightedness as to what is at stake in terms of technologies and markets.

In this regard, Europe seems less well placed than its main rivals. The paradox is that it has an excellent scientific base but it is less successful than others in converting its competence into new products and market shares, this is especially true in high-technology sectors.

Action Plan for Innovation in Europe

The Commission produced, in 1996, an Action Plan for Innovation in Europe. The fundamental objectives and action areas for the plan were presented as:

- Direct research efforts towards innovation - commercialising research
- Reinforce human resources for innovation - skills and mobility
- Improve conditions for financing innovation - venture capital
- Foster a legal and regulatory environment favourable to innovation - particularly with regard to intellectual property
- Adopt government, or public, actions to advance innovation

By and large these have remained the objectives, with some additions and changes of emphasis:

- Coherence between the players in national systems of innovation
- Encourage the creation and growth of innovative enterprises

The Commission and the member states each undertook a broad set of initiatives to address these action areas (see Appendix 3)

Then in 2000 in Lisbon, heads of state and government committed the European Union to the ambitious goal of becoming "the most competitive and dynamic knowledge-based economy in the world by the end of the decade". The Council emphasised innovation's importance as the main source of competitiveness and economic growth and its key role in the European Research area.

www.cordis.lu/innovation-policy/communications/communication_2000.htm

The European Innovation Scoreboard was also introduced in 2001. This allows quantitative comparisons to be made across EU Member States, and with the US and Japan.

www.cordis.lu/innovation-smes/scoreboard/home.html

In fact the latest update to the Plan to be issued in Summer 2004, places considerable emphasis on the capacity of firms to innovate and puts forward a set of actions to address what the Commission sees as a deficit in this area. A key action area of their document concerns what they call "open innovation", the need for companies to draw on

sources of innovation outside the company i.e. customers, suppliers, universities, overseas sources etc.

It's important to note that the Commission's Innovation Policy, together with their Industrial Policy in an enlarged Europe, and their policy on Entrepreneurship, form a coherent 3-part framework for the development of an enterprise policy to foster competitiveness of companies and accelerate the growth of Europe's economy.

Challenges for Innovation in Europe

So, with all the policies, analysis and supports, are we getting any closer to the Lisbon goal? Firstly, the Innovation Scoreboards for 2001, 2002 and 2003 show that for many innovation indicators, the leading countries of the Union are ahead of the US and Japan. However, the scoreboards also demonstrate the wide variations in innovation performance across the Union. Overall the dominant challenge is the inadequate innovation performance of the Union as a whole. And a key factor here is the resistance to structural change when it becomes an obstacle to innovation, especially when change is resisted merely because it challenges existing procedures that people have become accustomed to. But then change is what innovation is all about.

Secondly, enlargement will significantly change the Union's innovation profile. On the one hand, people and companies in the Accession Countries have shown a remarkable capacity to transform their economies. This also reflects a taste for innovation which will be beneficial for the enlarged EU. On the other hand, the existing obstacles to innovation in the Accession Countries must be directly addressed to raise the performance of the enlarged Union.

Thirdly, skills shortages will continue to be an issue in specific sectors. The skills of their staff are fundamental to enterprises' capacity to obtain knowledge and to use it to innovate. Shortages arise within the Union of certain specific skills relevant to the innovation process. Examples are to be found in the periodically recurring mismatches between labour supply and demand for specialist skills in information and communications technologies, or, among venture capital operators, for the ever-changing specific skills needed to assess and manage investments in innovative enterprises in new technological fields.

Finally, several features of the European Union have an important bearing on innovation policy development

- The large size of the public sector in Member State economies means it should be heavily involved in the campaign to boost innovation
- In representing our cities, we should emphasise their capacities in the provision of knowledge, skills, qualified workforce and geographical links, to turn them into a focus for innovation
- European diversity brings with it different aspirations and attitudes to innovation that have to be respected. And yet it is within diversity that the real potential to do new things in new ways will lie.

Section 2 - Idea Management

(This section is based on the work of Ken Stockil, Managing Director of Innovation Exchange Ltd., Limerick)

Despite the widespread recognition of the need for innovation in industry, practical guidance and systematic approaches to managing the innovation process are still underdeveloped. This means that for managers embarking on an innovation strategy for the first time, appropriate toolkits can be difficult to source. Furthermore in the case of firms that are considered established innovators, research shows that 9 out of 10 new product developments still fail resulting in billions of wasted R&D resources internationally. Therefore even in these firms, managers still search for better ways to unleash the innovative capacity of their organisations.

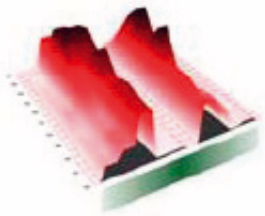
This section presents some techniques which can help unleash your firm's innovative capability. While not a panacea, these steps can hopefully offer some new perspectives and assistance to those looking to enter the innovation race for the first time or to those wishing to achieve a higher hit rate with their R&D investments. In particular the paper focuses on systematic creativity techniques and their role in the innovation process.

