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Perceived Barriers to Innovation in Small to Mediume Enterprises (SMEs)

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PERCEIVED BARRIERS TO INNOVATION IN SMALL TO MEDIUM ENTERPRISES (SMEs)

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Innovation is crucial to the successful development of small to medium-sized enterprises – and SMEs themselves are key to the continuing growth of the economy. Yet the owner/managers of many SMEs perceive the existence of many barriers to innovation. Whether such obstacles are real or merely perceived makes little difference to the strategic management and marketing practice of these firms. To illustrate this problem, this article reports both quantitative and qualitative research about barriers to innovation in smaller firms.

A postal survey of 375 owner/managers who employ fewer than 50 people indicated these managers' views and concerns about a range of innovation-related issues such as high tax rates, innovation 'costs' and cultural lethargy towards innovation. The owner/managers also suggested how such barriers to innovation might be overcome. These opinions were subsequently contrasted with those of officialdom, elicited from in-depth interviews with a sample of senior officials of state support agencies. This enabled some interesting observation and illumination about obstacles and possible incentives to greater levels of innovation in SMEs. A number of policy recommendations are proffered, including a suggestion that the state support agencies themselves be more innovatory in their approach.

Innovation is not optional for SMEs. Its power to create new markets and competitive advantages underlies its significance in strategic marketing management. As an ENSR Report (1993) commented, less active and innovative SMEs can easily be locked out from any new markets and technologies, and need to give more attention to developments in order to survive. However, a marketing innovation does not necessarily need to be technically novel; the point in marketing terms is that the customer should perceive it to be novel. More positively, the Confederation of British Industry (1994) discovered that 'winning' companies constantly introduce new differentiated products and services. Their success was founded on the following principles :

- have a product- or service-after-next philosophy
- exploit new technology or legislation to drive innovation
- customise the product or service
- radically improve speed to market
- adapt multi-functional teams to drive innovations forward.

While the importance of innovation is widely accepted in the growth of a company, it is generally perceived that the level of innovation in Irish SMEs is very poor, particularly in comparison to other economically developed countries. This paper sets out to review the role and level of innovation in SMEs, and more importantly to determine the principal stimulants to innovation in this sector. The findings of a survey of SMEs carried out in summer 1995 are then presented. These findings are complemented by results from in-depth interviews carried out with senior officials of government support agencies in March 1996.

Innovation

Innovation literature has evolved quite identifiably over the past two decades, reflecting the greater knowledge and understanding that has been developed with regard to the varying complexities of the innovation process. O'Doherty (1995) charted the movement from the 1970s, when the clear identification of the actors and factors at work within an innovative firm were established, through the 1980s, where the focus altered to the interface of the firm with the external world in terms of how and where the organisation sourced technical and business information, and forward to the 1990s, where the principal concerns turned to the ongoing relationships between companies and their staff. The examination has become more panor-

amic and less linear as researchers examine the dynamic nature of innovation as well as the infrastructure and environment within which it occurs.

In mapping the evolution of innovation, Rothwell (1995) saw it differently and proposed a five generation innovation process. The first is a simple linear sequential process; the second sees the market as the source of ideas; the third is sequential but with feedback loops; the fourth a parallel development with integrated teams; while the fifth generation is a fully integrated parallel development. This latest generation has been born in reaction to the need to forge new horizontal and vertical alliances, and to seek greater organisational flexibility, speed of development and efficiency in meeting the needs of the customer.

Since Schumpeter first outlined in the 1930s the relationship between entrepreneurship and innovation, researchers and academics have struggled to come to terms with the definition of innovation. Biemans (1992) in attempting to generate a definitive version from a review of the literature, arrived at the conclusion that each writer presents a new definition which emphasises the elements he or she deems to be most relevant. Biemans suggested that the term 'innovation' usually refers to one of three different concepts:

- the process of developing a new item
- the process of adopting a new item
- the new item itself.

