

Research Report

Exploring Intellectual Capital Practice in the Irish ICT Sector

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2. Executive Summary

A recent OECD Report confirms that intellectual capital is now instrumental in determining both the value of individual firms and national economic performance¹. This is confirmed by various industry analyses, research projects and media reports that identify intellectual capital as a significant driver of value and a catalyst for change in corporate cultures and governance structures.

The research findings presented in the report derive from an investigation into the emergence of this intangible resource as a major source of competitive advantage. We focus specifically on the implications of this for the indigenous Information and Communications Technology (ICT) sector in Ireland. Acknowledging that there has been relatively little discourse on intellectual capital in this sector compared to, for example, Scandinavia, this report draws on ongoing international research and adopts intellectual capital as a guide to investigating management practice in relation to the intangible asset base in general.

Focusing on issues such as the recognition and measurement of intellectual capital, this research offers some preliminary insights into the contours of this unfolding environment. In addition, by targeting chief financial officers (CFOs) as the principal source of information, this project allows an analysis of the opportunities offered and the threats posed to accountants and the accounting function by the dynamics of the 'new economy'.

The key points to emerge from this study are:

- Intellectual capital is perceived to be the principal source of value for firms operating in the ICT sector, accounting for 59% of firm value.
- Human competencies, skills, know-how and relationships are the most important elements contributing to a robust intellectual capital base, accounting for 55% of intellectual capital.
- Internal structures (22%) and external structures (23%) are the other elements contributing to intellectual capital value.
- In spite of the perception that IC is such a critical source of value, there is no comprehensive attempt to explicitly measure or monitor the intellectual capital component of firm value. Indeed, firms rely largely on traditional financial performance indicators and budgetary control techniques to manage business activities.
- There is little evidence of any significant differences in accounting, human resource, reporting, or governance cultures between firms operating in the ICT sector and more traditional firms.
- Senior management are making strategic and operational decisions in relation to key intangible resources without the benefit of integrated or sophisticated management accounting systems. There is a need for a greater appreciation of process-oriented, enterprise-wide decision support systems.
- The remuneration packages prevalent in this sector are not significantly different from those found in more traditional sectors.
- The workforce is highly educated: a third-level qualification is fast becoming the entry norm.
- The majority of firms in this sector are profitable and conservatively financed.
- With the exception of e-financial management, CFO involvement lags e-business implementation.
- Accountants and CFOs can and should be more proactive in identifying and implementing best practices in relation to intellectual capital and its management. Reflecting this, accounting education and training must take cognisance of the changed operational, human and governance dynamics induced by the advent of the 'new economy'.

¹ OECD Report, 2001, Science, Technology and Industry Outlook, Special Edition, Paris.

Overall, this research uncovered little in the way of innovative or imaginative use of newer performance templates in relation to management practice vis-à-vis intellectual capital. In fact, an explicit engagement with intellectual capital as a commercial reality has yet to emerge in this sector. There is, for example, only limited evidence that indigenous Irish firms are adopting any of the leading-edge intellectual capital solutions being employed internationally. Furthermore, in spite of the fact that the people dimension of intellectual capital is perceived to be so critical, there is little or no dialogue between management accounting and human resource professionals.

If they are to reap the full benefits of the innovative operational and reward environment promised by the 'new economy', management, employees and other stakeholders in indigenous Irish ICT firms must be encouraged to look to international pioneers of best practice. (Practitioners wishing to familiarize themselves with some of these should refer below to an up-to-date series of references to material outlining international best practice). These will provide a vision of the ways in which intellectual capital can be best harnessed to serve the interests of national, corporate and individual ambitions.

Listed below is a selection of online resource materials and readings:

Intellectual Capital Online

- **Karl-Erik Sveiby's** online library is an excellent point of departure for anyone new to this area: www.sveiby.com
See, for example, his review of methods for measuring intangible assets, including his own Intangible Assets Monitor™ (with www.celemi.com): www.sveiby.com/library.html#mia
- **Leif Edvinsson** produced the world's first IC addendum to an annual report for Scandia in Sweden almost ten years ago: www.skandia.se/hem/hem.jsp His book *Intellectual Capital* (Piatkus, London, 1997) with Michael Malone provides a very readable and practitioner oriented overview of the Skandia Navigator™.
- Denmark is a world leader in this area. The **Danish Ministry of Science, Technology and Innovation's New Guidelines** (www.efs.dk/icaccounts) were published in early 2003. **Jan Mouritsen** (www.cbs.dk/staff/jan.mouritsen), Research Director for the Danish intellectual capital project, with **Per Nicolaj Bukh** (www.pnbukh.com), **H.T. Larsen** and others, have been actively involved with, followed, brought together and processed the experiences of more than 100 firms in developing, making use of, and publishing intellectual capital statements.
- Recent publications by **Nick Bontis**, Director of the McMaster World Congress on intellectual capital, are available at www.bontis.com
- The **MERITUM** project (Measuring Intangibles to Understand and Improve Innovation Management) has produced very significant findings: www.uam.es/meritum and www.kunne.no/meritum **E*Know-Net**: www.eu-know.net is a follow up online network
- The **PRISM** project, directed by **Clark Eustace**, held its final conference at CASS Business School, London on July 4th, 2003: www.euintangibles.net
- **NORDIKA & FRAME** are two Nordic projects for developing IC – 1999-2003: www.icframe.net
- Centre for Business Performance at **CRANFIELD** School of Management: www.cranfield.ac.uk/som/cbp Performance Measurement Association: www.performanceportal.org. Download recent joint CIMA/Cranfield publication on IC by **Danka Starovich** and **Bernard Marr** www.cimaglobal.com
- Intellectual Capital Services, directed by **Göran Roos**, co-creator of the IC-Index™: www.intcap.com/downloads.html
- **Baruch Lev**, perhaps the leading financial analyst in this area, creator of the Value Chain Scoreboard™, makes his work available: <http://pages.stern.nyu.edu/~blev/>
- **José Maria Viedma Marti** on IC Innovation/Operations Benchmarking: <http://intellectualcapitalmanagementsystems.com>
- **Jürgen Daum** is senior business consultant at SAP AG, Walldorf, Germany: www.juergendaum.com
- **Daniel Andriessen** www.weightlesswealth.com co-creator of KPMG's Value Explorer™.
- The Value Creation Index: www.ca.cgey.com/news/invisible_advantage_mediakit/vci.pdf
- **Ante Pulic's** accounting tool: www.measuring-ip.at/Papers/ham99txt.htm
- **PricewaterhouseCooper's** ValueReporting: www.cimaglobal.com
- **The Balanced Scorecard** Collaborative Online: www.bscol.com
- **Recent research** from CIMA www.cimaglobal.com
- **Accounting for People**, UK Department of Trade & Industry: www.accountingforpeople.gov.uk/consultation200503.pdf

3. Introduction

3.1 Research context

The terms 'new economy' and 'knowledge-based economy' are now commonly employed to describe an economic and commercial environment exhibiting characteristics quite distinct from the traditional economic model. For instance, barriers to entry to this 'new economy' are considerably less than those presented by more traditional sectors, where heavy initial financial investment in tangible assets often represents an insurmountable obstacle. Likewise, a primary focus on knowledge, 'virtual' locations, innovation and customer relationship management, mean that resources that have heretofore been present, but obscured, are now brought to the fore.

In this new environment, intangible factors such as these constitute the critical resource base. Indeed, it is now regularly argued that the ability to create, transform and capitalise on such intangible resources, particularly knowledge, is ultimately what delivers competitive advantage. Those traditionally charged with the financial management of a firm's resource base echo these sentiments. For instance, the International Federation of Accountants notes that knowledge is the primary competitive factor in business; that it is a non-traditional intangible resource; and that its accumulation, transformation, creation, management and valuation lie at the heart of commercial survival and growth.

The advent of the 'knowledge-based economy,' the dynamics of an 'e-business' environment and the emergence of intangible resources as key sources of competitive advantage, offer both opportunities and challenges to the traditional stewards of corporate resources. These revolve particularly around the internal management, resource allocation and external reporting aspects of knowledge management. Indeed, it is probable that it will be those professions and firms that can harness and manage their knowledge-creating capabilities that will create the leverage necessary for accelerating competitive advantage.

The difficulties faced by accountants and others charged with the internal control and resource allocation functions within firms derive from an historical bias against the recognition and measurement of intangible resources. Accounting practices have been designed with the intention of fulfilling a fundamental stewardship role, that is, of accounting for and informing company management and its various stakeholders of the existence and progress of its tangible resources, activities and investments. The recognition and measurement of these has been facilitated by an historical cost approach that has allowed 'value' to be attributed to tangible resources such as premises, plant and products.

Accounting has found it much more difficult to deal with items to which its limited conceptual framework can assign neither value nor tangible existence. Thus, to a large extent, the intangible resource base of firms is neither recognised nor measured. However, the realisation that intangible assets can no longer be dismissed as the incidental and troublesome offspring of activities undertaken by relatively few, albeit large, entities, has considerable implications. Unless the accounting model can be extended to embrace these challenges then it will become increasingly irrelevant to firms operating in the ICT sector.

There has been a willingness on the part of some accounting and management practitioners as well as academics to consider the relevance of managerial accounting practices and financial statements that are proving increasingly incapable of meeting the requirements of their principal users. However, a key constraint has been the fact that little is actually known about this evolving, and almost certainly accelerating, knowledge and communications dynamic, or how it should be defined, measured and managed. As yet, only limited investigation has been undertaken to determine the extent to which the emergence of these intangible resources is impacting upon internal control and relational dynamics within firms. Furthermore, few studies have sought to identify or analyse the ways in which knowledge-intensive firms are developing new management and accounting techniques to ensure effective control.

