Is there a correlation between SME Owner / Managers Characteristics and ICT adoption in Business Communications?

Author: Ernest Beggs

Students Registration Number: 2002600

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Supervisor: Geraldine Lavin
Certificate of ownership

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This dissertation is entirely an original piece of work. However, all sources cited have been properly referenced and acknowledged accordingly.

Signed: ...................................................

Ernest Beggs
Abstract

**Objectives:** This paper is an examination of the correlation between the characteristics of SME owner/managers and levels and use of ICT adoption in their organisations. The objectives are to identify the different SME owner/manager characteristics (the cause) and measure the strength of correlation relative to ICT adoption (The Effect).

**Prior work:** This paper draws from studies on ICT adoption by Zappala and Gray (2006), Manueli et al (2007).

**Approach:** The approach used was through quantitative research. The instrument used was a self designed questionnaire, based on the critical literature section of this paper. The questionnaire was then hosted on the Survey Monkey website, which was utilised to gather responses. The sample was chosen from the SME LinkedIn groups that I am a member of.

**Results:** The findings suggest that there is already significant awareness of ICT technologies amongst SME owner/managers. However there is also significant non-use and unawareness of some of the ICT technologies named.

**Implications:** The implications for SME owner/managers is to draw attention to technologies that they are unaware of, as these same technologies may offer routes to previously unsought after opportunities.

**Value:** Although this paper presented findings during a specific timeframe (July – August 2010). The findings may help contribute to the growing literature on ICT adoption.
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Chapter 1. Introduction

1.1 Background

An OECD report 2004 entitled “ICT, E-Business & SME’s” found ICT in business communications to be widespread among business entities of all sizes. The report also found that SME’s are slower than their MNE counterparts to adopt ICT. The main reasons for non- adoption of ICT as part of a firm’s business communication are unawareness of ICT and of the benefits. The report also cited generic adoption barriers including - from an owner/managers point of view - mistrust of technology, lack of ICT capabilities, perceived effect on productivity and competitiveness.

If an SME is to adopt ICT into its business communication strategies then the owner/manager must be convinced that the ultimate benefits outweigh investment costs. There appears to be a minimum level of ICT connectivity (mobile telephony, internet, website hosting, and e-mail) within the SME’s. Beyond this, many SME’s may not follow MNE’s lead of advanced ICT adoption. This may be due to the owner/manager deciding that the ICT will not result in any great benefit to the organisation. For this reason some SME owner/managers remain true to traditional approaches, such as postal solutions or face-to-face meetings, in satisfying business communication demands of their organisation. Also, many owner/managers who do not possess ICT capabilities may be reluctant to relinquish any aspect of control of their firm to employees or outside contractors.

There is widely available literature on the range of benefits that ICT can offer a small business enterprise. ICT is said to improve knowledge and information management. It can reduce transaction costs, ICT can improve both internal (through intranet infrastructures) and external communications. And yet, despite these many perceived benefits there remains an impediment towards ICT migration. With the heterogeneous nature of SME’s, can it really be the owner/manager responsibility as ultimate decision maker that lies behind the slow uptake of ICT amongst small enterprises?
1.2 Why I am interested in this topic (aims/objectives of dissertation)

My idea for this dissertation arose from my interests and past experiences in a number of disparate strands which I felt I could bring together in this study.

I had been employed for a number of years with one of the major Global enterprises until the organisation relocated its Ireland operations to a lower cost base. This resulted in the loss of 1,300 direct full time employees to the Irish economy, not to mention the loss of indirect employment by suppliers to this Global entity.

Many of these suppliers were indeed Irish SME’s. The loss of this organisation to Ireland became a political hot potato and resulted in a task force being set up. The aim of the task force was to up skill the newly redundant and part-fund those who had a viable business idea. Meanwhile the government were actively looking for a replacement Multi-national enterprise (MNE). The conventional wisdom was that foreign direct investment (FDI) was the key to Ireland’s prosperity. This was in the 1990’s, before ICT took such a hold on business communications and made it much easier for SME’s to compete on a global scale. ICT made it attractive for SME’s to internationalise and thus formulate greater growth strategies than previously envisioned. Some visionary politicians have put in place support schemes for SME’s including mentoring, training and up-skilling of ICT capabilities. The new and revised conventional wisdom being that with the right supports some SME’s could internationalise and grow into Irish MNE’s, which in turn would have a positive effect on the Ireland GDP. And yet, SME owner/manager awareness of ICT business is considered weak at best.

In the forthcoming years I did secure some contracts with a number of SME’s. My experiences were indeed eye-opening, for I was amazed at how differently SME’s within the same sector were run. Without fail it was the owner/managers vision driving the culture of the organisations which they operated. Some owners actively sought out ICT solutions, whereas one owner/manager still insisted on running part of his administration on a card-deck system.
I then managed to secure long term employment with An Post, a semi-state utility company whose core activity was to deliver business (and domestic) communications in a traditional manner. However, with EU liberalisation to this market set to commence on 1/1/2011, An Post are now faced with a number of competitive threats, from possible new entrants to the market with the same core offerings, and also technological threats where ICT offers a viable and often more cost-effective solution to a consumers needs.

1.3 Approach to this dissertation

My approach to this dissertation was to gather my data through research by quantitative methods utilising an online questionnaire as my survey instrument. My sample population was derived from the SME groups that I was a member of on the LinkedIn social network website. As the research question required correlations between a number of SME characteristics and ICT adoption, the survey responses were cross tabulated for a liability and validity of results. This enabled me to state categorically which characteristics were influencers of ICT adoption and which ones are inconclusive or unproven. The results of these characteristics were combined to answer the overall research question “Is there a correlation between SME owner Managers and the level of ICT adoption?”.

1.4 Organisation of the dissertation

This dissertation is organised according to the following structure:

Chapter One is a presentation of the background to the study. Definitions of the problems associated with Irish SME’s and ICT adoption are discussed.

Chapter Two is a review of the available literature on SME’s. Although I have primarily focused my study in an Irish aspect, SME’s in other countries were naturally researched. My aim was to identify characteristics of SME’s owner/managers with the view to measuring the correlation between their awareness of various business communication types and the adoption of ICT.

Chapter Three is a presentation of research methodology that was used in undertaking this dissertation. First an outline of the research question was addressed.
Next I discussed why I chose one method over available alternatives. This leads to an analysis of the strengths/weaknesses and pros/cons of different methods. My method chosen was quantitative, and reasons why are outlined.

**Chapter Four** is a presentation of the data analysis and findings based on the survey Questionnaire.

**Chapter Five** is a presentation of the conclusions of this dissertation.

**Chapter Six** is a presentation of personal recommendations based on the findings within this dissertation.

**Chapter Seven** is a review of Self Reflection on my own Learning & Performance. It presents how I discovered my learning style and how I utilized my attributes towards successful completion of this study.

### 1.5 Scope and Limitations of the research

The aim of this study was to look at SME owner/managers & their awareness of different business communications. The objective was to test correlations between awareness and adoption of ICT. In effect the study was one of cause and effect.

Framing my research Question in this manner allowed me to develop a logical scope for this project. I was to specifically concentrate on the Owner/Managers of SME’s and not on the SME organisation itself. This meant I had to rule out academic literature pertaining to Organisational Structure, Organisational Culture, Organisational Change and Employee resistance to change. It allowed me to concentrate my efforts on the idiosyncrasies of the owner/managers of SME’s. This allowed for a review of literature pertaining to Personality styles of owner/managers, educatory levels and achievements, family background etc.

Huczynski & Buchanan (2000) describe personality as “referring to the psychological qualities that influence an individuals characteristic behaviour patterns in a distinctive and consistent manner and over time – also that they are unique to the individual – and that its regularities can be observed and studied”. For
this study of SME owner/managers I felt this definition would provide a useful context.

The most glaringly obvious limitation is that the survey undertaken for this dissertation does not include those SME owner managers that don’t utilise or access the internet in the course of their business. Another limiting factor is in the research method i.e. Quantitative. My concern was that I had no control over who in the firm completed my survey. How could I possibly know if it were indeed filled out by the owner/manager or an employee or an intern? If I had chosen to conduct this survey by qualitative means such as telephone surveys, the same concerns would apply. If I had chosen to interview, there could have been the matter of impinging on the time of a very busy owner/manager who may have considered my project as an impediment. I did consider at one stage, combining the qualitative and quantitative, but due to time constraints I opted for quantitative as it would yield the most valuable data in the shortest possible time. Also, it was a little ironic in that I used ICT to conduct my survey. This was done without prejudice.

1.6 Major contributions of the study

There, it appears to be, very little studies done on Irish SME owner/managers literature. On the positive side it could possibly show that my study had a value and was of relevance in bridging the gap of the slowly growing literature on SME owner/managers.

Therefore the major contribution of this study is to examine the idiosyncrasies of SME owner/managers, their awareness of ICT business communications and their predication towards adoption, and how far they are willing to go along the adoption curve.
Chapter 2. Literature Review

2.1 Introduction

This chapter is a presentation of the literature relevant to the dissertations topic. It aims to be a thorough investigation of the previous research in this area. Previous literature focused on various dimensions of analysis, namely;

- SME’s: Discussion towards a definitive definition
- What is ICT?
- SME Owner/manager Characteristics
- The SME’s owner/manager level of awareness of the different types of ICT business Communications
- SME owner/manager attitudes to ICT adoption regarding business communications
- Social Networking amongst SME Owner/Managers
- SME Success Factors

2.2 SME’s: Discussion towards a definitive definition

As far back as 2003, Egan Clancy and O’Toole discussed the importance of SME’s in Ireland. They stated that SME’s accounted for 99.4% of enterprises in Ireland. In their findings, they stated that SME’s had some distance to go in fully adopting advanced technological communications into their business infrastructure.