1 Consider the landscape for Innovation in your target market

In addition to assessing your firm's internal ability to innovate, it is crucial to consider the innovation profile of your target market and the evolution of that market over time. In this context, it is important to realise that there are many different types of innovation that may happen in your marketplace. Product and process innovations are often the most well documented innovations that occur in a particular market, but there is a growing appreciation that other forms of innovation can be equally as important.

One powerful strategic framework for considering the profile of your industry is Innovation Landscaping first introduced in a 1999 HBR article (Ref.1) by the US based firm, Doblin Consulting Group.

This mechanism involves breaking the innovations that have appeared in a particular industry into discrete innovation categories and tracking developments in each of those categories over



Finance		Processes		Offerings			Delivery		
Business Models	Networking	Enabling Processes	Core Processors	Product Systems	Product	Services	Channel	Brand	Customer Experience

Fig. 1 - Innovation Landscape

a number of years. The resulting landscape provides powerful insights into the intensity of innovation in the industry, the competitive strategies and the innovation tactics currently at play.

This technique can also indicate the areas of possible creative opportunity in an industry. At different stages of evolution, innovation will shift from category to category. If your firm can precipitate a shift, it can be a winner in that industry sector.

For example, consider the computer industry as shown in Figure 2. In that industry, considerable effort has traditionally been focussed on improving product performance but innovations such as Dell's fulfilment model and Apple's iMAC have more recently shifted focus to areas of channel and customer experience innovations.

Alternatively consider the impact of Priceline.com's business model innovation on the air-travel industry. Now customers can set their air-ticket price, and Priceline connects them with responsive suppliers. This has added a new dimension to innovation in that industry where previously the buyer/seller relationship was based on the supplier setting the price.

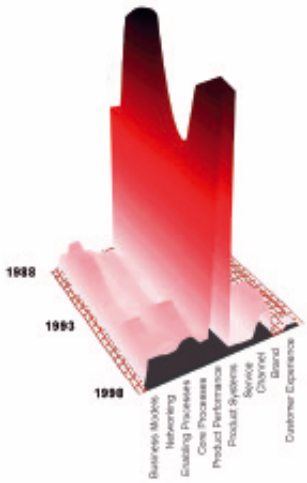


Fig. 1 - Innovation Landscape in Computer Industry

Association in Action

Let's consider an example of an association technique in action. Consider that you are a manufacturer of mobile phones and are seeking new product directions.

First, list the product's internal variables (those which the manufacturer controls - such as the height of the phone, its width, its volume, its colour, its thickness, its ringtone, etc.) and external variables (those which are independent of the manufacturer - the environment in which it is used, the gender of the user, the level of illumination, the signal level, etc.).

Next, pair up these variables (external vs. internal and internal vs. internal). An easy way to do this systematically is to create a matrix with the internal variables as rows and external variables as columns.

2 *Use systematic creativity techniques for idea generation*

Generating and validating new opportunities for innovation and for new product concepts can be a difficult and inefficient exercise. Sometimes we simply haven't got the time and energy to dedicate to idea generation and instead rely on luck and serendipity for new ideas and product concepts.

Even when companies do take time out to search for new opportunities, all too often they rely exclusively on "brainstorming" as a cure-all. Brainstorming however only creates a suitable environment for idea generation; it doesn't offer a step by step approach to actually generating the ideas. To use a sporting analogy, brainstorming is a bit like putting a team on the field, without ever teaching them the skills to play the game.

Fortunately in recent years mechanisms have emerged to add further structure and effectiveness to identifying new business opportunities and to systematising new product and service concept generation. These approaches range from very formal techniques such as QFD, value chain analysis, BPR and Triz, to techniques based on market dimensioning, behavioural research and lateral thinking techniques as advocated by DeBono (Ref. 2) and others.

All these techniques have the potential to help managers and new product development teams to generate robust new product concepts or solutions. In a sense they all offer windows to the same opportunities. To deal with all these techniques comprehensively would take considerably more time than available here but a cross-section of approaches is outlined below for illustration purposes.

Creativity Technique: Association

A common thread running through many creativity techniques and idea generation approaches is the need to make associations between two parameters. Sometimes this involves forging a link between the internal or external variables of a product as illustrated in the example below. Alternatively it may involve forcing a link between a random word or picture and some problem area in order to provoke new perspectives and solutions to the problem, as is the case with many lateral-thinking approaches.

Or indeed it may involve forging a link between a market need and a firm's competencies. For example current government initiatives in Ireland to solve broadband deficits are based on linking this need with the competencies of state in planning and civil engineering. The resulting solution is the local authority rollout of state-owned fibre optic networks, thereby lowering the barriers to entry for new service providers of broadband. However you look at it, the power of association is fundamental to creativity and idea generation. (see panel)

Creativity Technique: Value Analysis

Michael Porter's widely cited value chain model (Ref. 3) for examining an organisation's efficiency and effectiveness can offer managers a framework by which to identify new opportunities for innovation through value analysis of a firm or industry.