Aiming to redress this gap, and employing the generic term 'intellectual capital' to capture the intangible resources referred to, this report seeks to provide some insight into practice in the ICT sector in relation to the following:

- The role and nature of intellectual capital as a source of competitive advantage and value.
- Perceived sources and indicators of such advantage and value.
- Managerial, structural and human resource responses to consequent challenges and opportunities.
- Financial reporting and managerial accounting responses to the recognition, measurement, internal control and investment appraisal issues raised by the emergence of intellectual capital as a key source of wealth.
- The effect of 'new economy' dynamics on the role and perception of management accounting.
- The evolving role of the CFO in the context of e-business.

Focusing upon the ways in which practitioners are responding in situ to the recognition, measurement and management challenges posed by this phenomenon, it is hoped that the findings from this preliminary investigation will facilitate a more informed response by firms, CFOs and the accounting professions to a changing environment.

3.2 Ireland

Ireland's suitability as a research site in which to investigate the importance of intellectual capital is confirmed by its emergence in recent years as the leading exporter of software in the world. Relatively devoid of many of the resources that allowed others to benefit fully from the industrial revolution, this success has been based in large measure on a combination of financial and human capital, a success captured in the appellation 'Celtic Tiger economy'.

Ireland has experienced phenomenal economic growth in recent years. In the period 1995 to 2001, real GDP grew by an average of almost 10% per year. More recently, GDP growth of 3.7% in 2003, is predicted to increase to approximately 5% for 2004. Much of this dynamism is attributable to the emergence of a vital high-technology sector.

3.3 Information and communications technology (ICT) sector

The term 'Information and Communications Technology' (ICT) sector is increasingly being used to identify the sector embracing those firms engaged in the 'new economy' activities described in this report. These firms are engaged in software design and development, web design, network security implementation, hardware assembly and other related functions. The total employed in this sector is estimated to be over 80,000.

The ICT sector in Ireland can be divided into two sub-categories: multinational firms and indigenous firms.

3.3.1 Multinational firms

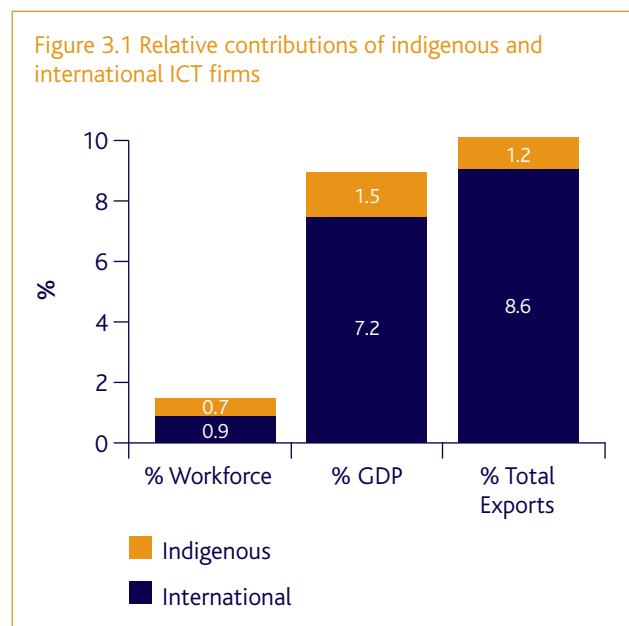
Ireland's emergence as a key player in the ICT sector is due, in part, to the high levels of foreign direct investment by U.S. multinationals. Attracted by one of the lowest corporate tax rates in Europe (12.5%) and with direct access to the European market and a highly educated, English speaking labour market, Ireland has encouraged most of the major world leaders in software development and telecommunications to have a presence there.

The multinational sector comprises over 130 international firms, including five of the top ten independent software development companies in the world. This multinational sector employs over half of those working in the ICT sector in Ireland. Much of the activity currently carried out in Ireland by foreign multinationals is concerned with the physical manufacture and distribution of products. With some notable exceptions, there is relatively little emphasis placed on research, most of which is carried out at corporate headquarters in the United States. This emphasis on development and manufacture is highlighted by the fact that over 40% of all PC packaged software and 60% of business application software sold in Europe is produced in Ireland.

3.3.2 Indigenous firms

The indigenous sector is smaller in terms of both revenues and networks. Nevertheless, a focus on overseas markets is one of the key characteristics of Irish ICT firms, with more than 80% active internationally. Indigenous firms employ almost as many people as the large multinationals. However, the seven indigenous Irish ICT firms that are listed on the major international stock exchanges employ over 5,000 of these. These latter indigenous public firms are not represented in this study. Consequently, the results presented here relate only to the private indigenous ICT sector. The firms surveyed have employment levels ranging from 10 to 251 people and include, therefore, mainly small and medium enterprises (SMEs).

The respective contributions of the indigenous and international sectors in terms of workforce, GDP and exports are presented in Figure 3.1.



Source: CSO/HotOrigin (2001)

3.4 Research methodology

Utilising a variety of publicly available information sources, over 600 firms were identified by the research team as operating within the ICT sector in Ireland. Such sources included the Irish Software Association, the National Software Directorate, Forfás, Enterprise Ireland, Industrial Development Authority and trade periodicals. Each of these firms was contacted by telephone to confirm the name of the chief financial officer (CFO), the current number of permanent employees and the postal address. This task was undertaken in order to ensure that the appropriate senior financial executive within each firm was identified.

3.4.1 Data collection and analysis

It was decided to target only those private indigenous companies having at least ten full-time permanent employees, a criterion met by 382 firms. Subsequently each was posted a copy of a twelve-page questionnaire together with supporting documentation, which included a covering letter setting forth the aims of the research project, along with a prepaid business reply envelope for completed questionnaires. Data collection commenced in mid-June 2001 and the process involved a number of follow-up telephone calls and emails. Data collection concluded in May 2002.

Of the 382 questionnaires posted in mid-June 2001, 140 generated responses. Analysis of these responses indicated that 52 firms either did not satisfy the parameters of the study or were unwilling to participate. This left a total of 88 usable responses from private indigenous Irish firms and an effective response rate of 23%. This report is based upon the information supplied by these 88 private indigenous firms.

Respondents were asked to score over 130 statements requiring Likert-style responses in a range from 1 (strongly disagree) to 7 (strongly agree). These dealt with a variety of issues such as 'employee satisfaction', 'motivation' and 'knowledge-sharing dynamics'. Scores indicated throughout this report are averages for those firms that provided answers to the questions posed.

In addition, respondents were asked to provide data relating to specific areas of company activity or culture such as corporate governance structures, e-business activity, remuneration packages, control mechanisms and workforce profiles. Finally, respondents were asked to provide financial information relating to the two most recent accounting periods.

3.5 Organisation of report

This report seeks to provide insights into the knowledge-management practices that are characteristic of private indigenous Irish firms operating in the ICT sector. To this end it is divided into chapters dealing with specific areas of enquiry.

Chapter 2 looks at the incidence of intellectual capital in ICT firms and the extent to which it contributes to corporate value. It also analyses the manner in which different aspects of firm activity and resources contribute to intellectual capital. It concludes with an investigation of some of the issues surrounding intellectual property rights.

Chapter 3 addresses corporate governance cultures, and investigates the extent to which 'new economy' and 'e-business' dynamics may have resulted in changes in the ways in which firms are structured and operated. This is prompted by media and industry speculation that more inclusive and democratic forms are challenging traditional models of ownership and control.

Chapter 4 reviews the financial performance and structure of firms operating in the ICT sector. It investigates and analyses characteristics such as profitability and gearing with a view to delineating the financial characteristics of the sector. It also explores the question of the valuation of such firms, focusing on the extent to which intellectual capital can be employed to explain the significant gulf that exists between net asset (book) value and perceived market value.

One area of critical concern to firms operating in this sector is the internal management and control of intellectual capital. Chapter 5 provides feedback as to whether and how firms are using management accounting systems and techniques to manage these intangible resources.

Anecdotal evidence surrounding issues such as remuneration and stock options has suggested a sector that has developed a unique reward template. These issues, as well as broader workforce and employment issues, are documented in Chapter 6. This chapter looks specifically at how the sector is managing and rewarding what is now accepted as its key resource – people.

Finally, in the context of the advent of 'e-business' and new forms of work, control and ownership, Chapter 7 is devoted to looking at the extent to which these are impacting upon the role of the CFO. Extending the discussion to embrace wider issues such as the likely impact of 'new economy' dynamics on the accounting model and profession, this chapter considers the threats posed and opportunities offered to traditional guardians of corporate control such as accountants.

The report concludes with a set of recommendations for better intellectual capital measurement, management and control. It also outlines avenues for future research.

4. Intellectual Capital

4.1 Introduction

The growing focus on the intangible assets of a knowledge-based firm has contributed to the realisation that a whole wealth of resource, previously unrecognised or non-existent, forms a distinguishing and critical edge of competitive advantage. As different interest groups compete for their ownership and control, one consequence has been a new vocabulary that reflects the existence of such resources. One such phrase is 'Intellectual Capital' (IC).

4.2 What is intellectual capital?

Not surprisingly, given its relatively recent emergence, it is still unclear what IC actually is and there is considerable variation in working definitions. It is not a conventional accounting term and has been described as 'the knowledge and knowing capability of an organisation, intellectual community or professional practice'. For the purposes of this report, IC is understood to embrace 'that portion of the intangible asset base of an enterprise comprising of people, internal structures and external structures.'