He also argued that innovation can only truly occur when an organisation is among the first to adopt and incurs significant costs of search and risk. Later adopters undergo organisational change but not innovation. The difficulty with selecting a definitive term for innovation is the boundaries it places around it; it suggests limitation, which is contrary to the concept of innovation. West (1992) identified different types of innovation in an effort to offer classification to this subject area. He used an approach which he believed defined innovation as a market-led issue, which in turn led to the development of a competitive advantage. The innovation types were:

- sector creating innovations
- technological reorganisation
- performance creating innovation
- branding innovation
- process innovation
- design innovation
- reformulation
- service innovation
- packaging innovation.

An ENSR Report (1994) used an alternative system where it divided the factors into internal ones (marketing department, R&D, production department, management) and external ones (customers, competitors, suppliers). Furthermore, it was also noted that other innovations were engendered due to the attractiveness of the market.

Given the proliferation of definitions, and the need to select one as a starting point, even if simply to test Socrates' philosophy of 'the beginning of wisdom is the definition of terms', the authors decided to utilise the definition put forward by Forfás (the Irish state agency responsible for industrial development policy coordination) in its 1994 survey of innovation in the business sector. Therefore, the authors defined innovation as 'occurring when a new or significantly altered product or service is introduced to the market, or when new or significantly improved production methods are introduced'. The authors recognise the imperfect nature of this definition, but suggest that any chosen definition would be open to question. The advantage of this form is that it has already been utilised successfully in an Irish context.

Role of SMEs

Whether innovation is market-led or technology-led is central to the argument on the role of SMEs in innovation. Conventional wisdom decreed that scale economies existed between firm size and R&D, which meant that technological change was best promoted by large organisations able to exploit market power. However, research carried out by Acs and Audretsch (1993) strongly suggests that small and new enterprises make an important contribution to innovative activity, since innovation depends on market structure characteristics and not on the size of the organisation. In an earlier work, Acs and Audretsch (1990) suggested that

small firms make an important contribution to dynamism in industrial markets. Through their 'entrepreneurial impact' they generate much of the turbulence that not only creates an additional dimension of competition but also furnishes a mechanism for regeneration; they provide international competitiveness in newly created product niches, and through innovation they generate jobs.

Rothwell and Zegveld (1982) identified a number of advantages inherent in SME innovation, in that such firms can better service narrow but sophisticated markets, react more swiftly to new opportunities, and with less formal networks have the ability to stay closer to their customers. However, SMEs normally do not possess a formal R&D department, are less able to gather and analyse external information, are frequently ruled by autocrats, have financial constraints due to cost and level of risk, and are less able to cope with government regulation.

Given the relevance of innovation to SMEs, a number of researchers have sought to determine the principal barriers to innovation that exist. In 1984, Piater published a report based on a study carried out for the Commission of the European Communities, which surveyed the member countries of the Community. He found that the major barriers were: 1. the effect of education and training on employment in enterprise; 2. the effect of action by banks on the financing of innovation; 3. the effect of action by venture capital companies on the financing of innovation, and 4. the effect of regulatory norms and standards on the manufacture of new products. Later, Knight (1994) suggested that the impact of economic policies was of critical importance to the processes of innovation and entrepreneurship at the micro level of the firm. In a study of Canadian, US and New Zealand companies, he discovered that the US and New Zealand ones were more likely to identify the government as a principal source of obstacles to innovation (the Canadians considered government to be the least problematical here). However, the government was seen as the most likely source of incentives to innovation in all three countries.

In examining innovation the authors were concerned not just with what were considered to be the principal obstacles, but also with the methods introduced to stimulate innovation. Drucker (1985) set this out in a series of 'dos' and 'don'ts'. He considered that purposeful, systematic innovation begins with the analysis of opportunity; that innovators must go out to look, to listen, to ask; that it has to be simple and focused; that effective innovations start small; and that successful innovation aims at leadership. He advised entrepreneurial managers not to be too clever; not to diversify and try to do too many things at once; and not to innovate for the future. Drucker was primarily concerned with simplicity in the present; the best ideas are perceptual as well as conceptual. However, Rickards (1985) saw creativity as the key to stimulating innovation and sought ways of unblocking the creative flow within us. He particularly searched for methods of encouragement at project level and at organisational level. These included varying methods of diagnostic aids, search techniques, and action research.