SME’s are accountable for over 90% of national GDP and also responsible for over 90% of businesses in the developed economies. As such it can be logically inferred that they are a heterogeneous grouping. It is precisely this classification that has aroused the academicals interest towards the summation of all SME characteristics into a universally accepted and explained definition.

The importance of SME’s to the economy is often overlooked, but it is worth noting here how valuable they are to society. SME’s are perceived as the drivers of economic growth. (Thomas & Mueller, 2000). SME’s are responsible for wealth creation as they are drivers of demand and investment. Due to their labour
intensiveness, SME’s are major job creators. Also, SME’s by the nature of their size have the ability to be more economically flexible than their larger counterparts. This gives them an advantage in that they can customise their offering, and thus have a scope for greater specialisation which leads to a premium prize. However, what SME’s don’t enjoy is the benefits of scale economies. SME’s tend to utilise local raw materials for the offerings (Bannock 2002). SME’s can be an excellent base for helping people utilise their talents and reach their full potential (Nieman 2001).

Jane Tonge (2001) In her working paper “A Review of Small Business Literature Part 1: Defining The Small Business”, discusses the difficulties facing academics while attempting to find a definitive definition of Small Medium Enterprises. She cites Curran et al (1986) and “the great deal of agonizing” over the definitions of SME’s. Bolton Committee (1971) definitions of a Small Firm declared that most of them are “unitary firms”.

Table 1: Bolton Committee SME Definition (1971)

<table>
<thead>
<tr>
<th>Sector Definition</th>
<th>Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manufacturing</td>
<td>200 Employees or less</td>
</tr>
<tr>
<td>Construction</td>
<td>25 Employees or less</td>
</tr>
<tr>
<td>Mining and quarrying</td>
<td>25 employees or less</td>
</tr>
<tr>
<td>Retailing</td>
<td>Turnover of £50,000 or less</td>
</tr>
<tr>
<td>Miscellaneous Services</td>
<td>Turnover of £50,000 or less</td>
</tr>
<tr>
<td>Motor trades</td>
<td>Turnover of £50,000 or less</td>
</tr>
<tr>
<td>Wholesale trades</td>
<td>Turnover of £50,000 or less</td>
</tr>
<tr>
<td>Road transport</td>
<td>Five vehicles or less</td>
</tr>
<tr>
<td>Catering</td>
<td>All : excluding brewery managed houses</td>
</tr>
</tbody>
</table>

Source: Bolton (1971) [www.dti.com](http://www.dti.com)

The EU Small Business Act (2008) officially defined SME’s as those with fewer than 250 employees, and is independent of larger business entities. It also states that there annual turnover may not exceed €50 Million, and their balance sheet must not exceed €43 Million. This EU definition of SME’s determines which companies can benefit from EU programs specifically aimed at SME’s. The act further divides the definition of SME’s into three distinct categories according to their size. Micro-enterprises are those SME’s having fewer than 10 employees, small enterprises are
those having between 10 and 49 employees, and medium-sized enterprises are those SME’s having between 50 and 249 employees.

Table 2: EC definition of SMEs (Source: DTI, 2001)

<table>
<thead>
<tr>
<th>Enterprise category</th>
<th>Headcount</th>
<th>Turnover or Balance sheet total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medium-sized</td>
<td>50 -249</td>
<td>≤ € 50 million ≤ € 43 million</td>
</tr>
<tr>
<td>Small</td>
<td>10 - 49</td>
<td>≤ € 10 million ≤ € 10 million</td>
</tr>
<tr>
<td>Micro</td>
<td>1- 10</td>
<td>≤ € 2 million ≤ € 2 million</td>
</tr>
</tbody>
</table>

Storey (1994) criticisms found Bolton’s conclusion that “SME’s are managed in a personalized way to be almost entirely incompatible with its statistical definition of SME’s which could employ up to 200 employees”. Storey also disagreed with Bolton where it is stated that “SME’s possess an inability to affect its environ”. Storey maintained that SME’s possessed niche market capabilities and were thus highly specialized, sometimes geo-isolated entities without a clear concept of competition.

Storey concluded that the main advantage of the EU definition over Bolton was that it doesn’t use any criteria other than employment.

Influenced by Penrose (1959), Wynarczk et al (1993) postulated that “SME’s and large firms are as different as butterflies and caterpillars” and that SME’s were different along three constructs namely Uncertainty, Innovation & Evolution.

2.3 What is ICT?

ICT (information and communications technology) is an all encompassing term that includes any communication application; radio, television, cellular phones, computer and network hardware and software, satellite systems and so on, as well as the various services and applications associated with them, such as videoconferencing and distance learning. ICT (Information and Communications Technology) is defined as: “The industries that produce the products (goods and services) that support the electronic display, processing, storage and transmission of information.” Stavropoulos & Moschona (2007) in a paper reporting usage of ICT in Greece between 2002 –2006 cite the European e-skills forum (2004) and also the
OECD report on the Information Economy (2005). These reports identified three different categories of ICT skills

(a) ICT specialists or ICT professionals, who have the ability to develop, operate and maintain ICT systems. This could include SME owner/managers operating in the ICT sector

(b) ICT users who are highly skillful, confident and competent users of advanced software. Some SME’s operate in sectors which require a high ICT skill level

(c) Basic users who are competent users of generic tools (e.g. MS Office) needed for everyday business use Information and Communication Technologies (ICT’s) continue to be a major driver of economic and social modernisation. In 2008, business in the European Union (EU) devoted 20% of their investment to ICT’s and the sector accounts for 26% of overall research expenditure. It is also predicted that new technologies and the stemming changes in work performance and organisation will result to an important job expansion in both ends of the employment spectrum although job creation projections show a polarized job expansion among occupations with a strong bias in favour of high-skilled jobs. COM (2008) 868/3

2.3.1 Cloud Computing

An article entitled Thin client applications (web apps) versus Thick client applications (software apps), which is better? Which was posted on www.compscistuff.com by M.E. Connell, states that thin clients are the basis of cloud computing. The concept is of a computer with its apps being run from a remote server, and not on the local computer itself.

(http://compscistuff.com/2009/01/thin-client-applications-web-app-vs-thick-client-application-software-app-which-is-better/)

Ajit Kambil (2009) in an article entitled A Head in the Clouds from the Journal of Business Strategy found that IT will migrate to clouds. Pricing will be by use of applications within the cloud. In this article it was also stated that Software
innovation growth will explode and that there will be a proliferation of newcomers due to lowering barriers to entry.

http://www.emeraldinsight.com/Insight/viewContentItem.do?contentType=Article&contentId=1801384

2.3.2 Data Mining

McKeen & Smith (2005) cite a study by King (2000) which found that “89% of all companies surveyed considered customer information as an extremely important factor for business success”. Laudon and Travor (2007 pg 396) define Data mining as “a set of analytical techniques that seek patterns in the data of a database or data warehouse, or seek to model the behaviour of customers”.

A research paper by Donnelly (2009) looked at how SME’s could create greater customer profiles by accessing supermarket loyalty card data from the Dunhunby database. Dunhunby data derives from the collation of information from the Tesco Club card. She cited Johan (2005) who stated that SME’s need to constantly seek new opportunities. Donnelly proposed that SME’s created synergies where optimal communication of loyalty card data aids in SME value creation. She also cited (Forlani and Mullins 2002) who postulated that opportunities must be first recognised before they are identified.

2.3.3 ERP (Enterprise Resource Planning)

ERP evolved in the 1990’s from material requirement planning (MRP) and manufacturing resource planning (MRP 11) packages (Jessup & Valacich, pg 326, 2008). What ERP does is to provide a common data warehouse on stand alone applications. ERP can link to the entire organisations functions. Similarly, a definition for thin client computing is a centralised, controller based, server based architecture that allows for client devices to exchange data with a host. At the client level there is minimal processing. This definition could also apply to SCADA systems (Supervisory control and data acquisition). An element of Scada is PLCs (programmable logic controllers) this is a logic system which in active state is on and in idle state is off. The PLC controls information flows along the SCADA.
Larson and Rogers (1998) cited by Jessup & Valacich (2008) allude to the limitations of ERP in that they are internal business activities designed to integrate systems within an organisation. As they don’t integrate a company’s value chains with suppliers and customers, a firm must implement other systems, either in conjunction or in place of ERP.

2.3.4 CRM (Customer Relationship Marketing)

CRM helps companies organise and analyse their marketing campaigns. Jessup & Valacich (2008 pg 329-333) define CRM as a corporate-level strategy aimed at creating and maintaining long term customer relationships. The “Power of Customers” and “Substitutes” element of Porters Five Competitive Forces Model comes into play here. The aim of CRM is to treat customer satisfaction as a basis for attaining competitive advantage.

Adapted from table (Jessup & Valacich pg 330, 2008). The benefits of a CRM include (1) the enabling of 24/7/365 operations, (2) Individualised Service – this benefit is of special interest to SME’s, more so the smaller operators who are more likely to offer customised product/service offerings, (3) Improved Information – whereby all functions who interact with the customer can now “sing from the same hymn sheet”, helps create a company vision, (4) Faster problem recognition & resolution – more efficient methods of becoming aware of, and dealing with customer complaints, (5) A speeding up of processes – again allows for the perception of efficiency to grow in the mindset of the customer, (6) Improved integration – CRM has the ability to integrate with other systems. The company gains business intelligence and has the ability to create more efficiencies along cross-functions, (7) Improved product development – the ability to trend consumer behaviours may accommodate in the creation of new company offerings targeted at specific consumers, and finally (8) Improved planning - for customer satisfaction assessment.

There are also ethical and privacy issues to consider. To gain creditability for CRM, the early adopters within an organisation must be targeted (Aganawal, Harding and Schumacher – July 2004). Jessup & Valacich (2008) also state that to successfully implement a CRM strategy requires enterprise wide changes including (1) Policy &
Business process Change, (2) Customer Service Change, (3) Employee training Changes, and (4) data Collection and Analysis.

