

Strategies for  
sustainable growth  
*The Software Industry in Ireland*

October 1997

*putting STRATEGY to WORK*

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The Authors are Tom O'Connor, Paul Murray and Mark Kennedy.

We would like to thank all those companies that participated in this research.

We would like to express our thanks to the International Services Division of Forbairt for their support and assistance with this report. In particular, Declan Murphy, Jennifer Condon and Emer Kelly were of invaluable assistance.

The software industry in Ireland is expected to grow rapidly until the end of the century and beyond. The current success of this industry can be exemplified by the fact that Ireland is currently the second largest exporter of software products and services in the world.

To date the development agencies have made a significant contribution to the overall growth of the industry and Forbairt has a unique interest and role in the development of the indigenous software sector. We hope to build upon the past successes of our client companies and to support further indigenous companies to become global players within this industry.

The challenge facing the industry is to keep a clear strategic focus in a dynamic operating environment. This report "Strategies for sustainable growth" voices the opinions of many companies within this industry and has been compiled in conjunction with Prospectus Strategy Consultants. The report predicts how the industry will grow until the year 2000 and the key issues to be addressed if this growth is to be achieved.

Many software companies are founded on the basis of technical expertise or product innovation. As companies grow however new requirements emerge. Successful growth requires technical expertise to be complemented by skills in areas such as human resource management, strategic planning and strategy implementation as well as a clear knowledge of the market.

The intention of this report is that it will be of use to companies when designing and implementing strategies and for all of us who are involved in the development of this industry.

Dan Flinter  
Chief Executive  
Forbairt  
October 1997

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### Introduction

Ireland is one of only a few countries which leads the rest of the world in the development of software products and services. This study is an investigation into this industry which is expected to grow significantly as we move forward into the new millennium.

### Rationale for the study

The rationale for the study is as follows :

- To understand the key strategic issues facing this growth sector of the economy
- To provide commentary and analysis to assist firms to prepare for future growth

### Why is this study different ?

- To date the industry has not been surveyed to identify what strategic issues it faces as a result of rapid growth
- The report does not look at issues in isolation, instead it assesses all issues within the context of a company's overall strategy
- It contains commentary on growth issues of particular relevance to this industry in areas such as strategy development and implementation and knowledge management

### Research methodology

Questionnaires were sent to a sample of 108 software companies which had operations in Ireland. The sample consisted of a selection of both large and small software companies whose corporate headquarters were located both in Ireland and elsewhere. The companies in the sample were selected as they were considered to satisfy the following criteria :

- Have experienced or have the potential to experience rapid growth
- Involved in value added activities

### Respondents

This report has been compiled using the results of the analysis of the returns of the 59 companies which participated in the research, which was conducted during the summer of 1997. The respondents represent a significant share of the software companies in Ireland.

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## Major findings and recommendations

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The vast majority of the companies were involved in applications software development, with some coming from the multimedia, telecommunications and localisation sub-sectors, amongst others. It is impossible to estimate the proportion of these sectors which are represented in this survey, as many companies span several sub-sectors.

A profile of the respondents is given below:

Position of respondent	% of sample
Managing Director / CEO	70
Director / General Manager	20
Senior Manager	8
Other	2
Total	100
Location of Corporate Headquarters	% of sample
USA	10
Germany	2
Ireland	76
Scandinavia	2
UK	10
Total	100
No. of employees at end of 1996	% of sample
1-10	14
11-20	9
21-50	37
51-80	10
Over 80	30
Total	100
Turnover in 1996	% of sample
less than £200,000	12
£200,000 - £500,000	7
£500,000 - £1million	12
£1million - £5million	37
Over £5 million	27
Did not answer	5
Total	100

## About Prospectus

Prospectus is an independent strategic consultancy established in 1991 with substantial international reach. The company provides consulting and research services across a range of industries. Prospectus has worked in the following sectors : information technology, financial services, public sector, healthcare, utilities and manufacturing.

Prospectus bridges the gap between strategy development and implementation and specialises in putting strategy to work. The company brings an extensive range of specialist skills, in-depth industry knowledge, and international experience to our clients, helping them to :

- Identify areas of opportunity
- Develop plans to exploit these opportunities
- Put these into practice

Our approach to consultancy differs from that of many of our competitors. By working very closely with our clients, we achieve tangible and realisable results.

## Relevant experience

- Strategy development
- Industry, customer, supplier and competitor research
- Market and customer segmentation
- Market entry
- Organisational redesign
- Benchmarking
- Human resource management
- Strategic assessments
- Process improvement
- Strategic management

Prospectus is part of a large international alliance of strategic consultants, covering Europe, North America and Asia, a dynamic alliance committed to sharing knowledge, experience and skills for the benefit of all our clients.

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## Major findings and recommendations

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# Major findings and recommendations

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## Introduction

The purpose of this section of the report is :

- To highlight some of the key findings of the survey
- To put forward recommendations for individual companies and the industry in general based on these findings
- To identify, in our opinion, the strategic priorities for the industry

## Findings

### *Growth*

The rapid level of growth experienced by the software industry in Ireland over recent years is set to continue over the next three years. Indigenous firms in particular are very confident about increasing employment and turnover - almost 25% of Irish firms surveyed expect the numbers they employ to increase by over 100% in the next three years.

### *Strategies for Growth*

The strategies which firms intend to adopt to meet these aggressive growth predictions vary depending on the size of the company. Overall, the most popular strategy will be to expand internationally. 90% of indigenous firms intend to enter new foreign markets over the next 3 years. A significant finding of this research is that the USA is set to become as important as the U.K. as a market for Irish software firms, with other regions such as Asia and Australia likely to increase in importance.

### *Barriers to Growth*

The inability of firms to attract and retain suitably skilled staff is the most significant barrier facing the software industry in Ireland. Over 65% of respondents indicated this was the most significant internal barrier to growth. The most significant barrier facing firms attempting to increase their international activities also differs depending on the size of the respondent firm. Smaller firms indicated that a lack of finance and an inability to access suitable distribution channels were the most significant barriers inhibiting international growth while larger firms indicated that a lack of suitably skilled staff and scarce management time were the biggest barriers they faced.

### *Finance*

The software sector will increase its reliance on external sources of finance over the next three years. Venture capital companies, private investors, state support and BES schemes

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## Major findings and recommendations

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will all be relied upon by most firms. In addition, the confidence of the industry can be gauged by the surprisingly high number of firms considering a stock exchange listing as a future source of finance.

### *Organisational Effectiveness*

There are a number of areas where firms could improve their performance. Given the attention that the 'skills issue' has received over the past number of years - a surprising finding was how weak firms considered themselves at Human Resource Management. Another area that respondents felt they could improve was their ability to put strategy into action.

Given the extraordinarily high growth rates envisaged by many companies and the rapid rate of change in the industry, there is a critical need for all companies, but young companies in particular, to develop and maintain a strong strategic approach to their planning and operations.

### *Marketing*

A surprising number of firms do not carry out any customer research - thereby leaving themselves vulnerable to new or existing competitors who can better capture the needs of their customer base. Many software start-ups are very product focused, and, after initial success can neglect to undertake research on the market, their customer requirements, or customer opinions of them. It is essential to listen continuously to customer's preferences, and the preferences of your competitor's customers, in order to improve service quality, since quality is ultimately defined by customers' perceptions.

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## Major findings and recommendations

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### Recommendations

#### *Strategies for sustainable growth*

As the level of competition intensifies over the coming decade, it will be more and more important to define a strategic course for each firm. Summarised below are some of the issues and trends facing software firms of differing sizes, and some suggested strategies and actions to face these challenges :

Size	Issues / Trends	Strategies / Actions
Small ( < 20 staff)	<i>Inadequate finance - seeking support from venture capitalists and private industry</i>	<ul style="list-style-type: none"> <li>Emerging growth companies need to ensure that their funding strategy is well planned and professionally executed if they are to maximise the opportunities available. Plan now to develop the strategies and business plans that are needed to attract investors</li> </ul>
	<i>Breaking into new foreign markets</i>	<ul style="list-style-type: none"> <li>Foreign markets are often very costly to break into. Smaller firms should consolidate their position in existing markets before considering entering foreign markets. Joint ventures and strategic alliances are potential lower risk options to consider</li> </ul>
	<i>Strategies for sustainable growth</i>	<ul style="list-style-type: none"> <li>Smaller firms typically should adopt either a niche, low-cost or opportunity based strategy to maximise growth potential from existing capabilities and capacity</li> </ul>
Medium (21-50 staff)	<i>Recruiting suitably qualified staff</i>	<ul style="list-style-type: none"> <li>Consider hiring staff from non-traditional backgrounds and seek to build skills 'on-the-job'</li> <li>Build links with colleges / universities through sponsorships or student work placements, etc.</li> <li>Concentrate on creating the conditions that ensure existing staff will not leave and can act as recruiting ambassadors for the company</li> </ul>
	<i>Growth through developing new products</i>	<ul style="list-style-type: none"> <li>As competition increases, customers will become more discerning. Companies can shape this to their advantage by building the customer into their product development cycle</li> </ul>

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## Major findings and recommendations

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Size	Issues / Trends	Strategies / Actions
	<i>Strategies for sustainable growth</i>	<ul style="list-style-type: none"> <li>• Medium sized software companies are best suited to a strategy based on quality that differentiates their offering from that of their competitors and extracts a higher price as a result. The truly successful companies will be those that can develop and implement a visionary strategy that involves building capabilities and structures around an informed future view of the industry and their positions in it</li> </ul>
Large (> 50 staff)	<i>Stock Exchange funding sought</i>	<ul style="list-style-type: none"> <li>• A significant percentage of firms envisage going public over the next 3-5 years</li> <li>• Companies that envisage an initial public offering should put the necessary board and management structures in place and set up a project team to prepare for flotation.</li> </ul>
	<i>Strategies for sustainable growth</i>	<ul style="list-style-type: none"> <li>• Firms that have reached critical mass are often faced with difficult choices as to how to grow the business in the future. An alliance-based strategy, that seeks to build domestic and international turnover through strategic alliances is often a suitable method for these sized firms</li> </ul>

### *Investing in software companies*

Companies offering financial support to software firms should make a firm's ability in human resource management a critical criterion for funding eligibility. The most significant risk to the success of many individual firms will be their ability to attract and retain key people. It therefore needs to be considered as a factor when selecting suitable firms for grant-aid or investment.

From a company perspective, growth requires increased funding. Our research indicated that firms will tend to use more external sources of finance in the future. There have been many cases in the recent past where funding has been delayed as a result of companies not having the adequate structures in place to fulfil the due diligence requirements of investors. Those companies that hope to avail of investment from BES funds, corporate investors,

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## Major findings and recommendations

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state agencies or banks should inform themselves of what they need to do to make themselves suitable for investment.

Anecdotal evidence suggests that software firms in the USA produce far superior business plans than their Irish counterparts, but that the quality of people running software firms is much higher in Ireland. This would suggest that Irish firms may be losing out from a lack of a planned, professional approach to strategy and business planning.

### *Industry segmentation*

The software industry is a lot more complex than any other industry in terms of what it encompasses, yet it is still frequently treated as a uniform block. One does not usually hear uniform delight or complaints from all sectors of the agricultural community, for example, because the success of the industry may differ wildly across different sectors (cereals, dairy, beef etc.). In addition, the fact that many companies cross sub-sectors further confuses the issue. The industry or government should develop a more accurate approach to industry segmentation, so that the needs of the industry can be judged, and responded to, on a more accurate sector by sector basis.

### *Organisation structures*

One of the greatest difficulties any growing firm faces is how the organisation should be structured. This is an issue that causes particular difficulty for software firms as growing companies can tend to over-formalise their structures and processes. This can often inhibit innovation which, in turn, may lead to frustration amongst staff. There is no 'correct' structure for organisations - what is paramount is that it must be flexible and capable of supporting a growing organisation.

Defining an organisation structure should not be an administrative task, as it is an opportunity to shape the culture and future of the organisation. Companies that have recently experienced growth should examine their structures to ensure that innovation is promoted and not stifled by how they are organised.

### *Human resource management*

We would recommend that all firms within the software industry should critically assess their ability in Human Resource Management (HRM). What are the five critical HR issues facing the company? How would the company react to the loss of a number of key staff members? Software firms need to go beyond traditional approaches to personnel management, and develop an integrated and innovative approach to knowledge and human resource management in line with their strategy. Owner-managers in particular, must be encouraged to cut the umbilical chord of ownership and control to involve their staff, listen to their needs, and develop policies that will ensure that their company is more attractive for a new recruit, and for existing staff, than another one.