The interdependence of the SME sector and the development of innovation is now more widely recognised. Research is taking place to seek understanding of how the role of the SME may be improved. Cozijnsen and Vrakking (1993) argued that for SMEs to increase their competitive strength they should regularly undertake a diagnosis of their innovation needs; that the information gap should be closed between companies and specialists; and that managers must be educated by means of customised training. Many measures have been introduced by government agencies and the European Union (EUREKA, ESPRIT, STRIDE, etc.) to further these steps, and reduce the barriers to innovation. But it is not these governmental organisations alone that should be leading the drive to innovation; it is also the responsibility of the owner/managers, given that they will accrue the major benefits.

Innovation in Ireland

Ever since the Telesis Report of 1992 the need to develop indigenous Irish industry has been a key focus of industrial policy. Part of this focus is the essential requirement to engender innovation. An Institute of Industrial Research and Standards (IIRS) report in 1985 stated that '... studies on innovation in Irish manufacturing found the overall level of innovation to be low. The main barriers to innovation were perceived to be finance, lack of skilled manpower, lack of management time, the

general economic climate for the business, deficiencies in the technological infrastructure in the area of product development and technical liaison, and in some studies, shortcomings in the physical infrastructure.'

Ten years later a report of the Science Technology and Innovation Advisory Council (STIAC) argued that '... there is an increasing consensus that a poor record of innovation is at the root of our problems'. Its comments were based on a series of reports, such as OECD's *Innovation Policy in Ireland* (1987), National Economic and Social Council's (NESC) *The Irish Economy in a Comparative Institutional Perspective* (1993), and NESC's *Strategy for Competitiveness, Growth and Employment* (1993), which highlighted the dearth of innovation in Ireland, and the immediate need to redress this imbalance.

The STIAC report (1995) also argued that '... expenditure on research and development in Ireland is low compared to most other OECD countries. Business sector R&D is an important element of the innovation system and needs to be substantially increased. Funding for basic research is inadequate and the Government must increase its level.' An ENSR report (1993) offered empirical evidence of Ireland's failure in comparison to other countries. Together with Spain and Greece, Ireland has the lowest indicators for R&D. It spends only one-third of Germany's percentage on R&D, has the second lowest contribution by government to R&D, and its R&D personnel per thousand in the labour force are approximately half of the figures in France and Germany. Similarly, a 1994 OECD report of 23 countries showed Ireland to be constantly at the bottom end of the tables.

However, the poor performance in innovation is changing. A census of R&D performing enterprises in Ireland carried out in 1993 discovered that business-performed R&D amounted to £271m in 1993, and this represented an average growth rate of over 17 per cent per annum in real terms over five years. The increase in business expenditure on R&D has far outpaced growth in GDP, a change that represented one of the most marked increases of all OECD countries. However, it is still considerably behind OECD and EU averages.

To add to these hopeful signs, a 1994 report by the Irish Small and Medium Enterprises association (ISME) did not share the view concerning the lack of an innovative culture in indigenous industry, but instead found a 'remarkably high level of innovation in SMEs'. However, these findings were contrary to the figures presented in an Eolas report (1991) which showed that 15 per cent of R&D performing firms employed under 50 people, 10 per cent employed 50–99, and 75 per cent employed 100+. The other concern regarding the type of firm that undertakes R&D was expressed in the Forfás (1995) report which commented that 'the total expenditure on R&D performed by foreign owned companies far outweighs that of indigenous companies'. The same report also stated that the majority of R&D performers in Ireland spend less than £100K per annum on R&D, with only 300 companies in Ireland spending more than that amount.