Consider the success of the furniture manufacturer IKEA who reconfigured the value chain in that industry by outsourcing the assembly of their furniture to the customer! Or consider the story of

Internal Variables	Noise Level	Gender of User	Illumination		
Height					
Width					
Volume	●				
Colour					

External Variables

Once we have the matrix, we can start to examine each pair, determining the association or dependence between the variables. If such an association does not exist we try to forge one.

For example, is the volume of a phone dependent on the environment in which it operates? The answer is "no", so let's try to create such a dependence - we can imagine a phone that changes its volume according to the noise level of the surrounding environment.

Of course we need to identify the benefits of the new product. In this case a phone that changes its volume when the noise level of the surrounding environment is high has a clear benefit. It enables users to hear the ring tone or the speaker when in a noisy room. Once we are confident of the benefits we can develop the initial idea into the relevant product.

A similar procedure can be applied to each of the pairs in the matrix, so as to identify other potential new products.

the French hotelier Accor, which discarded the notion of what a hotel is supposed to look like in order to offer what most customers want: a good night's sleep at a low price. Similarly, Virgin Atlantic challenged industry conventions through the use of "value innovation" (Ref. 4) principles by eliminating first-class service and channelling savings into innovations for business-class passengers.

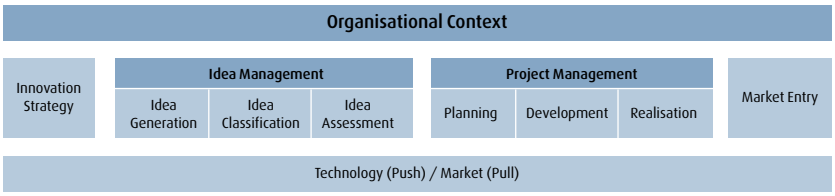


Figure 3: The Innovation Process Overview

Creativity Technique: Information as a source of opportunity

Extracting information from current processes can be a highly effective and relatively quick mechanism for creating new value for customers or generating new sources of revenue. Very often this information already exists in a useable form but is not recognised as a source of innovative opportunity. (see panel)

Creativity Technique: Problem Solving

Innovation is a matter of perspective. Sometimes your greatest problems can offer you your greatest opportunities for new innovations. Therefore many of the recognised problem-solving techniques can be used to generate new product or process innovations.

One such technique is TRIZ – the Theory of Inventive Problem Solving. This technique is based on the work of Genrich S. Altshuller (Ref. 5) (1926 - 1998), a Russian engineer who spent his professional life working to formalise the invention process. The Triz approach is the result of over 55 years of research analysing over 3 million worldwide patents within all engineering disciplines. Triz is based on the principle that invention is not the result of a mental "light bulb" turning on but rather a result of systematic patterns of inventive thinking that are repeated for different problems. While it is a complex tool, the principles can be applied in a simplified manner to offer a structured approach to generating innovative solutions.

3 Bring it all together and get serious about managing the innovation process.

Of course none of the previous steps will succeed if applied in isolation. We need to pull all these steps together in an integrated fashion. Hence there is a need for companies to get serious about putting in place and actively managing their entire innovation process. Indeed companies that take a structured approach to managing their innovation process, can save large sums of R&D investment and have a much higher probability of success in the marketplace. Those who rely on chance when it comes to areas such as assessing their environment or generating product concepts, stand to lose time, money and market share.

Firms that put in place an integrated innovation process and take the fuzziness out of these front-end activities (shaded area above) through the adoption of structured approaches and techniques, stand to be tomorrow's winners in the innovation race.

About the author

Ken Stockil is managing director of Innovation Exchange Ltd., an Irish company that specialises in helping clients put in place their own innovation management and new product development processes. This activity is supported with a variety of training and consulting services and software products. Ken can be contacted at ken@innovationexchange.ie or by visiting www.innovationexchange.ie.

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Information Extraction in Action

Those familiar with attending international rugby matches will be aware of the recent introduction of an innovative new product – reflink – which allows spectators listen in on the comments of the referee during the course of the game. Here is a perfect example of exploiting existing information for profit. The referee's commentary has always been generated during the match "process" but only through the novel application of information and communications technologies (ICTs) has this commentary been used as the basis for a commercial offering!

The same principles could be applied to the newspaper industry giving readers access to the audio files of the reporters' interviews or to the music industry giving fans access to the recording sessions of their favourite artists.

Section 3 - Managing Innovation as a Business Process

(This section is based on the work of Prof. John Bessant of Cranfield University, UK)

At heart innovation is a sequence of activities involved in turning ideas and possibilities into reality. It's a core business process concerned with renewing the organisation and what it offers the world. In order to survive, organisations have to change their offering and how they create and deliver it - and they must do so on a continuing basis.