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## Major findings and recommendations

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### *Management development*

The rapid expansion plans of the software industry will depend on the availability of able managers. Educationalists should explore the needs of the industry with representative firms so that our colleges and universities produce graduates that are not just technically proficient, but also have the managerial skills necessary to run a business. For example, a course combining computer science and business studies could be offered to help produce managers for the software industry.

### *A software forum*

To critically assess the needs of the industry on an ongoing basis, we recommend that establishing a software forum be considered. This forum should include representatives of small, medium and large indigenous and overseas-based software firms, banks and venture capital companies, state agencies, educationalists and other private sector 'experts'. The function of this forum would be to develop an integrated response to the strategic issues facing the industry, such as those raised by this report.

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## Major findings and recommendations

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### The Prospectus view

#### *The growth paradox*

Rarely a week goes by without some announcement being made by Forbairt or the I.D.A. about further jobs in the software sector. Growth, paradoxically, can often lead to greater problems than lack of growth. Increased growth increases funding requirements, puts pressure on organisation and reporting structures and obviously creates the need for additional staff.

#### *The strategic position of the industry*

#### *Confidence throughout - over-confidence perhaps ?*

On the evidence of this report, there is little reason to be fearful for the future of the software industry in Ireland. Indigenous firms in particular, are confident about their future. Perhaps the industry is slightly over-confident, as the rates of growth it is predicting for itself would be unprecedented historically. To a large extent however, much of the indigenous industry is dependent on the success of the economy as a whole. As the economy booms, spending on I.T. and software increases. However, as companies increase their international activities, as they intend to do, this reliance will decrease. Many of our largest software companies could be described as 'non-national' in that they are virtually independent of the economic progress of any particular country.

#### *Interdependence of software companies*

One trait of the software industry that is often overlooked is the degree of interdependence between software firms for success. Many software companies depend on the sales of other companies for success; for example, firms specialising in translation or training depend on the sales and success of other firms, and the industry in general for their growth. This means that a shock to this sector would have a much larger detrimental effect than a shock to any other industry. On the positive side, however, as long as the economy remains buoyant, growth will probably increase.

#### *Skills availability*

The skills shortage has received much media comment over the past year, but it is not confined to the software industry. It is a sign of how important the software industry has become that the issue receives such attention. Software firms in the USA went through a type of 'revolving-door' staff turnover problem in the past decade, but have reacted by measuring the attitudes of their employees and introducing incentives and changing work practices to make their company more attractive to work for.

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## Major findings and recommendations

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The issue, we feel, is not just a shortage of skills, but an inability to make best use of those available. Instead of looking for software graduates, the industry needs to develop in-house training courses or perhaps an external industry-type qualification, such as those available to bankers and accountants. Indeed it is worth remembering that accountants are not produced by colleges - they are trained by firms during their initial 3-4 years. Perhaps software firms should seek to develop staff in a similar way. Many firms contribute themselves to the 'skills shortage' by neglecting Human Resource Management, or ignoring the importance of managing and leveraging a company's intellectual capital.

### *Where to now - strategic priorities*

#### *Prolonging life cycles*

The life cycles of software firms have been shown to resemble those of traditional manufacturing firms - a critical difference being that the 'maturity' phase is often a lot shorter for a software company. To circumvent this life cycle, software companies must seek ways to continually re-invent themselves, so that just as an 'old' version of the company is on the decline, a new model is emerging. To enable this to happen, companies, particularly those intent on receiving external funding, need to define and implement a strategy for the future. This should then inform their internal structures and processes, and create a plan for future action.

#### *Measuring performance*

The performance of the company should then be measured in a balanced (i.e. not solely based on financial measures) way. Strategic objectives are achieved by a combination of factors, including HRM, finance, customer satisfaction, sales and marketing and processes amongst others. For emerging software companies, the importance of developing an integrated approach to performance measurement cannot be over-emphasised.

#### *Internal improvements*

For individual firms, our view would be that a priority must be to examine their approaches to human resource and knowledge management within the context of their overall strategy. Another area which firms need to improve on is their ability to instil the voice of the customer into everything they do. Although the industry has moved on from the days of unreadable technical manuals, it still has a long way to go in the area of customer-friendly service.

#### *The future is bright*

The future is bright for the software industry in Ireland. However complacency is not an option. Competition is increasing - for staff and for customers. The key to future success for software firms is in identifying and developing core competencies and selecting

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## Major findings and recommendations

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strategies that will leverage these capabilities to best effect. There is room for further growth, but only those companies that build their competencies, select their strategies and become kings of customer service will be sure of success in the face of the savage competition that is bound to envelop the industry in the near future.

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## Major findings and recommendations

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## Growth and its implications

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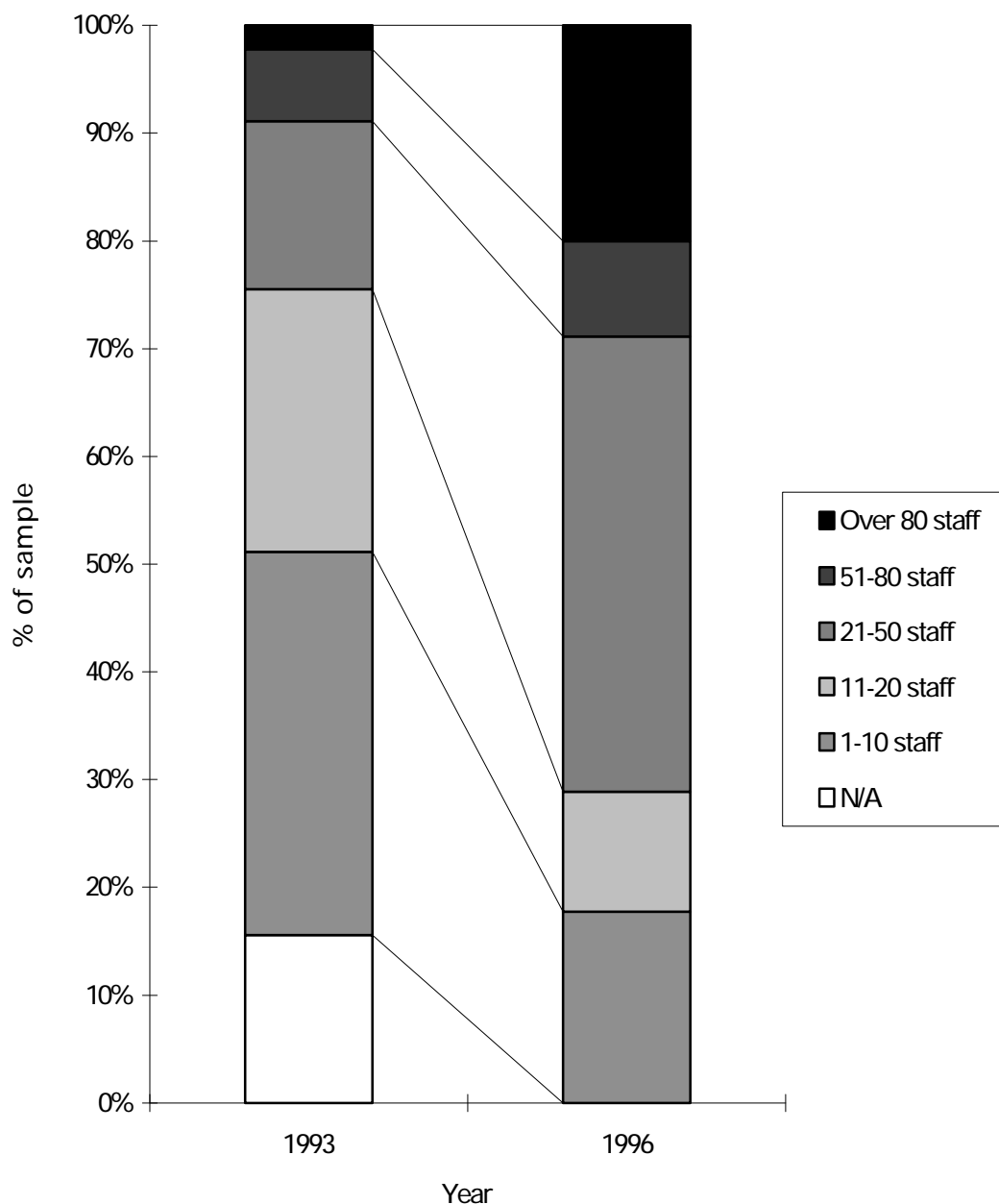
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## Growth and its implications

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Figure 1 - Growth in indigenous employment between 1993 and 1996



Question 1A. How many people did your company employ at the end of 1993 and at the end of 1996 ?

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## Growth and its implications

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Employment and turnover in the software industry in Ireland have increased significantly over the last three years. In addition the average scale of companies is increasing.

From this survey it was found:

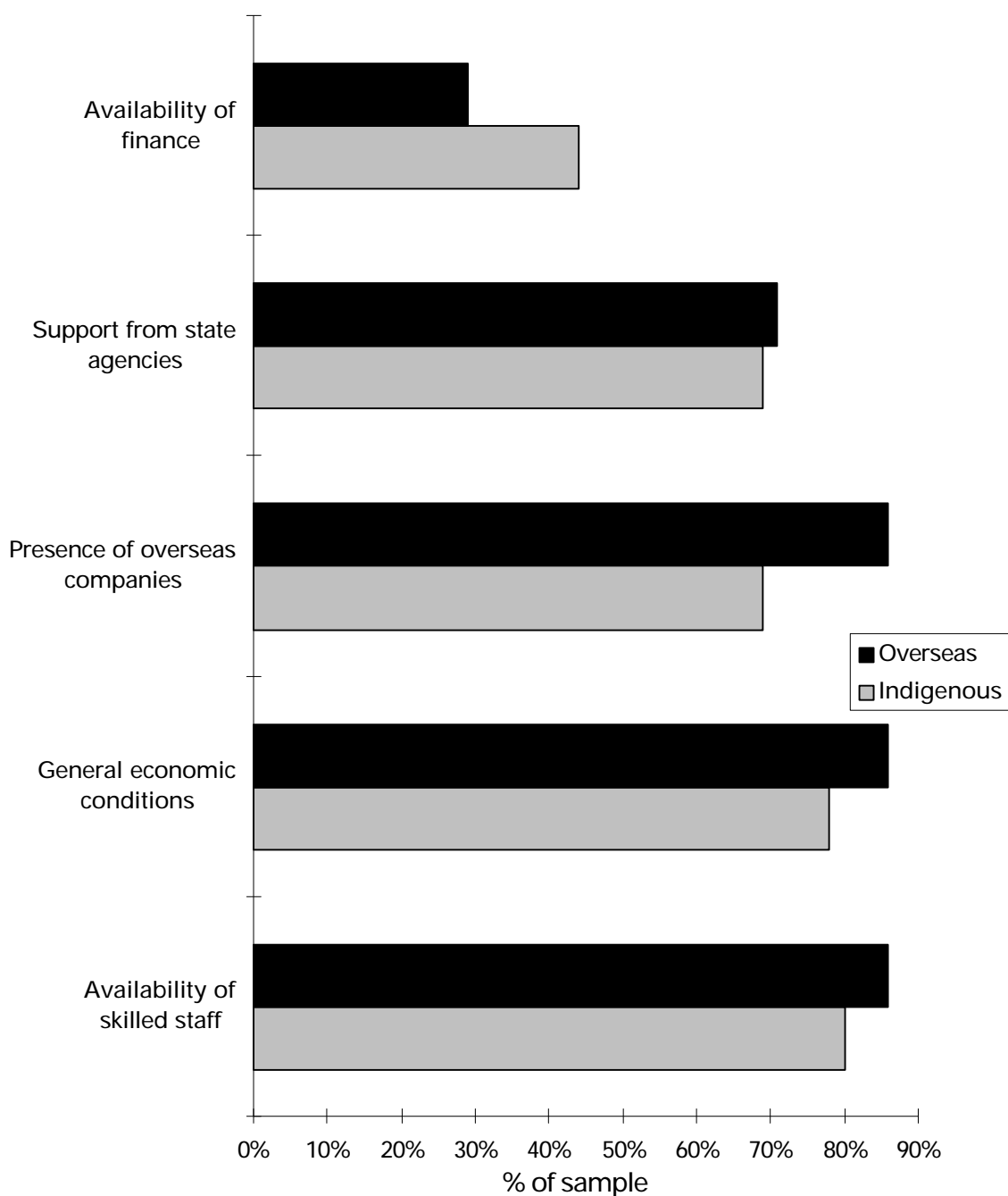
- At the end of 1996 almost 30% of indigenous software companies had over 50 employees, up from under 10% at the end of 1993.
- Of the respondents, 60% of indigenous firms had less than 20 employees in 1993, whereas at the end of 1996 this figure had dropped to 18%.
- At the end of 1993 only 7% of organisations had a turnover in excess of £5m, by the end of 1996 this figure had risen to 27%.
- Our research also found that the turnover of Irish firms has substantially increased over the past 3 years. At the end of 1993, 47% of companies had a turnover of less than £0.5 million, by the end of 1996, 57% of firms had a turnover of over £1 million.

