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The Impact of Electronic Business on Accountants:

A Shareholder Value Perspective

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by

Paul Phillips
University of Surrey
School of Management

and

David Kirby
University of Surrey
UniSdirect

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SOME QUOTES FROM INTERVIEWEES

'If you don't occupy e-space other people will. It is important to make sure that no-one else gets in between you and your customer. Also, it is difficult to be strategic in e-space; there is so much risk and uncertainty'.

'I think that e-business is questioning exactly where the [business] boundary is because at some point you are looking at various processes and saying are they inside or outside'?

'Our customers and suppliers will want to interact with us electronically as will our employees. We find it quite hard, actually, to have a huge monolithic strategy because of all the uncertainties, what technologies there are going to be, will we be dominant players in the market place, who do you partner with…'

'Each director on the board is supported by a dedicated senior financial manager'.

'I don't think you can train to be a right brain person'.

'…a big thing at the moment is changing people's ideas of finance and we are looking at means of almost performing road shows and going back into businesses and saying look you know we can do this for you…'

'…one of our own initiatives [for accountants] is job shadowing…either inside or outside the department ….'

'I think being an accountant in business, the issues tend to be business focused rather than accounting focused.'

'I think that there are two important issues; the general area of control and, more specifically, the control aspects of e-commerce…'

Executive summary

While the opportunities presented by the Internet appear abundant, there are many difficulties inherent in achieving e-business success. A plethora of e-business models have been proposed and, during the first wave of the new economy, 'being online' was seen as a route to instant riches. However, after the meteoric rise of the 'dot.coms' in the period 1998 to 2000, there has been a dramatic fall in share values and a realignment of opinion about the long-term benefits of e-business strategy.

Participants in this study felt that e-business was here to stay and instead of accountants viewing e-business as a threat they should view the changes taking place as an opportunity. So, accountants can no longer ignore the new economy but, while there is growing interest in the area, there is no widely accepted framework that outlines what accountants need to do – as individuals in businesses and as a professional group – to succeed in an e-business environment. This study provides a starting point for those accountants who wish to broaden their role from balance sheet accounting to strategic accounting.

MAIN FINDINGS

- When asked about their use of specific technology at work, 100% of respondents had a personal computer or laptop and 100% used e-mail. The Internet was used among the sample to perform sector-related research (76%) and accounting-specific research (65%) (section 4.2).

- The primary uses of e-business can be split into three broad areas: information, reducing costs and marketing (section 4.3).

- Fifty per cent of respondents work in organisations that use cross-functional teams to drive their e-business activities (section 4.3).

- Respondents felt that technological changes will provide the most opportunities in their sector. 'Price competition' was rated the second lowest environmental influence (section 4.4).

- The results suggest that being market oriented is a key attribute if an e-business wishes to enjoy a higher level of business performance. Being market oriented may produce superior quality, enhanced productivity and stronger loyalty among current and future customers (section 4.5).

Executive summary (continued)

- The areas where most strategic accounting activity is performed relate to: the provision of information about future commitment for strategic projects and programmes, reporting on the strategic goals, objectives and projects or programmes of the firm, and measuring deviations (section 4.6).

- High levels of strategic accounting resulted in higher levels for all four measures of shareholder value – overall, EVA, CVA and CFROI, whereas low levels of strategic accounting led to low levels of shareholder value (section 4.8).

- From the case interviews, it would seem that the most common functions performed by accountants in the development of a company's e-business strategy are:
  - business case assessments
  - project appraisals
  - implementing financial control processes and procedures
  - designing customer profitability models and systems
  - evaluating the future merits of technology choices (section 5.3).

- It was generally believed that accountants would continue to play an important role in the development of in-company e-business initiatives and suggested that in order to create and manage the 'knowledge intensive' enterprise, intangible assets require systematically developing, maintaining, leveraging and renewing – (section 5.4).

- Specifically it was suggested that there was a need to change the training of accountants, particularly with respect to broadening their understanding of business and developing their personal effectiveness skills (section 5.5).

- The study identified four critical 'Cs' of e-business activity focus: communication, customers, cash flow and complex relationships (section 6.0).

- Based on the results of the survey and interview, the study proposes a four stage model that identifies the route that organisations take as they migrate along the e-business path. Those phases thought important were:
  - level 1 – information brochure
  - level 2 – market orientation
  - level 3 – revenue generation and
  - level 4 – transactions (section 6.1–6.4).

RECOMMENDATIONS

Accountants need to appreciate the fact that the Internet is a disruptive technology and they therefore need to understand salient e-business strategy issues. The changes currently taking place suggest that the new economy will utilise significantly different approaches from those currently employed. Accountants must understand the organisational changes which need to take place and reposition themselves in the organisational hierarchy where they can produce useful information for the formulation and implementation of e-business strategies. While accountants have the technical skills to remain influential in an e-business environment, however, the results of this study suggest that they need to reactivate their political skills and adopt a greater holistic understanding of business issues (section 7.1).

Hence, it is recommended (section 7.2) that in order for accountants to contribute fully to the development of new e-business initiatives they need to seek broader responsibilities, and to embrace the technological changes as they arise. To do this they may have to move out of their traditional financial functions and roles. The study also includes recommendations that:

- strategic accounting could be used as a mechanism to assist accountants reposition themselves in an e-business environment
- their training and continuous professional development should be rethought
- more emphasis should be placed on developing their business acumen and personal effectiveness

  and

- the accounting bodies need to ensure that students and qualified accountants possess first class skills in communication, negotiation and change management to enable them to influence their peers, rather than to direct subordinates, during the e-business strategy decision-making process. Such skills should include effective leadership and team working, and be developed in partnership with organisational capability.

1. Introduction

In recent years the Internet has progressed from an amalgamation of slick marketing brochures to being the preferred location for the collection and presentation of meaningful business data for an increasing number of organisations. It is important therefore that, as firms migrate through the various phases to electronic business (King & Clift, 1999), their e-business strategy takes into account changes in the internal and external environment. Moreover, the Internet, because of its low cost, global reach and adaptability, raises the stakes for companies both in terms of opportunities and risks. Currently, competition goes beyond groups of mere products and services. New innovative business models using information technology as an enabler are utilised to recreate the customer value proposition through an imaginative mix of computer, software and network technologies. As the digital economy evolves, the need to understand how organisations are responding to e-business is paramount.

Despite the escalation of the e-business practitioner literature (e.g. Pitturro, 1999; Cairncross, 1998; Kalakota & Robinson, 1999; Modahl, 2000; Afuah & Tucci, 2001; and Jagannathan, Srinivasan & Kalman, 2002) the conceptualisation of the e-business issue remains limited, and empirical evidence sparse. The continuous change of the business environment together with the forces of change in the new economy (see table 1.1) suggest that there is little doubt that organisations will need people with different skill sets and knowledge. E-business places new demands on organisations and those executives involved in determining strategy and direction.

TABLE 1.1: SUMMARY OF EXTERNAL FORCES IN THE TRADITIONAL AND NEW ECONOMIES

	Traditional economy	New economy
Business model	• Singular vision • Bricks and mortar • Strategy focuses on either customer or shareholder	• Evolving strategy • Bricks to clicks • Mixed focus on customer and shareholder
Competitive pressures	• Market share erosion • Servicing the customer • Linear value creation	• Sudden incursion by dot.com start-ups • Redefining the customer • Complex horizontal and vertical value creation
Technology	• Efficiency tool • Offers accessibility • Used as a reporting tool	• Enabler • Offers connectivity • Performs as an interactive performance-management information system

Source: adapted from EIU (2000). *E-commerce and the CFO: A Framework for Finance in the New Economy.*

In the new economy, the understanding of what creates value for organisations has changed radically. Intangible assets now represent the most important source of value creation. This is a radical change from the traditional economy, where tangible assets played a much more prominent role. However, the overall structure of the contemporary organisation has, in large part, been inherited from the past. As a result, corporations are still grappling to manage their intangible assets. From an accounting perspective there is a need to rethink the role of accountants in the knowledge era. We speculate that an understanding of intangible assets will become increasingly important.

Saint-Onge's (2000) knowledge capital model provides a useful perspective to understanding the necessary procedures required to create the 'knowledge-intensive' enterprise. According to Saint Onge, managing the knowledge capital of the firm consists of systematically developing, maintaining, leveraging and renewing its intangible assets.

Intangible assets consist of three elements:

- human capital
- customer capital

  and

- structural capital.

Human capital can be defined as '… the capabilities of the individuals in an organisation that are required to provide solutions to customers'. Individual capabilities are composed of attributes, competencies and mindsets.

Structural capital can be defined as '… the organisational capabilities of the organisation necessary to meet market requirements'. Organisation capabilities are composed of the strategies, structures, processes and culture of the organisation and the translation of these into the specific core competencies of the organisation.

Customer capital can be defined as '… the sum of all customer relationships', customer relationships being defined as '…the depth (penetration), width (coverage), length (durability) and profitability of the organisation's relationships with all its customers'.

From a strategic perspective, clusters of intangible assets represent stock, and the exchanges of value between them are 'flows'. These flows either build (+) or deplete (–) the stocks, which ultimately will affect shareholder value. For example, shareholder value can be enhanced by increasing customer capital. Put simply, if the stock of customer capital is reduced, it is only a matter of time before it has a negative impact on shareholder value.

Two salient accounting implications can be derived from the knowledge capital model.

1. In the knowledge intensive enterprise, the intangible assets of the organisation are made of capabilities and relationships that are built through the exchange of knowledge. Value is enhanced when knowledge is exchanged between the three stocks of intangible assets. The flow of knowledge serves as the basis for the acceleration of learning and the systematic development of both individual and organisational capabilities. The overall level of trust in the relationships will determine the bandwidth of this exchange and the extent of their potential for creating value.

2. The intangible assets of the firm form a system that must be managed from a cross-functional perspective. Accountants should not attempt to manage e-business processes in isolation from the development of individual and organisational capabilities. Ideally, the development of individual and organisational capabilities must be guided by the e-business strategy.

At a minimum, the accountant must understand and appreciate new business models, competition and technology. Accountants must keep pace with the various e-business models by taking an active role in ensuring that their current skill sets are aligned with company needs. Overall, the changes taking place suggest that ‘new economy’ accountants will utilise significantly different approaches from those currently in use.

2. The e-business environment

2.1 BACKGROUND

The growth of the Internet is eliminating the boundaries that have traditionally isolated corporations and countries. Business that once took place in local or regional markets can occur seamlessly across most geographical boundaries. Moreover, while physical goods can require costly production and consumption processes, it is possible to replicate information goods at almost zero marginal cost, which enables customers to consume all they need.