Clearly, the empirical evidence highlights the need to develop innovation, and given that 97 per cent of companies in Ireland employ fewer than 50 people, the failure, to date, to address this situation is puzzling. The role both SMEs and innovation play in economic growth has been recognised by numerous reports on Irish industry. The authors wished to delve into this perplexing question, and to uncover the difficulties that existed at the micro and macro levels. What can be done by all participants and interested parties to stimulate the economy through innovation, by utilising mutually accessible avenues?

Research Methodology

The authors carried out a survey of Irish SMEs between May and September 1995. A structured questionnaire was posted to all 896 member companies of ISME. The questionnaire sought the views of companies about the significance of various obstacles to innovation in business. It also sought their views about selected incentives to innovation. Finally, the questionnaire included classification questions, including the perceived level of innovation in the respondent company.

In terms of the representativeness of the survey, it must be noted that the research was confined to SMEs that had joined an organisation set up after member companies had parted from the Small Firms Association in December 1993. This sug-

Table 1 Respondent Companies: Type of Company, by Size and Age

Type of Company	*Total*	*No. of Employees*		*Company Age*	
		1–20	21+	10+ years	under 10
Total	375	212	162	248	124
%	100	100	100	100	100
Manufacturing	235	106	129	163	72
%	63	50	80	66	58
Services	129	99	30	79	49
%	34	47	19	32	40
Others/no replies	11	7	3	6	3
%	3	3	2	2	2

gests that to generalise from this survey to all Irish SMEs would be unwise; it is best to regard the survey as representing the perceptions of the smaller number of SMEs which are more proactive about their concerns in Ireland today, and which have demonstrated this to some degree by joining ISME.

In March 1996, the authors conducted qualitative research to get reaction from government officials to the same issues. This research consisted of in-depth semi-structured interviews with nine senior officials in key government agencies concerned with supporting and encouraging enterprise, i.e. Forfás, Forbairt (the state agency responsible for the development of indigenous industry), An Bórd Tráchtála (The Irish Trade Board), FÁS (The Training and Employment Authority) and County Enterprise Boards. These interviews sought the officials' personal views about obstacles and incentives to innovation.

The use of the term 'innovation' presented some problems for the research. The 1994 ENSR report suggested that the best way to measure innovation was by its inputs and outputs. The input indicators include R&D expenditure, while outputs include patents and level of receipts for technology. However, this presents some difficulties. First, innovation is not confined to R&D and must be considered as a wider range of activity. Second, patents are only a partial measure of innovation. They are inventions and many never achieve commercialisation. Many innnovations do not require patents. Third, the diffusion of incorporated technology and the informal diffusion of technology are not fully acounted for. All these points suggest that the data on the level of innovation cited in this paper should be taken as indicative of trends, rather than as conclusive statistical evidence of the extent of innovative activity.

In both the survey and in-depth interviews, respondents were asked to make a subjective judgement about what constituted 'innovation'. It was defined as:

> occurring when a new or significantly changed product or service is introduced to the market, or when new or significantly improved production methods are introduced.

The structured questionnaire, which was posted to all 896 ISME companies, sought company views of 23 specific obstacles to innovation, by rating the significance of each one on a five-point scale, providing for replies ranging from 'decisive' to 'insignificant'. The obstacles were grouped under headings suggested by Knight's (1994) four-fold framework of government, economic, organisational and social categories. Thus the four groupings of obstacles were as follows:

Government Actions
- low level of government R&D expenditure
- high rates of income tax and PRSI
- extensive employee entitlements
- restrictive environment protection laws
- extensive consumer and customer rights
- restrictive trade regulations
- lack of government support for business

The Economy
- low availability of venture capital
- low availability of loan capital
- the small size of the domestic market
- competition from foreign-owned companies
- a shortage of skilled employees
- high costs associated with innovation

Business
- lack of information available to business about new technological developments