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## Growth and its implications

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Figure 2 - Reasons for growth of the software industry in Ireland



Question 1B. In your opinion, which of the following factors have caused the industry in Ireland to grow so rapidly in the last ten years ?

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## Growth and its implications

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The availability of skilled staff was identified as the most significant reason behind the rapid growth of the software industry in Ireland.

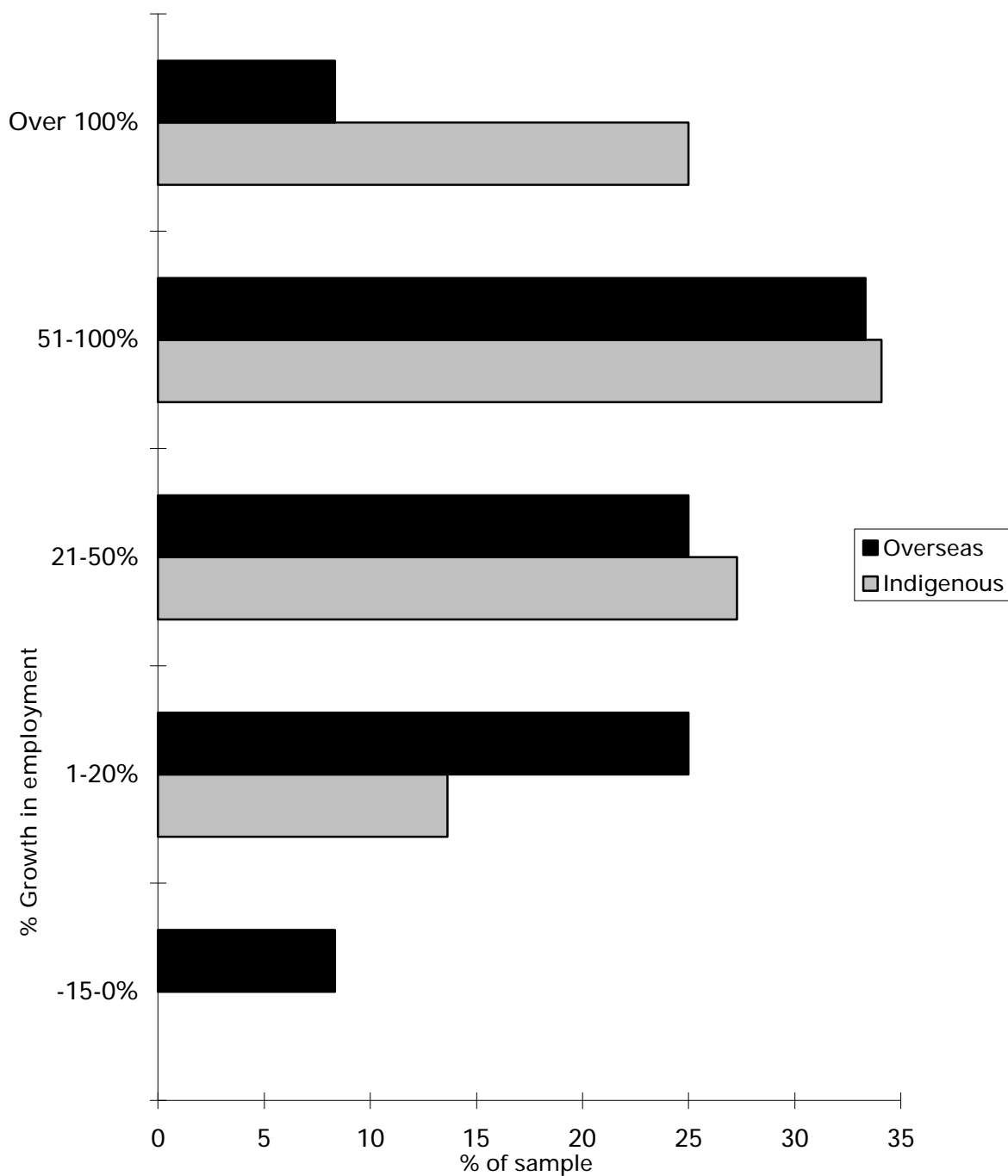
- The general positive economic climate and the presence of overseas companies in Ireland were identified as the next most significant reasons why the industry in Ireland has flourished.
- Despite the fact that some commentators have speculated that the presence of overseas companies has inhibited the growth of the indigenous industry, no such conclusion can be drawn from our research. In fact, the opposite was the case, with firms citing the presence of overseas companies as a growth facilitator.
- There was general recognition of the positive contribution that state agencies, such as Forbairt, ABT, and the IDA had made in facilitating the growth of the industry.
- The historically perceived poor relationship between the software sector and financial institutions may no longer be well founded. Almost 40% of respondents identified that the availability of finance had been a positive factor enabling the industry to grow.
- Even though foreign-based companies were more inclined to identify the presence of other overseas companies as an enabler of growth, the indigenous sector should not underestimate the role these firms have played. Many Irish start-ups in the software industry have gained their experience and expertise with the overseas companies (such as Apple or Digital) that blazed a trail into Ireland in the 1980s. Credit is due to the IDA and other Government agencies for creating a strong industrial base through the implementation of innovative industrial policies.

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## Growth and its implications

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Figure 3 - Future growth predictions of employment in indigenous companies



Question 1F. What do you predict will be the percentage change in staffing levels in your organisation over the next three years ?

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## Growth and its implications

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The rapid growth experienced by the software industry in recent times is predicted to accelerate, especially for indigenous firms who are more confident about future increases in employment and turnover than foreign-based firms.

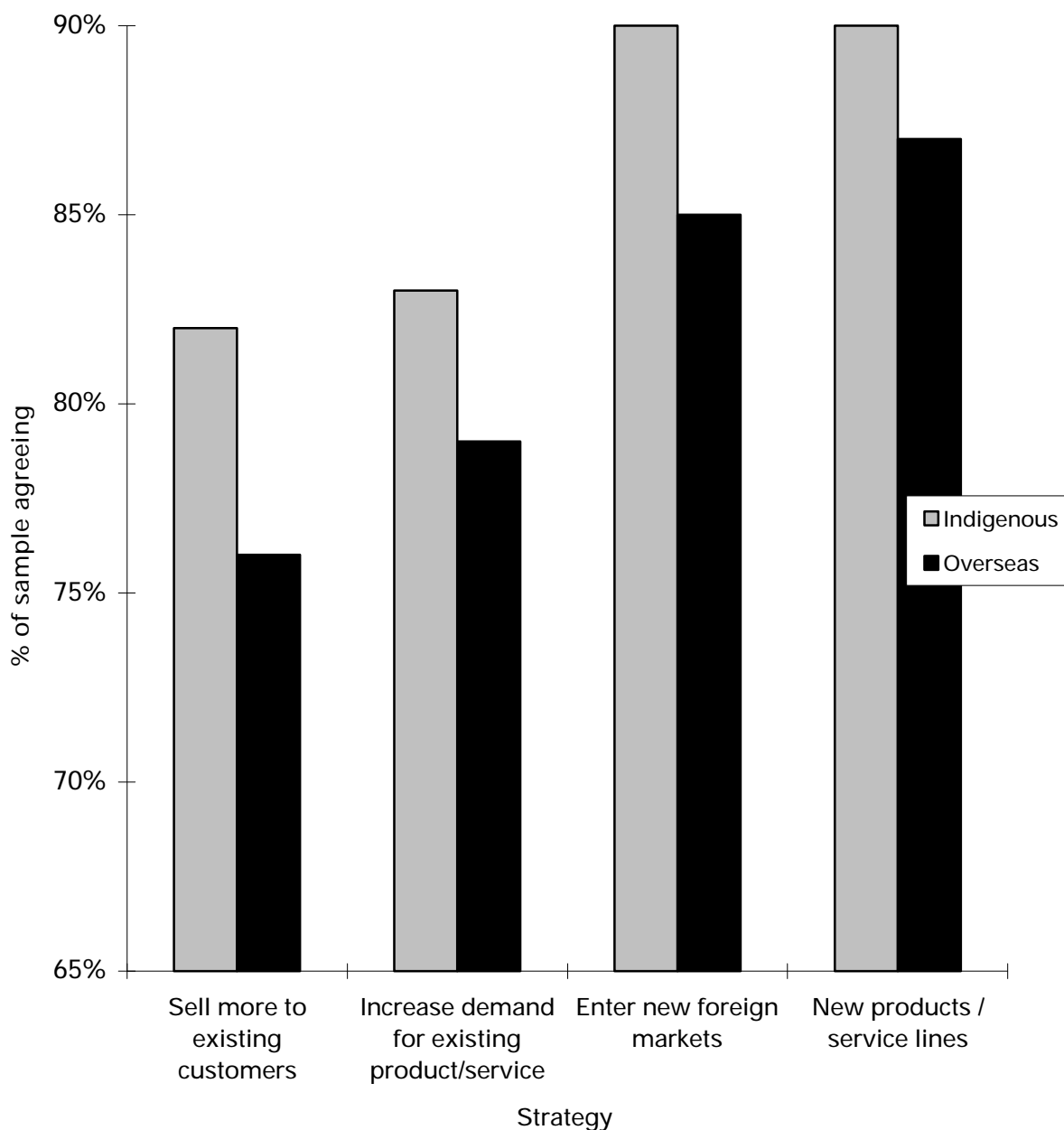
- All indigenous firms expect that the number of staff they employ will increase by the year 2000. The most significant growth in employment is expected to be experienced by indigenous firms which employ less than twenty people. Within this category 43% of companies expect employment in their firm to grow by more than 100% by the end of the century. This highlights the need to recognise the life cycle characteristics of companies and the corresponding issues that they need to address as they grow.
- Almost 25% of all indigenous companies believe that the number of persons employed will increase by more than 100% by the year 2000. This level of growth is probably unprecedented and unparalleled in any other industrial sector in Ireland.
- Almost one-third of overseas companies expect that employment within their company will increase by between 21-50% by the end of the century.
- Our research also found that firms were equally bullish when it came to predicting increases in their turnover over the next three years. All companies expect their turnover to increase in this time period, while 53% of indigenous companies believe that their turnover will increase by over 100% by the year 2000.
- The growth in employment and turnover being predicted by respondents is phenomenal, and has and will continue to lead to software displacing some of Ireland's more traditional industries in terms of its contribution to overall GNP.

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## Growth and its implications

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Figure 4 - Strategies for future growth



Question 1C. Which of the following strategies will be used by your company to achieve growth over the next three years ?

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## Growth and its implications

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Predicted growth will come primarily from developing new products/service lines or entering new foreign markets.