It is possible to make the following observations about IC:

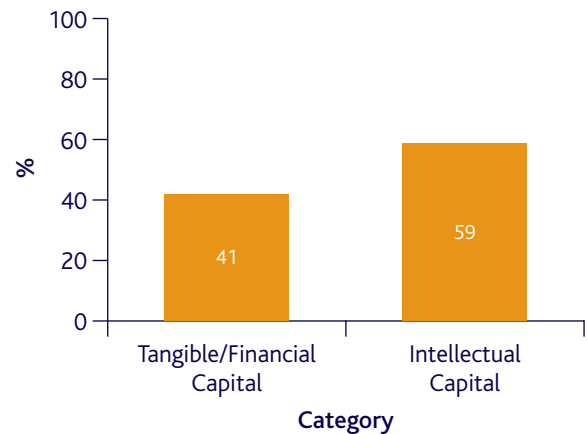
- IC is a type of intangible asset. However, it is not meant to embrace the entire intangible resource base of a business, but is a subset of the larger class of 'intangible asset'. Thus, scope exists for the presence of other intangibles, such as goodwill. Such an intangible can be a by-product of the effective use of IC, but is not IC per se.
- IC depends primarily upon the presence of a strong people component within which knowledge and relationships are critical elements.
- IC is expressed in internal structures such as work practices, data collection and dissemination systems.
- IC can also be expressed in external structures such as customer relationships and supplier profiles.
- IC has always existed, but is now brought to the fore by virtue of the dynamics of a 'new economy' which ascribes increased value to intangible resources and exposes the traditional factors of production model (land, labour and financial capital) as incomplete.

4.3 Recognising, measuring and managing intellectual capital (IC)

One of the first tasks of this survey was to elicit information from CFOs as to the existence of IC within their firms and the extent of that IC as a source of corporate wealth. Respondents were asked to provide their perception of the extent to which IC contributed to firm value, by expressing this as a percentage of total value. In addition, and in line with the typology outlined above, IC was presented as consisting of people, internal structures and external structures. On this basis, CFOs were asked to indicate the degree to which the drivers of this IC can be traced to these factors by distributing 100 points between them.

Complete responses to this section of the questionnaire were provided by 80 of the 88 private indigenous Irish firms that responded. Figure 4.1 provides a summary of the feedback received.

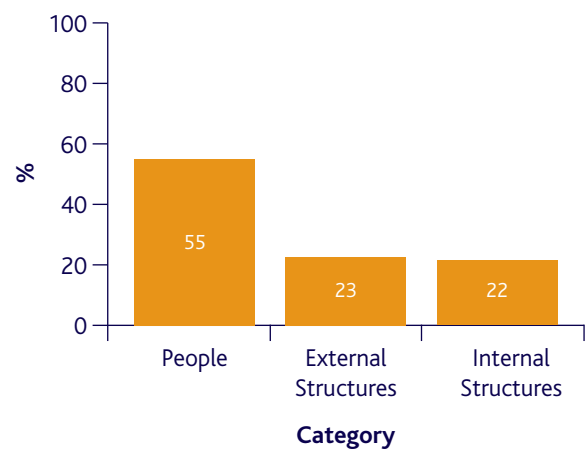
Figure 4.1 Firm value – components



Source: CIMA/UL Research Programme

The most striking finding is that CFOs in the fastest growing sector of the fastest growing economy in Europe believe that the greatest source of enterprise value derives from IC. The average figure suggested was 59%. Two aspects of this figure are significant: the first that the figure is so high; the second that, despite a severe downturn in the sector immediately prior to the study, the percentage of corporate value attributable to IC remains robust². Further analysis of the IC component is presented in Figure 4.2.

Figure 4.2 Drivers of intellectual capital



Source: CIMA/UL Research Programme

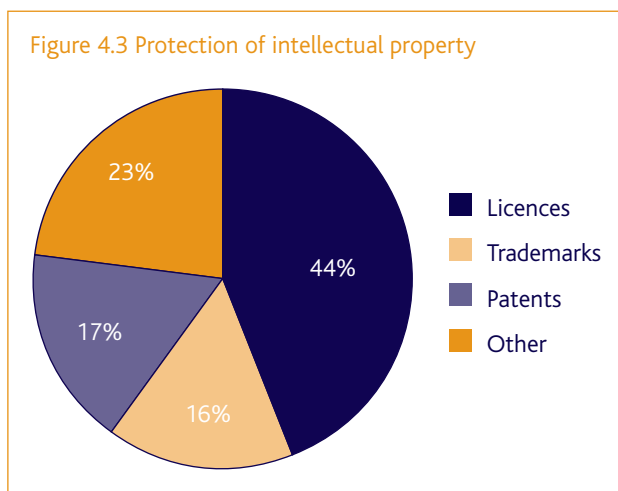
² A study carried out by a team comprising researchers at the University of Limerick, the University of Maryland and the Irish Management Institute in 1999-2000 had established a figure of 64% for IC.

The results presented in Figure 4.2 are also highly significant in confirming that the greater part of this IC can be traced to the people element in these firms. CFOs perceive that over half (55%) of this intangible value derives directly from the people employed in these knowledge-intensive firms. This confirms that people are now regarded as the most important resource in knowledge-intensive organisations, and that finding them, developing them and holding on to them have become important challenges. This suggests that CFOs operating in the knowledge-driven ICT sector view employees as assets whose primary function is to generate revenue by converting knowledge into a marketable form. In this context, accounting, investment appraisal and other control and decision-making techniques must revisit the traditional view of employees as costs.

The percentage of IC attributable to both external structures and internal structures is 23% and 22% respectively. While perceived to be less significant than people, both of these elements form critical components of any balanced IC resource, and highlight the importance of factors such as strong Customer Relationship Management (CRM) and data collections systems.

4.4 Licences/trademarks/patents

Intellectual Property (IP) can be understood as a knowledge-based asset whose ownership has been definitively captured by the firm. Whereas traditionally, firms have had little difficulty in establishing ownership of those products that they manufactured, there is now anecdotal and legal evidence from the US of knowledge employees contesting ownership rights. With this in mind, respondents were asked to indicate how their firms capture the stock of IP at their disposal by distributing 100 points between four options: 'licences', 'trademarks', 'patents' and 'other'. As Figure 4.3 illustrates, Licences were cited as the most popular method at 44%.



Source: CIMA/UL Research Programme

In addition, respondents were asked for their opinion as to the degree of ownership that their firms claim in relation to the knowledge-based products and services developed by their employees. A score of 6.2 (on a scale of 1-7) indicates that these firms strongly resist any claims to ownership by employees.

Indeed, unlike their US counterparts, there was little evidence that employees in the Irish ICT sector are actually contesting ownership rights. Our question, asking whether employees are attempting to claim ownership rights to knowledge-based products, processes and services developed by them in the course of their employment, yielded a score of 1.7. This is consistent with a strong commitment to organisation success on the part of employees as reflected in a score of 5.04.

4.5 Summary

The dynamics of the 'new economy' bring to the fore resources not recognised or measured by the traditional models of control. The characteristics of these resources, particularly the intangible nature, present significant challenges for firms, for CFOs and for the accounting profession in general.

In summary the main findings in this section are:

- IC emerges as the most significant source of company value. Therefore, it is critical that firms succeed in recognising, measuring and incorporating it into internal control and resource allocation models in order to exploit its full potential and yield competitive advantage.
- The people element is viewed as the single biggest contributory factor. The implication is that finding, developing and retaining people with appropriate and adaptable knowledge skills will be a significant factor in determining corporate survival and success.
- IC is more than IP, which can be more properly understood as knowledge-based assets whose ownership have been definitively captured by the firm.
- Licences are the most popular method by which firms attempt to establish and protect their IP rights.
- Firms seek to secure ownership of all knowledge-based products, processes and services developed by their employees during the course of their employment and employees are generally not contesting this.

These findings also confirm the extent of the challenge for functions such as accounting, in that currently these resources are largely absent from many of the internal management reporting processes intended to facilitate resource allocation, decision-making and investment appraisal (see Chapter 5). Unless the traditional guardians of corporate control and management develop techniques and conceptual frameworks within which IC can be captured, the capacity of firms to manage these resources will be compromised.

5. Corporate Governance

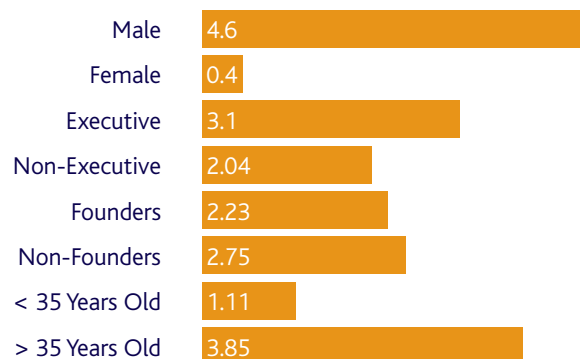
5.1 Introduction

The emergence of the ICT sector over the last decade has paralleled considerable debate amongst governments, regulators and professionals as to the best and most efficient ways of governing and controlling firms. There has been much talk of corporate responsibility, good governance practices and the need to recognise the rights of a broader range of 'stakeholders'. In particular, the realisation that employees are now incontestably a firm's most critical resource has prompted a reconsideration of the 'balance of power' between the providers of financial capital and the providers of intellectual capital. The human, financial and structural cultures of the 'new economy' might be expected to reflect many aspects of this agenda.

5.2 Board of directors

Given the critical role played by the board in the governance and organisation of firms, respondents were required to answer a number of questions in relation to their structure, composition and role. The results indicate that boards of directors in this sector show little variation in either gender or age profile from boards operating in firms in more traditional sectors.

Figure 5.1 Composition of board of directors



Source: CIMA/UL Research Programme

As indicated in Figure 5.1, average board size is five, with males dominating (4.60). There is no evidence of any fracturing of the glass ceiling with women continuing to provide only a token presence (0.40). In only five cases did the number of female board members exceed two and in no case did women comprise a majority of the board.

The majority of board members are executive (3.10). However, in line with best practice these are supplemented with non-executives (2.04). The majority of board members are over 35, with non-executive directors being older, on average, than executive directors. This suggests awareness of the importance in terms of both strategy and financing of the presence of experienced board members and of the broader governance issues surrounding the presence of non-executives. Founders are in a minority on the board (2.23). This suggests that at least one member of senior management who was not a founder is commonly found on the board.

The results also indicate that venture capitalists protect their investment through board participation.

5.3 Best practice³

When asked about the governance culture within the firm and, in particular, the extent to which the firm conforms to best practice, the responses revealed a mix of high aspiration and limited achievement.