Gutzman (2001 pg 236) compares between CRM and ERP, and states that while some CRM systems claim to be ERP systems, they don’t unlike ERP focus on procurement & billing to the same extent.

2.3.5 Business Intelligence

Jessup & Valacich (Glossary, 2008) give two definitions of business intelligence, (1)This is the process of information gathering from internal and external sources, with the intention of making better and more informed decisions. (2) the data derived from these decisions. Turban et al (2008 pg 178) in a discussion regarding online market research, mention a common problem of the availability of too much data. While quite a large portion of the data may indeed be useful for the company’s needs, it may prove time consuming and costly to sift through all this data to see which data is relevant at a particular time. Turban et al (2008) posit that the solution is to automate processes by using data warehousing and data mining, this being the essence of business intelligence.

2.3.6 Mobile technology

Kotelnikov (2007) states that mobile technologies have helped SME’s and entrepreneurs reduce costs and improve their business processes. Mobile phone technology has move on considerably since its diffusion into the mainstream in the late 1990’s.

(\url{http://www.apdip.net/publications/iespprimers/eprimer-sme.pdf})

2.3.7 LAN (Local Area network)

LAN is a series of networked computers in a geo-specific location. LAN’s are typically, but not always located in single building. LAN based communications networks allows all computers on the network to share data. (Jessup and Valacich, 2008).

The costs of setting up a LAN network have drastically decreased in the past few years, enabling domiciles to avail of the technology.
2.3.8 Teleconferencing

This is the technology that enables people in two or more locations to communicate simultaneously.

The major disadvantage with this technology is that it does not include face to face interactions. It was also felt to be a business impediment that participants could not see graphs, charts or other visuals. The solution to this problem led to the evolutionary process, where deficits in teleconferencing helped create a new ICT namely video teleconferencing.

2.3.9 Video teleconferencing

With this technology it is possible to see participants in different locations. As this ICT technology evolves from its early incarnation when live TV sessions were transmitted, it is now possible to link numerous computers together on a network. This technology offers many possibilities. It is now possible to work on projects by video, at the same time. There is also the advantage of greater data sharing capabilities.

2.3.10 RSS

Really Simple Syndication (RSS) is defined by Turban et al (2008) as “a family of web-fed formats used to publish frequently update digital content such as news and other web formats. It is XML driven.

Richardson (2005) although speaking of the uses of RSS feeds for educators and researchers, the same principles apply to business owners. A person can create a feed on any subject, and have the RSS feed retrieve information about this subject as soon as it is published online. This is research on a 24/7 basis, but with the RSS doing all the hard work. The RSS can be used for Web-searches, web log searches.

A major advantage of retrieving RSS feeds over receiving e-mails is the virus-free feed content. There are no ads, no span, only the content that you require from the source that you requested. An example could be the “Sunday business Post” weekly
newspaper, but you have the feed set up just to give you business information, sports information or any other choice.

2.3.11 Software as a service

Software as a Service also known as (SAAS) - simply means delivering software over the Internet is increasing in popularity due to its ability to simplify deployment and reduce customer acquisition costs; it also allows developers to support many customers with a single version of a product. There are economies of scale associated with standardization. Consider SAAS to have a “pay as you go” philosophy particularly in relation to the subscription licensing model.

(http://www.microsoft.com/serviceproviders/saas/default.mspx)

Table 3: Saas Model

(SaaS) Model is the combination of a Business Model and a Software Delivery Mode

<table>
<thead>
<tr>
<th>SaaS Business Model</th>
<th>SaaS Software Delivery Model</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sets the business up in such a way that the key businesses processes of Marketing, Sales and Billing are an integral part of the product (Service) itself.</td>
<td>Sets the business up in such a way that the key technical processes of Provisioning, Delivery, Monitoring and Support are an integral part of the product (Service) itself.</td>
</tr>
<tr>
<td>This contrasts with Traditional software business model, where the key business processes are largely manual and separate from the product itself.</td>
<td>These contrasts with the Traditional software business model, where many of the key technical processes largely take place ‘around’ the product.</td>
</tr>
<tr>
<td>The SaaS Business Model leads to a much leaner company, in which the ‘The Service is the business’.</td>
<td>The SaaS Delivery Model therefore leads to much more responsive The SaaS Delivery model and is based upon real-time operations. This means that the company can be both pro-active and re-active at ‘Internet Speed’</td>
</tr>
</tbody>
</table>

2.4 SME Owner/Manager Characteristics

According to Vesalainen (1995) “the close connection between an owner-manager and the firm is the dominant characteristic of small firms.” In order to adopt ICT as a function of the SME business communication, studies by Zappala and Gray (2006), and Manueli et al (2007) state that pertinent characteristics of SME owner/manager characteristics must be considered. These characteristics include the (1) owner/managers level of ICT literacy, (2) what the owner/manager views as the perceived benefits from ICT adoption, (3) owner/manager trust or mistrust of ICT, (4) awareness of the levels of ICT business communications, and also (5) by how much they control and influence business decision processes.

Owner/Manager characteristics

<table>
<thead>
<tr>
<th>Owner Manager Characteristics</th>
<th>Small Firm Characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Perceived benefits</td>
<td>Organisational readiness</td>
</tr>
<tr>
<td>Computer literacy</td>
<td>External pressure to adopt</td>
</tr>
<tr>
<td>Assertiveness</td>
<td>Customer supplier/dependency</td>
</tr>
<tr>
<td>Perceived control</td>
<td>Structural sophistication of the firm</td>
</tr>
<tr>
<td>Subjective norm</td>
<td>Size, sector status</td>
</tr>
<tr>
<td>Mistrust of IT industry</td>
<td>Information intensity</td>
</tr>
<tr>
<td>Lack of time</td>
<td></td>
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</tbody>
</table>

Owner/managers of SME’s perceived as “more entrepreneurial and risk-takers” are main considerations in an SME’s willingness to adopt ICT (Zappala and Gray, 2006). However, Gagnon, Sicotte & Posada (2000) while stating the importance of the role of owner /managers behaviour in SME’s adoption of ICT, found a significant difference in different SME owner/manager styles namely administrative and entrepreneurial. Entrepreneurs focused on people and the contributions they could make, whereas administrators had a much more formal approach with
specific and defined roles for each person within the organisation. It was also found in this same study that SME owner/managers of administrative slant were more likely to adopt technologies in their business communications than their entrepreneurial brothers.

Gray (2006) posited the importance of education in the adoption of ICT and e-business. It was offered that the more qualifications an SME owner/managers possessed the greater the propensity towards the adoption of more advanced business communication processes. It is inferred that the higher the educatory attainment, the greater the awareness of newer business communication technologies. Gray (2006) also argued that the higher the ICT skill levels of owner/managers combined with relevant and adequate qualifications was an indicator of how growth orientated an SME was. This paper also mentioned that those without these characteristics were more likely to be adverse to business growth.

The higher the awareness of ICT, the more aware the owner/manager is of external ICT supports available to the SME from ICT experts and government agencies. Davis, Bagozzi & Warshaw (1989) developed the “Technology Acceptance Model (TAM)”, which posits that acceptance of technology and its usage is determined by intention to use. An Intention to use any technology logically follows awareness of the technology. Jaidee & Beaumont (2003, pg 6) proposed a framework for SME’s owner/managers adopting B2B, which would incorporate ICT adoption if the SME wished to do business with business partners who already had an ICT infrastructure.

From the literature it can be inferred that the owner/managers age and past experience of ICT are also determinants of SME ICT adoption (Manueli et al. 2007). It was felt that the younger the owner/manager the greater the adoption of more advanced ICT processes. However Smallbone et al (1995) consider those Owner-Managers that have growth ambitions may not have the skills and/or capabilities to adopt ICT processes. This may be a combination of a number of factors such as age and education. (Van Damme, Jos de Haan and Jurjen Iedema, 2005).

Thong (1999) found that for ICT adoption to occur in SME’s, there must be a positive attitude of the owner/managers.
2.5 The SME’s Owner/Managers level of awareness of the various types of ICT Business Communications

Windrum and de Berranger (2002) posit that contributing factors for ICT adoption can be segmented into five categories, (1) Business characteristics (2) business actions, (3) systems characteristics, (4) access and reliance on external expertise, and finally of most interest to this dissertation, (5) internal expertise. Windrum and de Berranger, in the same paper also state that business characteristics such as size of the company, is a very strong influencer on ICT adoption. Their logic is that SME’s having smaller and more simple business structures than larger organisations have a lower requirements for advanced ICT. Therefore the resultant being a lesser need to use ICT and consequently a lower propensity towards seeking out pertinent information on ICT matters. This then points to a lowering of awareness.

The objectives of the European Commission Go Digital campaign 2001-2003 was to identify what the barriers for adoption of ICT business communications were. The campaign found that: (1) Many SME’s are still unclear about the benefits of ICT, and are confused by the technical jargon used. (2) The perception is that ICT is better suited to larger organisations. (3) The best way to reach SME’s is to leverage existing networks. (4) ICT training is critical. (5) Resources and costs matter more for SME’s than for large enterprises. (6) Many IT solutions are too expensive and not trusted. (7) Not all e-business solutions benefit SME’s.