When the results are analysed in more depth, some interesting findings arise:

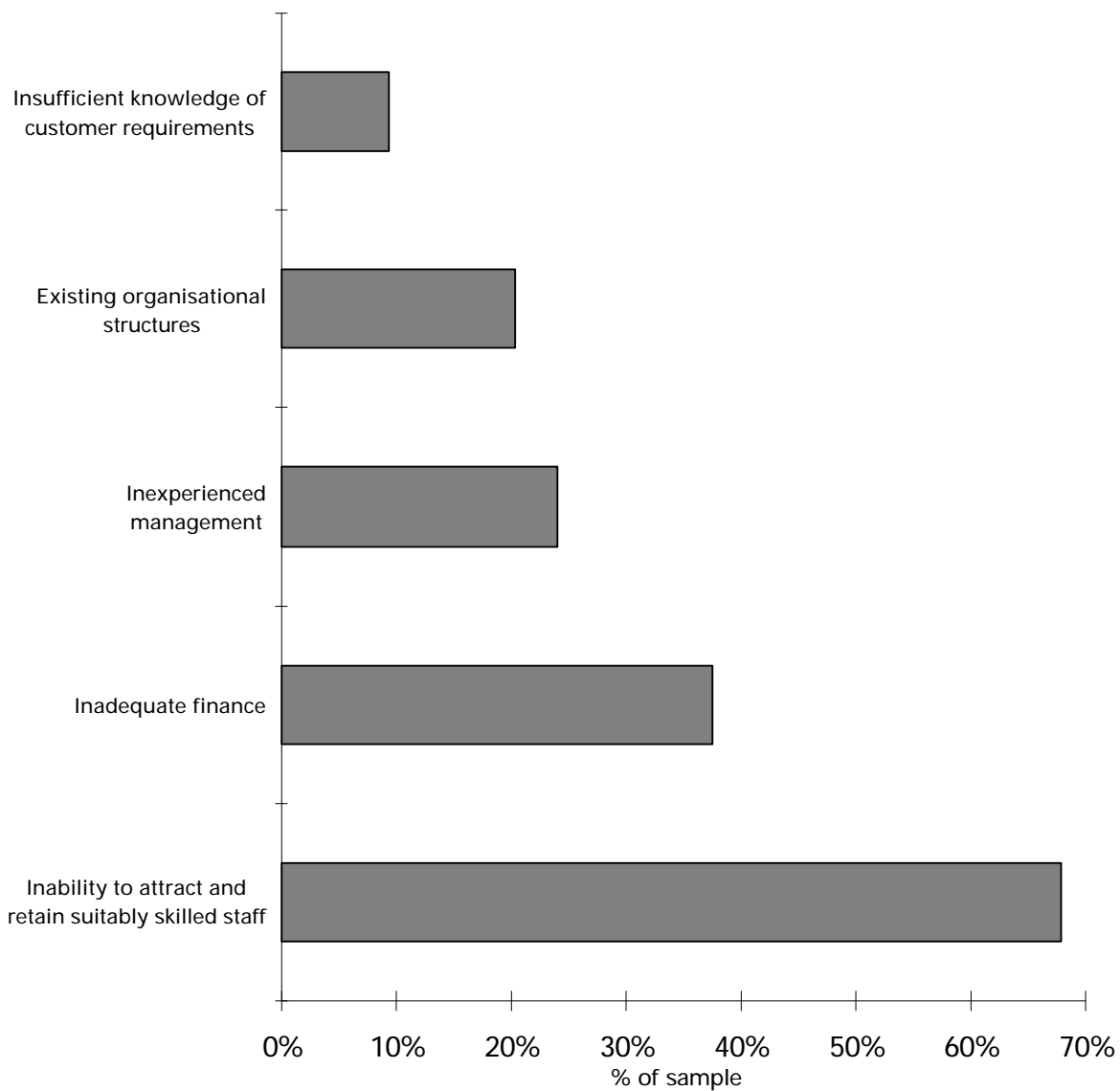
- Irish firms employing less than 20 people are most intent on breaking into new foreign markets. This is an important factor to recognise in shaping support to build new export business. Medium-sized Irish firms place more emphasis on selling more to existing customers, while the largest Irish firms are set to focus on new products or service lines as their primary vehicle for achieving future growth.
- Foreign-based firms placed greater emphasis on selling more to existing clients than indigenous firms did. Selling products to all potential customers within existing markets should be an important growth strategy. When it is considered that entering new foreign markets can be very expensive, depending on the method of entry chosen, exhausting existing market opportunities may be a more appropriate strategy, particularly for small software firms, than embarking on expensive new marketing programmes.
- Software firms intent on selling more to existing customers should follow the customer segmentation route successfully adopted by many financial services firms. Customers are rarely equally profitable, so they should rarely be treated equally. A strategy based on selling more to existing customers also depends on an ability to identify the needs and interests of existing customers and developing complementary products or services to augment those currently on offer. This does not necessarily depend on new product development, but can be achieved through strategic alliances, licensing agreements or offering additional add-on services such as consulting, training or technical advice.
- Ireland's largest indigenous firms see selling new products / service lines as their primary growth strategy. As companies get larger, the ability to innovate can get more difficult. Companies need to ensure that their structures and processes remain suitable for innovation. The acid test for most firms involved in applications software development should be to consider whether the original product or idea on which the company was founded could be originated by the company in its current format ! That is, given the current size, structures or culture of the company, could the original idea on which the company was founded develop or be put into production as efficiently or effectively as it was originally ?

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## Growth and its implications

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Figure 5 - Internal barriers to growth



Question1D. Which of the following are significant internal barriers to achieving growth over the next three years ?

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## Growth and its implications

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The ever increasing demand for quality employees may mean that demand may soon outstrip supply.

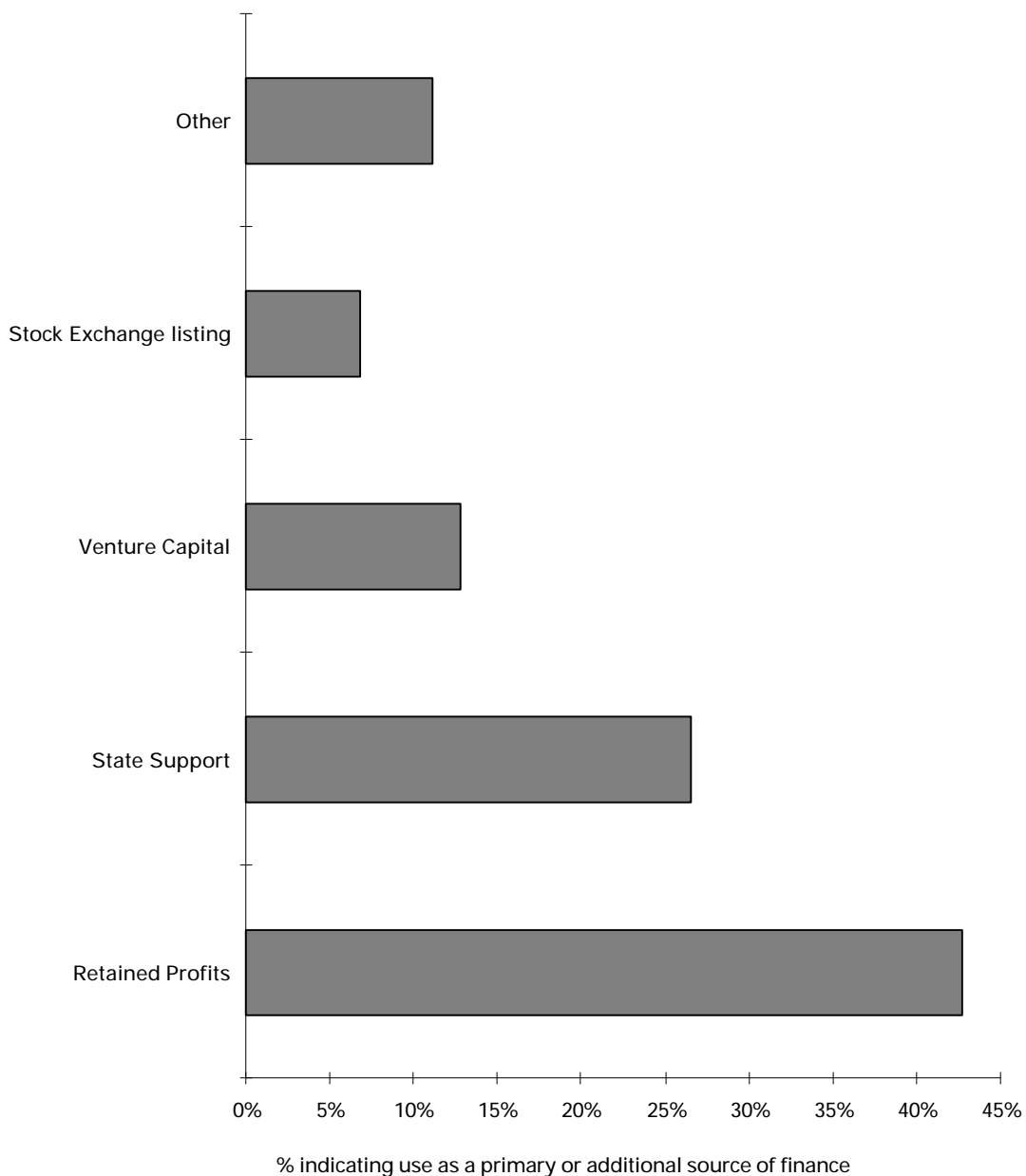
- The biggest internal barrier identified which may hinder the growth of the software industry over the next three years is the inability of firms to attract and retain key personnel. Indeed, it was the only significant barrier which firms employing between 21 - 50 persons believed they would face over the next three years.
- When the responses were analysed by size of company, some interesting trends emerged. Indigenous firms employing less than 20 people identified inadequate finance as their main barrier to growth. As company size increased, so too did the significance of the skills shortage, existing organisational structures and, surprisingly, inexperienced management as barriers to growth.
- Much of the attention on this industry to date has been on the ability of firms to attract new recruits. However, less attention has generally been paid to the opposite side of the coin - the ability of firms to retain key staff. This issue would be particularly relevant for smaller firms, where losing a staff member, particularly one with a great deal of the company's intellectual capital, would impact the company's growth prospects more significantly than an inability to attract new people.
- Indigenous firms employing more than 50 persons indicated that existing organisation structures may be a barrier to growth over the next three years. This is probably an indication that companies that have experienced rapid growth don't have enough directors to increase or maintain the same rate of growth, or that current business processes do not have the sufficient flexibility to help achieve rapid growth.
- One consequence of experiencing rapid growth is that often the organisational structure suffers as a result. Almost 75% of companies which currently employ more than 50 employees employed less than 50 employees three years ago. The organisational structures of these firms may be straining under the weight of so many new employees.
- Very few firms saw insufficient knowledge of customer requirements as a possible barrier to growth. Whilst at one level this is very re-assuring, firms must be aware that customer expectations and requirements change continuously, with the advent of new technologies, products and competitors. Customer requirements and customer feedback should be continuously monitored as part of a company's relationship management effort.

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## Growth and its implications

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Figure 6 - Sources of finance for indigenous software companies



Question 1E. What sources of finance will your organisation use over the next three years?  
(See Appendix 1 for further information)

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## Growth and its implications

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Retained profits will continue to be the primary source of finance for all firms in the near future, but the number of firms seeking a stock exchange listing is set to rapidly increase over the near future. State support was considered to be the most important additional source of finance for indigenous firms, regardless of their size.

- It appears that the relationship between private investors, venture capitalists and software firms is set to become closer over the next three years. Almost one third of software firms employing less than twenty people will look to venture capitalists to help them fund their expansion.
- The importance of state funding to this sector cannot be over emphasised as all software companies irrespective of their size deemed state support as critical to their future growth.
- Confidence within the software sector is high, 12% of firms employing more than 50 employees envisage a stock exchange listing as being their primary source of finance by the year 2000.
- Predictions suggest that approximately one Irish software company a year will obtain a stock exchange listing. It appears that the industry is well on course to beat that target. The recent success of companies such as CBT and Iona Technologies has guided the way for other indigenous software companies. Following such a course in itself brings heavy additional costs such as legal and corporate finance fees. However, the greatest risks and burdens approaching a stock exchange listing is 'getting the house in order' - that is, putting in place the organisational structures along with the supporting board and management processes to implement the strategic and marketing plans necessary to convince finance houses and investors that the company being floated is a worthwhile investment.
- Israel's software industry is often compared to Ireland's due to a number of similarities. However, one major difference is that on average two software firms in Israel go public each week!
- If companies achieve the high rates of growth they predict, they will require substantially greater levels of funding than before. Given that many financial institutions in Ireland have only recently begun to realise the attractiveness of this sector, software companies may experience difficulties in obtaining finance in the short run. Companies should prepare themselves for this by improving their assessment of funding requirements over the medium term, identifying possible sources of finance and putting in place an ongoing plan to obtain funding from these sources.