For instance, when asked to assess the extent to which their firm conforms to best practice in relation to corporate governance, the average response (5.12 on a scale of 1-7) revealed a state of healthy self-assessment. However, when this was compared with the extent to which firms briefed board members on current best practice, they did not score well (2.90).

The importance of financial information in the context of facilitating board decisions was also investigated. Encouragingly for accountants, accounting information is still viewed as central to the decision-making process (4.90). Not only is it perceived as important that board members should be able to understand financial information (6.39), but CFOs are confident (5.75) that board members can actually do so. This would seem to confirm the continuing centrality of financial and management accounting information to the decision-making process. Given the deficiencies of accounting information, however, particularly in its relative exclusion of information specific to IC (see Chapter 7) it may also signal the incomplete nature of the information on which major strategic decisions are being formulated.

5.4 Summary

This research provides little evidence of any significant democratisation of the governance culture in firms operating in the ICT sector. Indeed, it would appear that this sector has a governance culture quite similar to that prevalent in traditional firms.

In summary:

- Boards are still dominated by males, with females providing a token presence.
- Non-executive directors form a minority of the board, but play an increasingly important role.
- Venture capitalists secure their investment with representation on the boards.
- Lip service is paid to some aspects of best practice.
- There is little evidence of a democratisation of ownership to embrace a wider set of stakeholders.

³ See Corporate Governance – Leadership not Management: Practical Guidelines for Ambitious Private Companies, Prospectus Group, 1998. Sponsored by Enterprise Ireland, this has encouraged private indigenous Irish firms to incorporate best practice tailored to the needs of the private sector.

6. Financial Performance, Structure and Valuation

6.1 Introduction

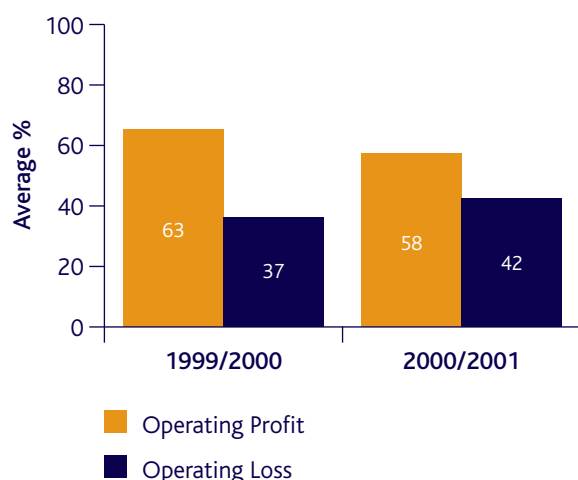
In order to facilitate a more objective assessment of corporate performance, each firm was asked to provide information about financial performance for the two most recent audited periods. Surprisingly, given that the questionnaire was targeted at CFOs, the level of information provided was disappointing. Only four firms supplied full annual reports. Those unwilling to provide annual reports were given the option of providing data under specified headings (e.g. turnover, operating profit, net assets, etc.). 64 firms supplied information in this manner. 68 firms have therefore supplied data in total.

6.2 Profitability

Media and industry comment as well as the activities of financial analysts and venture capitalists have placed a major emphasis on revenue generation and market-share, as distinct from profitability, as the real arbiters of value and wealth in the ICT sector. Indeed, until the recent downturn, loss-making firms in new economy sectors were not perceived in an unduly negative light by investors.

It is significant, therefore, that, as indicated in Figure 6.1, the majority of firms surveyed (58%) are now profitable, as measured by profit before interest and tax (PBIT). This does, however, represent a decline on profitability levels achieved in the previous year (63%) and reflects the more difficult trading environment experienced by most firms over this period. It is also probable that in a period of retrenchment, where funding requests are likely to be reviewed on more traditional bases, profitability will become more critical. In this context the fact that 42% of firms are loss making is significant.

Figure 6.1 Profit before interest and tax

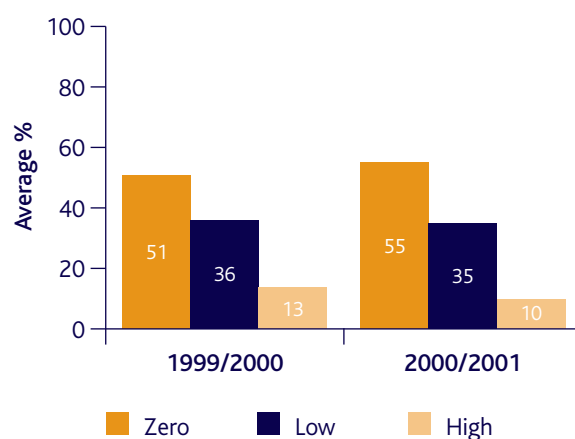


Source: CIMA/UL Research Programme

6.3 Financial structure

The evidence from the financial information provided is that this is a relatively low-g geared industry, with the bulk of funding coming via equity. Indeed, over one-third of firms have no external debt, as shown in Figure 6.2. Only 10% of companies can be classified as 'high-g geared', i.e. having a funding profile where over half of all long-term funding is comprised of debt. The relatively 'low-g geared' nature of the sector is also a function of the widespread incidence of Venture Capital (VC) equity funding.

Figure 6.2 Gearing (long-term debt / equity + long-term debt)



Source: CIMA/UL Research Programme

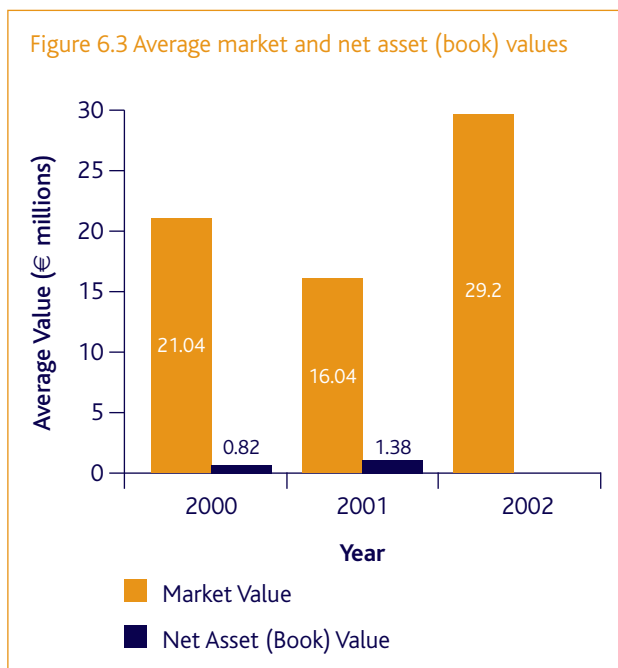
As Figure 6.2 illustrates, most firms are being funded by means of equity investment and retained profits. The almost complete absence of profit distributions, whether in the form of taxation or dividends, allows profits to be reinvested and reinforces equity as the primary source of investment.

The absence of substantial debt-exposure augurs well for the medium-term financial stability of private indigenous Irish ICT firms. It also allows scope for a more balanced mix of funding sources when many of these firms move to either expansion or acquisition phase.

6.4 Valuation

One of the most topical and contentious issues relating to firms in this sector is the large gulf between what the traditional, historical cost accounting system and the market indicate as 'value'. While cognisant of the fact that the financial reporting system does not pretend to calculate 'value' per se, and that these are private firms, and thus have no objective market value, it was decided to seek subjective measures of valuation. The results yield some interesting insights.

CFOs were asked to provide a subjective valuation of the market value of the firm at three points in time: one year ago; current and one year hence. The average firm value indicated by the responses received is shown in Figure 6.3 with matched net asset (book) values for the two most recently audited years (Net book values are not yet available for 2002).



Source: CIMA/UL Research Programme

The most significant aspects revealed here are the large gulf between book value and perceived market value and the extent to which this latter value fluctuates. While average firm valuation was €21.04m one year prior to data collection, by the time of the survey this was perceived to have declined by almost one quarter to €16.04m. This coincided with the market downturn in this sector. The inference is that, while firm-specific issues continue to apply, fluctuation can be correlated to some extent, to macro-economic factors and market sentiment. The expectation that market values would not only recover but double during 2002 has not been fulfilled.

The significance of these figures is emphasised when the average net asset (book) value produced by the traditional accounting model is compared with the market values for the current and previous years. This indicates that, while the more conservative valuations prompted by the recent market downturn have caused a narrowing of the gulf between the two, the market-to-book ratio remains substantial at over 11:1.

This serves to confirm the deficiencies in the current accounting model as it struggles to remain relevant to users. CFOs are suggesting that a substantial part of this gulf can be explained by the absence of IC from the traditional accounting template. The development of concepts and techniques by which internally generated intangibles such as IC may be recognised and measured would, therefore, go some way towards bridging this 'relevance gap'.

6.5 Summary

The most obvious conclusion to be drawn from an analysis of the financial performance and structure of private indigenous Irish firms in this sector is their relatively robust state of health. Whilst a large minority of firms are loss making, the majority of those surveyed provide evidence of profitability and low gearing. The majority of private, indigenous Irish firms are well placed to survive any sectoral downturn and to capitalise on any upturn in the short to medium term. In this context availability of cash will be critical in ensuring that business plans are funded and successfully realised.

The principal findings in this section are:

- Most firms are profitable and showing growth in revenues. However, a significant and growing minority of firms is incurring losses.
- The funding arrangements of most firms are rather basic with the bulk of funding deriving from equity investment. The industry can be characterised as 'low-g geared' with an unsophisticated, but robust, financial profile typical of any industry at an early stage of development.
- CFOs remain confident that a change in market sentiment will mean a return to high valuations in the short to medium term.
- While allowing that the accounting model does not pretend to calculate firm 'value', a market-to-book ratio of over 11:1 provides some measure of the deficiencies of the current accounting model, as well as some indication of the optimism common to this sector.