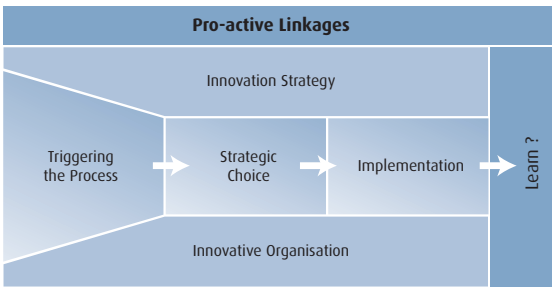
To make this happen they need to:

- Scan and search their environments (internal and external) to pick up and process signals about potential innovation. These could be needs of various kinds, or opportunities arising from research activities somewhere, or pressures to conform to legislation, or the behaviour of competitors - but they represent the bundle of stimuli to which the organisation must respond
- Strategically select from this set of potential triggers for innovation, those things which the organisation will commit resources to doing. Even the best-resourced organisation can't do everything, so the challenge lies in selecting those things which offer the best chance of developing a competitive edge.
- Having chosen an option, organisations need to grow it from an idea through various stages of development to final launch - as a new product or service in the external market place or a new process or method within the organisation. On the way they have to solve a host of problems (like where to get hold of the knowledge they need, how to find and integrate different groups of people with key skills, how to get the bugs and wrinkles out of the emerging innovation, how to steer the project against tight budgets of time and cost, etc.) and they have to do all this against a background of high uncertainty!
- Finally they can reflect upon the previous phases and review experience of success and failure - in order to learn about how to manage the process better, and to capture relevant knowledge from the experience.

This process doesn't take place in a vacuum – it is shaped and influenced by a variety of factors. In particular innovation needs:

- Clear **strategic leadership** and direction, plus the commitment of resources to make this happen
- Pro-active **links across boundaries** inside the organisation and to the many external agencies who can play a part in the innovation process – suppliers, customers, sources of finance, skilled resources and sources of knowledge, etc.
- Effective **implementation systems**, such as Stage Gate, to bring ideas to reality through good project management and teamwork.
- **Innovative organisation** in which the structure and climate enables people to deploy their creativity and share their knowledge to bring about change

Let's examine these four key elements of innovation – Strategy, Linkages, Systems and Organisation – in more depth.



Key Elements of Innovation

Strategic approach

- Environments – exploiting advantages and minimising disadvantages in the national environment. How could we benefit from foreign innovation?
- Competitors – how do we compare / learn from / maintain our innovative advantage over them?
- Technologies – technology areas we are active in. What are the opportunities and threats emerging from advances in key technologies?
- Competencies – our current ones, where they are located and how do we identify new technological competencies?

- R&D – evaluating the real expenditure and return on investment. Any R&D outside the home country eg adapting products and processes to local conditions and markets?
- Strategy – is there a formal innovation strategy and how does it link to our business strategy? What are the implications of all the above for an innovation strategy

External Linkages

- Customers and suppliers – do we fully exploit our lead customers, and the development capability of our lead suppliers?
- Tools – are the right tools being used to determine customer preferences and future trends eg Quality Function Deployment, scenario analysis, Delphi methods.
- External development – are the criteria clear for external R&D? Do we and they understand what is needed?
- Licensing / collaboration / alliances / partners – is there a sound rationale consistent with the business strategy, and is the target market and/or technologies clear? Can we secure and exploit a successful agreement?
- Government – do our links provide early warning of regulations and standards, and mechanisms for responding?
- Stakeholders – are our financial stakeholders sufficiently involved in our key programmes to ensure their understanding and support?
- Networks – do we develop and maintain networks of formal and informal knowledge?
- Education / training – do we communicate our needs to local and leading suppliers, and provide training support for employees?

Implementation systems

- New products – is innovation planning linked to the overall business strategy? Do we systematically search for new product opportunities, and is there a system for selecting between competing alternatives?
- Project management – is there a stage gate system in place and is it operated properly? Which functions are represented in the decision process? Do we have project management approaches appropriate to different types of projects eg short cut or fast track options?
- Structures and staff – are cross functional teams used or other arrangements for improved integration? Is there concurrent working between product development and manufacturing functions? Do we invest in team development?
- Tools – are we using the right tools eg Value analysis, design for manufacture, CAD/Finite element analysis?
- Learning – do we have a process to capture learning from projects and feed it into future practice?

Organisational context

- Management – is there top management support for innovation?
- Shared vision – is there a shared sense of strategic vision and ownership of the business plan?
- Recognition – are there adequate rewards and recognition for innovation and for key individuals?
- Communication – is communication effective vertically and horizontally?
- Involvement – how far is the workforce involved in innovation? Problem solving systems and suggestion schemes? Feedback to guide improvement?
- Stimulation – does the structure support or inhibit innovation, and is there a supportive climate for bringing forward new ideas?
- Teamwork – is there effective teamwork and team building?
- Learning – are there mechanisms in place to capture and share learning?