Tan, Macaulay & Scheurer (2006) in a paper entitled “Adoption of ICT’s among Small Business: Vision versus Reality”, ( a case study of adoption of ICT among Greater Manchester SME’s), found that “even with low investment costs, free, easy to use web-based tools, with support from both the local council and universities, SME’s are still slow to and reluctant to take up the technology” (pg5)

From the Literature Tan et al (2006), posit that the factors affecting ICT adoption of ICT’s and Information technology can be divided into people and technological factors. I have adapted these into table form.
Table 4: Factors affecting adoption

<table>
<thead>
<tr>
<th>People &amp; SME factors</th>
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</thead>
<tbody>
<tr>
<td>Lack of interest/lack of Awareness</td>
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<tr>
<td>Educational background</td>
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<tr>
<td>Previous experience of ICT</td>
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<tr>
<td>Lack of resources and IT skills</td>
<td></td>
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<tr>
<td>The size of the SME</td>
<td></td>
</tr>
<tr>
<td>The Business sector the SME operates in</td>
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<tr>
<td>Lack of perceived need</td>
<td></td>
</tr>
<tr>
<td>The presence of an e-manager in the SME</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Technology &amp; Environmental factors</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Innovation factors</td>
<td></td>
</tr>
<tr>
<td>Telecommunication Infrastructure</td>
<td></td>
</tr>
<tr>
<td>The location of the SME</td>
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</tbody>
</table>

Tan et al (2006) based their findings on available literature and cite various studies as guiding them towards their findings. These studies included (Rogers, 1995; Mustonen-Ollila and Lyttyinen, 2003; Koh & Maguire 2004; McGregor 2004). This list, though not exhaustive includes all the commonalities in the above table. Firstly, looking at the People & SME factors:

- Lack of interest/lack of awareness

SME’s in general and by inference their owner/managers are unaware of the full potential of ICT to enhance the business (Koh & Maguire, 2004). Statistics cited by Tan et al (2006 in a UK government survey [www.tameside.gov.uk/etameside/surveyresults.html](http://www.tameside.gov.uk/etameside/surveyresults.html)) which showed that 76% of owner/managers of SME’s showed no interest in advertising their firm on an internet business portal. 80% showed no interest in accessing local council funding towards the upgrading/start-up of their website. Tan et al (2006) also found that over 70% of SME owner/managers were unaware of learning initiatives. These owner/managers also showed very little interest in receiving further information regarding upcoming training courses in ICT.
- Educational background

Lakhanpal (1994) state that an individual's educatory level, previous experience with an innovation, and general attitude towards the innovation were influencing factors regarding the degree of adoption. Agreeing with Lakhanpal (1994), McGregor (2004) state that the levels of an Owner/managers education has a significant bearing on ICT adoption. The higher the level of education, the greater the propensity towards awareness of other business processes.

Owner/Managers who have utilised internet and other forms of ICT in the past, have been found to most likely to adopt the technology again. (McGregor, 2004).

- Lack of resources and IT skills

Taylor & Murphy (2004), state that the lack of resources and IT skills amongst owner/managers and staff in SME’s is a considerable adoption barrier.

- The Size of the firm

MacGregor (2004) found that SME’s employing 10 or less staff was less likely to adopt ICT than their larger SME counterparts. However this may not a negative finding, for Bawja et al (2005) speak of micro businesses adopting less expensive ICT’s such as web-based tools & e-mail. It appears that email is highly used amongst all SME’s as a means of communication between their customers and suppliers.

- Business Sector

SME service orientated businesses are most likely to adopt ICT than other SME sectors, according to MacGregor (2004).

- Lack of perceived need

There appears to be a lack of the perceived need to adopt ICT amongst SME owner/managers.

- The presence of an e-manager in the SME
The presence of such a manager in the SME would indicate owner/manager awareness of the various forms of ICT business communications.

Finally I will look to Technology & Environmental Factors:

- Innovation factors

Studies by Rogers (1995), and mentioned in section 2.3 of this dissertation state factors like ability and visibility are contingent with the adoption of ICT business communications by owner/managers of SME’s. Tan et al (2006) cite findings by Koh & Maguire (2004) that small businesses have a lower propensity to adopt unproven technologies.

2.6 SME Owner/Manager attitudes to ICT Adoption

According to Pedersen (2006), there are three possible approaches to ICT adoption for the owner/manager of an SME. These approaches are namely (1) diffusion approach, (2) adoption approach and (3) Domestication approach.

The ability of the owner/managers plays a significant role in the continuing development of the SME. This would also apply to the adoption or not, of ICT and alternatives. It is logical to assume that before an attitude to a process is developed as a mindset, that there must be an awareness of that process. How does the SME owner/manager become aware of a process that may beneficial, productive and profitable if adopted? From this there is the consideration of ignoring a new process which may prove costly and possibly fatal to the small firm. My inference is that some owner/managers have a natural curiosity and that this leads to a propensity towards newer methods and processes which may be of benefit to the firm. Whilst conversely there are other owner/managers who either chooses to ignore or are ignorant of process outside of those familiar to them. Aligning this personal viewpoint to Rogers Diffusion of Innovation Theory (1995) it can be stated that there are different personality and leadership styles which will have an effect on decisions in an SME, one of which is the to adopt ICT and also to what level.
2.6.1 Diffusion of Innovation Theory

The process by which an innovation is adopted is defined as diffusion. Junaidah Hashim’s (2002) study entitled “Information Communication Technology (ICT) Adoption among SME Owners in Malaysia” considers diffusion as the process by which an innovation is adopted by members of a certain community. Hashim, in the same paper cites Rogers (1995) who stated that diffusion is not one single all encompassing theory but rather a meta theory considering the full theoretical aspects of diffusion, for this reason I include all of Rogers diffusion models in this paper.

Rogers (1995) points to four factors which influence the rate of adoption of innovations by an organisation. (1) the actual innovation, (2) the communication channels used to spread information about the innovation, (3) time, and (4) the nature of the group to which it is introduced. Rogers also states that there are four major theories that deal with the diffusion of innovation, and that these theories should be viewed together as one meta-theory. These are (1) the innovation-decision process theory, (2) the Individual innovativeness theory, (3) the rate of adoption theory, and (4) the theory of perceived attributes.

2.6.2 The Innovation-Decision Process Theory

The Innovation Decision Process Theory (Rogers, 1995) states that diffusion is a process that occurs over time and can be seen as having five separate stages namely (1) Knowledge, (2) Persuasion, (3) Decision, (4) Implementation, and (5) Confirmation. This theory states that the owner manager of the SME being a potential adopter of the business communication innovation, must learn about the innovation, be persuaded as of the benefits of the innovation relative to existing processes, s/he must make a choice to adopt, the business communication must then be implemented, the adoption decision then goes through a process in the mind of the SME owner/manager who ultimately accepts or rejects the ICT.

For my purpose of this dissertation the characteristics of the decision making unit, in this case applies to SME owner/managers. These characteristics are (1) socio-economic characteristics, (2) Personality Variables, (3) Communication behaviour. Jaidee & Beaumont (2003 pg 4) draw attention to studies by Thong and Yap(1995) and Fink (1998) who are also support that an SME owner/managers characteristics
are “powerful determinants” of IT, and by inference ICT adoption. Also, of importance is the prior conditions (1) previous practice, (2) Felt needs/problems,(3)Innovativeness (4)Social norms – these prior conditions have a profound effect on the shaping of an individual’s characteristics. This results in either a positivistic, negative or ambivalent attitude towards a topic/object/subject which in turn affects the adoption.

2.6.3 Individual Innovativeness Theory

This theory is based upon who adopts an innovation and when Rogers (1995) splits adopters into five categories namely (1) Innovators – these so called are owner/managers categorized as pioneers with a propensity for high risk taking. They are often considered as leaders amongst their peers. Innovators have the innate ability to adopt despite the perception of uncertainty. To an innovator setbacks and occasional failures are integral to running an enterprise. Most entrepreneurs would be classed as innovators due to the high risk nature element. An entrepreneur is the most likely to start up more than one business enterprise in their lifetime. An SME owner/manager is not the same as an entrepreneur though s/he may possess many of the entrepreneurial qualities. Next up (2) The Early Adopters - these are those owner/managers of SME’s who also adopt innovations at an early stage and disseminate information regarding the innovation. The next stage (3) The Early Majority – Owner/Managers may receive the innovation information through being a member of an SME network, as this group are persuaded of the benefits of an innovation by the Innovators and the early Adopters. This in turn greatly affects their propensity to adopt. The early majority undergo a far longer innovation - adoption decision process before complete adoption. Following this, the next stage (4) The Late Majority – Owner/managers falling into this section are a very cautious breed, particularly towards innovations. They have a tendency not to adopt, at least until they are sure that adoption benefits the organisation better than previous methods employed. The last group (5) The Laggards – Here the Owner/manager is very cynical and skeptical. These resist adopting until absolutely necessary. Sometimes they refuse to adopt.
2.6.4 Rate of Adoption

Another of Everett Rogers (1995) diffusion theories, The Rate of Adoption Theory states that innovations diffuse over time. Diagrammatically this is shown as an S-shaped curve. This theory maintains that an Innovation goes through an initial slow period of acceptance before rapid and dramatic growth. This theory also states that the rate of adoption settles, stabilizes and then enters a period of decline.

2.6.5 Theory of Perceived Attributes

In the context of SME owner/managers The Theory of Perceived Attributes (Rogers, 1995) states that would be adopter’s base their adoption choice on five attributes namely (1) Trial ability (2) Observables (3) Relative Advantage (4) Complexity; and (5) Compatibility.

The theory holds that adoption of ICT innovations experience an higher rate of diffusion amongst owner/managers of SME’s if the ICT: (1) Can be tried on a limited basis before adoption; (2) Offers observable results; (3) Has an advantage relative to other practices including alternative innovations, or indeed the processes already in use by the SME (4) is user friendly, and (5) Is compatible with existing practices and ethos of the organisation

Studies by Wyner (1974) and Holloway (1977) found advantage and compatibility to be significant perceptions among potential adopters of instructional technology in high schools. As educational levels is are cited as I.T adoption indicators

2.6.6 The Adoption Approach

This approach seeks to explain the adoption considerations. There are a number of well known and widely used models. Three widely used models include the Technology Acceptance Model (TAM), the Theory of Reasoned Action (TRA), and the extension of TRA into a Theory of Planned Behaviour (TPB).