7. Management Accounting Issues

7.1 Introduction

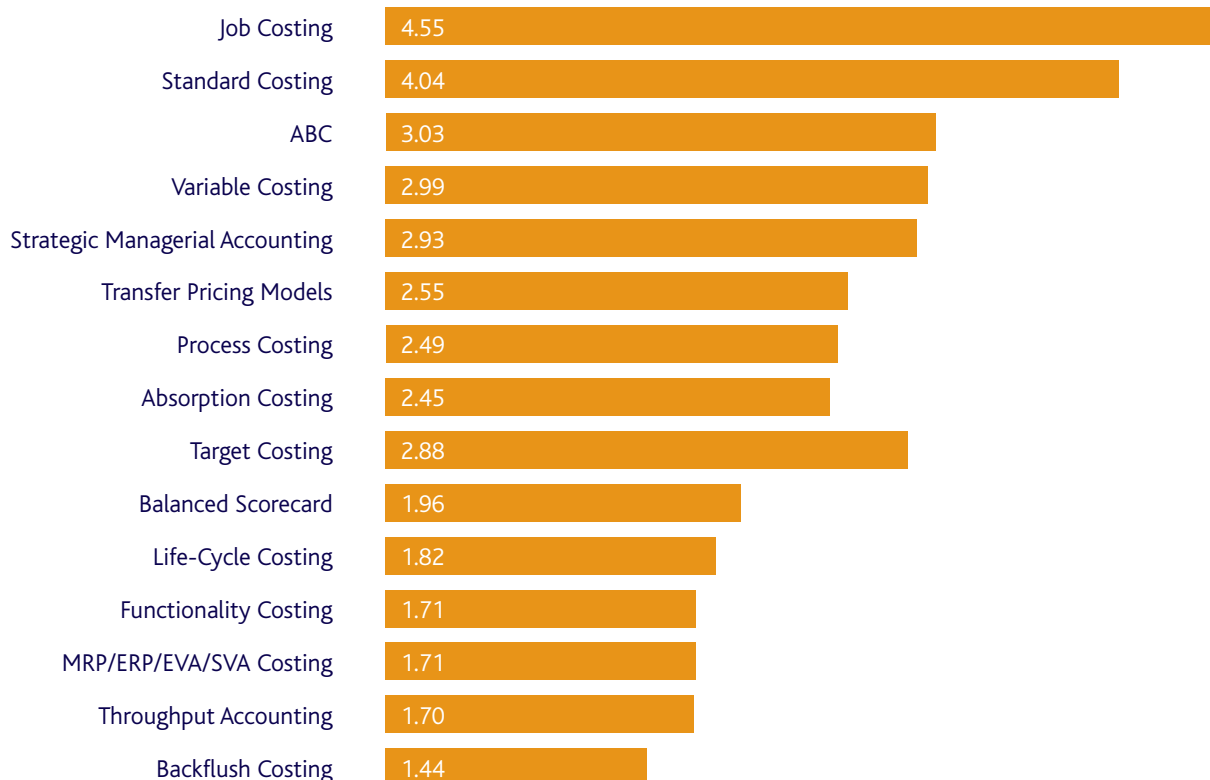
The business environment and its management information needs have evolved dramatically in the last decade or so. This suggests that the role and contribution of the management accounting function should have significantly increased in importance in most firms. The contemporary management accounting literature confirms the view that it has undergone a renaissance since the mid 1980's. At the core of this renaissance is the perceived obsolescence of traditional management accounting systems and the deployment of new, and in some cases reconstructed concepts such as activity-based costing (ABC), economic value added (EVA), functionality costing and target costing to mention just a few. This 'revolutionary' approach can be traced to the US by academics such as Kaplan and Johnson. A less radical 'evolutionary' approach, has been propounded by UK-based researchers such as Bromwich and Bhimani. In essence, this perspective argues that significant change has taken place in the way management accounting is used but not necessarily in the introduction of new systems and/or techniques.

Notwithstanding this, the conventional wisdom places management accounting in a service role, charged with providing high quality, scorekeeping, attention-directing and problem-solving information to all levels of management for decision making purposes. Given the speed of change impacting on the firms surveyed in this study, one would anticipate that they would carry out some form of external positioning or benchmarking as a matter of routine and operate with a spirit of empowerment at most levels.

7.2 Management accounting systems

The survey established which management information systems firms were using by asking each respondent to indicate the level of usage of various systems on a 7-point Likert scale (1=no usage and 7=very high usage). The result for each information system is shown in Figure 7.1.

Figure 7.1 Management information systems – level of usage



Source: CIMA/UL Research Programme

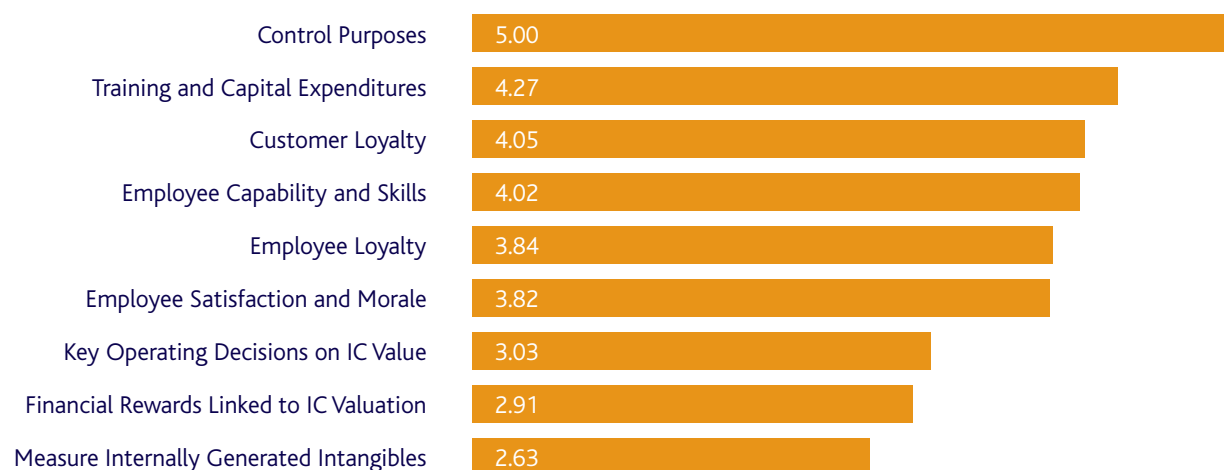
Figure 7.1 shows that traditional, embedded systems, such as job costing and standard costing/variance analysis, are the most widely used, with scores of 4.55 and 4.04, respectively. This is consistent with the typical business model used by most of the firms surveyed. The relatively low adoption of the more contemporary and innovative ABC, variable costing and strategic managerial accounting approaches is in line with expectations with scores of 3.03, 2.99 and 2.93, respectively. The reported usage of absorption costing, with a score of 2.45, suggests that most firms choose to write off their fixed manufacturing costs at the time they are incurred and do not apply a full cost inventory valuation model. These results are in line with recent CIMA-sponsored surveys (Burns et al / Innes & Mitchell) and confirm the 'evolutionary' development of the managerial accounting function.

There is little evidence that firms in the private, indigenous Irish ICT sector have embraced any of the contemporary management accounting processes or systems such as the balanced scorecard, MRP, ERP, EVA or SVA. A small number of firms (n=9) described proprietary systems that they employed to assist in the recognition and/or measurement of internally generated IC. In almost all cases, the system was effectively a data tracking system with the potential to inform a valuation model that had yet to be developed.

These results suggest that many firms continue to manage their operations and make key strategic decisions without extensive use of contemporary management accounting systems. Therefore, it is reasonable to conclude that they rely almost exclusively on the traditional integrated cost accounting model to deliver their management information needs.

CFOs were also asked to record their perceptual response to a number of statements about the uses to which the management accounting systems were being put. Figure 7.2 confirms the use of management accounting information primarily for control purposes with a score of 5.0. This depicts a command/control philosophy rather than one of empowerment. Given this perception, one would have expected stronger support for regular reporting of measures of employee satisfaction, employee capability, employee loyalty and customer loyalty. In all cases, scores in the range 3.82 to 4.05 reflect marginally moderate levels of use. This suggests that the firms surveyed are using the management accounting function in a very narrow and traditional cost accounting context. A score of 2.63 for the proposition that 'management information systems include measures of the internally generated intangible assets of the firms' confirms this view. Furthermore, it would appear that no attempt is made to associate key operational decisions and financial reward incentives to the IC valuation of the organisation.