E-commerce involves electronic interaction between suppliers, customers and external business partners. The aim of e-commerce is to share business information to maintain business relationships and to conduct business transactions by electronic networks. Put simply, e-commerce involves the electronic exchange of information between two or more parties. Specific activities can include: customer relationship, order processing, distribution and procurement.

E-business includes e-commerce, but adopts a broader perspective with emphasis on key internal business processes. These processes can include marketing, finance, human resource management, operations, production and risk management. There is a growing plethora of definitions for e-business. One of the first to use the term was IBM which in 1997 launched a thematic marketing campaign around the term. IBM defines the term e-business as:

> *'any activity that connects critical business systems directly to their critical constituencies (customers, employees, vendors and suppliers) via intranets, extranets and over the World Wide Web…'*

2.2 CATEGORIES OF E-BUSINESS

The term e-business can be sub-divided into four distinct categories.

Business to consumer (B2C)
During the first wave of e-business much of the media attention was focused on the B2C market. At the time it appeared logical, as consumers were using applications such as e-mail and bulletin boards, and performing research. Despite the success of B2C firms such as Dell.com and Amazon.com, the actual and projected growth of B2B dwarfs B2C markets.

Business to business B2B

The broad definition of B2B e-business helps explain why the marketplace is expected to continue to grow so quickly. According to Cunningham (2001) the B2B definition can include:

> *'transactions conducted over public or private networks, including public and private transactions that use the Internet as a delivery vehicle. The transactions include financial transfers, online exchanges, auctions, delivery of products and services, supply-chain activities and integrated business networks'.*

The worldwide retail exchange at www.wwre.org is a good example of a B2B exchange.

Business to government B2G

In the UK, the Government has embarked on a programme aimed at ensuring that the country becomes a world leader in the knowledge economy revolution. The Government's efforts are organised into three main groups of e-commerce, e-government and e-communications. The e-commerce group is tasked with enabling e-commerce for the UK as a whole by developing an e-commerce framework that is conducive to developing a confident and skilled population. It is expected that this will be achieved by helping businesses get the skills and the technologies they need and by closely monitoring e-commerce activity. The e-government group brief is to ensure that the quality and efficiency of government services is transformed through the use of electronic delivery. The e-communication group seeks to ensure that the government has a first-class Internet presence, and exists to co-ordinate, develop and improve e-communications throughout government. The Government has made a commitment that all of its services will be accessible electronically by 2005.

Consumer to government C2G

The UK Government has developed a policy for the taxation of e-commerce and is hoping to resolve and clarify particular technical issues. The Government recognises that e-commerce presents both challenges and huge opportunities for taxation and tax administration for the public. It has actively explored ways in which the tools and techniques of e-commerce can assist taxpayers in their dealings with government departments. Tax payers are now able to submit tax returns online.

It should be borne in mind that, as the number of online consumers grows, the opportunity to conduct e-business via the four categories: business-to-consumer (B2C), business-to-business (B2B), business-to-government (B2G) and consumer-to-government (C2G) increases also.

2.3 E-BUSINESS MODELS

After the first wave of e-business, 'bricks and clicks' businesses – those with both a traditional and e-commerce approach – find that, while they already have sound financial resources, they, too, must find the right e-business model(s) for generating profitable revenue streams from the Internet.

In terms of operationalising their e-business strategy a variety of e-business models are now in use. New business models that modify the nature of company interactions with outside entities have appeared in electronic markets . From one industry to another, these new business models have dramatically altered management techniques. It is important, therefore, to acknowledge the importance of e-business models. They are the conduit to increasing a company's competitiveness in the e-marketplace by improving core business processes. This section describes a selection of e-business models currently in use.

Portals model

During the initial days of the Internet, e-commerce was the bull's eye and portals were the arrows. Websites such as Yahoo, Excite, Lycos and Freeserve were the first stop for users going online. Analysts projected revenues based on banner advertising being strategically placed on websites. It was anticipated that users would click through to electronic stores. Venture capitalists were happy to provide cash for portals with entrepreneurs impressing ventures capitalists with their 'elevator' (sales) pitches.

E-tailer model

The e-tailer model is a popular model utilised by retail organisations for transactions. Organisations can act as intermediaries between producers and potential buyers to create added value. They manage the platforms where their virtual brochures are presented. E-commerce enables good effective management practices since managers can use technology to make faster business decisions, such as the selection and realisation of products and rates. In this type of model, prices are determined by the e-business but variations are allowed according to predefined criteria.

Auction model

The auction model plays an intermediary role between buyers and sellers. This type of 'one seller to one broker to many buyers' model is more concerned with filling a gap in the marketplace than with content. Communication is faster and made easier as it takes place in real time between buyers and sellers. This model eliminates both distance and time, and allows a continual updating of catalogues without expensive printing costs. Access is provided to a wide variety of goods and services grouped together by areas of commercial activity or personal interest. The exchange of goods can be provided via negotiation or bargaining between two entities or a group of organisations.

Value chain model

This business model groups together partner companies that consult each other in the making of a product with very high added value, through an organised process. The main objective is to maximise the creation of added value through an efficient operational process. These partnerships meet the specific needs of third parties by offering customised products. These types of firm do not use online intermediaries such as content aggregators in their e-commerce processes. Instead they attempt to build and maintain their own e-commerce infrastructure.

Barter model

The barter model allows goods and services to be exchanged without money. Here the Internet enables a business owner to barter tangible or intangible products with another company. For example, a company can make its warehouse space profitable by offering another company the possibility of storing its products temporarily. Or a company that manufactures wooden furniture can barter sawdust and old wood with a company that produces plywood. The second variation of this model is the most virtual. In this case, the companies or people with access to this e-business model are members of different associations or companies. This type of site favours shared expertise and knowledge.

Buying groups model

This model is a buying group for several business owners, and thus allows greater negotiating power. The model is especially useful for the smaller business unable to get the benefits provided by economies of scale. When joined together into a buying group, the new entity plays the role of intermediary for research and negotiation with suppliers. It can also provide the distribution of product catalogues as well as the management of commercial and financial transactions and the delivery of merchandise.

Integration model

Integration can be either vertical (according to a specific industry or market) or horizontal (according to an organisational function or process). If successful, the integration e-business model can generate significant growth and extremely high margins.

1. Vertical integration model
   Vertical integration is predominantly present within a vertical market or a concentration of industries. Firms that employ this model provide industry-specific goods and services, and make company interrelations easier within the sector. This business model is often called a 'hub'. The main challenge for vertical integration is the difficulty in diversifying activities and making them reach other horizontal markets, since their expertise and interrelations are specialised in one domain. To remain a dominant force, vertical integrators must focus on building deep relationships with all parties of the supply chain. The ability to provide a 'one-stop' marketplace environment that offers a variety of products and useful content is a critical success factor.

2. Horizontal integration model
   In contrast to vertical integration, some organisations provide services across different types of industry. This horizontal integration allows expertise in a standardised process to be exploited in different companies in different industries. The term 'functional hubs' is used to describe a situation where a firm is providing the same function across different industries. Firms employing horizontal integration are able to generate profits from the sale of back office processes, in addition to transaction fees from the online market. For instance, success can be achieved through standardisation, the horizontal integrator's process knowledge and workflow automation expertise. The main challenge to horizontal integrators is to develop and provide personalised distribution functions for a specific industry. Obviously, success is dependent upon the commonality of business processes among buyers and sellers. If potential organisations are unable to use their intermediary for the majority of transactions, they need to be able to maintain some traditional processes.

Infomediary model

Instead of relying on selling and buying products on the Internet, some firms are able to trade by collecting valuable information about consumers and their buying habits. This information could be sold to other businesses. Infomediaries can combine a number of functions and act as one-stop shops that can act either as competitors or partners to traditional intermediaries.

Affiliate model
This model provides traffic and potential commerce to transactional sites. During the early days of e-business the main goal of the dot.coms was reach. Company valuations were in some cases based on the number of eyeballs visiting the website. Attracting customers to a specific website can be costly, so if potential customers were brought effortlessly to a website and a small payment were made for each sale, both parties would benefit.

The main participants in a revenue sharing programme are e-tailers and affiliates. An e-tailer is an online retailer who has products or services for sale. An affiliate is a website owner who places merchant promotions on the site and makes a commission when a sale is generated from it.

Subscription model
If a website possesses high value-added content, Internet users may be willing to pay to view content online. Unfortunately, after the initial availability of free content it is proving increasingly difficult to get Internet users to pay. Nevertheless, subscription sales are fast becoming one of the favoured revenue models for Internet commerce, especially those firms operating in the media sector. Firms are now trying to balance free content, which drives up volume and revenue, with premium content or services that are available only to subscribers.

Community model
The spirit of a community and relationships between its members can be the foundations for a valuable business asset. Internet users are sometimes prepared to invest in time and emotions if it is felt that they fulfil a particular need. The community model takes advantage of this investment to build up and maintain user loyalty (as opposed to high traffic volume). The users of the website who visit repeatedly offer opportunities for using some of the e-business models discussed above, including in particular the advertising, infomediary and subscription models.

2.4 E-BUSINESS STRATEGY

The impact of e-business will be pervasive for businesses, consumers and the government. Unfortunately, being aware is not enough, Casillas et al. (2000) postulate that the Internet is a disruptive technology that threatens the sustainable competitive advantage of firms within an industry and, depending on the homogeneity of the competition, the stability of entire industries. It is therefore important that organisations are strategically, operationally and organisationally positioned to excel in e-marketplaces. The dynamic nature of e-marketplaces requires the formulation and implementation of a strategy that is updated according to the opportunities and threats appearing in the market.

In reacting to these changes, organisations are continually changing themselves and their strategy. For example, it was thought that the early dot.com gateway sites (portals) would provide enduring stopovers for those individuals who required help to surf the Internet. Banner advertising or strategically placed links targeting certain interests would encourage surfers to click through to an electronic storefront. Unfortunately, abysmal click-through rates led to portals losing their appeal as advertising revenues collapsed and executives were faced with economic reality.