Technology Acceptance Model (TAM) devised by Davis (1986) is of the view that a potential user of e-commerce must have a positive attitude when presented with a new technology. The concerns are perceived usefulness & perceived ease of use. This view was supported by Cloete et al (2002), Scupola (2003) and, Turban et al (2006).
Lomerson et al offered a contrasting viewpoint which was in turn supported by Walczuch et al (2000) and Van Akkeren and Cavaye (1999) cited by Pedersen (2003) who criticise Tam by stating that it doesn’t take into account how personal constructs influence behaviour. Exogenous factors such as those described by Porters Five Forces Model - power of suppliers, customers, competition and substitutes - are also not taken into account by TAM.

The Theory of Reasoned Action (TRA) model was introduced to overcome the shortcomings of the Technology accepted model (TAM). TRA is composed of four general concepts namely (1) subjective norms, (2) behavioral attitude, (3) Intention to use and (4) actual use.

The Theory of Planned Behaviour (TPB) further extends the Theory of Reasoned Action model (TRA) and concerns itself with factors where an individual has no control over their behaviour.

2.6.7 The Domestication Process

This approach has the emphasis on how integrated a technology becomes in the everyday business culture. It focuses on how integral a process embeds itself into a culture. Pedersen (2003) posits that the domestication process is validated by social researchers, and is often characterized by age & gender demographic variables. Therefore, if an owner/manager is to domesticate an ICT into his business communications, there must first be compelling evidence towards positive integration.

2.7 Social Networking

For this study social networking refers purely to computer application that allow for the creation of online business communities. Literature suggests that social networks work on many levels and play a critical role in how solutions are found to business challenges. In a white paper entitled “Business Impacts of Social Networking”, Cecile Demailly (2009) considered a social network to be a social structure comprising of interdependent nodes. On the most basic level, social networks are indeed no more than a mapping of interdependencies. Demailly discusses some modern common folk theories, namely that of (1) the six degrees of separation, (2) 150 people being
the optimum number of people that each person can have a meaningful relationship with (3) the strength of weak ties.

- **Six degree of separation**

  Demailly (2009) discussing the writings of Frigyes Karinthy (1929) states that any individual, no matter what the location, no matter what the continent, no matter the creed, culture, language, education or any other social construct is linked to every other human being by no more the five links in a chain. In 1967, an American sociologist Stanley Milgram tested this theory with his “Small world program”. Published in Psychology Today, the findings gave to the world the phrase “Six degrees of Separation”. A personal observation, in the undertaking of this dissertation I created my own personal LinkedIn (Business Social Network) profile. After two days, 17 people had accepted me as a connection, which was in itself fine, but the most powerful aspect to this was that I had access to over 72,000 business contacts from such a minute base.

- **The Optimum number in a Social Network**

  This concept was conceived by The British Anthropologist Robin Dunbar who posited that there were a definitive number of individuals that the average person can maintain social relationships. Beyond this number of social relationships it was that the human animal could not cope. Dunbar, himself did not offer a definitive number for his theory. It is not known to what extent this has been effected a member of an online community. 150 is the number used by most commentators on this topic.

- **The power of weak ties**

  Demailly (2009) citing Granovetter (1973) who posited that within social networks, the weaker ties are more powerful than stronger links. This Granovetter felt was due to how information was diffused more readily amongst those who had weaker links to each other. This occurred because human are social animals, and have a desire to belong to groups. This desire would lead to divulging richer information to the weaker ties. However once a social cohesion has been achieved, there is quite a different information flow.
Relating to networking, owner/managers may benefit from increased market knowledge, fast innovation diffusion (Singh 2000). Braun (2003) found that while some SME owner/managers were still struggling to come to terms with ICT, those owner/managers that had become part of a virtual network cluster were more likely to become aware of, and engage with newer technologies.

Braun (2003) cites Tapscott (1996) in his paper on the digital economy, “The new economy is a networked economy, integrating molecules into clusters that network with others for the creation of wealth”. The Go Digital Campaign (2001), as previously mentioned in this dissertation, found amongst its many illuminations that to reach SME’s and make them more aware of technologically advanced business communications is to leverage existing networks.

The social-ability of the owner/manager and willingness to social network may drive or inhibit ICT adoption. (Beckinsale and Ram, 2006) On the positive side, social networks play a crucial role for sharing information. This in turn can make the owner/manager more aware of the different technologies available in business communications. Manueli et al (2007) states the importance of opinion leaders in social networks in determining if an ICT is to be adopted or not. Opinion Leaders can inform and explain the dis/advantages of ICT, and also point out the benefits.

Braun (2003) suggested some network building steps that would go some way towards Advancing SME networks. He felt that the various incremental steps would help allay the fears of the Owner/manager in adopting ICT into their firm’s business communications. The model has a similarity to Maslow’s hierarchy of needs where as one progresses through the model, other needs become apparent.
Table 5: Network building steps for SME Owner/Managers

<table>
<thead>
<tr>
<th>Steps</th>
<th>SME Needs</th>
<th>Suggested Actions</th>
<th>Potential Outcomes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Reduction of isolation</td>
<td>Supports to reduce ICT fears &amp; resource issues</td>
<td>Willingness to take Virtual; &amp; cluster plunge</td>
</tr>
<tr>
<td>2</td>
<td>Communication &amp; tailored Education</td>
<td>ICT &amp; e-commerce skills</td>
<td>ICT competence &amp; awareness of networked opportunities</td>
</tr>
<tr>
<td>3</td>
<td>Adopting of networking Technologies</td>
<td>External funding</td>
<td>Regional connectivity &amp; adoption of networked solutions</td>
</tr>
<tr>
<td>4</td>
<td>Networking via Industry &amp; regional Association</td>
<td>Social capital Context</td>
<td>Information &amp; knowledge flows</td>
</tr>
<tr>
<td>5</td>
<td>Trust</td>
<td>Fostering of Co-operative Culture in collaborative contexts</td>
<td>Increase network relationships &amp; competitive advantages</td>
</tr>
</tbody>
</table>

**Step 1.** At this initial stage, the SME owner/manager is fearful of advanced information technologies. The objective in joining a network is to reduce the fear, reduce the isolation felt borne out of ignorance of ICT. The owner/manager will move onto the next step if there is a willingness to participate in networks & clusters.

**Step 2.** Here, the SME owner/manager is seeking out customized training programs. Often these occur at the owner/managers workplace due to time constraints from operating a small business. The suggested action are to increase ICT and e-commerce skill levels offering the potential outcome of creating an ICT competent SME owner/manager.

**Step 3.** The increased competence increases confidence towards the networking technologies. The owner/manager is likely at this stage to seek out external funding to satisfy the increasing technological needs of the enterprise. The potential benefit is that the owner/manager adopts networked solutions and avails of regional clustering’s.

**Step 4.** At this stage, the owner/manager may become a member of Industry associations. The Irish SME owner/manager may take up membership of the Small Firms association (SFA) or Irish Small Medium Enterprises (ISME). The suggested
actions are to foster a sense of belonging, the benefits being the increase of information flows.

**Step 5.** Ordanini (2000) cited by Braun (2003) describes a “technological enabled landscape” where trust develops in the mindset of the SME owner/manager. The benefits of collaboration with former competitors are visible, expected and anticipated. Much more valuable information is gleaned from being part of a network, as opposed to operating in a vacuum. There are also increased competitive advantages. (Ordanini 2000)

### 2.7.1 Gender Issues Pertaining to Networking

Stevenson (1990) makes the argument that most of the literature as to why people enter business focuses predominantly on males. For this reason a gap in the literature is identified as it has been inferred in the literature that a women’s motives towards becoming an owner/manager of an SME or an entrepreneur remain unclear. However it appears that women do enter business for different reasons to men. Female Owner/Managers business experience is quite distinct from their male counterparts in similar SME sectors (Brunetto & Farr-Wharton 2005). From existing literature major inhibitors for female owner/managers is their perceived lack of knowledge & experience, fear of failure, lack of role models (Fielden & Dawe 2004). The suggestion is that if female owner/managers of SME’s were made aware of and given access to salient business knowledge then this would go some way towards the identification of greater business opportunities.

Farr-Wharton & Brunetto (2005) mined the benefits of belonging to business networks/clusters for Woman owner/managers of SME’s. They stated that from existing literature, opportunity recognition and collection learning were important reasons why women SME owner/managers join clusters Literature suggests. For SME owner/managers to benefit from network cluster activities, they must be willing to share information. This allows for collaborations. (Porter 2000). Farr-Wharton & Brunetto (2005 pg 4) cite Nelson (1987) and state that Women entrepreneurs rated “networks” first and second “advice from partner” as being the two most important information sources. However it is unclear if this is the same for
female owner/managers of SME’s. As not all SME owner/managers act entrepreneurially. Forbes (1999) suggests that women owner/managers do use social networks & industry clusters to search for business opportunities.

2.7.2 Social Networking

ICT, with a special emphasis on the internet, has developed to such an extent that totally new and innovative forms of social interactions has developed. This phenomenon is known as social networking. Websites devoted to social networking, such as Facebook, Twitter and LinkedIn have created new forms of socialization. Businesses, both MNE’s and SME’s have found value in using social networks to communicate their attributes to their target consumers. It is now commonplace for SME’s, MNE’s and other entities to opt in to virtual communities. The savvy SME owner/manager is aware of online discussions on social network sites, and is knowledgeable of the fact that it is possible to access insights of others in the virtual communities. These insights may help solve specific problems at virtually no cost.

2.8 Critical Literature Conclusion

A European Commission report FP7 Cooperation Work Programme: Information and Communication Technologies (pg 9, 29/7/2009) had some salient points to make in relation to the role of SME’s in innovation. The report states that with regards to ICT, the small medium enterprises play a vital role in the development of concepts and transforming them into viable business commodities. Due to the size of an SME, they can change their business models quicker than their larger counterparts. There is also less complexities within the structure of an SME organisation, this is turn should make it easier to adopt ICT.