Figure 7.2 Applications of management information systems – level of application

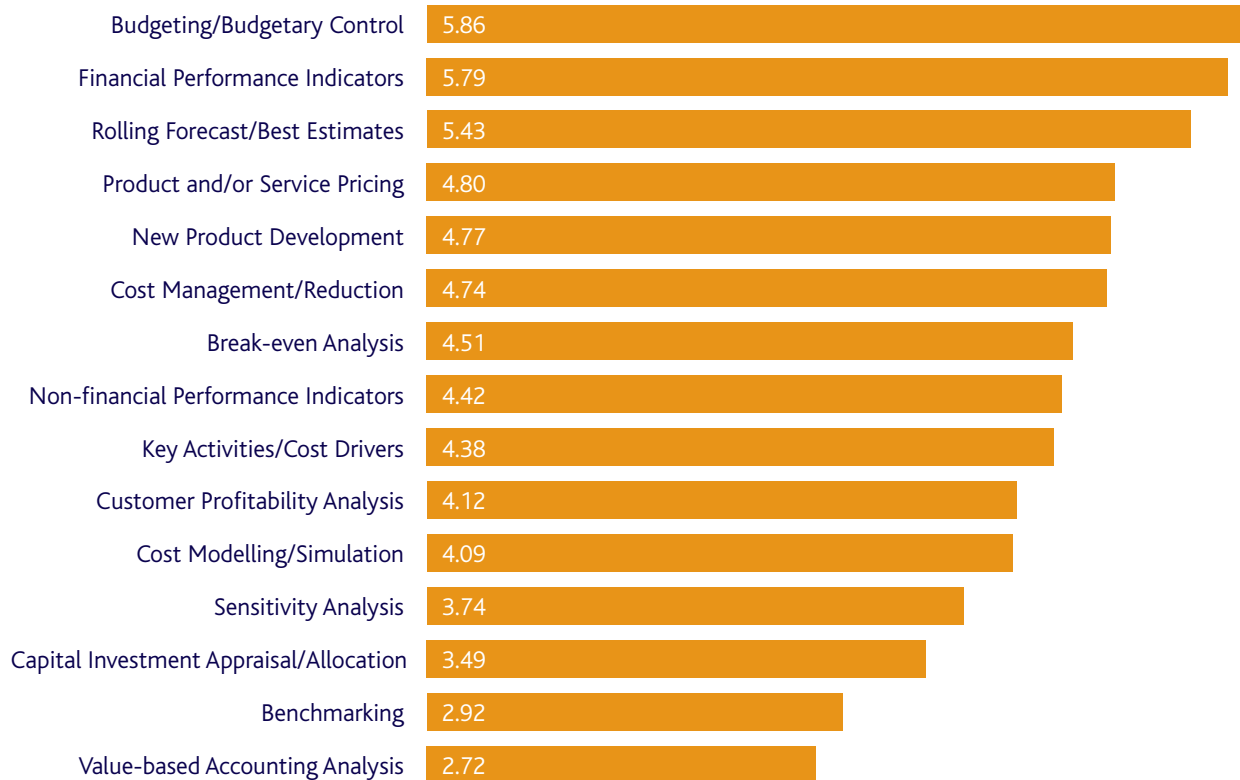


Source: CIMA/UL Research Programme

7.3 Types of management accounting information

In addition to identifying what management accounting systems were being used and how, respondents were also asked to indicate the level of importance assigned by firms to different types of management accounting information. This was undertaken in order to establish whether firms were generating management information from a number of sources and in an ad hoc manner. It also recognised the growing perception that accounting knowledge, and the management accounting function specifically, was being 'de-centred' within many firms. Each firm recorded their response based on a 7-point Likert scale (1=no importance and 7= very high importance). The average result for each type of management accounting information is shown in Figure 7.3.

Figure 7.3 Management accounting information – level of importance



Source: CIMA/UL Research Programme

The results demonstrate that budgetary control and financial performance indicators are perceived as most important, with scores of 5.86 and 5.79, respectively. This is to be expected given the traditional nature of the systems used, as reported in Figure 7.1. The level of importance given to rolling forecasts/estimates and cost management information with scores of 5.43 and 4.74 is not consistent with a budgetary control philosophy and may reflect a more enlightened concept of performance measurement and control.

Notwithstanding the traditional nature of the management accounting systems adopted by most firms, they recognise the importance of generating and reviewing information on issues such as product pricing, new product development and cost-volume-profit analysis with scores in the range 4.51 to 4.80. There is some recognition given to the importance of non-financial performance indicators with a score of 4.42 and a strong level of support for the identification of cost activities/drivers at a score of 4.38. This latter result may be due to firms embracing some of the ABC concepts or techniques selectively, rather than full adoption due to overall cost and complexity.

The relatively low importance assigned to customer profitability analysis (4.12) is inconsistent with the wealth-creating dynamics of the sector outlined earlier. The same applies to the importance accorded to value-based accounting analysis and benchmarking information with scores of 2.72 and 2.92, respectively. The implication is that, while the role of Customer Relationship Management (CRM) is recognised as an integral part of the management of IC, internal control systems that might reflect this are not being adopted or developed.

7.4 Summary

In general, the results show that firms rely largely on traditional financial performance indicators and budgetary control to manage their business activities. The results also suggest that firms supplement this to a moderate extent with a range of ad hoc information from sources other than the mainstream cost accounting system.

In summary, the results show:

- Very low usage of contemporary management accounting systems and applications.
- Moderate usage of a traditional budgetary control/standard costing framework coupled with the adoption of job costing and some application of activity-based costing principles as well as rolling forecasts and estimates.
- Management accounting practice operates in a command/control context rather than in a spirit of empowerment.
- Little evidence of external positioning/benchmarking or of a strategic management accounting focus.
- Very low importance given to capital investment appraisal/allocation information.
- Some recognition given to the importance of non-financial performance indicators.
- No comprehensive attempt to measure or monitor the IC value within a firm.

Taken together, the results are surprising, given the innovative nature of the sample population and its product profile. They suggest that senior management is making key strategic and operational decisions without the benefit of integrated and sophisticated management accounting systems. Consequently, it appears that they are relying largely on traditional historical financial performance indicators and long-established budgeting and forecasting practices to carry out their responsibilities. There is some evidence of ad hoc management information being generated from other sources. However, the quality, timeliness and relevance of such information are of some concern. Given the dynamics and velocity of change inherent in this sector, one would have expected strong evidence of innovative concepts and applications such as lifecycle costing, functionality costing and target costing. Thus, this study confirms that management accounting systems and applications are not being exploited to their full potential.

Finally, it is obvious that the enormous advances in computing and software technology in recent years have not been reflected in the manner in which the management accounting function is carried out in the private indigenous ICT sector in Ireland. This raises critical questions as to the integrity of the information used by management in deciding on important issues such as pricing, product mix and customer-profitability-analysis. It is also consistent with the view that there is room for improvement in the management of these firms and that this should eventually be reflected in improved operating results.

8. Remuneration and Workforce Issues

8.1 Introduction

The need to encourage innovation, while simultaneously ensuring that key employees are adequately rewarded, has posed particular challenges for the ICT sector in Ireland. Indeed, much media and industry comment has focused on the remuneration packages and work culture of the ICT sector. In the light of this, participants were asked to return information under a variety of headings in order to facilitate a more informed analysis of both the remuneration policies and the specific human dynamics typical of this sector.

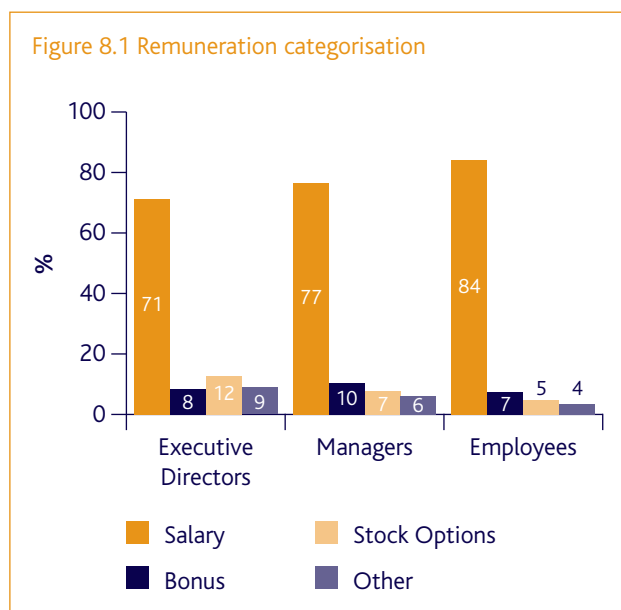
8.2 Remuneration packages

To better understand the ways in which remuneration packages were being used to both reward and encourage executives, managers and employees, respondents were asked to provide information relating to remuneration under a number of headings.

For three groups (executive directors, managers and employees), respondents were asked to distribute 100 points between the following four categories: salary, performance-related bonus, stock options and other (pension, health insurance, car, etc).

The feedback indicates that basic salary represents by far the largest means of compensation. Indeed, performance-related bonuses form only a small part of the total remuneration package.

This is illustrated in Figure 8.1.



Source: CIMA/UL Research Programme

Stock options are found not to be a significant factor in the remuneration profiles of most of these firms. Indeed, slightly less than half of the firms operate such schemes, although this may be a function of the private nature of the firms surveyed. Where stock options are granted, they form a significant, if relatively low, component of the remuneration packages of executive directors (12%). This percentage declines rapidly the further one descends the organisational hierarchy. Significantly, CFOs remain unsure as to the suitability of stock options as a means by which key employees are both attracted and retained (3.8), a perception probably influenced by the recent downturn in the value of technology stocks globally. Furthermore, it appears that there is no rush on the part of most firms to compensate employees whose options may now be of much reduced or little value (1.8).

8.2.1 Total payroll costs

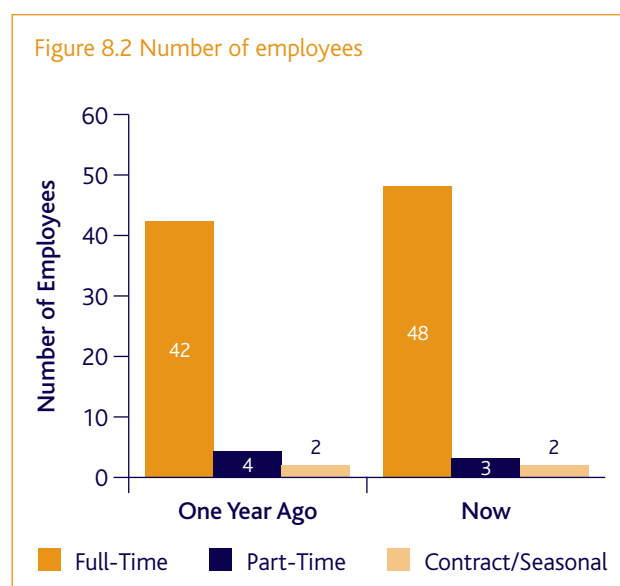
CFOs were also asked to provide details of their annual payroll costs for both managers and employees. Average total payroll costs per firm amount to €1.9 million per annum.

8.3 Workforce issues

The ICT sector has often been characterised as dominated by highly educated twenty-something high-fliers who are constantly seeking more lucrative employment opportunities elsewhere. This section investigates these perceptions and provides feedback on the HR policies of firms in this sector.