Audit

To see how your company measures up in the innovation stakes, you might like to fill out the self-assessment audit in Appendix 1. Depending on how your innovation climate looks, you can see which element of innovation needs strengthening by improving some of the characteristics above.

Projects

The essence of an innovative firm is one where ideas and opportunities are constantly being generated, tested and implemented to improve the business. By addressing the four key elements of innovation, you create the seedbed and the environment for ideas to flourish and grow into projects, which are then brought to completion by the company's innovation process. Typically two kinds of projects emerge:

1 Projects for developing the innovation culture. These are largely non-technical projects eg business processes, human resource development etc. Some examples would be: Set up an ideas log; Introduce a customer preference programme; Review competencies and training needs.
2 Projects for product and process development. These are usually technical projects eg Technology watch on a key area; Applied research project with a college; Development of a new or improved product.

If the four elements are working effectively the cycle becomes self-sustaining, **provided** the leadership remains strong and focussed.

About the author

John Bessant is Professor of Innovation Management at Cranfield University, UK. He was previously Professor of Technology Management and Director of the Centre for Research in Innovation Management at Brighton Business School, University of Brighton. He is co-author with Dr. Joe Tidd and Prof. Keith Pavitt of Managing Innovation: Integrating Technological, Market and Organisational Change, published by John Wiley and Sons (1997).

Appendix 1 - Innovation management – how do you score?

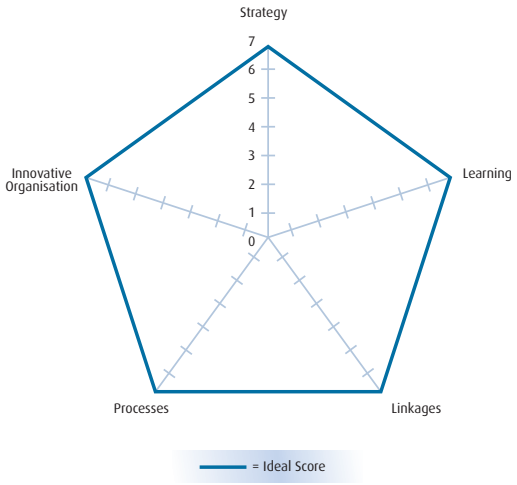
This simple self-assessment tool focuses attention on some of the important areas of innovation management. Below you will find statements which describe 'the way we do things around here' - the pattern of behaviour which describes how the organization handles the question of innovation. For each statement simply put a score between 1 = not true at all, to 7 = very true.

	Statement	Score (1 = Not True At All, 7 = Very True)
1	People have a clear idea of how innovation can help us compete	
2	We have processes in place to help us manage new product development effectively from idea to launch	
3	Our organization structure does not stifle innovation but helps it to happen	
4	There is a strong commitment to training and development of people	
5	We have good 'win-win' relationships with our suppliers	
6	Our innovation strategy is clearly communicated so everyone knows the targets for improvement	
7	Our innovation projects are usually completed on time and within budget	
8	People work well together across departmental boundaries	
9	We take time to review our projects to improve our performance next time	
10	We are good at understanding the needs of our customers/end-users	
11	People know what our distinctive competence is - what gives us a competitive edge	
12	We have effective mechanisms to make sure everyone (not just Marketing) understands customer needs	
13	People are involved in suggesting ideas for improvements to products or processes	
14	We work well with universities and other research centres to help us develop our knowledge	
15	We learn from our mistakes	
16	We look ahead in a structured way (using forecasting tools and techniques) to try and imagine future threats and opportunities	
17	We have effective mechanisms for managing process change from idea through to successful implementation	
18	Our structure helps us to take decisions rapidly	
19	We work closely with our customers in exploring and developing new concepts	
20	We systematically compare our products and processes with other firms	
21	Our top team have a shared vision of how the company will develop through innovation	
22	We systematically search for new product ideas	
23	Communication is effective and works top down, bottom up and across the organization	
24	We collaborate with other firms to develop new products or processes	
25	We meet and share experiences with other firms to help us learn	
26	There is top management commitment and support for innovation	

27	We have mechanisms in place to ensure early involvement of all departments in developing new products/processes
28	Our reward and recognition system supports innovation
29	We try to develop external networks of people who can help us - for example, with specialist knowledge
30	We are good at capturing what we have learned so that others in the organization can make use of it
31	We have processes in place to review new technological or market developments and what they mean for our firm's strategy
32	We have a clear system for choosing innovation projects
33	We have a supportive climate for new ideas - people don't have to leave the organization to make them happen
34	We work closely with the local and national education system to communicate our needs for skills
35	We are good at learning from other organisations
36	There is a clear link between the innovation projects we carry out and the overall strategy of the business
37	There is sufficient flexibility in our system for product development to allow small 'fast track' projects to happen
38	We work well in teams
39	We work closely with 'lead users' to develop innovative new products and services
40	We use measurement to help identify where and when we can improve our innovation management

When you have finished, add the totals for the questions in the following way and plot a profile for the five dimensions on the graph opposite.