However, Lakhanpal (1994) posited in the “Innovation decision framework” that there were a number of factors that would have an effect on innovation adoption. These factors were divided into four, (1) Individual Factors – which for this case refers to the SME owner/manager being the key decision maker. The openness of that SME owner/manager towards new technologies. (2) Organisational factors – especially those that directly impact the decisions that an SME owner/manager may make. (3) The characteristics of the innovation itself – In this case the innovation is
ICT, and (4) Environmental factors – An SME owner/manager may indeed perceive a felt need for ICT adoption, but does ICT fit with the Owner/managers ethos?

The EU definition of an SME as an enabler of funding to firms that fit the definitions criteria, with SME dedicated programs such as the newly launched Eurostars innovation program which is managed by EUREKA. This specifically targets funding towards R&D performing SME’s in all technological sectors.

In a recent Royal Mail commissioned study by Prof. Stephen Roper of Warwick Business School (2010), Six key factors for SME’s success were identified. This was duly named as “The Blueprint for Success Criteria” and consisted of the following recommendations;

- That the SME adopt flexible & responsive managerial approaches
- That the SME evaluate & optimise internal processes
- That the SME utilise a variety of Marketing Methods
- That the SME develop a Human Resources plan for staff development & future employment
- That the SME develop growth objectives
- That the SME must conduct proper Research & Development for it to fully understand the market(s) in which it operates. This help identification of the optimum way to deliver offerings to the market

It was found in this study that if UK SME’s only adopted two of these factors, they would go some way towards achieving competitive advantage.

In this same study, Tim Rivett (Head of Small Business) of Royal Mail “stated that these findings will help smaller firms to identify where they can improve in their business and achieve growth”, he also stated that “These characteristics are practical & easily applicable”.

Conversely if we mention success factors then we must take a critical view of SME failures. The Life cycle of an SME has a tendency to be quite short and that approximately two thirds of these enterprises fail within the first five years. Freeman (2000) endorsed by GEM (2007) and both cited in the University of Pretoria paper
on “SME’s in the Textile & Clothing Industry in Gauteng, South Africa” found that only a very small percentage of SME’s survive in business in the long term.

Also it is worth mentioning that there are other factors for SME’s exiting their respective business sectors. These include owner specifics such as the owner retiring due to age or illness, and sometimes a change of lifestyle choice. The company may merge with another company; the company may be subject to a takeover where in this situation the company changes ownership. (GMAP, 2007:15).
Chapter 3. Research Methodology & Methods

3.1 Introduction

This chapter is a presentation of the chosen research methodology and research approach that I used to answer this dissertation Research Question:

*Is there correlation between SME Owner/Manager Characteristics and ICT adoption in Business Communications*?

**Hypothesis No 1:** Perceived benefits of ICT is an SME owner/manager characteristic adoption driver.

**Hypothesis No 2:** ICT/IT Literacy is an SME owner/manager characteristic adoption driver.

**Hypothesis No 3:** Assertiveness is an SME owner/manager characteristic adoption driver.

**Hypothesis No 4:** Perceived Control is an SME owner/manager characteristic adoption driver.

**Hypothesis No 5:** Mistrust of ICT/IT is a SME owner/manager characteristic adoption driver.

**Hypothesis No 6:** Time Constraints as a SME owner/manager characteristic adoption driver.

**Hypothesis No 7:** Being a member of a social network is a driver for ICT adoption.

Principally my objective is to look for symbiosis between SME owner/manager characteristics (as defined in the literature), and ICT adoption.

An online survey was conducted between July & August 2010 using a questionnaire as the instrument for data gathering purposes. I self-designed the questionnaire based on evidence in the literature and directed the questionnaire in accordance with Rogers (1995) and Lakhanpal (1994) listings of SME owner/manager characteristics, namely (a) SME owner/manager socio-economic characteristics (b) SME owner/manager personality variables (c) SME owner/managers communications behaviour and I aligned this to The Davis, Bagozzi & Warshaw
Technology Acceptance Model” (TAM) which consisted of (a) External factors that effect ICT adoption, (b) perceived usefulness of ICT by the SME owner/manager, (c) perceived ease of use of ICT by the SME owner/manager, (d) SME owner/manager’s attitudes towards using ICT, (e) The SME owner/managers behavioural intention to use an ICT technology, and (f) Actual ICT use by the SME owner/manager.

Fishbein cited by Assael (p207), in his Multi attribute Model states that “An attitude towards an object depends on the probability that the object has certain attributes and on the desirability of these attributes”. Fishbeins model is said to be a compensatory Model of brand attitudes. It is my intention to adopt Fishbeins philosophy to query why even when there are more cost effective and seemingly better technologies to choose from, some SME owner/managers remain blissfully unaware of them, and conversely there are other SME owner /managers who actively keep up to date with technological advances. What are the factors causing this/? Is it personal characteristics towards ICT, namely (1) perceived benefits of the technology, (2) the level of the SME owner/manager’s computer literacy, (3) How assertive the Owner/Manager is within the organisation, (4) owner/manager’s perception of control within the organisation, (5) subjective norms, (6) mistrust of ICT and IT in general, (6) time constraints adopting ICT.

3.2 Research Approach

The objective of the research approach is to chose the correct research methodology that will best answer the Research Question “Is There a correlation between SME Owner/Managers & the Adoption of ICT business Communications ?”. The Research Question itself gives an indication of the approach to take. The word “correlation” is a guide towards a quantitative rather than the qualitative approach.

The framework of my research philosophy is cause and effect. I aim to look at the profile of SME owner/managers and to what extent different variables within the owner/managers physiological make-up effect awareness of different ICT approaches. As I intend to use quantitative methods in my dissertation, I propose the deductive or more precisely the hypothetico - deductive approach as in some elements of my study I intend.
Deductive reasoning flows in four steps from (1) theory to (2) hypothesis to (3) Observation and finally to (4) confirmation. It commences with my drawing up of a theory regarding SME owner/manager profiles and its effect on ICT awareness (http://www.socialresearchmethods.net/kb/dedind.php)

3.3 Research Design Approach

This is a logical process that links the data to be collected with the initial question of a study (Yin, 1989). It is a philosophical journey towards understanding, comprising of the following perspectives, research strategy, data collection methods, data collection instruments or processes, data sources, timing of administering the data collection instrument, making a choice between quantitative, qualitative or possibly both approaches. (Bell 89, Mason 2002). For my data collection I intend to undertake quantitative methods through a survey based questionnaire of a pre-determined sample of my intended target sector. The most common form of surveys is based on positivist epistemology and naïve realist ontology (Scott & Usher 1999) (http://upetd.up.ac.za/thesis/available/etd-03022005-151856/unrestricted/03chapter3.pdf)

Cuthbert (2008 pgs 23-26) while discussing the criteria for judging the quality of research design, states that there are four commonly used tests to establish quality and viability of empirical research. They are discussed below:

- Construct Validity

Construct validity occurs in the data collection and compilation phases. This is the establishment of the correct metrics to ensure validity when measuring the concepts under scrutiny. Cuthbert (2008) cites studies by both Yin (1994) & Miles and Huberman (1994) who allude to the problems of construct validity in case study research. Tactics employed to reduce this problem were to use multiple sources of evidence and establish a trail of evidence.

- Internal Validity

In explanatory cases, a causal relation is established where certain factors directly influence other conditions. The establishment of internal validity is an evidence gathering exercise. The aim of this dissertation is to look at the causal
relationship between owner/manager personality variables and ICT awareness. The objective is to look at which variables effect most awareness, and conversely those that don’t. Internal validity seeks to create explanations for observable results.

- External Validity

External validity occurs in the research design phase. The essence of external validity is that the findings of a study can be generalised beyond the actual study itself. Yin (1994) suggests the tactic of replication logic. To this, a useful exercise would be to carry out this survey again, at a later stage, and measure the results vis-à-vis the results that I will present to this case.

- Reliability

This is a problem in the data collection phase of the case study. To ensure reliability is addressed in this the survey element of this dissertation, my approach is to use a standardised Likert style questionnaire in a quantitative approach.

3.3.1 Which is the appropriate Research approach?

There are two major research paradigms (Creswell 2003), namely quantitative and qualitative.

- Quantitative Approach

This approach is traditionalistic, positivist, experimental, empirical.

- Qualitative Approach

Qualitative approach is postpositive, constructivist, naturalistic, interpretative, and post-modern.

With regards to the nature of the research problem, the Qualitative paradigm is generally chosen when the exploratory research variables are unknown, and also
where there is a lack of a theory base for the study. This dissertation's Research Question “Is there a correlation between SME owner/manager characteristics and the awareness of ICT business communications?”, suggests that there already exists a body of literature available to peruse. Therefore relevant models and theories must also exist. This leads logically to a quantitative approach being the approach of choice.

It is however possible to use a mixed method approach, otherwise known as triangulation. Clark (2005) does not recommend this approach due to what he terms “Theoretical Pluralism”. Clark (2005 pg 29) posits that it is best to choose a single research method. This would be based on a series of pragmatic choices such as time constraints and the size of the project to be undertaken.

The Research Question is guiding towards a quantitative paradigm, and correlation research in particular. Correlation research or Analytical Survey’s is quantitative and concerns itself with the statistical measurement of associations between two phenomena. There are two types of studies within the correlation approach, namely (1) Relational studies: which is an investigative exploratory form of study seeking to establish correlations between phenomena, and also the extent of these correlations (2) Prediction Studies: This is carried out in a research arena where correlations are already known. The philosophy is to predict possible behaviours and events.