The spectacular collapse of several Internet businesses has clearly led to the evaporation of the euphoria for first mover advantage. Just a few years previously, first mover advantage was viewed as a prerequisite to success. It was thought that being first to market was an imperative to competitive advantage. However, despite acknowledging the merits of speed, Bates, Rizvi, Tewari & Vardhan, (2001) concluded that, gripped by a misunderstanding of competitive dynamics, dot.coms squandered their ample but not limitless resources. Porter (2001) suggests that negative profitability was perhaps a consequence of unrealistic growth projections and too much attention being placed on what the Internet could do. There was optimism that the Internet would create new forces that would enhance industry profitability. Switching costs and network effects were widely discussed as important issues for the e-business strategist. Switching costs relate to the costs incurred by a customer in changing from one supplier to another, which can include contract issues and learning how to use the new product or service (Porter, 2001). Online products or services become more valuable as more customers use them and experience a network effect.

It was anticipated that the Internet would increase switching costs and create strong network effects, which in turn would result in first movers obtaining robust profitability. The first movers would maintain their competitive position by establishing strong new-economy brands. Frequently, this has not occurred and the concept of first mover advantage has been questioned.

Switching costs on the Internet are likely to be lower than in traditional businesses. Online buyers are only a few mouse clicks from switching suppliers, and ongoing technological developments are reducing switching costs further. Network effects are insufficient in themselves to provide barriers to entry, as they must also be proprietary to one company. The ubiquitous nature of the Internet, with its common standards and protocols, makes it difficult for one company to capture the benefits of a network effect. Porter (2001) cites American Online as an organisation that has managed to protect its online community, but this is an exception, not the rule. Moreover, if a company is able to control a network effect, the effect often reaches a point of diminishing returns once there is a critical mass of customers. Internet brands have proved expensive to build and matters are not helped by a lack of physical presence and human association.

Building an e-business strategy is different from building a business strategy for a traditional business. The sheer immensity and diversity of both the potential benefits and the problems related to e-business make it rather difficult to get a firm grip on how to tackle salient corporate-level issues. The challenge is to understand and exploit e-business potential without losing sight of the core strengths and differentiators within a particular product or service. The e-strategist should draw up a checklist of questions that, if addressed, would assist the organisation through the e-business planning process. These could include the following.

- How will e-business fit into corporate strategy?
- Do we need to set up a separate division or company for the proposed e-business project?
- Do we fully understand the opportunities and threats arising from e-business?
- Can we establish barriers to entry, and where will be the greatest e-business impact on our value chain?
- Who are likely to be our new competitors in the e-business market?

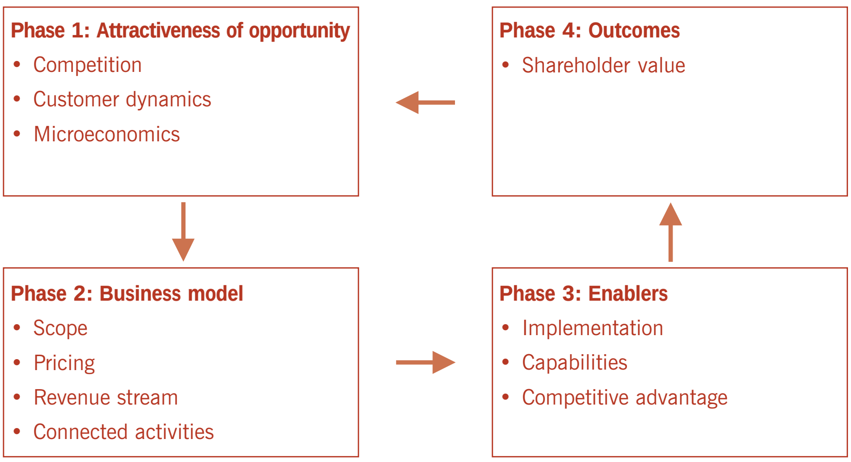
- Which of our current and future products and/or services are best suited to e-business?
- How will our e-business affect organisational structure, operational processes, regulatory and tax status?
- What market are we targeting? B2B, B2C or a combination?
- Do we have the cash reserves to sustain a period of negative cash flow?
- Have we established a senior steering group to monitor, co-ordinate and assess future e-business developments?

2.5 THE E-BUSINESS PROPOSITION

Competitive pressures have resulted in business propositions that include complex horizontal and vertical value creation processes instead of traditional linear value creation. While the traditional economy views technology as mainly an efficiency tool, in the new economy technology is regarded as an enabler.

This can be illustrated by figure 2.1, which shows the link between Internet business opportunities and shareholder value.

FIGURE 2.1: THE LINK BETWEEN BUSINESS OPPORTUNITIES AND SHAREHOLDER VALUE



It is not worthwhile getting excited about a new e-business opportunity if the proposition is not potentially beneficial to the firm. The nature and form of competitive intensity will help shape the forces of direct and indirect competitors. Understanding customer dynamics (phase 1 of the proposition) will help appreciate the sustainability of demand. Markets with high projected growth rates in areas of little competition are ideal for creating, accelerating and maintaining customer demand. From a microeconomic perspective, it is good practice to focus attention on the bottom line. Two areas that are crucial to the bottom line are market size and profit margin.

The next phase is the all important business model. Scope will be an output from phase one. At this stage the firm will know the type of customer that it is targeting and the range of products and/or services that are on offer. Another output from phase one from the microeconomic analysis will be the sources of revenue streams. It is good practice to understand the precise areas that the customer values. The new business model must review current and new key processes. These processes may result in cross-functional activities. Simultaneously, the firm may seek to use the Internet to improve existing processes.

Phase three focuses on the enablers of implementation, capabilities and competitive advantage. Implementation is a crucial activity of any business strategy process, and e-business strategy is no exception. Successful organisations have an appropriate culture (values and style) and are built around people (staff and skills) with effective systems (structure and systems). A strategic priority is the existence of adequate resources to enhance the capability of staff. Prahalad and Hamel's (1990) work on core competencies remains influential in the new economy. This is a particularly important point for accountants. Prahalad and Hamel postulate that a firm's capability is core when the competencies meet three criteria; customer value, competitor differentiation and extendibility (i.e. use in more than a single area). So this study speculates that accountants need to perform an influential role as an enabler during the e-business proposition process. An output of a core competence is competitive advantage.

During phase four it is anticipated that key Internet commerce metrics result in an improvement in shareholder value. Basically, shareholder value analysis (SVA) demonstrates how decisions affect the net present value of cash to shareholders. Projects discounted at the total cost of capital of the firm and reporting NPV greater than zero will enhance shareholder value. SVA is used at two levels within a company: the operating business unit and the organisation as a whole. Within business units, SVA measures the value the unit has created by analysing cash flows over time. At the corporate level, SVA provides a framework to assess options for increasing value to shareholders. The framework measures tradeoffs between reinvesting in existing businesses, investing in new businesses, and returning cash to stockholders. To employ SVA in an e-business environment requires a thorough understanding of each business in order to determine accurately the amount of investment required and the expected cash flows that those investments will yield.

2.6 E-BUSINESS MIGRATION

To help managers move from traditional businesses to e-businesses Hackbarth and Kettinger (2000) propose a methodology that charts the path to effective digital business strategy. Their four stage methodology makes use of SWOT analysis and each stage has its own activities, tasks and outputs.

Hackbarth and Kettinger suggest that e-business strategies pass through three levels of increasing complexity which they categorise as:

- experimentation
- integration

  and

- transformation.

Table 2.1 illustrates these three levels.

TABLE 2.1: THREE LEVELS OF E-BUSINESS

	Level 1: Experimentation	Level 2: Integration	Level 3: Transformation
E-business strategy	No e-business strategy	E-business strategy supports current corporate strategy	E-business strategy supports breakout corporate strategy
Corporate strategy	E-business strategy not linked to corporate strategy	E-business strategy subservient to corporate strategy	E-business strategy is a driver of corporate strategy
Scope	Departmental/functional orientation	Cross-functional participation	Cross enterprise involvement (interconnected customers, suppliers and partners)
Payoffs	Unclear	Cost reduction, business support and enhancement of existing business practices, revenue enhancement	New revenue stream, new business lines, drastic improvements in customer service and customer satisfaction
Levers	Technological infrastructure and software applications	Business processes	People, intellectual capital and relationships co-operation
Role of information	Secondary to technology	Supports process efficiency and effectiveness	Information asymmetries used to create business opportunities

Source: Hackbarth and Kettinger (2000).

According to Hackbarth and Kettinger, many companies are at the experimentation stage whereby individual departments have taken the initiatives to embark on isolated Internet applications. Unfortunately, these projects are rarely tightly linked to corporate strategy or a company-wide e-business strategy.

At the integration phase, organisations have linked e-business strategy to corporate strategy, albeit the former being subservient to the latter. Performance benefits accrue mainly through cost reductions and revenue growth. A sustainable competitive advantage can be provided by having a core competence in business processes that are tied directly to the bottom line and a culture that uses the IT advancements to maximise efficiency.

To get into the transformation phase (level 3) companies have used e-business strategy to drive corporate strategy. Companies extend inter-enterprise process linkages between suppliers, customers and partners to create seamless partnerships. Emphasis is placed on sharing and trust. The new value chain presents new commercial opportunities to the organisation. Intangible assets give the e-business strategy its strength and flexibility. Level 3 organisations make use of 'e-breakout strategies' to create longer lasting relationships with customers, exploit intellectual capital and leverage co-operative relationships with competitors. To attain the win-win approach, the firm must continually anticipate and respond to strategic threats and capitalise on market opportunities. Hackbarth and Kettinger call this the essence of the 'strategic e-breakout methodology'.

2.7 THE CHALLENGE FOR ACCOUNTANTS

Technology is increasingly making the ability to transact easier, thus compelling the accountant to provide a higher level of service to stay relevant. Interestingly, a KPMG (1998) study speculated that the finance department could be eliminated by 2010. Purchase ledger and payroll would be outsourced, with e-commerce replacing transaction processing. Traditional balance sheet accountants would be asked to partner line managers, transfer into line positions and educate non-financial people within the organisation.

Accountants can therefore no longer ignore the changes taking place. Moreover, many organisations are demanding more involvement in areas of business that traditionally had minimal accounting involvement. Today's finance director is expected to take on a broader role within an organisation. Chief executive officers are looking for accountants to act as business partners in delivering value to shareholders and managing financial risks, while still maintaining financial and management control.

Accountants committed to enhancing e-business practice must directly confront two challenges. The first is to connect accounting to new e-business processes and the second is to concretise the link between strategic accounting and shareholder value. There is, therefore, a substantial imbalance between accountants' interest in e-business and the insights provided by academic research. This suggests an urgent need to investigate e-business to provide insights and guidance for the accounting profession and to provide a useful base for further work in this important and hugely under-researched area.