Table 2 Respondent Companies: Perceived Innovation Level by Type, Size, Age

Innovation Level	*Total*	*Type of Business*		*No. of Employees*		*Company Age*	
		Manufact.	Services	1–20	21+	10+ years	under 10
Total	375	235	129	212	162	248	124
%	100	100	100	100	100	100	100
'High' level	69	50	18	34	35	40	29
%	18	21	14	16	22	16	33
'Medium' level	161	100	58	87	74	120	41
%	43	43	45	41	46	48	33
'Low' level	114	71	39	69	45	82	31
	30	30	30	33	28	33	25
Others/no replies	31	14	14	22	8	6	23
%	8	6	11	10	5	2	19

- inadequate knowledge by business of EU regulations
- lack of market research available to business
- innovation too easily copied by competitors
- reluctance of enterprises to invest in training
- pay-off period for innovation is too long for business
- high risks to individuals being blamed for failure of an innovation

Public Attitudes

- a general tendency among Irish people towards jobs with security rather than entrepreneurial risk-taking
- a general tendency among Irish people to resent successful entrepreneurs
- the way in which the education system influences young people towards getting a job rather than starting a business

The questionnaire also included eight specific incentives to innovation, which also have particular relevance to Irish SMEs. Respondents rated each one on a five-point scale, replies ranging from 'crucial' to 'insignificant'. The following are the items:

Incentives to Innovation

- more tax relief for business to encourage innovation
- reducing employee entitlements to permanency in order to facilitate innovative change
- more targeting of government research expenditure towards export markets
- greater business involvement with 3rd level education institutions in developing new products
- reducing the red-tape involved in getting government grant aid for innovation
- government agencies increasing the amount of financial aid for innovation, by providing for loans to business rather than capital grants
- reducing business's tax collecting activities (VAT, PAYE, PRSI) to provide time and personnel resources for innovation
- more incentives for ordinary people to save, thereby generating more potential capital for innovation

SME Respondent Profile

375 companies completed and returned the questionnaire between May and September 1995. This represents a response rate of 42 per cent, which is a high rate for this kind of research. The views of these companies, therefore, provide an important insight into the barriers to innovation as perceived by the entrepreneurs themselves.

63 per cent of the respondents were manufacturers, 57 per cent employed 1–20 people, and 67 per cent were set up over 10 years ago. Table 1 provides further details of these companies. 80 per cent of the larger companies were manufacturers, compared with 50 per cent of those with 1–20 employees.

Respondents were also asked to describe the level of innovation in their business as 'high', 'medium' or 'low'; first, from start-up to 1992, and second, since then. Those who reported 'high' levels in both periods were classified as 'High' level companies; those who reported 'medium' levels in both periods, or a 'high' in one with a 'medium' in the other, were classified as 'Medium' level companies. Companies less than three years old were excluded from these two categories. Those who reported a