8.3.1 Number of employees

Notwithstanding the recent global economic downturn, the average number of full-time employees in the private, indigenous Irish ICT sector has risen within the twelve months preceding this study from 42 to 48, an increase of 14%, as shown in Figure 8.2 below. The percentages of part-time and contract employees have reduced from 9.5% to 6.3% and from 4.8% to 4.1% respectively.



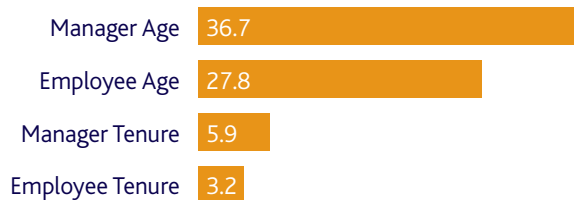
Source: CIMA/UL Research Programme

8.3.2 Average age and tenure

The employment figures, noted in Figure 8.2 above, hide some significant internal trends. There is evidence of significant turnover, poaching activity and some involuntary redundancy. While the number of managers who left their firms either voluntarily or involuntarily in the past year was practically insignificant, on average slightly more than 14.5% of employees left of their own accord, while 12.5% left their firms involuntarily. This suggests that employee turnover remains quite high. Poaching is also prevalent in the sector, with competing firms engaging in a policy of attempting to recruit key personnel from their rivals (4.84). CFOs, however, believe that their own firms are more successful than competitors at retaining their key employees (5.51) and that the likelihood of them retaining their key employees for at least the next few years is high (5.56).

As shown in Figure 8.3, the popular perception of this as a sector dominated by a relatively young workforce is given some credence by the age profile of those employed: the average age of managers is 36.7 and of employees is 27.8. The average managerial tenure within respondent firms currently stands at slightly less than six years, whilst for employees, the average tenure is just over three years.

Figure 8.3 Average age and tenure

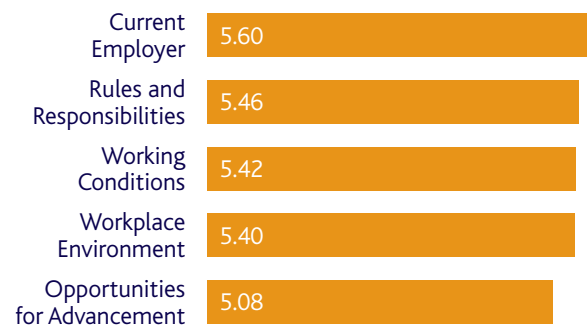


Source: CIMA/UL Research Programme

It may be that the policy of rapid promotions that exists within many of these organisations has had the desired effect of inculcating within employees a willingness to remain with their current employer for the medium to long term. The fact that employees appear to possess a strong sense of belonging to their respective organisations (5.49), manifesting itself in the guise of a positive outlook regarding their individual firms' future prospects (5.12), may be a crucial factor in this regard.

These results are consistent with perceptual feedback relating to statements that sought to determine the satisfaction level of employees with regard to facets of the employment relationship. As reported in Figure 8.4, CFOs believe that employees are quite satisfied with the following: current employer (5.60), roles and responsibilities (5.46), working conditions (5.42), workplace environment/climate (5.40), and opportunities for advancement (5.08).

Figure 8.4 Employee satisfaction levels



Source: CIMA/UL Research Programme

8.3.3 Education

As education level is often cited as one of the primary factors in improving national economic growth and in distinguishing between firms, respondents were asked to indicate the extent of both managers' and employees' educational/professional levels of attainment. A rating of 1 indicates an employee educated to Leaving Certificate standard, 2 Certificate level, 3 Diploma level, 4 Degree level, and 5 Masters degree or Professional qualification.

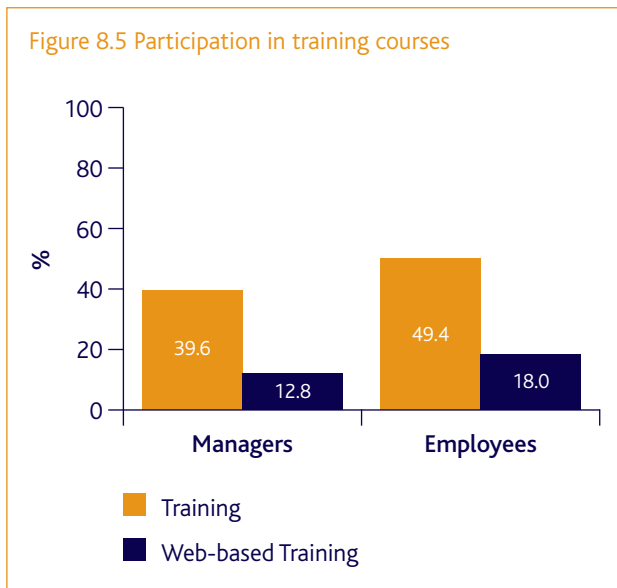
The results indicate that managers are generally more highly educated than employees. On average, managers possess a primary undergraduate degree while some have obtained either a master's degree or some form of professional accreditation (4.2). Employees are also highly educated, generally possessing at least a diploma with a significant number having reached degree level (3.7). It appears that the educational norm for employees in this sector is at, or close to, primary degree level. These results are consistent with the view expressed by respondents that employees are 'well qualified' (5.57).

The attainment of such educational standards would also appear to justify the responses in the study. The perception of respondents that employees within their respective firms: generally have the intelligence and aptitude to succeed (5.94); demonstrate the ability to identify and solve complex problems (5.85); possess the necessary knowledge, skills and competencies to succeed (5.74); and demonstrate creativity and innovation (5.52).

8.3.4 Training and development

In a knowledge economy, learning, education and training are expected to be continuous. Respondents were asked to indicate the percentage of both managers and employees that received training in the past year. They were also asked to indicate the percentage of both groups receiving web-based training, regarded as an emerging and cost-effective method of learning and training delivery.

Figure 8.5 Participation in training courses



Source: CIMA/UL Research Programme

As Figure 8.5 demonstrates, almost 40% of managers and 50% of employees participated in some form of training during the past year. In terms of web-based training, almost 13% of managers and 18% of employees availed of this medium. This relatively low level of training is somewhat at odds with the assertion of CFOs. They state that employees do receive the appropriate training for their jobs (5.31) and the claim that notwithstanding the method of training delivery, firms have established the mindset and systems necessary to support employees' continuing educational needs (5.07). Respondents were reasonably adamant that training and development is available to anyone who needs it (5.37).

On average, firms spend just over €25,400 annually on managerial training and €140,000 on employee training, representing an average of just under €2,900 per employee.

8.3.5 Average hours worked per week

Contrary to the general perception, there is little evidence of a workforce being required to work an inordinate number of hours. Indeed, while managers would appear to have a significantly longer working week (46.3 hours), the comparable figure for employees is fairly standard (40.9 hours).

8.4 Summary

This chapter has attempted to shed some light upon the human resource policies adopted by firms operating within the Irish ICT sector as well as providing an insight into the dynamics of the workforce employed.

The people dimension of intellectual capital is perceived to constitute its most critical component. Constructive cross-functional dialogue between management accounting and human resource professionals, as also suggested in three recent CIMA publications (Edwards, Collier and Shaw, 2003; Innes, Kouhy and Vedd, 2003; Starovic and Marr, 2003), is endorsed here. Knowledge and intangible values are cross-functional entities; it follows that the management of such entities demands a cross-functional focus in areas such as control, measurement, performance management systems, personnel rewards, selection, development, retention and so on. Innes, Kouhy and Vedd (2003), drawing on case studies in the UK and Canada, find that management accountants provide much information for decision-making, setting targets and performance measurement in the strategic human resource management process.

The main findings are:

- Salary remains the primary component of remuneration packages.
- Performance-related bonuses are not a significant component of remuneration.
- Stock options are granted by less than half of firms and are not a significant component of remuneration.
- The average number of hours worked per week was 46.3 for managers and 40.9 for employees.
- Average age and tenure of managers is 36.7 and 5.9 years respectively.
- Average age and tenure of employees is 27.8 and 3.2 years respectively.
- Educational levels in the sector are high. Managers have typically reached degree level and beyond. Employees, on average, are almost at degree level. A graduate, third level qualification is becoming the entry norm.
- A strong argument can be made for encouraging constructive dialogue between management accounting and HR professionals in managing intangible resources.

9. E-business, Accounting and the CFO

9.1 Introduction

Ireland is by far the world's most 'globalised' of over sixty countries listed in a report produced by Foreign Policy Magazine and management consultants A.T. Kearney⁴. It is also third in the world, behind Singapore and Hong Kong, in per capita exports. Many of the 'globalised,' private, indigenous ICT firms surveyed here are in the business of creating and marketing global e-commerce or e-business solutions. They have, therefore, a direct contact with, and vested interest in, the e-business environment.

This chapter reports on the extent to which these firms have implemented e-business activities. It also explores the level of involvement of CFOs in the e-business implementation process. Levels of e-business implementation in six key areas (e-market orientation, e-financial management, e-infrastructure management, e-human resources management, e-information management and e-process management) and the personal level of involvement of CFOs in implementing these e-business interventions are investigated. The key questions addressed are:

- To what extent have private indigenous Irish ICT firms implemented e-business?
- How involved have CFOs been in the process of e-business implementation?

The knowledge economy and the growth in e-business challenge both the role of the CFO and the accounting function. However, there is as yet little clarity as to how specifically the role of the CFO and the position of the accounting profession and discipline will be affected by such trends. One perspective suggests that CFOs are likely to become more involved in corporate strategy across functions and throughout the entire e-value chain. An alternative perspective predicts that accounting as both a discipline and a profession is being downgraded, with a resultant diminution in the role and status of accountants and CFOs. We refer to this as the e-architect/foot-soldier question.