Thus this study seeks to combine an original investigation of e-business with practitioner relevance. The overall objective is to identify what accountants need to do – as individuals in businesses and as a professional group – to succeed in an e-business environment.

3. Accountant survey

The new economy has yet to identify a robust notion of management and remains in search of a theory. Therefore, as firms change their business model, there is an urgent need for:

- new theories that embrace new concepts

  and

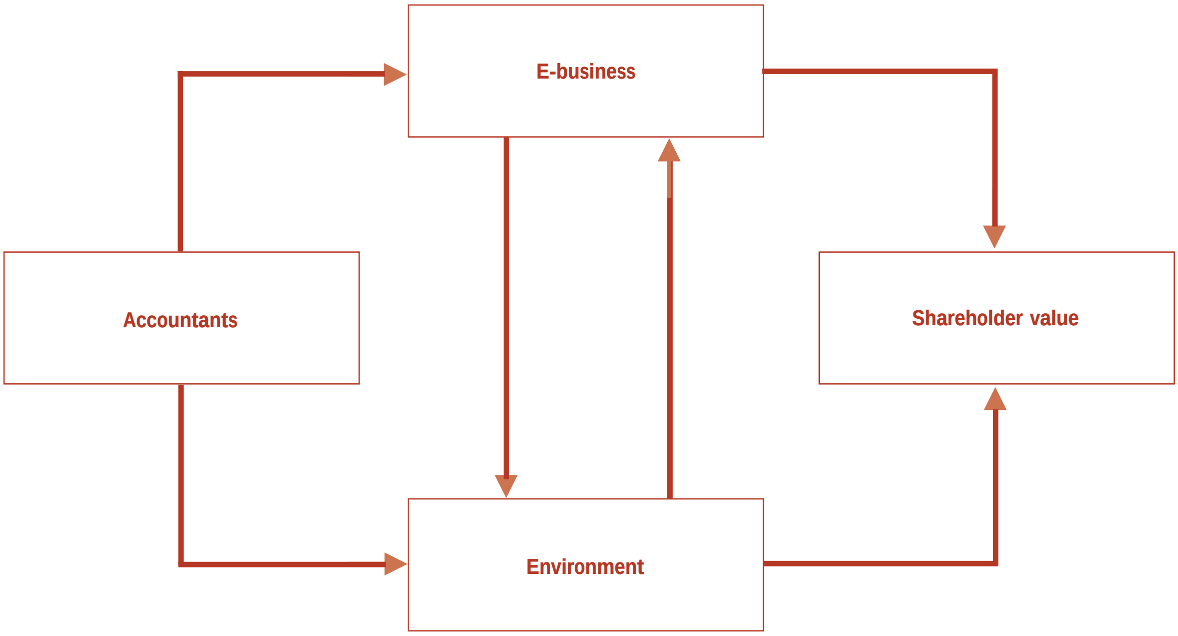
- variables that address how and why accountants succeed in this digital age.

Rather than extending existing frameworks, this study seeks to reflect marketplace shifts and to guide accounting practice in the fundamentally new competitive context and conditions that have shaped the beginning of the third millennium.

3.1 RESEARCH MODEL

Given the lack of a widely accepted theory of e-business, this study uses a descriptive model to identify the salient impacts of e-business on accountants. Figure 3.1 provides the framework for this study.

FIGURE 3.1: IMPACT OF E-BUSINESS ON ACCOUNTANTS



Incremental strategic change may be successful in fairly stable environments. However, in a turbulent and competitive environment organisations need to be proactive so that they are able to maximise opportunities and protect themselves against threats. The environment, therefore, is viewed as being an antecedent of the interaction between e-business and the accountant. For various levels of turbulence managers have different information needs in terms of scope, structure and information content (Brouthers & Roozen, 1999). As commercial organisations are in business to enhance shareholder value (Wee & Lee, 2000), performance is critical and an essential outcome of the interaction between e-business and the accountant. Shareholder value will be determined from a selection of performance indicators that include cash flow, economic value added (EVA), market valuation, earnings per share, market value added (MVA) and shareholder value added (SVA).

Strategic accounting will be used as a conduit for accounting change. According to Brouthers & Roozen (1999), strategic accounting can help overcome the traditional weaknesses of financial and management accounting by providing strategic managers with the type of information they need to make informed, timely decisions. Strategic accounting can provide information necessary to perform the following e-business activities:

- environmental analysis
- e-business strategy option generation
- e-business strategy alternative selection
- planning e-business implementation
- implementing the e-business strategy

  and

- controlling the e-business process.

3.2 RESEARCH METHODOLOGY

The research method employed attempted to describe the behaviour of elements (accountants) in a system (e-business) where current theory is lacking. The Internet subject area remains in its infancy and empirical academic literature is growing. The research method adopted can be categorised into three sections and employs both a quantitative and qualitative approach. The following sections show how each step of the methodology is linked with each objective of the study.

Objective 1: To provide evidence and assessment of the impact of e-business on accountants in industry and commerce.

This was achieved in the following ways.

- Desk-based research was used to identify current e-business practices, nationally and globally, using the Internet, academic papers and practitioner papers and reports. The focus of this part of the study was to identify the various strategies that are being used by traditional organisations as they migrate towards an e-business operation/strategy and to identify the key drivers of change.

- A survey of accountants working within FTSE 350 organisations. Data was collected using a questionnaire covering each facet of the impact of e-business on accountants, these being the environment, e-business, the accountant and shareholder value.

It was speculated that, for an organisation with an e-business operation/strategy to enhance shareholder value, managers need to address three major issues. First, what environmental state is the firm operating in? Second, what e-business market should it be in? Third, is there a need to change the internal capabilities because of the selected e-business strategy?

This study focused on the accountant and assumed that strategic accounting has an important role to play.

Objective 2: To ascertain the areas where organisations are placing their efforts with respect to strategic accounting.

This was achieved by:

- semi-structured interviews with head office accountants and those responsible for e-business within 12 FTSE 350 organisations

  and

- semi-structured interviews with six e-business consultants.

Objective 3: To ascertain the competences required by future accountants working in e-business, and to assess the implications of the future educational and training needs with emphasis on ACCA students and members.

This was achieved by:

- semi-structured interviews with three senior human resource managers among FTSE 350 organisations, three senior accountants among FTSE 350 organisations and three members of ACCA with responsibilities for education and training.

3.3 QUESTIONNAIRE DESIGN

This is the first national accounting study to explore and determine the impact of e-business on accountants working within FTSE 350 companies. Therefore the survey questionnaire instrument was exploratory in nature. The research objectives were four-fold:

1. to provide evidence and assessment of the impact of e-business on accountants in industry and commerce

2. to ascertain the areas where organisations are placing their efforts with respect to strategic accounting

3. to ascertain the competences required by future accountants working in e-business and to assess the implications of the future educational and training needs of accounting students and qualified accountants

4. to increase understanding of e-business, thereby helping managers achieve superior shareholder value.

Five accountants who worked outside the FTSE 350 and who expressed an interest in the impact of e-business on accountants pre-tested the survey document. Following the testers' suggestions, small changes were made to the format to clarify presentation.

3.4 DATA COLLECTION

ACCA's Membership Department provided 3,122 contacts from a database of Members belonging to companies with over 2,000 staff. One hundred and ninety-three contacts covering 90 FTSE 350 firms were extracted from the database. To increase the sample, the publishers of the *Finance Director's Yearbook* were asked to supply a database of senior accountants working within FTSE 350 organisations. A total of 397 contacts were supplied from which 338 new names were selected.

Packages were made up containing a covering letter introducing the project, a more detailed project rationale sheet, a freepost return envelope and a questionnaire.

After both the ACCA and Finance Directors lists had been used, there were still 21 companies for which no named contact details were available. Questionnaires were thus sent to 'The Finance Director' at the respective company headquarters. Several FTSE 350 companies were excluded from the analysis because they were investment trusts or other non-typical trading companies. Therefore the total number of contacts approached through the first mailing was 551 individuals in 311 companies.

3.5 RESPONSE RATES

It must be borne in mind that the members of organisations who are not particularly interested in the study are unlikely to be seriously interested in e-business and would therefore not be motivated to complete and return a survey on this topic. Those not seriously interested in e-business will therefore be under-represented in the respondents for this study.

After a second mailing 144 questionnaires were returned, representing a 26.13% response rate from the population of 551 accountants. In terms of response rates from the 311 FTSE companies, 112 FTSE companies were represented, yielding a response rate of 36 per cent.

4. Questionnaire analysis

This chapter discusses the results of the survey of accountants conducted through the paper-based questionnaire. It covers the following topic areas:

- respondent's job function
- use of technology at work
- the organisation's e-business background
- the environmental context of business
- the organisation's e-business model
- strategic accounting
- training

  and

- shareholder value.

4.1 PROFILE OF RESPONDENTS' JOB FUNCTIONS

What is your job function?

Nearly 25% of the respondents were employed as accountants, a further 23% were finance directors and 21% were commercial analysts (see table 4.1). Interesting job titles included 'director of e-business development, e-commerce and new business' and 'director of information technology'.

TABLE 4.1 PROFILE OF RESPONDENTS

Job Function	Number	% of total
Accountant	34	24
Finance director	33	23
Commercial/financial analyst	30	21
Financial controller	19	13
Systems/IT accountant	15	10
Other	13	9
Total	144	100

4.2 TECHNOLOGY AT WORK

Does your organisation have a corporate intranet or other computer-based knowledge management system?

Thinking about your use of technology at work, please tick either yes or no for each of the following statements.

The results shown in table 4.2 are useful for identifying the variations in the use of technology by accountants.

TABLE 4.2 TECHNOLOGY AT WORK

	Yes %	No %
Current use		
Do you use a personal computer or laptop?	100	0
Do you use e-mail?	100	0
Do you have access to the Internet?	92	8
Do you use the Internet for general business research?	85	15
Do you use the corporate intranet or computer-based knowledge management system?	84	16
Do you use the Internet for reading sector related news?	76	24
Do you use the Internet for accounting research?	65	35
Do you use the Internet for purchasing services and products?	49	51
Future use		
Do you expect to use the Internet more in a business context during the next 12 months?	84	16
Do you think that your use of the Internet for accounting will increase during the next 12 months?	62	38

Organisations are using the Internet and corporate intranets in an integrated manner to perform various e-business activities. Intranets are particularly useful for conducting internal communication, collaboration and dissemination of information, and assessing databases. It was particularly encouraging, therefore, that 90% of respondents stated that their organisation had a corporate intranet or other computer-based knowledge management system. However, only 84% of respondents actually used it.