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## Growth and its implications

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## International activities

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## International activities

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*Question 2D. What has been the most successful method for introducing your company into foreign markets ?* - It should be noted that this section refers only to indigenous companies.

- Other includes - acquisitions, client management, direct mail, licensing and via the internet.
- Not applicable - means that these companies were not involved in international activities.

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## International activities

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Direct selling was the most successful method of introducing a company's product into a foreign market.

- The most successful method of introducing a company into a foreign market appears to be influenced by a company's size.

Using foreign representatives was the most successful method of introduction into foreign markets for firms employing less than 20 employees.

- Smaller firms constrained by their size and their international experience favour using foreign representatives to access foreign markets. However, only 16% of firms employing more than 50 employees identified this form of market entry as being the most successful. Therefore, it appears that the importance of foreign representatives to a firm appears to diminish as the firm grows larger.

Setting up a foreign subsidiary was the most successful method of market entry for 33% of firms employing more than 50 employees.

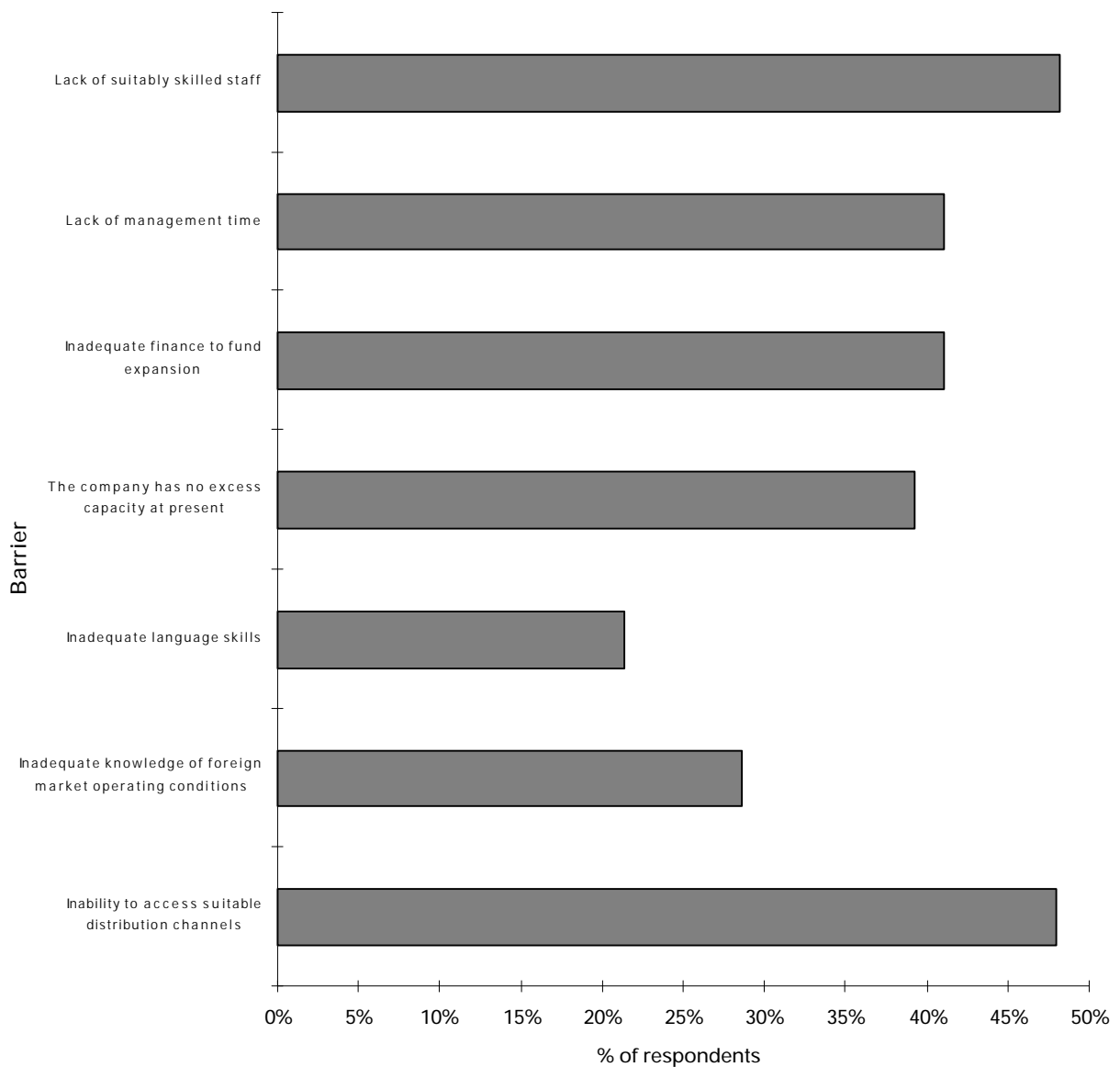
- Setting up a foreign subsidiary signifies the deepest commitment that a firm can give to a foreign market. One third of the largest indigenous firms have sufficient international experience to enable them to identify that this market entry strategy is the most successful.
- The ability of software firms in Ireland to access foreign markets from Ireland bodes well for the future growth prospects of the industry, particularly as the internet becomes more popular among end-users of products as a means of doing business.

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## International activities

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Figure 9 - Barriers to increasing internationalisation



*Question 2E. Which of the following do you consider to be significant barriers which prevent your company from increasing international activities? (See Appendix 2 for further information)*

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## International activities

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The lack of suitably skilled staff and an inability to access suitable distribution channels are the main barriers identified by respondents as preventing them increasing their international activities. However, the significance of various barriers differed depending on the company size.

Access to suitable distribution channels was the primary barrier preventing indigenous firms with less than 50 employees from increasing their international activities.

- When it is considered how significant international activities will be to the growth strategies of the software industry in Ireland, it will be of critical importance for smaller indigenous companies to gain access to distribution channels in foreign markets to enable them become the large companies of tomorrow.

Lack of management time was the primary barrier for indigenous firms employing less than 20 employees and more than 50 employees.

- Management time was cited as being one of the most important reasons for small firms not being able to successfully plan and implement growth strategies. In the software industry, where product life-cycles are frequently short, it is critically important to be able to prioritise activities to ensure best use of time.

Inadequate finance was the primary barrier identified by the smallest indigenous software firms.

Listed below is a summary of the primary and secondary barriers identified by respondent firms by size:

Rank	Indigenous < 20 employees	Indigenous between 21 and 50 employees	Indigenous > 50 employees	Overseas firms
1 <sup>st</sup>	Inadequate finance	Inability to access suitable distribution channels	Inadequate management time	Lack of suitably skilled staff
2 <sup>nd</sup>	Inability to access suitable distribution channels	Inadequate knowledge of foreign market operating conditions	Lack of suitably skilled staff	Company has no excess capacity

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## International activities

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## Organisational effectiveness

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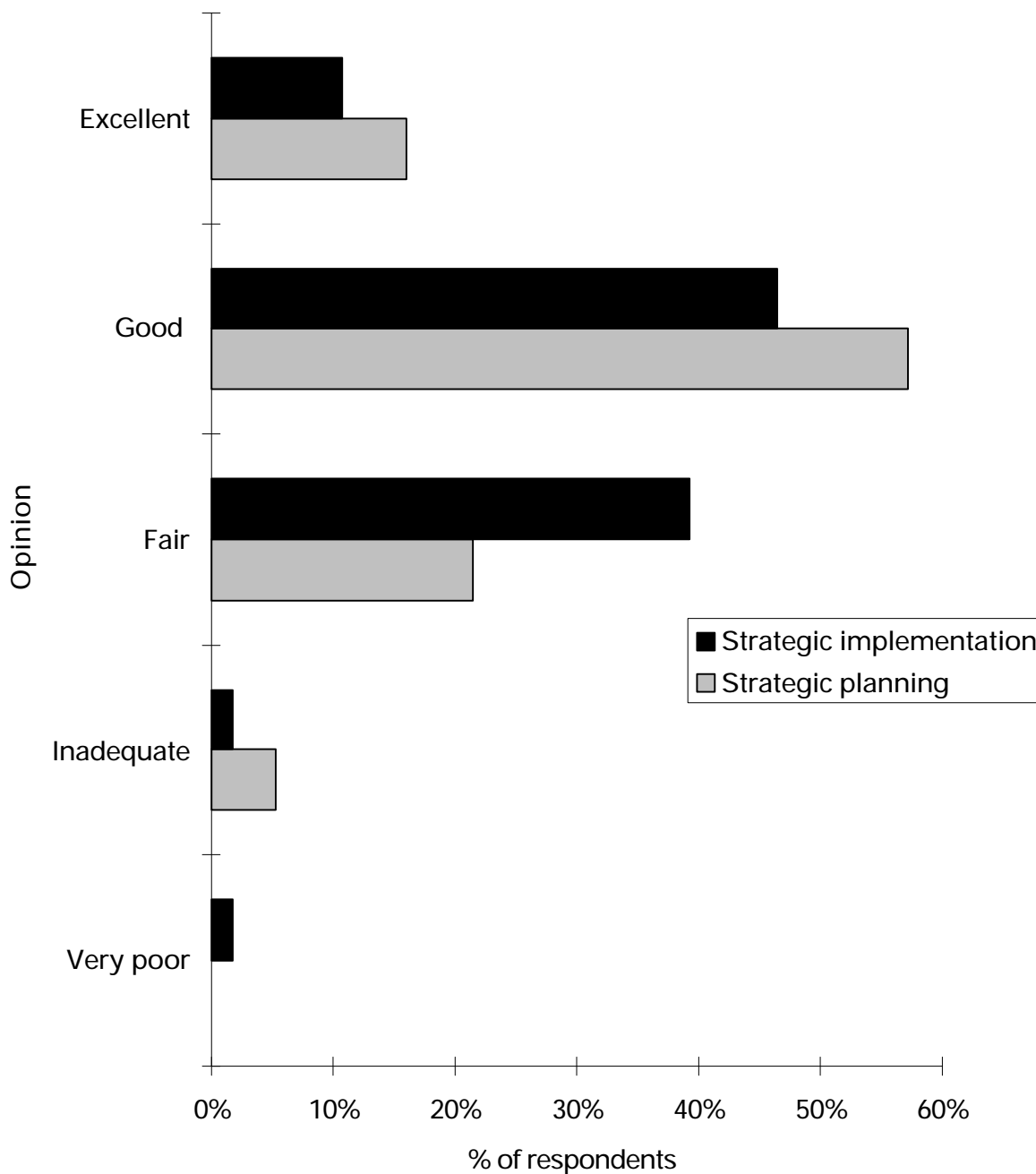
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## Organisational effectiveness

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Figure 10 - Software companies ability in strategic planning and strategic implementation



Question 3J. How would you rate your organisation's ability in strategic planning and strategic implementation ?

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## Organisational effectiveness

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The software industry in Ireland has a good understanding of the importance of strategy and rate themselves highly at strategic planning, however many companies are not as effective at putting their strategy into action. Over 70% of companies consider themselves as being "good" or "excellent" at strategic planning. However only 50% of respondents consider themselves as being "good" or "excellent" at strategy implementation.