Table 3 **Obstacles to Innovation: Mean Scores, by Respondent Categories**

	Overall	*Type of Business*		*No. of Employees*		*Innovation Level*		
		Manufact.	Services	1–20	21+	'High'	'Medium'	'Low'
High rates of income tax and PRSI	4.15	4.10	4.26	4.16	4.13	4.12	4.28	4.04
High costs associated with innovation	3.89	3.97	3.80	3.96	3.80	4.01	3.81	3.91
Irish tendency towards jobs with security	3.83	3.88	3.75	3.88	3.78	3.77	3.80	3.89
Lack of government support for business	3.82	3.78	3.90	3.98	3.60	3.74	3.92	3.68
Education system influences people to get jobs	3.80	3.86	3.75	3.85	3.75	3.65	3.80	3.91
Small size of the domestic market	3.72	3.78	3.59	3.77	3.66	3.55	3.84	3.77
Low availability of venture capital	3.63	3.56	3.77	3.78	3.43	3.60	3.56	3.64
Low availability of loan capital	3.62	3.58	3.70	3.72	3.49	3.47	3.63	3.61
Pay-off period for innovation is too long	3.52	3.55	3.54	3.56	3.47	3.59	3.49	3.45
Irish tendency to resent successful entrepreneurs	3.47	3.47	3.50	3.55	3.38	3.33	3.49	3.50
Reluctance of enterprises to invest in training	3.34	3.29	3.43	3.33	3.36	3.19	3.38	3.33
Lack of market research available to business	3.31	3.31	3.28	3.35	3.24	3.18	3.35	3.26
High risk to individuals being blamed for failure of an innovation	3.29	3.29	3.33	3.46	3.08	3.35	3.32	3.14
Low level of government R&D expenditure	3.29	3.38	3.08	3.20	3.39	3.46	3.21	3.28
Innovation too easily copied by competitors	3.28	3.35	3.14	3.28	3.28	3.23	3.26	3.26
Extensive employee entitlements	3.16	3.17	3.16	3.26	3.04	3.16	3.26	3.08
Lack of information about new technological developments	3.04	3.14	2.84	3.08	2.99	3.10	3.06	2.98
Competition from foreign-owned companies	3.00	3.10	2.80	2.92	3.09	3.16	3.04	2.92
Inadequate knowledge by business of EU regulations	3.00	3.02	2.97	3.09	2.89	2.82	3.08	3.00
Shortage of skilled employees	2.62	2.71	2.47	2.60	2.64	2.78	2.71	2.49
Restrictive environment protection laws	2.39	2.41	2.32	2.33	2.45	2.38	2.54	2.27
Extensive consumer and customer rights	2.38	2.38	2.39	2.33	2.43	2.18	2.50	2.32
Restrictive trade regulations	2.26	2.21	2.36	2.28	2.22	2.15	2.26	2.30

Scores: 5 (decisive) to 1 (insignificant)

'low' in either period were classified as 'Low' level companies, irrespective of how long they had been in existence. Table 2 indicates 18 per cent of companies with a high level of innovation, 43 per cent at a medium level and 30 per cent with a low level. Some differences were evident among the subgroups; more manufacturers, larger and younger companies reported a high level of innovation.

Research Findings – Barriers

Table 3 presents the main findings. Mean scores were calculated of the replies for each of the 23 obstacles presented to respondents. The Table presents these in descending order of importance. Not surprisingly, nearly all items were considered significant obstacles to innovation, with all but 6 achieving a mean over 3.00 (moderately significant). Furthermore, when analysed by type of company, number of employees and company innovation level, no major differences in these results are evident. The perceptions reported here are those of all types, sizes and innovators.

High rates of income tax and PRSI are identified as by far the most significant obstacles to innovation, with an overall mean rating of 4.15. Altogether, 84 per cent of companies described this item as a decisive or very significant obstacle. This is an important issue for government, which has been identified in many previous reports as hindering many aspects of business activity – a point reinforced by its pre-eminent rating among 22 other important obstacles. However, the subsequent in-depth interviews with government agency officials suggest a sharp disagreement on this point. Officials argued that taxation was not

Table 4 **Incentives to Innovation: Mean Scores by Respondent Category**

	Overall	Type of Business		No. of Employees		Innovation Level		
		Manufact.	Services	1–20	21+	'High'	'Medium'	'Low'
More tax relief for business to encourage innovation	4.45	4.45	4.44	4.50	4.38	4.44	4.50	4.40
Reducing the red tape involved in geting government grant aid for innovation	4.18	4.21	4.14	4.22	4.12	4.12	4.22	4.11
Govt. agencies increasing financial aid for innovation by providing for loans to business rather than capital grants	3.98	3.97	4.02	4.05	3.89	3.87	4.04	3.91
Reducing business's tax-collecting activities (VAT, PAYE, PRSI) to provide time and personnel resources for innovation	3.96	3.90	4.07	4.15	3.72	3.93	4.06	3.79
Greater business involvement with third-level education institutions in developing new products	3.62	3.69	3.54	3.56	3.71	3.58	3.66	3.68
More targeting of government expenditure towards export markets	3.59	3.69	3.41	3.50	3.70	3.85	3.65	3.45
More incentives for ordinary people to save, thereby generating more potential capital for innovation	3.56	3.54	3.65	3.61	3.50	3.75	3.62	3.40
Reducing employee entitlements to permanency in order to facilitate innovative change	3.29	3.40	3.10	3.36	3.19	3.34	3.41	3.10