When asked about their use of specific of technology at work, 100% of respondents had a personal computer or laptop and 100% used e-mail. The Internet was used among the sample to perform sector-related research (76%) and accounting-specific research (65%). In terms of purchasing services and products over the Internet, only 49% reported that they had used the Internet for purchasing.

An encouraging 84% expected to use the Internet more in a business context during the next 12 months, while 62% felt that their use of the Internet for accounting would increase during the next 12 months.

4.3 ORGANISATION BACKGROUND

How important does the management of your organisation perceive the strategic significance of e-business to be?

It can be seen in table 4.3 that the primary uses of e-business can be split into three broad areas; information, reducing cost and marketing. Interestingly, the top three uses all relate to the provision of information: to customers (4.38), to investors (4.27) and to the public (4.03).

The ability to reduce costs or improve effectiveness of communication internally (3.94) and with customers (3.86) was perceived to be important by management.

Areas perceived not to be important by management included purchasing from suppliers online (3.22), gaining new market share internationally (2.92) and keeping market share internationally (2.87). It would appear that organisations were only showing signs of moderate interest in working with suppliers online. Instead, much attention was being placed on improving relationships with customers, investors and the public. The frequently cited benefits of cost reduction and improving purchasing would appear to be lower down their agendas.

TABLE 4.3 ORGANISATIONAL BACKGROUND

Organisational background	*Mean
Providing information for customers	4.38
Providing information for investors	4.27
Providing information for the public	4.03
Reducing cost or improving effectiveness of communication internally	3.94
Reducing cost or improving effectiveness of communication with customers	3.86
Raising awareness of company or brands	3.72
Integration of activities with customers	3.59
Reducing cost or improving effectiveness of communication with suppliers	3.52
Selling to customers online	3.48
Gaining new market share nationally	3.35
Keeping market share nationally	3.31
Gaining market research information from customers	3.27
Integration of activities with suppliers	3.26
Purchasing from suppliers online	3.22
Gaining new market share internationally	2.92
Keeping market share internationally	2.87

*Likert scale 1 to 5
(1 = not important, 5 = very important)

Which area of operation is driving your e-business planning activities?

Organisational structure influences the capability of a firm to implement an e-business strategy successfully. This is borne out by the fact that 50% of respondents work in organisations that use cross-functional teams to drive their e-business activities (see table 4.4).

Forming teams that contain representatives from different functions clearly enhances the probability of successfully implementing e-business initiatives. Interestingly, IT was the next most popular function driving e-business initiatives. However, given that IT is normally seen as an enabler for e-business activities, this was a surprising observation. It was also interesting that 8% of respondents stated that no specific area of operation was driving e-business planning activities. Finance was the fifth most popular function.

TABLE 4.4 AREA OF OPERATION DRIVING E-BUSINESS PLANNING ACTIVITIES

Area of operation	Number	% of total
Cross-functional team (CFT)	72	50
IT	19	13
Marketing	16	11
No specific group	11	8
Finance	8	6
Other	7	5
Executive committee/strategy	4	3
E-commerce	4	3
Procurement	3	2
Total	144	100

4.4 ENVIRONMENTAL CONTEXT OF BUSINESS

Thinking about the main target markets for your business strategy, please indicate your level of agreement with each of the following statements.

TABLE 4.5 ENVIRONMENTAL CONTEXT OF BUSINESS

Environmental context of business	*Mean
Technological changes can provide opportunities in our sector	4.17
Differentiation is the hallmark of our business strategy	3.78
Our customer base consists predominantly of customers that we have served in the past	3.69
Competition in our industry is cut-throat	3.65
During the last year this organisation has used recent e-business technological breakthroughs to provide customers with new products and services	3.43
Management seeks novel business strategies to respond to environmental turbulence	3.29
In our kind of business, customers' product or service preferences change quite a bit over time	3.27
Anything that one competitor can offer others can readily match	3.10
Our business customers tend to look for new products or services all the time	3.09
There are many promotional wars in our sector	3.01
We are witnessing demand from online customers who have never used our facilities before	2.72
Price competition is the hallmark of our business strategy	2.57
New online customers tend to have product- or service-related needs that are different from those of our existing customers	2.54

*Likert scale 1 to 5

(1 = strongly disagree, 5 = strongly agree)

In Table 4.5 it can be seen that respondents felt that technological changes will provide opportunities in their sector (4.17) as the greatest environmental influence. Interestingly, 'price competition is the hallmark of our business strategy' (2.57) was rated the second lowest environmental influence, while 'differentiation is the hallmark of our business strategy' (3.78) was rated the second highest.

This observation is a significant finding as, after two decades of strategy research in the traditional economy, key questions remain. Porter (1980) suggests that, to ensure long-term profitability, the firm must make a choice between one of his generic strategies rather than end up being 'stuck in the middle'. However, some studies have suggested that, in higher performing businesses, low cost and differentiation strategy may be adopted simultaneously. It may be that having a cost advantage is merely a facilitator to differentiate, usually on price. Interestingly respondents in this study perceived a differentiation strategy as crucial to organisational e-business success.

4.5 E-BUSINESS MODEL

Table 4.6 shows the importance of e-business strategy at the corporate level, highlighted by the fact that 81% of respondents had a corporate e-business strategy, whereas 52% worked in organisations that had developed an e-business strategy at the strategic business unit (SBU) level.

TABLE 4.6 E-BUSINESS STRATEGY

	Yes (%)	No (%)
Does your organisation have a corporate e-business strategy?	81	19
Does your organisation own SBUs that have separate e-business strategies?	52	48

Thinking about your e-business activities, please indicate whether you agree or disagree with the following statements about your organisation and, where appropriate, the named strategic business unit.

After the initial wave of e-business activity had passed, and in light of the fact that valuations had drifted towards more sustainable levels, a major thrust of this project was to evaluate how the FTSE 350 companies were responding to the changing competitive landscape (see table 4.7).

TABLE 4.7 E-BUSINESS MODEL

E-business model	Corporate True (%)	Corporate False (%)
The firm has a Web presence	97	3
The website is used to provide general information, e.g. corporate history	97	3
The website is used to provide investor information	93	7
The website is used to provide information about products or services	79	21
The website is used for recruitment advertising	60	40
The website is used to provide information on ethical issues such as environmental and social policies	54	46
The website encourages users to register contact details. These are then used for electronic or paper-based mailings	40	60
The website is used for market research by enabling customer feedback	39	61
The website is used for market research by tracking customers 'clicking' through it	30	70
The website is used to create community loyalty rather than traffic. Relationships are created with users, who therefore visit the website frequently	28	72
The firm's e-business policy is carried out via strategic alliance with other firms	27	73
The firm operates in an industry which is both horizontally and vertically integrated, and uses the Internet to support this integration	23	77
The firm is part of an integrated buyer-supplier chain and uses the Internet to support these activities	16	84
The website is used to sell goods or services at list price or through auctions	15	85
The firm has affiliates whose websites link to ours. If a visitor to an affiliate site clicks through to our site and makes a purchase, the affiliate is paid a fee	14	86
Website access is restricted to registered users but no fee is charged	13	87
The firm manufactures products and uses the Internet to reach end users directly. Cost savings are made and the firm can better serve the customer	13	87
The firm provides content and services that attract visitors. Charging advertisers fees for banners, buttons, etc. generates revenue	10	90
Website access is restricted to account holders, e.g. for Internet banking, utility bill payment, etc.	7	93
The firm acts as a market maker by bringing together buyers and sellers online. Charging a fee for the transactions that are enabled generates revenue	6	94
The website is used to collect information on consumers and their buying habits, which is then sold to other firms	5	95
Website access is restricted by charging a subscription fee and in return high quality content is offered	3	97
Website usage is metered and users charged for the services that they consume	3	97

There has been growing realisation in both the investment and business communities that business fundamentals do matter. Earnings remain meaningful and blue chip brands are a source of continuing and compelling competitive advantage. Traditional brick and mortar businesses need to transform themselves if they are to succeed in the medium to long term. Based on the responses to this question a clear three-phase approach can be identified as traditional companies migrate from a traditional business to an e-business. The phases are as follows:

- information brochure
- market orientation

  and

- revenue generation.

In the information brochure phase there is no attempt to link e-business strategy with corporate strategy. The overall goal is to use a website as a source of information. Ninety-seven per cent of the respondents mentioned that their firm had a Web presence. The website was used to provide general information (97%), investor information (93%) and product or service information (79%).

The results suggest that being market oriented is a key attribute if the e-business wishes to enjoy a higher level of business performance. Being market oriented may produce superior quality, enhanced productivity and stronger loyalty among current and future customers. Forty per cent of respondents stated that a website was useful in market research because it enabled customer feedback.

4.6 STRATEGIC ACCOUNTING

Thinking about the role of accountants in your organisation's traditional and e-business strategy formulation, implementation and evaluation processes, please indicate your level of agreement with the each of the following statements by circling the appropriate point.

TABLE 4.8 USE OF STRATEGIC ACCOUNTING

Strategic accounting	*Mean
Supply management with information about future financial commitment for strategic projects or programmes, including commitment timing	4.15
Report on the strategic goals, objectives and projects or programmes of the firm and measure deviations from these	4.01
Measure the impact or success of traditional business strategies by measuring the contribution of a strategic project towards the firm's goals	3.92
Provide information to evaluate the potential effect of various traditional business strategic options	3.82
Help develop potential traditional business strategies, e.g. by identifying potential future product/market combinations	3.28
Measure the impact or success of e-business strategies by measuring the contribution of a strategic project towards the firm's goals	3.26
Provide information to evaluate the potential effect of various e-business strategic options	3.16
Produce information on strengths and weaknesses of the firm in relation to competitors and market demand	3.15
Produce standard reports on environmental changes so that management can identify and evaluate required changes in traditional business strategy	3.05
Help develop potential e-business strategies, e.g. by identifying potential future product/market combinations	2.99
Identify changing technology, new products and services and changes in use of existing products and services	2.70
Produce information on incremental changes in competitors' traditional product or service strategies	2.69
Identify the potential shifts in needs, wants and desires of customers	2.64
Produce standard reports on environmental changes so that management can identify and evaluate required changes in e-business strategy	2.58
Produce information on incremental changes in competitors' e-business strategies	2.24

*Likert scale 1 to 5
(1 = strongly disagree, 5 = strongly agree)

Recent technological changes in the external environment have been accompanied by a sustained questioning of the relevance of current accounting practice in the new economy, in which new tools and cyber rules are dominant features. This suggests that organisations that wish to thrive in the digital age need to transform the structure of core functions and processes. This places new and greater demands on the accountant. It was interesting, therefore, to see which strategic accounting activities were employed by the sample.