	Scores		Scores		Scores		Scores		Scores
1		2		3		4		5	
6		7		8		9		10	
11		12		13		14		15	
16		17		18		19		20	
21		22		23		24		25	
26		27		28		29		30	
31		32		33		34		35	
36		37		38		39		40	
Totals									
Divide by 8									
	Strategy		Processes		Organisation		Linkages		Learning



Appendix 2 - Supports for Innovation Management - Ireland

National supports from Irish Government

Enterprise Ireland offers a range of direct and indirect financial and support measures to SMEs to engage in and profit from research and innovation activity. We actively support SMEs to:

1 Implement a significant step up in their R&D function
2 Develop new value added products and processes
3 Manage innovation strategically
4 Forge linkages with third level colleges and institutes in Ireland
5 Prepare for engaging in R&D for the first time
6 Exploit international R&D opportunities
7 Engage in Technology Transfer with European firms and research organisations
8 Manage and protect Intellectual Property

1 Implement a significant step up in their R&D function

Significant R&D expansion programmes, over typically a 3-year period, are supported for eligible companies under this R&D Initiative. The proposal must represent a significant and demonstrably strategic investment in, and commitment to, the R&D function over and above the firm's current position. The initiative involves the development of a coherent programme of R&D projects in conjunction with R&D staff hiring and training, and an upgrade of R&D facilities and equipment.

www.enterprise-ireland.com/ResearchInnovate/Companies/Tailored_R_and_D.htm

2 Develop new products and processes

The Research Technology and Innovation (RTI) scheme is intended to develop the level, quality and commercial relevance of R&D in businesses in Ireland. It focuses on risk-intensive R&D projects that will further establish or underpin overall firm competitiveness by enabling companies to meet market requirements in higher value added products. Projects can pertain to either product or process development. The scheme is directed at established companies planning to undertake their first R&D projects and companies looking to further develop their existing R&D and innovation activities.

www.enterprise-ireland.com/ResearchInnovate/Companies/RTI.htm

The RTI initiative can also be employed to facilitate Irish collaboration with European research institutions and other firms on EUREKA projects. EUREKA is a close-to-market R&D programme involving 33 European countries. Its principal objective is to strengthen the productivity and competitiveness of European SMEs.

www.eureka.be/ifs/files/ifs/jsp-bin/eureka/ifs/jsps/publicHome.jsp

3 Manage innovation strategically

The Innovation Management Initiative will cover 50% of the course fees for eligible companies for the following courses:

- Introduction to R&D Management
- Certificate in Innovation and R&D Management for the food & Drinks Industry
- Building New Products and R&D Capability
- Masters in Technology Management
- Masters in Technology Management (Distance Learning)
- Diploma in Technology Management

The aim of this initiative is to facilitate training and upskilling of key R&D staff in companies undertaking R&D for the first time and those escalating their commitment to the R&D function. This leads to improvements in the efficiency and effectiveness of the innovation and R&D management processes in these companies.

www.enterprise-ireland.com/ResearchInnovate/Companies/Innovation_Management.htm

4 Forge linkages with third level colleges and institutes in Ireland

Enterprise Ireland supports research in areas of technology of medium term interest to industry leading to technologies, products or processes that can provide the basis of new businesses in Ireland, or can improve the competitiveness of industry in Ireland through licensing agreements. A range of supports for third level colleges have been brought together under the umbrella of the Commercialisation fund. The fund provides support in three phases:

1 Proof of concept phase - short applied projects to develop a product concept through to a stage where a route to commercialisation is clear, either as a campus company or through licensing.
2 Technology development phase - funds research aimed at major technology development around platform technologies or groups of products built around a new technology. The underlying technologies must be sound and there should be an identifiable market.
3 Business development phase the Commercialisation Of Research and Development (CORD) grant is designed to bring a new product idea/business venture from our third-level educational institutions to market.

SMEs are not eligible for direct support from the Commercialisation fund, however licensing opportunities that may be of interest to SMEs may arise as outputs from this fund.

www.enterprise-ireland.com/ResearchInnovate/Colleges/colleges_Menu.htm

The Innovation Partnerships Initiative can provide financial support to encourage SMEs to undertake research projects with Irish universities and institutes of technology. Each submission involves the SME and its partner institute/college jointly submitting a research project of real commercial benefit to the company. All manufacturing and internationally traded services companies, with an operating base in the Irish Republic, collaborating with Irish third-level institutions are eligible to participate.

www.enterprise-ireland.com/ResearchInnovate/Companies/Innovation_Partnerships.htm

The Technology Transfer Initiative (TTI) links the three Universities of Galway, Limerick and Cork and forms a 2-way bridge for industry to academia. It operates programmes for collaborative research, technology brokering, seminars, networking and outreach activities to assist companies move up the R&D ladder. TTI utilises the innovation support programmes from Enterprise Ireland, in particular Innovation Partnerships, to fund projects between industry and universities.