However before I fully commit to the quantitative approach, below is a worthwhile exercise to compare fully between the different approaches.
3.3.2 Quantitative versus Qualitative

I now compare the differences in a self-designed table (after Creswell)

Table 6: Quantitative Research v Qualitative Research

<table>
<thead>
<tr>
<th>Comparing variable</th>
<th>Qualitative</th>
<th>Quantitative</th>
</tr>
</thead>
<tbody>
<tr>
<td>Question Types</td>
<td>Probing</td>
<td>Non-probing</td>
</tr>
<tr>
<td>Sample Size</td>
<td>Small</td>
<td>Large</td>
</tr>
<tr>
<td>Information per respondent</td>
<td>Much</td>
<td>Varies</td>
</tr>
<tr>
<td>Administration</td>
<td>Specialist skills requirements</td>
<td>Fewer Specialist skills</td>
</tr>
<tr>
<td></td>
<td></td>
<td>requirements</td>
</tr>
<tr>
<td>Type of Analysis</td>
<td>Subjective, Interpretive</td>
<td>Statistical, Summarization</td>
</tr>
<tr>
<td>Hardware</td>
<td>Recording Devices. Possible to use Open ended structured survey questionnaires.</td>
<td>Questionnaires</td>
</tr>
<tr>
<td>Ability to replicate</td>
<td>Low</td>
<td>High</td>
</tr>
<tr>
<td>Type of research</td>
<td>Exploratory</td>
<td>Descriptive, causal</td>
</tr>
</tbody>
</table>

Regardless of which approach is chosen, the Information cycle (shown in figure 1) shows the journey that all academic researchers take.

![Information Cycle](image)

Figure 1: The Information Cycle
3.4 The Research Onion

“The Practical reality is that research rarely fall neatly into only one philosophical domain as suggested by the research onion”, (Saunders et al, pg 85). This was a consideration for me in determining how my understanding of this study would develop. I initially thought that my research philosophy would be positivist as I would be observing social realities, and quantifying these observations into measurable statistical analysis. However I could not ignore the deeper complexities in business situations. Remenyi et al (1998 – cited in Saunders) make a strong case for Interpretivism by taking a social constructionist view. People apart from interacting with their environs; also try to seek understandings of it. A social constructionists concern with Realism is also cognisant that people share experiences of their socially constructed environments by communicating their interpretations. I would hold that natural laws do occur within social constructs, and these are impinged on by realities.

3.5 Sample Size

Before I design a sample frame I need to allude to the population to be sampled.

The next problem was how to attract willing participants, in such a short time, in sufficient numbers to warrant validity and value to my study. As I have just stated my original intent was to garner only Irish responses, however initial responses from Irish SME owner/managers were sluggish. Upon reflection this dissertation had not concerned itself with nationalistic issues, maybe it were true that Irish SME owner/manager characteristics differed from their counterparts in other nations. As I could not find evidence in the literature that this was indeed the case I decided to expand my search for respondents to my cause. This was achieved using my LinkedIn profile and joining either SME/Small business or entrepreneurial groups that best fit in with the confines of my study. This is a listing of the groups that I joined;
Initially I joined groups with smaller membership sizes as I assumed that I would receive a greater response rate, due to the smaller number of discussions hosted on these sites. When this assumed proved somewhat untrue I expanded my quest and approached larger groups seeking membership.

I then tallied the totals for the groups that I became a member to give me a population of 6687. The formula for working out sample size \( n \) based on a 95% confidence interval level is \( n = \left(\frac{z^2(PQ)}{e^2}\right) \). (\( z = \text{standard error of 95% confidence level or 1.96, } p = \text{estimated } \% \text{ of population who may answer Yes/No, } \) A 50% probability of answering either way, \( q = p-100 \), \( e = \text{acceptable sample error between 5% -10%}, \) the higher this figure constitutes a greater error but also a smaller sample size. \( n = (1.96^2 \times 0.50)/0.08^2) = 150.6. \)

This figure I rounded to 151. To verify this figure I applied the on-line calculator at [http://www.surveysystem.com/sscalc.htm](http://www.surveysystem.com/sscalc.htm). The resultant sample size was 147, this I feel to be an accurate figure for my needs. \((6687/147 \times 100 = 2.2 \% \text{ of population}).\)

However not knowing the population need not be a problem, as the mathematics of probability proves the population size is irrelevant unless the size of the sample
exceeds a few percent of the total population you are examining. This means that a sample of 500 people is equally useful in examining the opinions of population size 15,000,000 as a population of 100,000. It is important to note that doubling sample size does not halve margin of error.

3.6 Sampling

Chisnall (1986 pg 49-52) states that “Marketing research has its roots in social surveys which were pioneered by Bowey and others”. Chisnall (1986) also states that while much of these pioneering studies were non-rigorous, Bowey’s approach was to be a major influence on methodologies of social survey’s.

Sampling was first used in the UK in 1937 by the Ministry of Labour., in a study of working class expenditure.

3.7 Sample frame

Yates (1953) in “Sampling methods for Censuses and surveys consider” set criteria for evaluating sampling frames. (1) Adequacy – the sample frame should cover the population to be survey and it must be related to the surveys purpose. (2) Completeness – With all sampling, there is always the risk of bias. This increases if element’s of the population possessing certain characteristics are missing (3) No Duplication – Sometimes a unit may be entered more than once, for example a Company with more than one name may have multiple entries into the telephone directory, (4) Accuracy – populations by their nature are dynamic. Sampling lists that cover sometimes contain non-existent unit’s dwellings, (5) Convenience – The sample frame must be accessible and suitable for the sampling purposes.

3.8 Sample size is not an indicator of accuracy

Chisnall (1986, pg 102) relates the nightmare experience in 1936, of US weekly magazine Literary Digest. In the construction of an exit poll before the national elections, more than 10 million ballots were posted, of which there were 2,350176 respondents. The survey’s results were published on October 1936. The poll indicated that 55% favoured Landon while only 41% favoured Roosevelt. The actual election gave Roosevelt 60% of the poll, a “sampling variance “of circa 50%. Gallup, at the same time conducted a similar poll, but used a significantly smaller sample of only a
few thousand and accurately predicted the outcome. The problem with the *Literary Digest* sample was that it was not proportionate, as it included too many respondents in the upper social strata and not enough working classes. The sampling list came from telephone directories, of which back in the US of 1936 would have been very heavily tilted towards the upper social strata. There also existed another bias, in that only 20% responded, and these were most likely to be the more educated members of the population.

### 3.9 Research Strategies

As of the deductive approach I intend to pursue a survey strategy. This strategy involves:

(a) *Establishing goals* – the research objective is to quantify correlation levels between SME owner/manager personal characteristics and awareness of ICT business communications.

(b) *Email surveys* - These are very economical and very fast. SurveyMonkey is the website I have chosen to host my questionnaire. The main advantage of online survey’s is the speed. There is practically no cost involved after set-up. The novelty element of an email survey may stimulate higher responses. The main disadvantages are the lack of control over who completes the survey. I have no way of knowing if the person who completed my survey is indeed an actual SME owner/manager. For this reason I used a screening question at the start, however it still won’t filter out all unintended responses. There is also the possibility of duplication, whereby a respondent fills out a survey more than once, because of this I chose SurveyMonkey as it only allows one respondent per IP address.

(c) *Questionnaire Design* – The questionnaire must fit the medium. As I am dealing with correlations and symbiosis between different variables, the choice of ranking ordinal Likert style questionnaire was perfect for this case study. A ranking scale allows for different levels of correlations to appear in the findings.

(d) *Analyzing the Data* – Again SurveyMonkeys facilities will be utilized. Cross-tabulation akin to ANOVA correlation techniques will be utilized by SurveyMonkeys survey package. ([http://www.surveysystem.com/sdesign.htm](http://www.surveysystem.com/sdesign.htm))
3.10 Time Horizons

Here due to time constraints and the quantitative nature of my proposed survey I have opted for cross-sectional descriptive studies. Citing Robson, (2002; pg 59), Saunders state the object of descriptive studies is to “to portray an accurate profile of events or situations”, I conducted the test of research question (the phenomena) during July & August 2010.

3.11 Pilot study

I have designed this research paper as a two-stage survey. The pilot study is the first stage to be conducted. A pilot study is best described as a mini-study or a feasibility study. Its aim is to pre-test a questionnaire. It allows for tweaking, where questions can be removed as irrelevant or not yielding sufficient valuable data relevant to the case at hand.

My reasons for undertaking a pilot study are to ascertain if my questions in the survey are of sufficient quality to yield adequate rich information to answer my research question. The aim of the pilot study results is to be conducted in a dry-run or rehearsal fashion. The pilot studies objective is to enable an improvement to the final questionnaire. If I were conducting a qualitative study, I would use a focus group at this stage.

Kezar (2000) states that Pilot surveys are important as they help to ground the researchers “theoretical derived understanding.” Heidegger described the hermeneutic circle as the provision of a framework for understanding. It is posited here that one must have a sense of the domain where a phenomena occurs, if ones understanding is to bloom.

3.12 Ethical Issues

There are sensitivities relating to participating in survey questionnaires. It is necessary for survey respondents to understand privacy issues. Consent is given by open invitation to participate in the research, this researcher will aim for discretion, no individual will be implicated afterwards, and structure of the questionnaire is designed to yield honest, complete & accurate data. (Henning 2004, Mason 2002).
As my original intent was to purely focus on Irish SME owner/managers, I intended to email members of IBEC (Irish Business Employees Confederation), ISME (Irish Small Medium Enterprises), and, SFA (Small Firms Association) who are all SME or Employee representative bodies. Being cognisant of ethical considerations whereby those I planned on emailing a survey, must first be contacted by telephone seeking willingness to participate. There was a time constraint if I followed this approach and I would need to communicate twice with prospective respondents. How many SME owner/manager would I have to contact before I garnered the correct amount of willing respondents to partake of my survey? It would have been of greater time management to conduct a qualitative survey where a smaller sample size would suffice.

It is of utmost importance that respondents to my survey are treated anonymously.


The main advantages of hosting online are the (1) **Cost.** The hosting, data collection, analysing and charting of my survey cost €19.95. (2) **Data Collection Capabilities.** The questionnaire was active 24/7 for 30 days gathering responses which freed up my time to concentrate on other aspects of this dissertation.

### 3.13 Data Protection Acts

The following segment is a précis of the data Protection Commissioners website. http://www.dataprotection.ie/ViewDoc.asp?fn=%2Fdocuments%2Flegal%2FLawOnDP%2Ehtm&CatID=7&m=l. It is a brief mention of the Irish and EU acts passed relating to data collection matters.