The results shown in table 4.8 highlight the fact that accountants are changing their perspective from a purely financial focus to wider commercial issues, and this entails at least a basic understanding of strategic accounting. The areas where most strategic accounting activity is performed relate to:

- the provision of information about future commitment for strategic projects and programmes (4.15)

- reporting on the strategic goals, objectives and projects or programmes of the firm and measuring deviations (4.01)

  and

- measuring the impact or success of traditional business strategies by measuring the contribution of a strategic project towards the firm's goals (3.92).

Areas relating to performing information about changes in e-business strategy (competitors and the firm) were the weakest areas of strategic accounting (2.24 and 2.58 respectively).

4.7 TRAINING

If you do not currently carry out the activities listed in the previous section, but were required to do so in future, what would your training requirements be?

TABLE 4.9 TRAINING

Skill	Important?		Training required?	
	Yes (%)	No (%)	Yes (%)	No (%)
Strategy formulation	84	16	44	56
Strategy implementation	85	15	39	61
Strategy evaluation	88	12	40	60
Understanding customers	78	22	26	74
Understanding markets	81	19	29	71
Understanding competitors	78	22	25	75
Understanding technical possibilities of e-business	78	22	59	41
Understanding e-business strategy models	77	23	64	36
Awareness of the adoption of e-business by other firms	72	28	44	56

It can be seen from table 4.9 that all the areas included in this study were perceived to be important.

Eighty-eight per cent of respondents stated that strategy evaluation was important, while strategy formulation (84%) and strategy implementation (85%) were also rated important. Interestingly, when respondents were asked to assess the need for training, understanding e-business strategy models (recognised as important by 77%), was rated as the area in greatest need of training (64%). Fifty-nine per cent of respondents stated that understanding the technical possibilities of e-business was an area where training was required. Only 26% of respondents felt that they needed training in understanding customers, while 78% stated that it was an important area.

4.8 SHAREHOLDER VALUE

Thinking about your main marketplace, how do you rate your e-business performance over the last 12 months in comparison with your primary competitors in overall terms and in terms of EVA, CVA and CFROI?

The thrust of this question was to establish the benefits of strategic accounting in an e-business environment (see table 4.10).

TABLE 4.10: RELATIONSHIP BETWEEN STRATEGIC ACCOUNTING AND SHAREHOLDER VALUE

	Shareholder value			
Level of strategic accounting	*Overall	*EVA	*CVA	*CFROI
Low	3.19	3.0	2.97	3.0
Medium	3.06	2.86	2.89	2.86
High	3.44	3.52	3.53	3.63

*Likert scale 1 to 5
(1 = much worse, 5 = much better)

The salient activities performed within the sample have already been discussed in section 4.6. This question considered the relationship between strategic accounting and shareholder value. To assess any relationships the strategic accounting construct was split into three groups: low, medium and high. This was achieved by calculating scores for each respondent and, as there were 15 Likert scale 1 to 5 questions, the minimum score was 15 and the maximum value was 75. Using percentiles, three groups were calculated. The results are extremely interesting as in all four cases of shareholder value – (Overall, EVA, CVA and CFROI), high levels of strategic accounting resulted in higher levels of shareholder value. Low levels of strategic accounting led to low levels of shareholder value. Interestingly, medium levels of strategic accounting led to the lowest levels of shareholder value.

There seems to be an overall pattern. At first there would appear to be relatively quick benefits in terms of shareholder value when using strategic accounting. However, after a while there would appear to be a drop in shareholder value, as strategic accounting enters another phase. Once the implementation issues have been surmounted high levels of strategic accounting lead to higher levels of shareholder value.

5. Interview analysis

The interviews were conducted with representatives of organisations involved in the following eight sectors:

- aerospace
- banking
- construction
- food and drugs
- general retailers
- leisure/travel
- pharmaceuticals

  and

- support services.

The interviews covered a wide range of uses for e-business and highlighted a considerable disparity in understanding.

Uses ranged from e-business being introduced solely as a marketing activity to attract traditional customers, to it being intended as a means of generating more business by giving customers greater choice. As one respondent put it:

> *'We want to provide a "bricks and clicks" approach for our customers whereby they can choose how, when or where they can deal with us and they can do that through traditional bricks and mortar or through the traditional telephone, digital television, WAP phones and, of course, the Internet. We can therefore say whatever way you want to use us we will be there.'*

5.1 TERMINOLOGY

Under such circumstances there was, as might be expected, considerable diversity in the levels of understanding of the concept. Whereas some respondents did not differentiate, for example, between e-commerce and e-business, others saw a very clear distinction, and one suggested that his company differentiated not just between e-commerce and e-business but what it called 'm-business'. For this company e-commerce was about electronic transactions whereas e-business was about conducting the whole business operation electronically. 'M-business' was the art of undertaking electronic commerce via a remote device such as a mobile telephone.

5.2 DRIVERS FOR CHANGE

In most cases, contrary to the results of the survey (see chapter 4), the main driver for the introduction of online business appeared to be the market. In some cases, this was clearly a strategic decision in order to expand the market and/or increase market share. For example one interviewee in a B2C organisation suggested that his company had adopted e-business because the ‘growth of the Internet provided the opportunity to tap into a much wider customer base’.

However, another was of the opinion that the Internet was unlikely to attract new customers, believing it to be unlikely ‘that new customers would be won by logging onto the Internet rather than through networking and word of mouth’.

Similarly, others indicated that they had developed their e-business strategy to defend rather than to enhance their market position. Some had done it in order to keep ahead of the competition:

> *'If you don't occupy e-space other people will, it is important to make sure no-one else gets in between you and your customer'.*

while others had done it in order to keep pace with the competition:

> *'We recognised that we were lagging in e-commerce, we needed to get focused and get going.'*

Interestingly, one B2B firm admitted that in its case the main driver had been the share price. In 1999/2000, when it embarked on its e-business strategy, its share price had been down and it believed that in part at least this was because the shareholders' perception was that companies needed a dot.com. Hence it had introduced its e-business strategy and activity.

Whatever the reason for introducing e-business, it appears that, certainly in a B2C context, respondents found it advantageous in terms of customer retention, cross-selling and cost savings. As one of the banks suggested:

> *'Customers who use e-banking are more likely to stay with us than the customers who don't do a statistically significant amount… We are seeing a significant improvement in cross sell as a result of people using e-channels… and the total number of transactions has gone up'.*

Also in this case, the shift to online transactions had freed up more time to be spent with the customer on higher value-added discussion and, presumably, in developing the all-important customer relationships that are key to maintaining competitive advantage.

5.3 THE ROLE OF THE ACCOUNTANT

In most cases, the main driver for the adoption of e-business appears to have been the market and the in-company marketeers. As one respondent put it:

> *'The key department driving it would be marketing. They would have the largest input because they'd be at the front seeing it and seeing the results coming back'.*

It was apparent from the interviews, however, that accountants played a significant role in the introduction of the initial systems. In most instances, the firms established cross-functional project management teams (see section 4.3) to drive the initiative forward. Usually, these comprised the marketeers, the systems analysts and technical experts and the accountants, whose role was usually to determine the feasibility of the project. As one interviewee put it:

'When an e-commerce strategy was set up, there would have been a lot of accounting and finance involvement on the costing side of things, forecasting added benefits, any revenue streams coming in…'.

From the case interviews, it would seem that the most common functions performed by accountants in such circumstances are:

- business case assessments
- project appraisals
- implementing financial control processes and procedures
- designing customer profitability models and systems

  and

- evaluating the future merits of technology choices.

While it is recognised that accountants have the models and techniques to undertake such an exercise, and investment appraisal would appear to be commonplace in most of the surveyed firms, there would seem to be further requirements that are particular to the introduction of e-business. These relate to the fact that there is normally no corporate experience on which to base forecasts. As one interviewee put it:

'Collaboration with finance has to be quite demanding to get a business case into these new forms because simply you don't know what you don't know. You can't be precise, you can only be completely wrong. There is no history to go on, so there has to be a good interface with our finance colleagues in terms of how to model and understand the commercial aspects.'

Under such circumstances, the company accountants are required not just to run their models but to understand the customer proposition and the philosophy and motivations of the business, reinforcing the findings from the survey that accountants are changing their perspective from a purely financial focus to wider commercial issues (section 4.6). At the same time, as members of a cross-functional team they are expected and required to fight their corner, using influencing skills to function as members of the team. To quote one interviewee:

> *'My team is predominantly made up of multi-million pound ex-marketing and development people with very strong personalities, and you have to be able to be cut throat in that environment. So being a shrinking violet is no good. We need people who can cut and thrust with the best of them'.*

Equally, it would appear that, as members of the e-business project team, accountants are required not just to be aware of the corporate vision but to share in it and be proactive in ensuring it is fulfilled, working in partnership with their colleagues elsewhere in the organisation. In one of the case companies, two types of behaviour were required:

> *'The first one is turning vision into action. That means don't talk about it all the time, do it. In e-commerce we have a phrase called "debate, design, deliver". This means we debate the issue and come up with an agreed strategy, we design the solution and we then deliver it. We don't get these things mixed up. The second one is working together. That means we all work as a team and that might be teams where people line report, or where it's cross-functional, but they work in partnership for the benefit of the customer, even though the person may never see a customer face to face.'*

This would suggest that if accountants are to play the role required of them in the introduction of e-business, they will need to be equipped not simply with the techniques and skills of their profession, but with a broader set of business and interpersonal skills that will enable them to contribute fully to the success of the venture.

5.4 THE FUTURE

While it was generally believed that e-business would increase in the future, the interviewees gave no clear indication of *how* it would develop, though one interviewee was quite clear:

'There will be a lot more, closer, developments and closer supply chains with our suppliers or co-bidders and our co-partners, and in the exchange of information. I think the pooling of information, the exchange of ideas, will obviously help in that there will be a cost reduction which I think the firm would appreciate. Maybe closer links with customers…'

With respect to the future role of accountants, the consensus was that they would continue to play an important role in the development of in-company e-commerce initiatives. Indeed, some felt that the accountant's involvement would increase as the effects of e-business strategy were felt by the organisation. How the role would change or increase, however, was not clear, though one respondent was definite that the accountant will need:

'to be more forward looking…to be trained to use all the e-commerce facilities that are out there in order to make sound, well-informed professional judgements'.