9.2 E-business overview

A recent IDC eWorld survey finds that large businesses are increasing their spending on e-business by 20-30%, and hoping to grow online revenue by up to 50%⁵. Indeed, in spite of the 2000 dot.com downturn and a slowing economy, the outlook for e-business growth is robust. What the IDC study demonstrates is that e-business has passed through the transition from the Phase-1 dot.com era to Phase-2, the infrastructure build-out era (see Table 9.1). Assimilating an e-business process and culture as a means of cutting costs and improving productivity, revenue and competitiveness has now achieved the status of a business imperative.

⁴ Financial Times (January 2, 2002).

⁵ This comprehensive IDC eWorld survey, conducted in the first half of 2001, obtained responses from 13,000 CIOs (Chief Information Officers) and IT managers in 27 countries via telephone, and 2,000 online responses from internet executives in 12 countries (Gantz, 2001).

Table 9.1 E-business: from perception to reality

Perception	Reality	Drivers
E-business impetus has collapsed.	Wrong: 20-30 per cent growth in 2001; bricks-and-mortar firms are going online	Speed; cost; competitiveness; front-end and back-end system integration
Everyone who wants to is already on the Net	We are only just starting to build the e-business landscape	Global competitiveness and 'network effects'
B2C is dead	Bricks-and-mortar selling online doubled in 2001; home internet shopping to triple in four years; B2C volume ~\$100 billion in 2001 to ~\$700 billion in 2005	Need to build web channels; broadband; more online content
Mobile is the future	Probably not in the U.S. Yes in Europe and Asia	When mobile devices, services and software improve
E-business is about web sites	E-business is also about systems and a lot of work remains to be done	Sales; logistics; supply chain; CRM; databases; gap between e-business investment and existing e-business infrastructure
E-business is for big firms	Small firms are embracing e-business	Lower communications, server, hosting and service costs; new market opportunities
E-Marketplaces are a mystery	Bricks-and-mortar companies know about them and plan to use them	Efficiencies and synergies; success stories
The dot.com crash means that e-business is all hype	No stocks were valued for the wrong reasons. Huge opportunities exist.	Maturing technologies; comfort zones

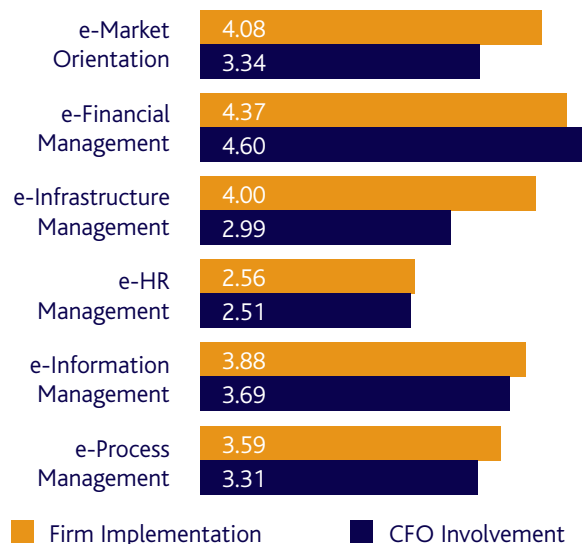
Source: Summarised from Gantz (2001).

9.3 Findings and discussion

Levels of e-business implementation in six key areas as well as the personal level of involvement of CFOs in implementing these interventions are presented in Figure 9.2.

As in other areas, respondents were requested to rank e-business implementation and CFO involvement on a 1-7 scale (1 = none, 7 = full implementation/involvement). We tentatively conclude that although there is evidence of both e-business implementation and of CFO involvement in this process, there remains quite some distance to be negotiated before either CFOs or accounting functions can claim to be strategic leaders or e-process architects in the e-business arena.

Figure 9.2 E-business: firm-level implementation and CFO involvement



Source: CIMA/UL Research Programme

With the exception of the e-financial management function, CFO level involvement in e-business lags firm level implementation. Given that the sample group comprised of finance directors/controllers and accountants, the high level of personal involvement in e-financial management is not surprising. However, in all other core e-business areas (e-HR is an outlier here, as this is an area very much in its infancy in Ireland) CFO involvement significantly lags behind firm level implementation.

The mid-range rankings of e-business implementation at the level of the firm indicated in Figure 9.1, suggest that many of these firms have made significant strides in implementing e-business solutions. The findings on CFO involvement beg the question as to how much strategic leadership or facilitation is provided by CFOs in these areas? It would be difficult to classify these CFOs as foot soldiers based on the actual levels of involvement reported. On the other hand, if CFOs were acting as leading e-process architects in these firms we might expect to see the involvement rankings reported being in advance of implementation at the level of the firm. This is the case solely for e-financial management.

The levels of CFO involvement reported are, however, not insubstantial and signal that CFOs (and their firms) in this ICT sector appear to be more e-business aware than in the more general industrial population. Again, perhaps this should not be so surprising since many of these ICT firms are in the business of designing e-business solutions themselves. Furthermore, the intangible nature of their products and processes would be expected to differ significantly from manufacturing firms whose need for an e-procurement and e-marketplace presence would be greater. It is worth noting that very few firms can claim to have fully implemented and integrated e-business activities. Less than 20 per cent of U.S. firms, for example, claim to have 'fully integrated' CRM, ERP, supply-chain and order processing with their web sites⁶.

9.4 Summary

In summary, the results show:

- Medium range levels of e-business activity in the private, indigenous Irish ICT sector in the areas of e-market orientation, e-financial management, e-infrastructure management, e-information management and e-process management. e-HR systems are, as yet, underdeveloped.
- No evidence to support the proposition that the CFO (or the accounting profession) is leading the e-business revolution within Irish ICT firms.
- CFO level involvement lags behind firm level implementation in all e-business areas, with the sole, if unsurprising, exception of e-financial management.
- Some broadening of the traditional CFO role. Whether this emerging role extends beyond investment appraisal or otherwise, definitive conclusions cannot be drawn at this stage.
- That the future of the CFO/accounting role and power position remains far from clear.

There is undoubted pressure on all businesses to become e-businesses, whether B2B, B2C or both. This pressure, in turn, must impact on the traditional CFO role. For most CFOs in private, indigenous Irish ICT firms, however, there appears to be some distance yet to travel. CFOs are staying up to date on e-financial management developments 'because they have to' (CFO respondent). There is unquestionably considerable scope for enlarging the CFO's concept of e-business: from simply a tool for cost reduction and efficiency enhancement to an opportunity for business model redesign, precision supply-and-demand value-chain management and real-time gathering and reporting of strategic information. This implied broadening of responsibilities makes the future of the CFO position far from clear. Some observers suggest that conflict is inevitable as CIOs (chief information officers), CTOs (chief technical officers) and CFOs vie for influence and power in the e-business arena. Others envision a day when the CIO's responsibilities will be absorbed into those of the CFO – or vice versa. Either way, the complex evolving role of the CFO exemplifies the emerging cross-functional intertwining of business strategy, finance, information technology, human resources and e-business.

⁶ See Gantz, 2001.

10. Conclusions and Recommendations

This survey represents an initial attempt to investigate practice in relation to intellectual capital in the private, indigenous Irish ICT sector. Building upon intellectual capital as a useful construct in investigating the intangible asset base of a firm it allows some initial observations to be drawn, each with considerable implications for both the sector and the accounting profession:

- Intellectual capital is now seen to be a major source of value for firms operating in the ICT sector. As the boundaries of the 'new economy' begin to expand this is likely to increase. IC's proper management, delineation, recognition and measurement will be important in determining both sectoral and national economic development.
- Human competencies, skills, know-how and relationships are the most important elements contributing to a robust IC base. Firms must develop/leverage these resources, while at the same time recognising that the advent of IC may require a reconsideration of the traditional employer/employee relationship.
- There is no concerted or comprehensive attempt to measure or monitor the IC component of firm value. Firms continue to rely largely on traditional financial performance indicators and budgetary control to manage their business activities. However, these are supplemented to a moderate extent by ad hoc information from sources other than the mainstream cost accounting system.
- At present, senior management are making strategic and operational decisions in relation to key intangible resources without the benefit of integrated and appropriate accounting information systems. This, in part, reflects the perceived obsolescence of many financial and management accounting practices. A resolution of this deficiency is critical and will require the development or adoption of sector-specific benchmarks, taxonomies and templates that will allow IC to be properly recognised and measured.
- The role of traditional guardians of corporate resources, such as accountants, is uncertain in this more dynamic environment. Unless accounting systems and practices are developed that marry the dynamics of the new e-business environment with the best of the traditional accounting model, then the potential exists for others to meet this need. Indeed risk managers or chief information officers may secure a greater role at the expense of CFOs, and the accounting profession.
- This prospect is brought into sharper relief by the fact that in a range of e-business activities, CFO involvement lags firm-implementation levels, with the exception of e-financial management.
- While, as yet, there is little evidence of any dramatic changes in the corporate governance model in favour of more inclusive and democratic forms of ownership, US and EU developments indicate that change may be imminent.
- Dialogue between management accounting and human resource professionals is almost non-existent despite obvious synergies and areas of mutual concern.
- Accounting education must take cognisance of the changed operational, human and governance dynamics induced by the advent of the 'new economy' and e-business. The accounting profession must prepare itself for the ongoing 'de-centering' of the accounting function generally and the challenges provided by other providers of critical information.

This study represents an initial attempt to contour management, governance and reporting practice in relation to intellectual capital. It also offers an opportunity to encourage CFOs and others involved at a decision-making level in the ICT sector to actively engage with the best practice activities of various pioneering ICT companies operating internationally.

Considerable scope remains for further research into this evolving and increasingly important area. Investigation of the component parts of IC would yield considerable insights into the real drivers of wealth within firms, as would a more detailed analysis of the dynamics involved in creating an environment in which a workforce can be encouraged to be both innovative and creative. The results presented here represent a beginning in our understanding of the dynamics of this vital sector in Ireland.

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