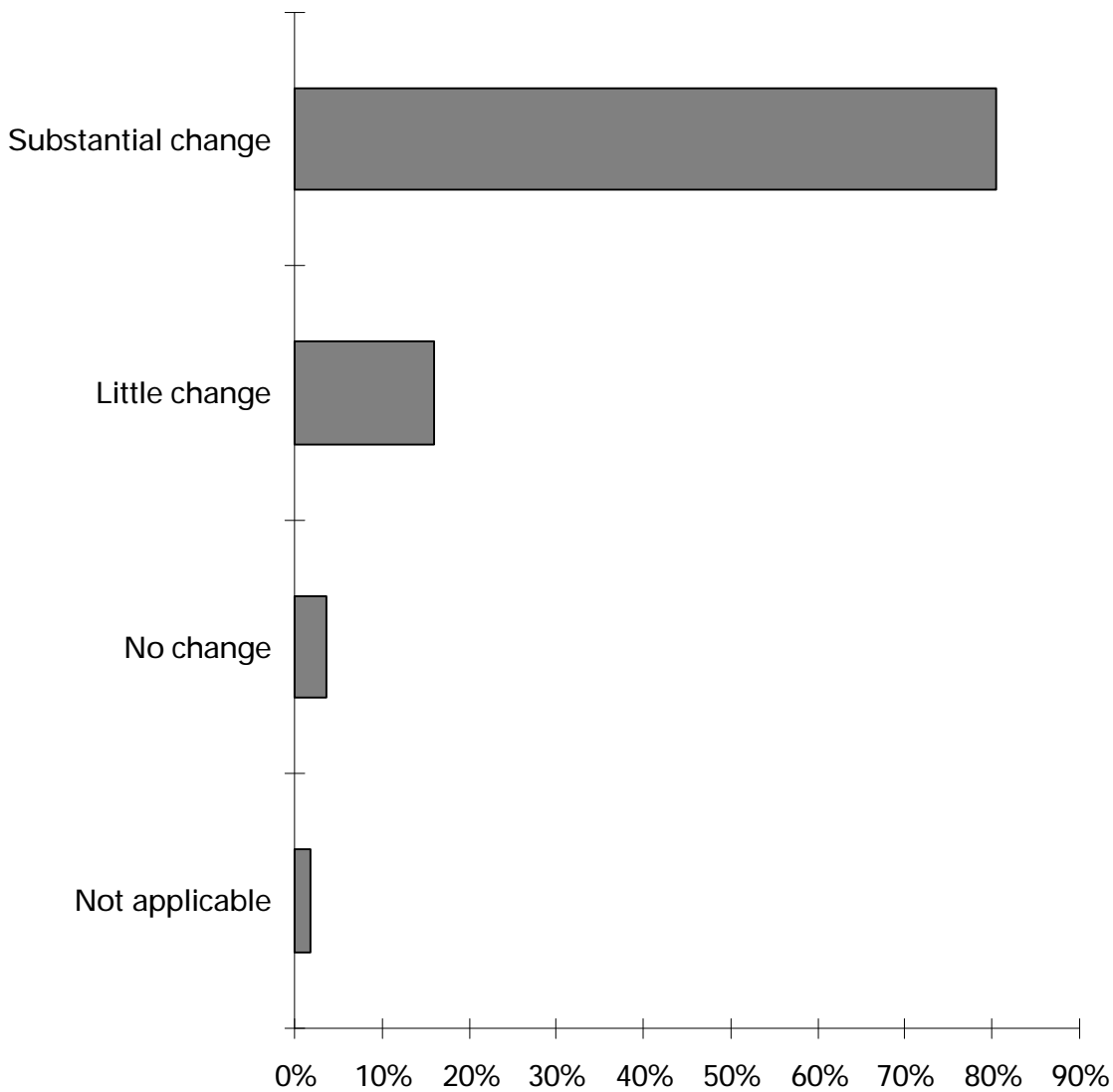
- Strategic planning has gone through something of a renaissance in recent years, with the disappearance of its image as a heavy-handed top-down bureaucratic process. Planning is now being viewed, properly, as an ongoing process for management attention, and not a once-off annual burden with benefits hard to ascertain. Strategic planning often takes the form of a continuous dialogue about the future of the company which goes on throughout the year and involves management and teams of employees in all parts of the business.
- Strategy implementation is the less glamorous, but an equally important part of the strategy process. The nitty-gritty of who does what and by when is often seen as an unwanted chore when compared to the future-looking type activities of strategy development.
- A survey of Irish senior executives in the financial services industry conducted last year by Prospectus found that 84% of organisations do not fully implement their strategies. So, where do organisations fall down? What are the common pitfalls involved in strategy implementation ?
- The main challenges that organisations encounter when implementing strategy are:
  1. Identifying what really needs to be done, who will do it, how and by when. This involves developing a practical implementation plan that prioritises activities and takes account of the key business risks
  2. Communicate the where, why and how internally on a regular basis, i.e. where you are trying to get to, why you need to change and how you will get there
  3. Get the right people involved in the right way at the right time
  4. Drive the implementation effort from the top. Management should spend approximately one day a week on monitoring and driving the implementation process during its critical phase
  5. Regularly review and update your strategy. Make sensible adjustments to the strategy as you implement it and review its effectiveness 6-12 months after implementation

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## Organisational effectiveness

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Figure 11 - The amount of change experienced by software companies as a result of growth



Question 3D. How much have your organisational and reporting structures changed in response to the growth that your company has experienced ?

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## Organisational effectiveness

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80% of respondents stated that their organisational and reporting structures had undergone substantial change in recent years. If the software industry in Ireland is to achieve its predicted growth, companies will have to continuously adapt their organisation structures.

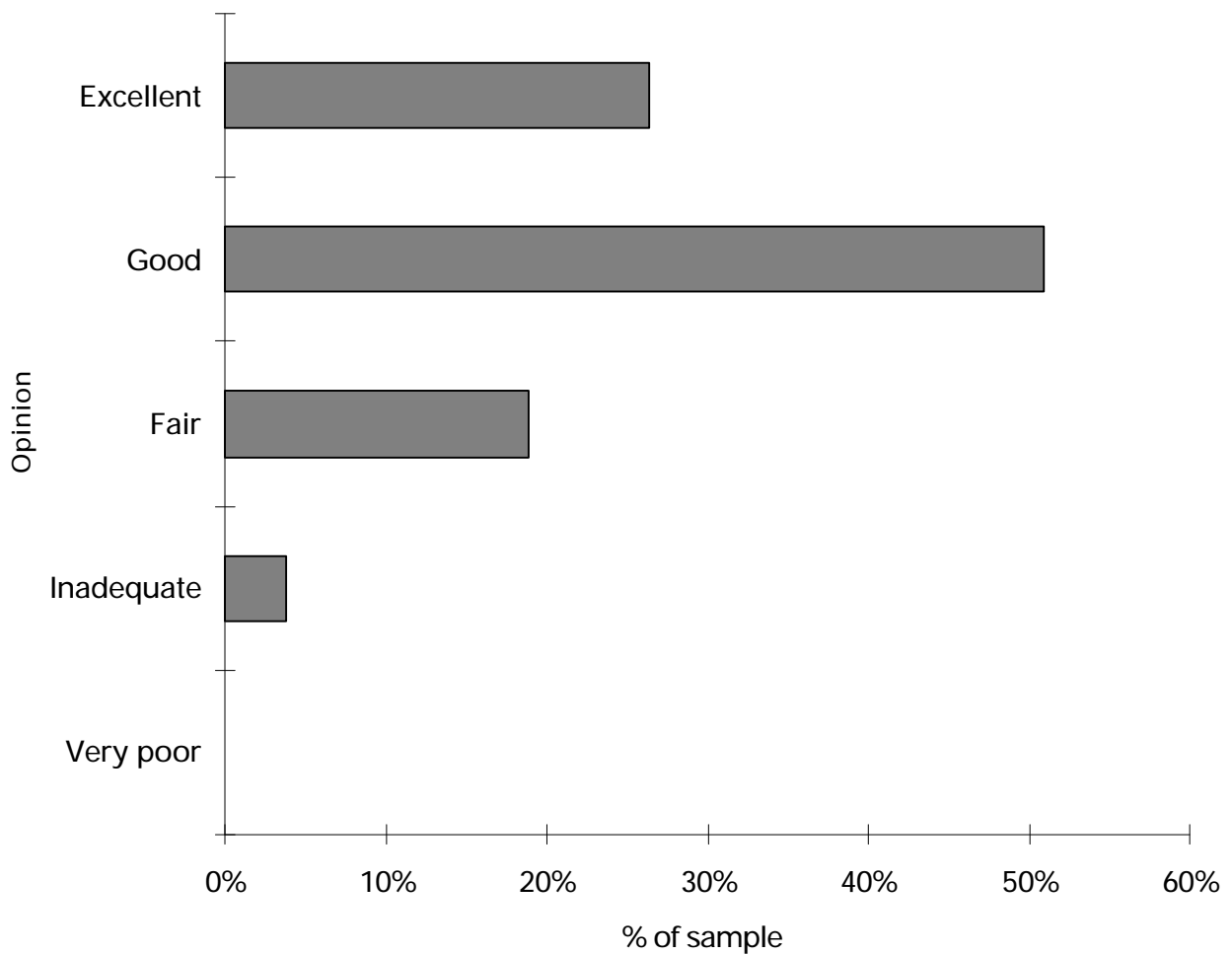
- A crucial success factor for any software company is having an organisation structure that is flexible and able to cope with rapidly changing technologies, product lines and customer expectations.
- Organisation structures are more than just wall charts. They are an indicator of a company's culture, flexibility and of its desire for innovation and creativity. However, entrepreneurs must attempt to balance their freedom and desire to explore new opportunities against the competitive reality of the marketplace.
- The innovative organisation typically will not have an organisation chart. There would be little point in having one as it would become out-of-date very quickly. The very essence of innovation is flexibility, so formalised control systems need to be avoided.
- By their nature, software companies are often established by creative, entrepreneurial people who prosper in a bureaucracy-free environment. However, as companies grow, procedures must be put in place to ensure that the growth is managed successfully. The key challenge lies in introducing a degree of control while retaining the entrepreneurial spirit upon which the company was founded.
- Encouraging innovation and creativity is essential if a software company is to prosper. However, to encourage initiative senior people must be willing to listen to the ideas of employees. For example, in some organisations operating in rapidly changing markets, such as 3M, employees are given the opportunity to spend 15% of their time on individual projects which are unsupervised. Fostering an entrepreneurial spirit depends heavily on management's ability to trust people, so schemes like this may become more common and may also help to reduce staff turnover.
- The organisation structure can be used as a means of encouraging and rewarding successful innovation. By creating "spin-off" enterprises, a company can give its key people an equity stake in a business unit while the majority stake can still be maintained by the parent company. Such flexibility can play a role in retaining and rewarding key people. The Thermo Electron Corporation in the USA have such a policy in place providing employees with an opportunity to invest in profitable business lines.

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## Organisational effectiveness

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Figure 12 - How companies rated their board's effectiveness



Question 3G. How would you rate your board's effectiveness ?

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## Organisational effectiveness

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84% of respondents have a formal board structure and 77% believe that their board's effectiveness is either good or excellent. These are impressive results given that the software sector is a relatively new business area and new businesses tend to have less formal board structures.

- As a company grows the role of its board of directors will change significantly. In a company's formative years the board is almost invariably composed entirely of management and tends to function as a management committee focusing on operational and day-to-day issues. However, as the company grows and becomes more diverse it is important that the focus of the board changes from that of operational issues to more strategic issues. The role of the board is to govern the company and not to manage strategic implementation.
- 40% of respondents stated that they had 2 or more non-executive directors on their board. These were mainly the larger companies with 52% of them employing more than 50 people. For non-executive directors to perform their role effectively they need to be truly independent. Thus their role as opposed to the role of an executive director needs to be clearly defined. The role of the board as the company grows and even considers flotation is crucial.
- Corporate Governance trends vary across different countries. In the USA, the majority of a board's members are usually independent non-executive directors, with day-to-day management often carried out through a formal executive committee. This reports to the board, which focuses on strategy and supervision. This model is increasingly becoming the norm in Ireland and the UK with the major difference being the separation of the roles of Chairperson and C.E.O. in Europe.
- All boards should have enough non-executive directors to exert real influence. Ideally, non-executive directors should be totally independent of the company, thereby having a greater degree of objectivity in their contribution to the board. A non-executive director has the same legal obligations as the executive members of the board.