5.5 TRAINING

While the view was expressed that accountants were equipped with all the requisite personal and technical skills to function effectively in the development of e-business, generally the interviews supported the Saint-Onge (2000) view that, in order to create and manage the knowledge intensive enterprise, the firm's intangible assets needed to be systematically developed, maintained, leveraged and renewed (section 2.4). The consensus was that the training of accountants had not really changed in recent years and that there was a need for change. According to one respondent:

'the professional bodies ought to be looking perhaps ten years down the line to identify the requirements of the accountancy profession'.

Other suggestions were more specific, for example:

- training should be less figures-oriented and incorporate the wider picture
- there is a need to develop business skills and some right-brain thinking (see p. 54)
- accountants need to develop their decision-making ability

- there needs to be better understanding of the benefits of the old versus the new methods of doing business.

Thus while there appeared to be majority agreement that accountants needed to understand better the strategic opportunities afforded by e-business technology, in contrast to the results of the survey there appeared to be a strong suggestion that the training of accountants needed to be broadened somewhat to provide a better understanding of business and to permit the acquisition of what might be termed personal effectiveness skills (e.g. leadership, team working and decision making). Additionally, it was felt that perhaps there was scope for specialisation and for sector-specific training to augment the more generic accountancy training currently provided.

In section 2.1 it was suggested that, at a minimum, the accountant must understand and appreciate new business models, competition and technology. However, the changes now taking place suggest that the new economy will utilise significantly different approaches from those currently employed. Hence, the training of accountants and their continuous professional development need to be rethought: perhaps placing reduced emphasis on their accounting skills and more on their business acumen and personal effectiveness.

6. An accountant's perspective of the e-business migration path

In recent years, academics and accountants have demonstrated a great deal of interest in strategic accounting. However, the diffusion process for strategic accounting has not been intense. This is perhaps the essence of the strategic accountant paradox. If accountants are being urged to improve the nature of the information they provide, the competences they possess, and the role they play in e-business strategy formulation, implementation and evaluation, why are there not more of them actually displaying these traits within FTSE 350 organisations?

As the digital economy evolves, the need to understand how organisations are responding to e-business is paramount. The main aim of the research on which this paper is based was therefore to measure the impact of e-business on accountants.

Accountants in organisations committed to enhancing their e-business must confront two challenges: the connection of accounting to new e-business strategies and the links between strategic accounting and shareholder value. To meet these challenges, accountants must ensure that their current skill sets are aligned with company needs. However, there is little hard evidence on what accountants must do – either as individuals in businesses or as a professional group – to succeed in an e-business environment. To help remedy this, we have combined an exploratory academic investigation with practitioner relevance. Our exploratory analysis of the mail survey and subsequent interviews with those accountants working in an e-business environment, e-business consultants and senior human resource managers suggest that e-business strategies as perceived by accountants evolve through four levels of increasing complexity. These will be discussed below.

Organisations that use e-business to increase efficiency and effectiveness have to migrate through increasingly turbulent environments. The complexity is enhanced by the new economy, which affects accountants in two broad areas: the volume of moving data within and beyond traditional enterprise boundaries, and the complexity of business relationships. These network effects present opportunities as well as threats for accountants. Most accountants realise that the changes brought about by e-business will require a reorganisation of business processes. The necessity of linking strategic accounting processes with e-business strategy was identified as an important issue. Ideally, the development of individual and organisation capability should be guided by the e-business strategy. So in an attempt to help accountants migrate through the complexities of e-business strategy, and using the results of this study, we propose a four stage model that charts the migration to an effective digital business strategy.

An accountant's perspective of the e-business migration path (continued)

Table 6.1 illustrates how, at each level on the migration path, there is a change of emphasis in regard to strategy, activities, strategic accounting and the core competencies needed by accountants.

TABLE 6.1: AN ACCOUNTANTS' PERSPECTIVE OF THE E-BUSINESS MIGRATION PATH

Migration path	Level 1	Level 2	Level 3	Level 4
E-business strategy focus	Information brochure	Market orientation	Revenue-generating activities	Transactions
E-business activities focus	Communication	Customer centric	Cash flow	Complex relationships beyond enterprise boundary
Strategic accounting focus	Internal focus	External focus	Competitor focus	Revenue assurance
Core competency	Develop decision-making ability and keep up to date with business skills as well as balance sheet skills. Accountants in e-business face business issues as much as accounting issues, so need to develop business skills, e.g. some right-brain thinking.	Develop new business intelligence tools that can assemble, analyse and manage the intelligence elements needed to explore, expose and exploit the customer information assets. Companies which understand that their customers are their greatest assets, and which have committed to a strategy that focuses on those customers, will benefit from being customer centric. Develop behavioural and change management skills to play an important role in strategy development.	Develop business skills to identify best practice ideas from different business sectors.	Develop skills in supporting transactions in an e-business dynamic world to ensure non -repudiation of probity issues.

6.1 LEVEL 1

According to the results of this study, many accountants are operating at the level 1/2 during which the strategic accounting focus moves from an internal to an external focus. This clearly shows that accountants need to adopt a range of skills and techniques whose emphasis is on developing business skills and monitoring customers. Interestingly, this point was raised two decades ago by Simmonds (1981), who postulated that accountants should take advantage of changes in IT and the business environment to raise their profile when issues of strategy formulation are discussed and decided.

E-business strategy can play a key role in the diffusion of the innovation process. During level 1 the necessity to innovate is paramount and several participants expressed the need for accountants to develop some right-brain thinking. Given the accountants' preference for left-brain models of thinking – where the focus is on logical, sequential and rational thought processes – adopting a more balanced 'whole brained' approach with greater emphasis on being random, intuitive and holistic represents an interesting challenge.

6.2 LEVEL 2

Moving slightly along the evolution path to level 2, from an information focus to being market oriented, the primary essence of level 2 is to treat individual customers individually. Being 'customer centric' means developing a customer experience that each customer values. E-business presents an excellent opportunity for organisations to get to know their customers – who they are and what their buying patterns are. Organisations need an integrated e-business strategy that supports customers from the moment they visit the website right through to fulfilment, support and promotion of new products and services.

Within organisations there is a need to develop behavioural and change management skills so that the cross-functional e-business team plays an effective role. Knowing the customer is crucial, so accountants are presented with opportunities to analyse, define, profile and update repositories of customer information. If accountants could develop and implement techniques that could measure true customer acquisition costs, focus on the most profitable customers extend customer life spans, identify and respond to behavioural changes, this would enhance shareholder value.

6.3 LEVEL 3

The first wave of e-business firms were considered cutting-edge by having an online presence. This then changed to selling products and services online. Now that the initial wave of e-business activity has passed, conventional wisdom seems to have returned to the marketplace. In the current environment, the investment community demands that the firm delivers positive cash flow as soon as possible. In addition, it is required to enhance customer value beyond the transaction while lowering costs and accelerating return on investment. During level 3 growing the business is the primary strategic objective. Matters are complicated by the fact that e-business changes products and services, industrial structures, existing rules and regulations. Therefore, given the focus on cash flow, there are opportunities for accountants to create their own paradigm, units of analysis and assumptions.

Best practice companies have clear, and often multiple, mechanisms for enhancing shareholder value. Accountants could look to incorporate best practice processes from outside their sector. They could document strategies and tactics employed by highly admired companies. These companies will not be best in class in every area, but a portfolio approach should enable the firm to improve its value proposition.

6.4 LEVEL 4

The growth, integration, and sophistication of technology is changing society and the economy. It is now possible to form deep business relationships beyond the traditional enterprise boundary. Today, computers and other electronic devices increasingly communicate and interact directly with other devices over a variety of networks such as the Internet. Consumers and businesses have been particularly quick to recognise the potential and to realise the benefits of forming new relationships across computer-enabled networks. Companies can use networks even more extensively to conduct and re-engineer production processes, streamline procurement processes, reach new customers, and manage internal operations. This electronic revolution during level 4 creates a need for revenue assurance.

Companies have now extended their process linkages between suppliers, customers and partners to create seamless partnerships. The new emphasis is on sharing and trust. Trust in e-business is essential if the true potential for the growth of the new economy is to be realised. Despite the creation of various commercial security services created to build this trust (e.g. electronic signatures and digital certificates), there is still scope for accountants to provide a revenue assurance service. Transaction processing is where the future of e-business lies and where most attention will be focused. Moreover, if accountants can develop the necessary skills to support transactions in an e-business environment, the accountant could perform a key role as organisations pass through levels 1 to 4.

7. Managerial implications and conclusion

The purpose of this chapter is to bring together the various strands of this project, highlight the findings and summarise the managerial issues.

Overall, the survey and interview material analysed in this study has yielded many intriguing and interesting insights concerning the role of accountants in an e-business environment within FTSE 350 organisations.

7.1 IMPACT OF E-BUSINESS ON ACCOUNTANTS

The Internet is a disruptive technology that has caused major changes in industry structure, marketplace structure and business models. The impact on an organisation will depend upon the nature of the industry within which it operates and the homogeneity of its competitors. Nevertheless, within the sample, accountants have been tasked to change the nature of the information they provide, the skills they possess and the role they play during the decision-making process. This clearly indicates that e-business has significantly affected the role of the accountant. During the next ten years the role of accountants will continue to change dramatically and those who continue to play by the old rules may not be able to survive in the customer-driven new economy. Therefore new forms of accounting such as strategic accounting would appear to have merit.

Notwithstanding the importance of strategic accounting and its increasing acceptance by academics and practitioners, strategic accounting research has not yet developed into a widely accepted theory. Table 6.1 highlights the importance of several behavioural and organisational-specific factors that, if not addressed properly, may impede the diffusion of strategic accounting practices in an e-business environment. In fact, failure to create a cross-functional perspective that is congenial during organisational change will also contribute to a lack of strategic accounting diffusion.

It must also be borne in mind that to date the relative success of accountants has not been solely attributed to the technical superiority of their methods but also to their collective political skills as a professional group. These skills have been developed since the genesis of the accounting profession in Scotland during the last quarter of the nineteenth century (Matthews et al., 1997). Therefore, while accountants have the skills to remain influential in an e-business environment, the results of this study suggest that they need to reactivate their political skills and adopt a greater understanding of business issues. Accountants working in an e-business environment must be willing to push through change, even when the change will affect the status quo.

7.2 TRAINING

The results of this study suggest that there is widespread recognition that accountants need to broaden their roles during the e-business decision-making process. Accountants in business must be pro-active and flexible if they are to remain influential. As organisations seek to turn information into knowledge, accountants have the potential to move away from their sole concern of balance sheet accounting. This indicates that the traditional finance department will become a department of the past with accountants losing much of their traditional domain. Many of the respondents in this study highlighted the fact that some accountants within their organisation had already moved out of the finance function and were deployed to support senior management.