www.technologytransfer.ie

TecNet is the intermediary organisation linking the 13 Institutes of Technology. Their role is to enhance the R&D capability of the Institutes through strategic networks, e.g. biotech and ICT (BioNet and CSSN respectively), in support of regional economic development. TecNet also assists collaboration between the Institutes and industry, and utilises the innovation support programmes from Enterprise Ireland.

www.tecnet.ie

5 Prepare for engaging in R&D for the first time

The R&D Awareness Initiative provides technical consultancy support for up to three days to help your company:

- Understand the R&D process
- Establish the right strategy
- Identify the right project(s) for your company
- Develop a project plan
- Apply for funding

Individual companies commission a consultancy firm of their choice from a panel of three suggested by Enterprise Ireland. A consultant from the selected firm will provide your company with technical consulting for up to three days.

www.enterprise-ireland.com/ResearchInnovate/Companies/RandD_Awareness_Initiative.htm

6 Exploit European R&D opportunities

The National Contact Points inform and assist companies and researchers interested in participating in the EU Sixth Framework Programme. They circulate documentation on the Programme, and organise training and other information events. They also advise on administrative procedures and contractual issues, and help with partner searches.

www.forfas.ie/eufp/pdfs/0212_fp6_IE_national_delegates_72dpi_s.pdf

Enterprise Ireland offers financial assistance through its Feasibility Grant Scheme towards the costs of companies planning to participate in a proposal.

www.fp6-ireland.com

7 Engage in Technology Transfer with European firms and research organisations

The Irish Innovation Relay Centre (IRC) is an active participant in a network of 71 IRC centres throughout Europe dedicated to transferring technology between SME's. Over 800 agreements have been brokered since 2000 consisting of licenses, technical collaboration and joint ventures. The services include seminars, publications, missions and consultancy on technology transfer. The Innovation Relay Centre for Ireland is hosted by Enterprise Ireland.

www.irc-ireland.ie

8 Acquire Technology through License

TechSearch is a service offered by Enterprise Ireland through which companies can locate and acquire technologies external to the company, that are not readily available from commercial sources. Technologies can be acquired under license from SMEs, universities and multinational companies.

On the TechSearch website you will find useful information including an explanatory guide and case studies, as well as an on-line application form that will guide you through the points to be considered when engaging in technology acquisition.

From there you can contact the TechSearch team of specialists for advice and assistance in finding new products and licenses.

Find out more about TechSearch by visiting **www.techsearch.ie**

9 Manage and protect Intellectual Property

Enterprise Ireland provides Intellectual Property advice on the identification, protection, development and commercialisation of patentable technology. In appropriate cases financial assistance is provided to your company for the cost of patenting through the Intellectual Property Assistance Scheme. Advice is available on:

- The use of intellectual property rights (patents, copyright, designs and trademarks)
- Confidentiality agreements
- Licensing (negotiations, royalty rates)
- Technical development

www.enterprise-ireland.com/ResearchInnovate/Companies/Intellectual_Property.htm

10 Business Support Networks

The Business Innovation Centres and European Information Centres each operate offices in Ireland, details of which are under the European Supports section.

Appendix 3 - Supports for Innovation Management - Europe

Navigating the Support Actions

The principal instrument of navigation is the Community R&D Information Service CORDIS. Offering over 35,000 pages of information in 5 languages, CORDIS serves about 200,000 visitors per month – academic and industrial researchers, technology based firms, entrepreneurs and many others. The main information sources are:

- EU research and innovation activities
- Searchable databases of partners, projects and results
- News service
- Hosting specific research and innovation related web services for the Commission and Member States.

www.cordis.lu

Thereafter, the innovation supports are divided into:

- Services for innovators
- Services for policy makers

Service for Innovators

1 Support for Technology Transfer

Technology Marketplace is available on CORDIS and provides clearly written abstracts of available research results from the Framework Programme

www.cordis.lu/marketplace/

Innovation Relay Centres is a network of 71 centres throughout Europe dedicated to transferring technology between SME's. Over 800 agreements have been brokered since 2000 consisting of licenses, technical collaboration and joint ventures. The services include seminars, publications, missions and consultancy on technology transfer. The Innovation Relay Centre for Ireland is hosted by Enterprise Ireland and is contactable at **www.irc-ireland.ie**

2 New Approaches to Innovation

Innovation Showcase provides case studies of the results of Innovation projects supported by the EU under the Innovation and SMEs programme

www.innovation-showcase.net

3 Support for High Growth Firms

This reflects the Commission's emphasis on high tech. start-ups as one of the engines of growth and jobs. The purpose here is to offer a one-stop shop for entrepreneurs