Scores: 5 (crucial) to 1 (insignificant)

really a factor and that additionally '... a 400 per cent tax allowance already exists for research and development'. Furthermore, they felt that the total tax burden was similar to that of other countries, where the tax system has not prevented higher levels of innovative activity. One stated that '... at least 50 per cent of the tax forgone by the state for innovation projects is not used for innovation purposes'. It was suggested that tax and PRSI might act as a barrier to recruitment and that of course this would discourage SMEs from employing people specifically for innovative activities. They pointed to the 'Techstart' programme which offers assistance on this particular issue; few SMEs seem to be aware of this programme.

The 'high costs associated with innovation' were also considered a very significant obstacle by SMEs, with a mean of 3.89. 71 per cent considered these decisive or very significant. The officials interviewed agreed that SMEs endure very high risks here. One opined that '... the cost of failure in business is too high, people are unlikely to get a second chance, especially if you use someone else's money rather than your own'. Other financial items that ranked highly were the 'low availability of venture capital' and the 'low availability of loan capital'. The ISME report (1994) referred to the need for long-term low-cost finance, rather than grant aid. The officials felt that financiers need to take a more long-term view when lending money to SMEs for innovation projects. Both state and private sector needed to learn more about SMEs; how they operated and what their requirements were. Handouts may not be the answer, but rather the greater availability of appropriate support. The more general item 'lack of government support for business' was also highly rated, with 66 per cent considering it decisive or very significant.

The 'general tendency among Irish people towards jobs with security rather than entrepreneurial risk-taking' was ranked in third place. The aversion to risk and a culture that seeks security are detrimental not only to the growth of innovation, but also to the development of entrepreneurial activity. A comment from one official was that '... in America, it's much easier to get another job. This creates a sense of security; in Ireland ... people make enormous efforts to be secure.' Fifth place was accorded to 'the way in which the education system influences young people towards getting a job rather than starting a business'. The officials agreed that the nation needs to be more willing to take business risks and that the schools have a vital role in promoting enterprise and innovation. As

one respondent said, 'if you want to change a culture you have to start at a young age'. Another said 'the attitude is often already there for enterprise; what we are lacking is the expertise to start enterprise'.

The first of the directly business-related obstacles, the 'pay-off period for innovation is too long', was ranked in ninth place. The relatively low placing of business obstacles may be attributable to the nature of the research, given that in a postal survey, owner/managers, unpressed, may be more likely to apportion blame for their difficulties elsewhere. Officials pointed out that the pay-off period really depended on the type of innovation concerned and the industry sector in which the SME was operating.

At the other end of the scale, legislation and regulations were relatively unimportant items for the SMEs. The 'inadequate knowledge by business of EU regulations', 'restrictive environment protection laws', 'extensive consumer and customer rights', and 'restrictive trade regulations' were among the last six placings. Interestingly, given the amount of attention paid to training by state agencies, 'a shortage of skilled employees' is considered to be less of an issue by the SMEs.

Research Findings – Incentives

SME respondents were also asked for their views about incentives to innovation. Table 4 details the mean scores for each of the eight items. All the items were considered to be very significant ways of encouraging more successful innovation in business, and these views were held consistently among all types, sizes and innovators.

These results were similar to Knight's (1994) findings in Canada, the US and New Zealand. The top-ranked incentive was 'more tax relief for business to encourage innovation' with an overall mean score of 4.45. 90 per cent of companies considered this to be crucial or very significant. In contrast, the senior officials of state support agencies felt that reducing tax would not promote innovation among SMEs, although it would help them recruit extra employees. It was felt that there is a need to simplify the system since the present one is so complicated that '... the SMEs are completely lost and, consequently, don't know what incentives are available'. The notion of targeted tax breaks might be a possible solution but would be difficult to implement since innovation defies unique definition. 'It would be difficult to measure whether the companies that availed of the tax incentives actually produced what the incentive was designed to encourage.'