Accountants operating in these new roles will have to acquire enhanced business and personal effectiveness skills. This will require a change in the way accountants are trained, resulting in greater emphasis on the development of a broader, more holistic understanding of business operations and people skills, including leadership and team-working abilities. However, good people skills will need to be supported by excellent communication skills, including the ability to negotiate and to facilitate change.

From an accounting perspective, capabilities have to be developed at the individual, group and corporate levels, whereas from an organisational perspective capabilities need to be developed at the strategic, functional and operational levels. While the results of this research would suggest the continuing need for such training and perhaps an even broader base, it must be borne in mind that individual capabilities should be developed in partnership with organisational capabilities.

This study provides an outline of the prerequisites for the e-business accountant by identifying four levels of e-business strategy, with each level requiring certain accounting core competencies. Those traits that were thought essential for a successful e-business migration path include: enhanced right-brain business skills, new business intelligence tools, the development of best practice ideas from outside sector and an assurance role beyond traditional organisational boundaries.

8. The need for further research

This research study was carefully planned to include accountants working in FTSE 350 organisations. Obviously using results from large organisations should be treated with caution. However, it should be remembered that this study sought to explore, rather than to define, and the results could be used as the basis for a conceptual framework of strategic accounting in a new economy environment.

The case studies revealed that it is not advisable for accountants to adopt a universalistic approach by assuming that the same process can be used in all settings. Given the cultural, organisational and professional differences among organisations, the universalistic view does not appear to be a valid approach. Conversely, the situation-specific approach assumes that the mediating factors affecting each setting are unique so that general rules and models cannot be applied. In these instances more in-depth case study research is required.

Appendix: FTSE 350 companies

Abbey National plc
Aberdeen Asset Management plc
Aegis Group plc
Aggregate Industries plc
Aggreko plc
Airtours plc
Alliance & Leicester plc
Alliance UniChem plc
Allied Domecq plc
Alphameric plc
Amey plc
AMVESCAP plc
Anglo American plc
Anite Group plc
Antofagasta Holdings plc
ARC International plc
Arm Holdings plc
Arriva plc
Ashtead Group plc
Associated British Foods plc
Associated British Ports Holdings plc
AstraZeneca plc
Avis Europe plc
AWG plc
Axon Group plc
BAA plc
BAe Systems plc
Balfour Beatty plc
Baltimore Technologies UK Ltd
Barclays plc
Barratt Developments plc
Bass plc
BBA GROUP plc
Beazer Group plc
Bellway plc
Benchmark Group plc
BG plc
Billiton plc
Biocompatibles International plc
Blue Circle Industries plc
Bodycote International plc
Bookham Technology plc
Bovis Homes Group plc
BP Amoco plc
BPB plc
BPT plc
Bradford & Bingley plc
Brake Bros plc
Brewin Dolphin Securities plc
Britannic plc
Britax International plc
British Airways plc
British American Tobacco plc
British Energy plc
British Sky Broadcasting Group plc
British Telecommunications plc
British Vita plc
Brixton Estate plc
Bryant Group plc
BTG plc
Bunzl plc
Burford Holdings plc
Cable and Wireless plc
Cadbury Schweppes plc
Cairn Energy plc
Caledonia Investments plc
Cambridge Antibody Technology Group plc
Canary Wharf Group plc
Capital Radio plc
Carillion plc
Carlton Communications plc
Carpetright plc
Cattles plc
Celltech Group plc

FTSE 350 companies (continued)

Centrica plc
CGNU plc
Chelsfield plc
Chloride Group plc
Christian Salvesen plc
Chrysalis Group plc
Close Brothers Group plc
CMG plc
Coats Viyella plc
Cobham plc
COLT Telecom Group plc
Cookson Group plc
Cordiant Communications Group plc
Corus Group plc
Countrywide Assurance Group plc
Cox Insurance Holdings plc
Croda International plc
Dairy Crest Group plc
David S. Smith (Holdings) plc
Davis Service Group plc
De La Rue plc
De Vere Group plc
Debenhams plc
Delancey Estates plc
Derwent Valley Holdings plc
DFS Furniture Co. plc
Diageo plc
Dixons Group plc
Egg plc
Electrocomponents plc
Elementis Ltd
EMI Group plc
Energis plc
Enodis plc
Enterprise Inns plc
Enterprise Oil plc
Euromoney Institutional Investor plc
Eurotunnel plc
Exel plc
EXPRO International Group plc
Fairey Group plc
Fairview Holdings plc
FI Group plc
Fibernet Group plc
First Choice Holidays plc
First Technology plc
FirstGroup plc
Fitness First plc
FKI plc
Forth Ports plc
Freeserve plc
Friends Ivory & Sime plc
Frogmore Estates plc
Galen Holdings plc
Gallaher Group plc
Garban-Intercapital plc
Geest plc
GeneMedix plc
George Wimpey plc
GlaxoSmithKline plc
Glynwed International plc
Goldshield Group plc
Granada Media plc
Granada plc
Great Portland Estates plc
Greene King plc
Greggs plc
Guardian IT plc
GWR Group plc
Halifax Group plc
Halma plc
Hammerson plc
Hanson plc
Hays plc

Hepworth plc
Hewden Stuart plc
Hilton Group plc
HIT Entertainment plc
HSBC Holdings plc
Iceland Group plc
Imagination Technologies Group plc
IMI plc
Imperial Chemical Industries plc
Imperial Tobacco Group plc
Incepta Group plc
Independent Insurance Group plc
Informa Group plc
Intec Telecom Systems
InTechnology plc
Intermediate Capital Group plc
International Power plc
Invensys plc
IQE plc
J. Sainsbury plc
J.D. Wetherspoon plc
Jardine Lloyd Thompson Group plc
Jarvis plc
JJB Sports plc
John Laing plc
Johnson Matthey plc
Johnston Press plc
K.S. Biomedix Holdings plc
Kelda Group plc
Kewill Systems plc
Kidde plc
Kingfisher plc
Kingston Communications (Hull) plc
Land Securities plc
Laporte plc
LASMO plc
Lattice Group plc
Legal & General Group plc
Lex Service plc
Liberty International plc
Lloyds TSB Group plc
Logica plc
London Bridge Software Holdings plc
London Merchant Securities plc
Lonmin plc
Luminar Leisure plc
Man Group plc
Manchester United plc
Marconi plc
Marks & Spencer plc
Marshalls plc
Matalan plc
Medisys plc
Meggitt plc
Mentmore Abbey plc
MFI Furniture Group plc
Millennium & Copthorne Hotels plc
Minerva plc
Minorplanet Systems plc
MISYS plc
MITIE Group plc
Morse plc
N. Brown Group plc
National Express Group plc
National Grid Group plc
nCipher plc
Nestor Healthcare Group plc
Next plc
Northern Foods plc
Northern Rock plc
Novar plc
NSB Retail Systems plc
NXT plc
Nycomed Amersham plc

FTSE 350 companies (continued)

Old Mutual plc	RPS Group plc
Oxford GlycoSciences plc	Safeway Stores plc
Pace Micro Technology plc	Scipher plc
Pearson plc	Scoot.com plc
Peel Holdings plc	Scottish & Newcastle plc
Pennon Group plc	Scottish & Southern Energy plc
Perpetual plc	Scottish Power plc
Persimmon plc	Scottish Radio Holdings plc
Photo-Me International plc	Securicor plc
Pilkington plc	Selfridges plc
Pillar Property plc	Sema plc
PizzaExpress plc	Serco Group plc
PowderJect Pharmaceuticals plc	Severn Trent plc
PowerGen plc	Shaftesbury plc
Premier Farnell plc	Shanks Group plc
Premier Oil plc	Shire Pharmaceuticals Group plc
Provident Financial plc	Signet Group plc
Prudential plc	Singer & Friedlander Group plc
Psion plc	SkyePharma plc
Railtrack Group plc	Slough Estates plc
Rathbone Brothers plc	SMG plc
Reckitt Benckiser plc	Smith & Nephew plc
Redbus Interhouse plc	Smiths Group plc
Redrow plc	Somerfield plc
Reed International plc	South African Breweries plc
Regus plc	Spirent plc
Renishaw plc	SSL International plc
Rentokil Initial plc	St.Ives plc
Reuters Group plc	St.James's Place Capital plc
Rexam plc	Stagecoach Holdings plc
Rio Tinto plc	Standard Chartered plc
RiverSoft plc	SurfControl plc
RM plc	SVB Holdings plc
RMC Group plc	Tate & Lyle plc
Rolls-Royce plc	Taylor & Francis Group plc
Royal & Sun Alliance Insurance Group plc	Taylor Nelson Sofres plc
Royalblue Group plc	Taylor Woodrow plc

TBI plc
TeleCity plc
Telemetrix plc
Telewest Communications plc
Tempus Group plc
Tesco plc
The Berkeley Group plc
The BOC Group plc
The Boots Co.plc
The British Land Co. plc
The Capita Group plc
The Carphone Warehouse Group plc
The Go-Ahead Group plc
The Governor & Company of the Bank of Scotland
The Innovation Group plc
The Laird Group plc
The Mersey Docks and Harbour Co.
The Morgan Crucible Co. plc
The Peninsular and Oriental Steam Navigation Company
The Rank Group plc
The Sage Group plc
The Shell Transport and Trading Co. plc
The Weir Group plc
The Wolverhampton & Dudley Breweries plc
Thus Group plc
Tibbett & Britten Group plc
Tilbury Douglas plc
Tomkins plc
Trafficmaster plc
Travis Perkins plc
Trinity Mirror plc
Ultraframe plc
Unilever plc
Uniq plc
United Business Media plc
United Utilities plc
Victrex plc
Viridian Group plc
Vodafone Group plc
Volex Group plc
Vosper Thornycroft Holdings plc
W.H. Smith plc
W.S. Atkins plc
Waste Recycling Group plc
Wates City of London Properties plc
Westbury plc
Whatman plc
Whitbread plc
William Morrison Supermarkets plc
Wilson Bowden plc
Wilson Connolly Holdings plc
Wolseley plc
WPP Group plc
Yule Catto & Co. plc

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The Association of Chartered Certified Accountants
29 Lincoln's Inn Fields   London WC2A 3EE   United Kingdom
tel: +44 (0)20 7396 5980 fax: +44 (0)20 7396 5730   www.accaglobal.com