### *Readiness for change*

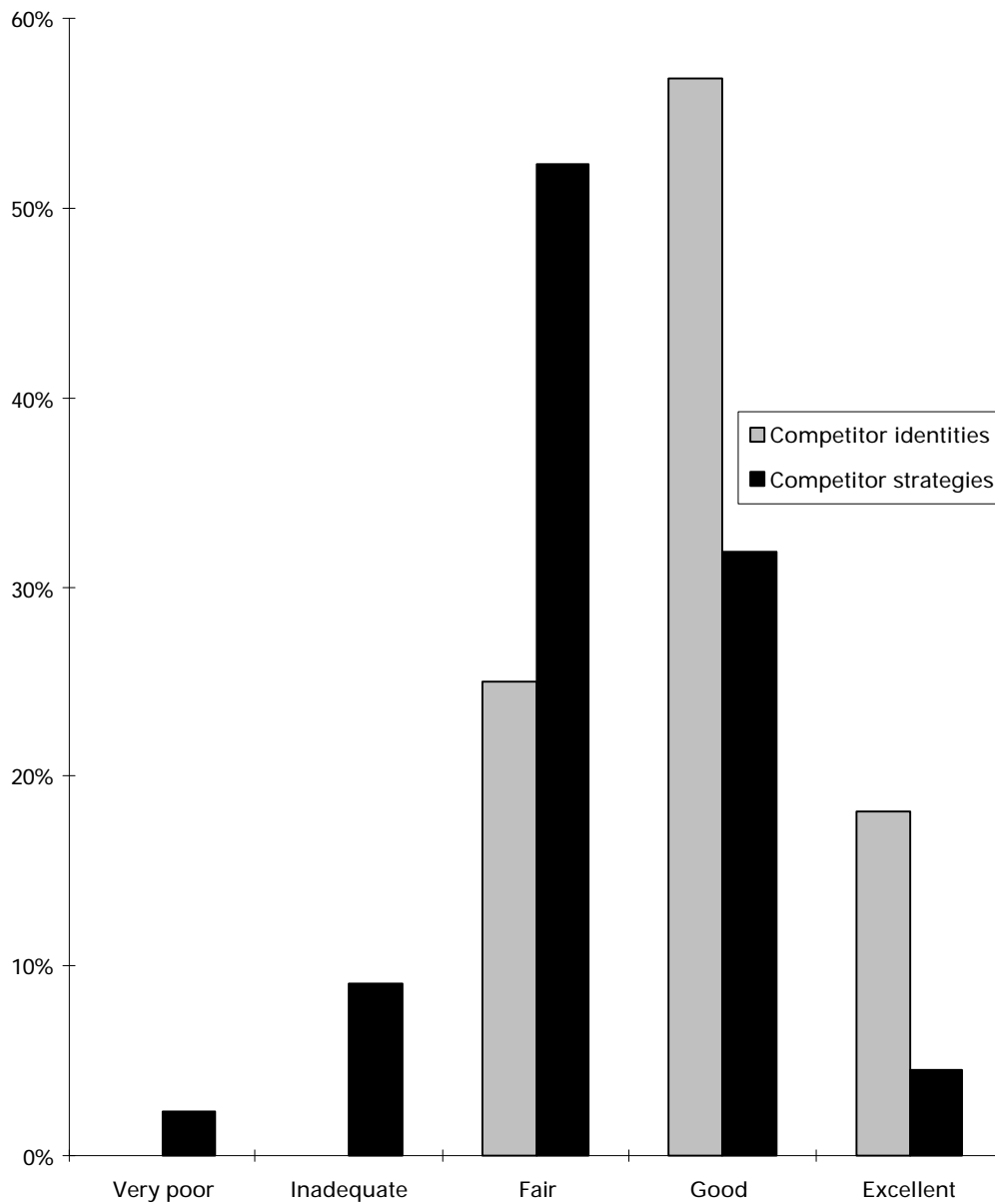
- A company's readiness for change is a function of its organisational ability, R&D process, distribution flexibility and the flexibility of its staff. Software companies appear to be well structured to adapt to change with 81% of respondents stating that they are either well or very well structured to adapt to change.

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## Organisational effectiveness

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Figure 13 - Indigenous firms knowledge of competitors



Question 31. How would you rate your organisation's awareness of your competitors identities and their strategies

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## Organisational effectiveness

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While 75% of indigenous respondents said that they had either a good or excellent knowledge of their competitors' identity, only 37% have a good or excellent knowledge of their strategy. As competition and internationalisation grows, the importance of developing effective competitor intelligence capabilities will increase.

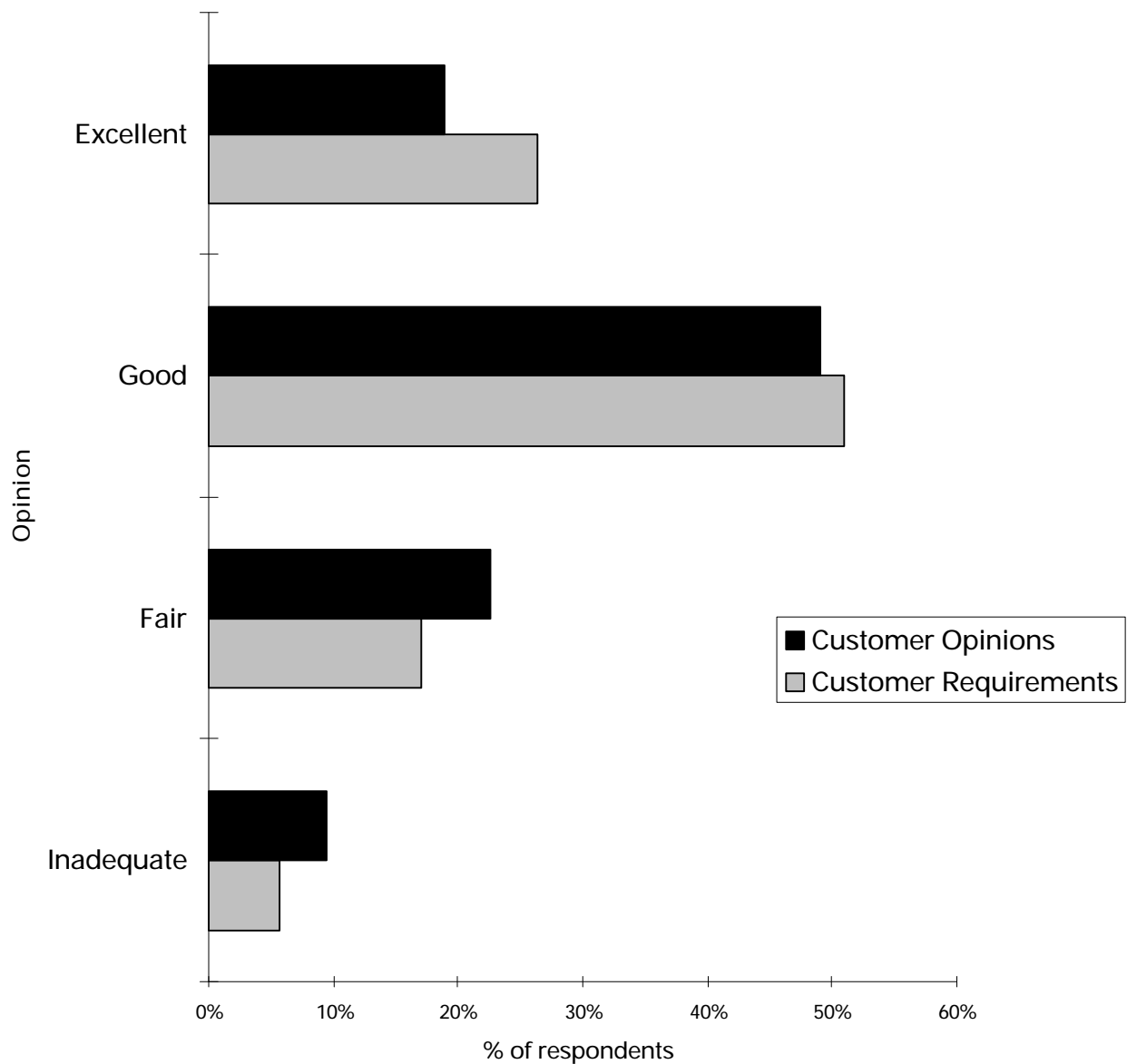
- Competitor intelligence concerns the collation of detailed, up to date information about a company such as its financial performance, employee numbers, core competencies, target growth areas and strategies.
- 62% of foreign-based firms have either a good or excellent knowledge of their competitors identity and 58% have either a good or excellent knowledge of their competitors strategy.
- While 77% of firms employing less than 20 have a good or excellent knowledge of their competitors strategy, the figure for those employing more than 20 people is only 38%. This may suggest that the smaller firms are more likely to operate in niche markets, with a smaller number of players than the larger companies.
- Given that many of these same companies are targeting foreign markets for future growth, they are likely to face competition from new and unknown sources in the future. So whilst these firms may have been immune to the need for effective competitor intelligence procedures in the past, they are less likely to be so immune in the future.
- A surprisingly large amount of publicly available information exists on most companies. However, the key challenge lies in collating this information as it is not always available in the most obvious forms or from the most obvious sources. For example, the recruitment pages of a national newspaper or a trade journal can give clues as to the strategic direction and focus of a company by analysing the type of staff that they are recruiting. However, the key when you fail to retrieve data directly is to ask yourself what "creative proxies" you can use as an estimate? For example, if you wanted to estimate the size of a company's turnover you could look at the size of its premises to estimate its workforce and multiply it by an estimate of the average turnover per employee for the sector.
- By gaining a detailed understanding of the structure of an industry you may also be able to identify the key industry experts (e.g. journalists, analysts or consultants) which may be useful to talk to later in the process. The structure may also identify key elements of the supply chain which may have a detailed knowledge of the market. In the PC hardware market, for example, most PCs sold contain Intel processors. Intel may therefore have a greater understanding of the PC market than any of the manufacturers themselves and may be useful to talk to.

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## Organisational effectiveness

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Figure 14 - Awareness of customer opinions/requirements



Question 31. How would you rate your organisation's awareness of your customer requirements and their opinions of you ?

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## Organisational effectiveness

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Respondents feel that they have a better understanding of customer requirements than of their customer opinions of them. We also found that just under half of the respondents do not undertake customer research or surveys. Becoming excellent at customer service is not an optional extra for software companies - it is a fundamental requirement for survival.

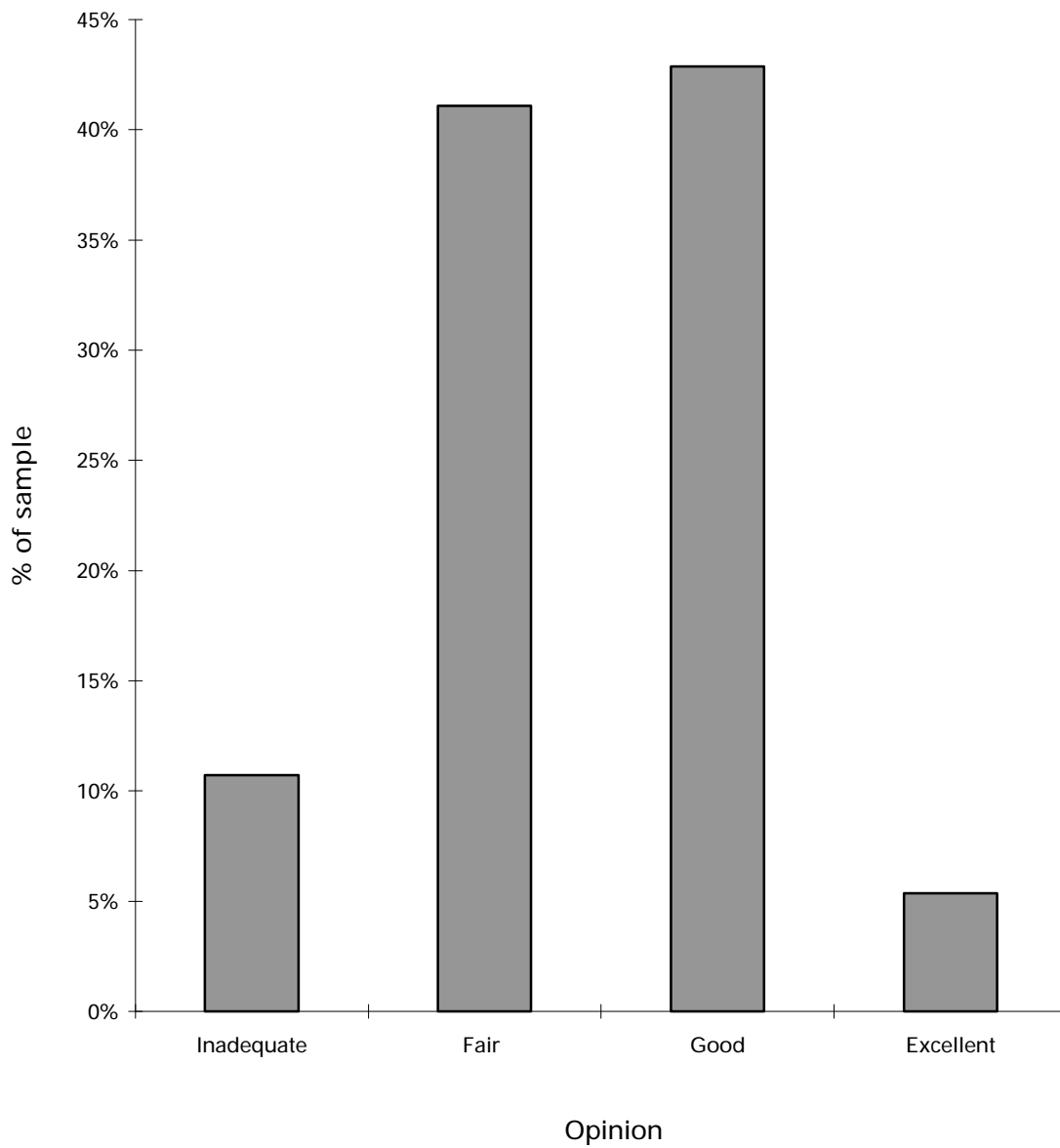
- Interestingly, those firms that do undertake customer surveys are, on average, younger firms than those that do not. This indicates that the importance of working with their customers is being recognised by many younger firms some of whom doubtless originated from identifying customer requirements that were not being adequately met by existing companies.
- Most companies rate themselves as 'good' or 'excellent' at customer service. Only 29% of firms rate themselves as 'fair' or 'inadequate'. One interesting observation is that companies are more aware of their customer requirements than they are of customer opinions of them. Knowledge of customer requirements alone will not make you into a 'king' of customer service. Knowing your customer requirements, without measuring how well you meet your customers overall needs, leaves the door open to competitors to steal customers based on better service or a better relationship management approach.
- Research from IMD Business School, suggests that for every 100 dissatisfied customers, only 5 will formally express their complaints to the top. 45 will not complain at all, but 50 will complain at some level within the organisation, but then give up. The key to success is to delight the 5%, the 'formal' complainers, and make sure that staff at all levels are empowered to respond themselves to complaints - rather than take all the correct details and pass it on. You must also develop processes that encourage the silent 45% to complain, use their complaints as a valuable information source and set up an action channel to process them.
- Sustainable growth does not depend exclusively on technological prowess. Indeed a competitive disadvantage in this area can sometimes be neutralised by developing customers before products so that the customer gets what they want, and don't have to adapt their processes or technology to fit the product being bought.
- In the rush towards improving customer service, many companies have not taken the time to plan their approach to customer care. They seek to eliminate complaints rather than to actively seek them. They tend to ignore the reason for the complaint and prefer to focus on the method of reply. Finally, they treat customer service as a 'loss-maker', instead of recognising that it is also selling. Customer service centres often seek to maintain service, rather than add value, and in so doing, may end up losing customers to those companies that actively seek to build the voice of the customer into everything they do.