A high rating was also given by owner/managers to the idea of 'reducing the red-tape involved in getting government grant aid for innovation'. One official said that 'over time, state organisations have become more concerned with efficiency measures, rather than effectiveness measures'. This point has been addressed in the recommendations of the Small Business Task Force.

The concept of 'government agencies ... providing for loans to business rather than capital grants' was also highly rated by SMEs. European trends are consistent with this viewpoint encouraging state agencies towards providing various supports to companies – financial, training, information, advisory – without direct grant aid. However, the officials questioned whether this would encourage innovation. One official said that 'even though SMEs say they want cheap loans, the queues for the grants haven't thinned out'. Another felt that grants are the best option for start-up situations and innovative activity; '... even if it fails, it gives the people involved a feel for what its like to be out there ... grants soften the blow of failure, the person doesn't lose everything'. Finally, 'reducing business's tax collecting activities ...' was also considered a very significant incentive by entrepreneurs. The cost of complying with the tax code is, of course, proportionately much greater for smaller businesses.

Conclusions

The results of the quantitative and qualitative research highlight the polarity of opinion between the public and private sectors on how the government support agencies can best serve their customers – Irish enterprises. The research also highlighted a number of key issues that need to be addressed: reward, the cultural shift to embrace rather than avoid risk, accessing financial support, and a dramatic reduction in administrative tasks. Certainly the agencies believe that more can be done to encourage more successful innovation in SMEs. But the measures required are both long-term and short-term ones, both operational and

attitudinal. Removal of some barriers will require industrial policy decision-makers to formulate programmes to stimulate more successful innovation, while long-term educational and training programmes are essential where the perception, rather than than the fact, constitutes the barrier.

The government support agencies can take a number of immediate measures to promote growth through innovation, including the following.

(i) Taxation system
Since the agencies do not believe in the benefits of tax reduction as such, and suggest great difficulties in implementing targeted tax breaks, efforts should be directed towards simplifying the tax system to make it easier for SME owner/managers to understand and pay their taxes.

(ii) Red tape
There is an immediate need to streamline government agency activities so that the entrepreneur knows clearly what each offers by way of support. The present responsibilities of and services provided by the support agencies are confusing to many outside those agencies.

(iii) Finance
The support agencies should selectively extend their provision of grant aid to innovative activity. This is what the officials believe is required and it makes business sense to the entrepreneur, although the entrepreneurs expressed preference for loans where these would increase the finance available for innovative activity. The agencies should also initiate the promotion of long-term financing by encouraging financial institutions to take a strategic view of the business rather than an operational myopic view.

(iv) Mentoring
Given the suggestion that owner/managers need to learn 'how to innovate', a proactive stance should be taken by the government support agencies. While programmes such as 'Techstart' exist, they may not be publicised in a manner that communicates effectively with entrepreneurs, or may not heed the needs of many owner/managers. A campaign that advertises in the language of the entrepreneur the availability of personnel, training, finance and mentoring to encourage and develop innovative activity must be an immediate priority.

(v) Third-level education
The agencies and the entrepreneurs agree on the need to develop closer links between SMEs and the third-level colleges. These institutions, with their active research base and constant financial needs, could work in tandem with the SMEs, which have some financial base but limited innovative resources. Beyond this, an incentive must be provided by central government to the colleges through increased funding for research.

The main shortcoming of support agencies has been the lack of a coordinated approach. They have often worked independently of one another, frequently confusing those whom they are meant to serve. They are also restricted by political constraints, which they must be allowed to break if they are to serve the country effectively as well as efficiently. But it is not our suggestion that responsibility lies only with the agencies, since the business community must also play its part. It must reflect on its own performance and seek ways to stimulate innovation at project level and at organisational level. But to offer encouragement the agencies should be proactive and positive and, by taking the lead, deal with the difficulties that have been part of the culture for too long. A little inventiveness by the agencies could increase dramatically the levels of innovation in SMEs.

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