Gate2Growth offers entrepreneurs access to all the support required to set up a fully-fledged company, including an investor-matching service and short cuts to local help. Mainly targeting high-tech entrepreneurs looking for between €10,000 and €4 million of financing, Gate2Growth.com's direct services include

- Tools for business plan preparation
- Diagnostic services for draft business plans
- A Europe-wide databases of investment opportunities, fundable business plans and sources of finance
- Access to expert advice from investment specialists
- Networks offering local assistance and intermediary organisations
- Discussion forums, workshops and news services

www.gate2growth.com

IPR Helpdesk provides expert assistance on intellectual property rights issues for Framework Programme research contractors. It operates a website and a helpline at IPR-HELPDESK@UA.ES

www.ipr-helpdesk.org

4 News and Views on Innovation

The main offering here is Innovation and Technology Transfer, published 6 times a year and distributed by the Innovation Relay Centres, among others. It provides insights into the latest "hot topics" of innovation policy, as well as case studies of innovation practice from around the EU.

www.cordis.lu/itt

Other publications are:

- Euroabstracts
- CORDIS Focus
- RTD Info
- Enterprise Europe

5 Business Innovation Centres

These are part of the European BIC network which provides services to innovators in the areas of business, incubation and entrepreneurship. The network links 160 centres forming a regional innovation tool for economic development.

www.ebn.be

There are five BIC's operating in the Republic of Ireland in Dublin, Cork, Limerick, South East (Waterford) and West (Galway), and one in Northern Ireland.

6. European Information Centres

The European Information Centre network operates as a "first stop shop" for enterprises on information relating to the EU. The c.300 centres are the authoritative source of information and advice on EC legislation, EU initiatives for business, public contracts and funding programmes.

There are five Euro Info Centres operating in the Republic of Ireland in Dublin, Cork, Waterford, Galway and Sligo, and one in Northern Ireland.

www.eic.ie

Services for Policymakers

1 Benchmarking Innovation Performance.

The benchmarking is done via a Trend Chart, which includes the European Innovation Scoreboard. This allows quantitative comparisons to be made across all EU Member States under 4 categories

- Human resources
- Creation of new knowledge
- Transmission and application of knowledge
- Innovation finance, output and markets

www.trendchart.cordis.lu/scoreboard/scoreboard.htm

2 Understanding the Innovative Performance of Firms

Community Innovation Survey provides data on manufacturing and service sectors across the EU – 1992, 1997, 2000.

www.cordis.lu/innovation-smes/src/cis.htm

Innovation Policy Studies – series of about 20 very detailed studies on aspects of innovation e.g. impacts of corporation tax on innovation.

www.cordis.lu/innovation-policy/studies.htm

Innobarometer – based on telephone surveys of European business leaders experiences and concerns in the field of innovation.

www.cordis.lu/innovation-smes/src/innobarometer.htm

3 Regional Innovation Strategies

Innovating Regions in Europe (IRE) Network – these are a series of projects for European regions to exchange experience and access good practice in regional innovation policies and schemes.

Ireland is involved in a number of these networks.

www.innovating-regions.org/

Another useful action in this area is RINNO: Regional Innovation Observatory. This is an on-line library of good practice in regional innovation, particularly regarding SME's.

www.rinno.com

4 Favourable Environment for High Growth Firms

One of the key target groups of the innovation activies is new high growth firms. The supports here are designed to remove unnecessary regulatory barriers and ensure the availability of appropriate finance and support.

PAXIS – pilot action of excellence for innovative start-ups. It demonstrates best practices in fostering the creation and growth of high tech start up and spin off companies.

www.cordis.lu/paxis.

GATE2GROWTH is a Europe-wide community for investors and service providers to share knowledge and good practice. Specific networks cater for:

- Early stage venture capital investors
- Technology incubator managers
- Industrial liaison officers and IPR managers in academia
- Academics studying innovation and entrepreneurship

www.gate2growth.com

Business Incubator Database covers over 600 incubators, giving target sectors and contact details. If you are looking for the most appropriate incubator for you, and you don't mindwhere it is, this is the place to find it.

www.cordis.lu/incubators

North - South Supports

InterTradeIreland delivers more than 30 initiatives through eight programme areas including:

- Trade Development
- Trade Awareness
- Micro-enterprise Support
- Business & Economic Research
- Equity
- Benchmarking
- Science & Technology
- Supply Chain & Cluster Development

www.intertradeireland.com

FUSION: An all-island network between industry and academia. The network enables knowledge and technology transfer across the island supporting business innovation and increased capability.

FUSION develops and supports 3-way partnerships and projects between

Companies – private sector businesses with technology-based development needs

Knowledge Centres – third level institutes such as colleges, universities, technology or research centres

Knowledge Carriers – high-calibre degree/diploma holders graduated within the last 5 years.

An advanced online portal acting as a gateway to the island's knowledge base has been developed. This combines, in one searchable database, up-to-date details of academic expertise, funding information, technology transfer and collaborative opportunities for the entire island.

www.expertiseireland.com

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