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## Organisational effectiveness

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Figure 15 - Software firms ability in Human Resource Management



Question 3J. How would you rate your organisation's ability in HRM ?

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## Organisational effectiveness

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Given that most firms ranked the ability to attract and retain suitably skilled staff as the most significant internal barrier to achieving further growth in the near future, it is worrying that over 52% of respondents regard themselves as either 'Inadequate' or 'Fair' in Human Resource Management (HRM). This may prove to be the most significant issue facing the industry in the near future.

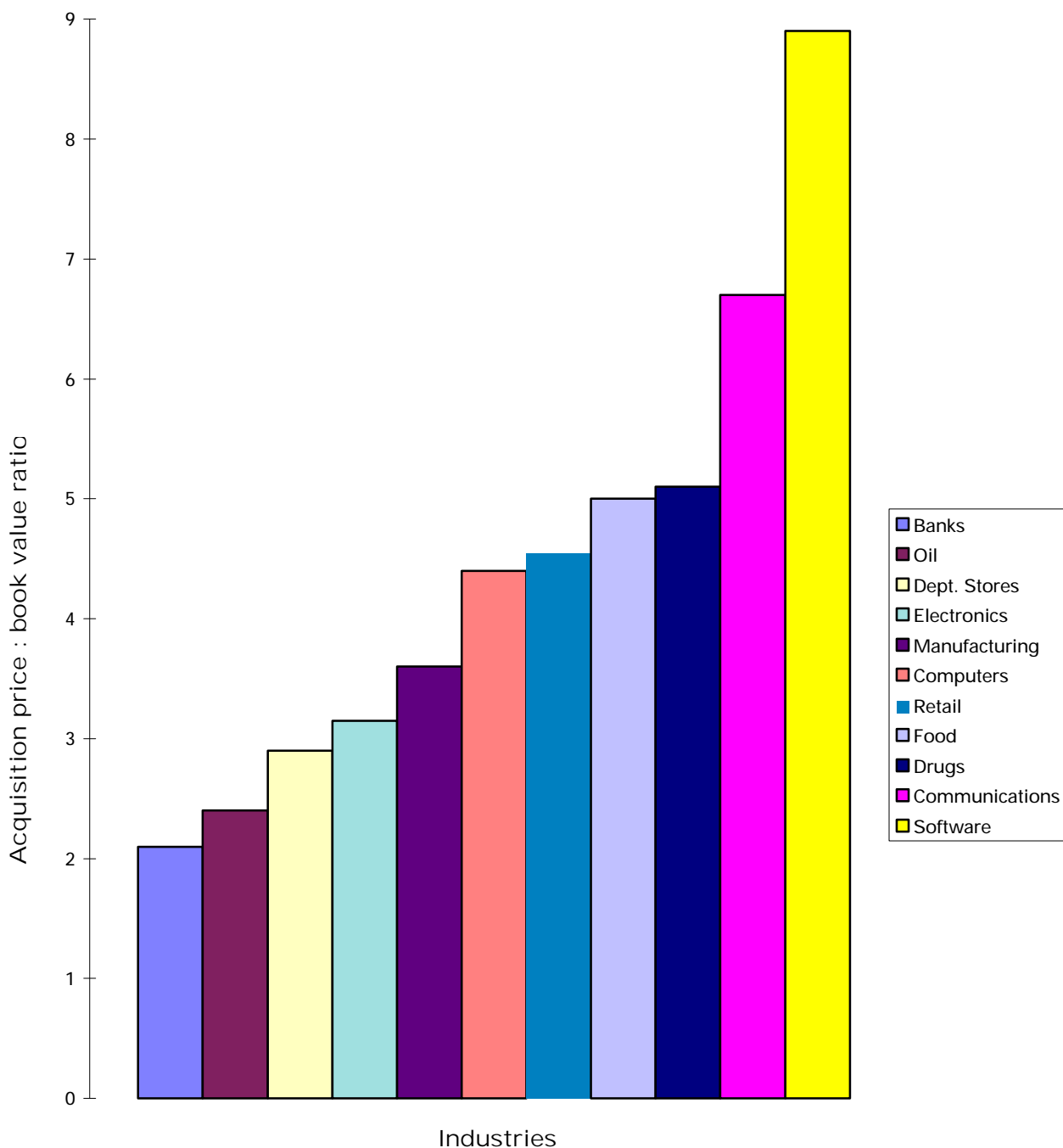
- HRM increased in importance in the 1980s from a recognition that the most successful companies are often those that have the highest degree of staff commitment, corresponding management commitment to their staff and a resulting culture of open communication and participation.
- In an Irish context, the current political climate for 'partnership' between employers and unions, is reflective of the central HRM tenet of partnership between management and staff. Staff retention and skills shortages have been identified as the most critical issues facing the software industry in Ireland for some time now. Yet our survey results indicate that many companies have not taken the requisite action internally to try and address these issues.
- Just 25% of respondents use employee attitude surveys as a tool for improving effectiveness. This is a relatively straightforward means for ensuring that the concerns of staff are at least being heard at management level. For smaller companies, this tool is not as applicable, but the principle of listening and acting on employee suggestions and concerns is just as relevant.
- Many firms are worried about their ability to attract and retain key staff. This issue has been well aired in recent months, however one interesting finding of our research, is that this is seen as a more significant barrier for larger firms (those employing over 50) than for smaller firms.
- Some commentators have expressed surprise that the software industry in Ireland is growing at all given the rapidly rising costs of employment. However, the software industry should not view itself in isolation. What it is going through is not very different from other industries, such as financial services or small manufacturing companies.
- In much the same way as Irish firms came to realise the importance of marketing in the past 10-15 years, software firms need to realise the particular importance of developing HRM strategies and, in some cases, HRM departments as a part of an overall co-ordinated strategy.

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## Organisational effectiveness

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Figure 16 - Financial information and corporate acquisition values



Source - SEC Workshop on "The Reporting of Intangible Assets", Washington, 11-12 April 1996

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## Organisational effectiveness

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Knowledge Management, or the treatment of intellectual capital, has gained increasing importance in the recent past. In short, intellectual capital is "something that you cannot touch, but still makes you rich".<sup>1</sup> Its importance to the software industry, where critical knowledge is often in the possession of a small number of highly marketable people cannot be over-emphasised.

- Knowledge management came from a recognition that many growth companies in the US, such as Intel, Netscape or Microsoft were valued way above book value. In addition, there was a recognition of the paradox of measuring investment in knowledge - i.e. investing in I.T. or research facilities leads to a short-term deterioration of profits which in turn reduces the value of the organisation. The paradox, therefore, is that the more is invested in knowledge upgrading, and the better equipped the company is to leverage its knowledge capital, the lower the value of the company !
- The graph opposite, indicates how companies going through mergers and acquisitions in the US in the period 1981-93 were valued relative to their book value. Software firms had the largest positive 'gap' between their acquisition value and book price. This indicates that intellectual capital is more important in software firms than in any other industry. Therefore, the importance of leveraging and managing this knowledge is greater in software firms than in any other industry.
- Many Irish software firms will have only realised the value of effective knowledge management through the 'regret' scenario. That is, lamenting the leaving of a valuable employee by regretting that the company would be deprived of their knowledge and skills by their leaving, and that there was nobody of that calibre remaining to take their place.
- Preventing the situation outlined above involves creating a knowledge management strategy and implementation schedule. It involves working with your employees to ensure that knowledge is shared, and not seen as personal property, that this knowledge is renewed frequently creating a knowledge infrastructure and leveraging knowledge assets to realise their value. A company's approach to knowledge management should be closely aligned to their approach to HRM. In essence, a well-defined and implemented HRM strategy is an approach towards retaining key staff - knowledge management ensures that if that fails, the loss to the company should be lessened by the non-proprietary nature of the knowledge of the departing employee.

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<sup>1</sup> T. Stewart, "Your company's most valuable asset : intellectual capital", Fortune 130 (7) October, 28-33 (1994)

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## Organisational effectiveness

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Appendices

1. Sources of finance for indigenous companies
2. Barriers to internationalisation



## Appendix 1: Sources of finance for indigenous companies

### *Sources of finance for indigenous companies with less than 20 employees*

Sources of finance	Primary Source %	Additional Source %
Retained profits	44	27
Venture capital	31	0
State support	13	45
Other *	12	28
Total	100	100

\*Other includes: BES funds, private placements and other corporate investors

### *Sources of finance for indigenous companies with between 21-50 employees*

Sources of finance	Primary Source %	Additional Source %
Retained profits	58	28
Venture capital	5	12
State support	16	32
Other *	21	28
Total	100	100

\*Other includes: BES funds, private placements ,stock exchange listings and other corporate investors

### *Sources of finance for indigenous companies with over 50 employees*

Sources of finance	Primary Source %	Additional Source %
Retained profits	53	33
Venture capital	18	0
State support	6	56
Stock exchange listing	12	11
Other*	11	10
Total	100	100

\*Other includes: BES funds, private placements and other corporate investors



## Appendix 2: Barriers to internationalisation

Barrier ranked in order of significance	Indigenous firms less than 20 employees	Indigenous firms with between 21-50 employees	Indigenous firms with more than 50 employees	Overseas firms
1 <sup>st</sup>	Inadequate finance	Inability to access suitable distribution channels	Lack of management time	Lack of suitably skilled staff
2 <sup>nd</sup>	Lack of suitably skilled staff	Inadequate knowledge of foreign market operating conditions	Lack of suitably skilled staff	Company has no excess capacity
3 <sup>rd</sup>	Lack of management time	Inadequate finance	Inadequate finance	-
4 <sup>th</sup>	-	Company has no excess capacity	-	-
5 <sup>th</sup>	-	Lack of suitably skilled staff	-	-

*Where a barrier has not been ranked it was not found to be a barrier to growth in that category.*