From the website “The main Irish law dealing with data protection is the Data Protection Act 1988. The 1988 Act was amended by the Data Protection (Amendment) Act 2003. An informal consolidated version of the two Acts is available. The ePrivacy Regulations 2003 (S.I. 535) deal with data protection for phone, e-mail, SMS and Internet use. They give effect to the EU e Privacy Directive 2002/58/EC. These regulations have been amended by SI 526 of 2008”.
3.14 Research Methodology Conclusion

The following table I adapted from OfCOM:” Social Network Research Report _ A Qualitative look at behaviours, attitudes and barriers of social networking sites “(pg 69) available at http://news.bbc.co.uk/2/shared/bsp/hi/pdfs/02_04_08_ofcom.pdf. It allows, at a glance how my research is to be completed and how I intend to achieve the set objectives.

Table 8: Achieving research objectives

<table>
<thead>
<tr>
<th>Methodology</th>
<th>Quantitative Approach</th>
</tr>
</thead>
<tbody>
<tr>
<td>Core Objective</td>
<td>To answer the Research Question</td>
</tr>
<tr>
<td></td>
<td>“Is there a correlation between SME owner/managers and their awareness of different forms of ICT in business communications?”</td>
</tr>
<tr>
<td>Sample Size</td>
<td>147 intended….Actual 65</td>
</tr>
<tr>
<td>Timeline</td>
<td>July – August 2010</td>
</tr>
<tr>
<td>Sample Definition</td>
<td>Owner/managers of SME’s</td>
</tr>
</tbody>
</table>

Primarily I will be concerning myself with quantitative methods. Quantitative research is attitudinal research, of which there are two important measurements relaying to its measurement: reliability & validity. Reliability refers to consistency and that under similar conditions there should be similar results. Validity concerns are to the extent that the scales are measuring what they intend to measure.

There are Methods three of testing reliability:-

1. *Test-Retest*; or comparison. This is where a co-relation between original& replicated tests is calculated
2. *Equivalent Forms*: a comparison of measurements on comparable forms of the same test
3. *Split-half*: Compare measurements on one side of the test with those on the other half. The result is expressed as a coefficient of correlation

Validity relies on external criteria being available. It can be determined by any or all of the following;
1. **Content Validity**: Experts personal judgements are the determinants.
2. **Predicative Validity**: Test results are measure against external criteria.
3. **Construct Validity**: Groups which are expected to have certain attitudes towards a particular topic.

### 3.15 Types of scales

There are four main types’ namely nominal, ordinal, interval & ratio. Nominal are the least sophisticated involving a simple population characteristic such as gender, marital status, age etc. Interval/cardinal scales and equal units of measurements and allow, for the use of statistical measurements. Ratio scales have fixed origin points allowing arithmetical analysis to be used.

Ordinal scales are ranking scales. Ranking has its basis in sociology and psychology. It is a widely used construct in grading people, products, services, events etc. Rensis Likert. (1932) In “*A technique for the measurement of attitudes*”, developed what came to known as the Likert scales. This allowed for a set procedure to be followed where (1) a large number of statements relating to a particular subject being surveyed is collected (2) these statements are then relayed to a group of representatives along a & point scale from strongly agree to strongly disagree. (3) Individual scores are achieved by totalling the scores of each statement. (4) Item analysis is now done correlating scores between discriminating items.

As reliability and validity are important in my survey, the Likert scale is that which I will use as the basis of the greater part my questionnaire. Other elements of my questionnaire where I address awareness issues can be address by nominal scaling. This questionnaire will be a self-report.

### 3.16 Editing

Paraphrasing Wein, “*The planning of data editing is part of the primary process survey preparation*”. It is aimed at improving data quality. This can be done by data specification checks. This I done by my first question in the survey which was a screening question intended to filter out non SME owner/managers and restrict the
survey to include only those which the questionnaire had been specifically designed for.

Data editing is a process that draws information from other sources, such as, questionnaire design and methodological knowledge. Data editing is the interface to other survey processes. Project management techniques in data editing can be utilized to increase the efficiency of the survey.

Data editing also helps clean the code. Some respondents had answered that they were not SME owners”, these respondents were filtered out first. My next task in cleaning the data was to exclude those non-completes. As it was more important for me to get purer responses; I was not overly concerned with a smaller response rate. However, I did leave my survey open for a few days longer in some effort to increase my polls hit rate.

From an initial hit rate of 97 responses, the survey was cleaned to such an extent that I was left with 65 fully pure and accurately completed responses.
Chapter 4. Data Analysis/Findings

4.1 Introduction

The purpose of this chapter is to present the research findings from the on-line survey questionnaire that was administered to SME owner/managers between July and August 2010. In total 97 responses were received, these 97 responses were then data cleaned to give 65 pure responses. I specifically targeted SME owner/managers who were members of various groups hosted on the business network website LinkedIn.

My survey examined SME owner/manager issues relating to:

- Profile
- Business Style
- In Business
- ICT Awareness
- ICT Range
- Social networking

4.2 Screening Question

Section #1 of my questionnaire consisted of one question only. This being is a screening question explaining that this survey is intended for SME owner/managers only. Respondents who answered that they not SME owner/managers found themselves restricted from continuing with the survey. These negative respondents were directed to a message board in Section # 8 of the questionnaire explaining why access was restricted.

Table 9: Please indicate if you are An SME Owner/Manager

<table>
<thead>
<tr>
<th>Answer Options</th>
<th>Response Percent</th>
<th>Response Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>100.0%</td>
<td>65</td>
</tr>
<tr>
<td>No</td>
<td>0.0%</td>
<td>0</td>
</tr>
<tr>
<td>answered question</td>
<td></td>
<td>65</td>
</tr>
<tr>
<td>skipped question</td>
<td></td>
<td>0</td>
</tr>
</tbody>
</table>
Initially there were 97 responses to the survey. However after data cleaning and editing of data, the final sample size is 65. This screening question ensured that only SME owner/managers participated in the survey.
4.3 SME Owner/Manager Personal Profiles
This section comprises Questions 2, 3, 4, 5 and 6. Question 2 is based on the Age and Gender of the SME owner/manager. The respondents were simply presented with eight choices and asked to mark the appropriate one. This question was influenced by the paper on ICT adoption and development of e-business among SME’s in South Africa by Mpofu, Milne and Watkins-Mathys (2008, pg 4) where they cited previous studies by Manueli et al (2007) and Windrum and de Berranger (2002) which found that the age was an important characteristic of the owner/manager as an influencer of ICT adoption.

Table 10: Please indicate your age and gender

<table>
<thead>
<tr>
<th>Answer Options</th>
<th>Response Percent</th>
<th>Response Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male 18 – 24</td>
<td>0.0%</td>
<td>0</td>
</tr>
<tr>
<td>Male 25 -34</td>
<td>9.2%</td>
<td>6</td>
</tr>
<tr>
<td>Male 35 -49</td>
<td>36.9%</td>
<td>24</td>
</tr>
<tr>
<td>Male 50 64</td>
<td>20.0%</td>
<td>13</td>
</tr>
<tr>
<td>Male 64 +</td>
<td>0.0%</td>
<td>0</td>
</tr>
<tr>
<td>Female 18 -24</td>
<td>0.0%</td>
<td>0</td>
</tr>
<tr>
<td>Female 25 – 34</td>
<td>7.7%</td>
<td>5</td>
</tr>
<tr>
<td>Female 35 – 49</td>
<td>16.9%</td>
<td>11</td>
</tr>
<tr>
<td>Female 50 – 64</td>
<td>9.2%</td>
<td>6</td>
</tr>
<tr>
<td>Female 65 +</td>
<td>0.0%</td>
<td>0</td>
</tr>
<tr>
<td><strong>answered question</strong></td>
<td><strong>65</strong></td>
<td></td>
</tr>
<tr>
<td><strong>skipped question</strong></td>
<td></td>
<td><strong>0</strong></td>
</tr>
</tbody>
</table>

The largest grouping was Males aged 35-49 (37%) and the next highest representation was Males aged 50-64 (20%). Third highest grouping was Females aged 35 – 49 (17%). Males and females aged 18-24 were not represented, nor were males 64+
In Question 3, the respondents were surveyed about their highest education level they achieved. The respondents had to choose from following choices, (1) PhD (2) Masters degree (3) Primary Degree (4) Vocational/Trades (5) Leaving Certificate (6) Intermediate Certificate. Beckinsale and Ram (2006) also cited in the Mpofu et al study (2008, pg 4) posited that differentiations in age was an indicator of ICT adoption stating that younger SME owner/manager’s had a higher propensity to adopt ICT due to this segment having achieved higher educational standards.

Figure 3: Educational Level

The largest grouping was primary degree holders with 41.5%, followed by Masters Degree holders with 30.8%. Intermediate certificate holders were the lowest grouping with 1.5%.

Table 11: What is your highest educational achievement?

<table>
<thead>
<tr>
<th>Answer Options</th>
<th>Response Percent</th>
<th>Response Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>PhD</td>
<td>9.2%</td>
<td>6</td>
</tr>
<tr>
<td>Masters Degree</td>
<td>30.8%</td>
<td>20</td>
</tr>
<tr>
<td>Primary Degree</td>
<td>41.5%</td>
<td>27</td>
</tr>
<tr>
<td>Trades/Vocational qualifications</td>
<td>6.2%</td>
<td>4</td>
</tr>
<tr>
<td>Leaving Certificate (or Equivalent)</td>
<td>10.8%</td>
<td>7</td>
</tr>
<tr>
<td>Intermediate certificate (or Equivalent)</td>
<td>1.5%</td>
<td>1</td>
</tr>
<tr>
<td>answered question</td>
<td></td>
<td>65</td>
</tr>
<tr>
<td>skipped question</td>
<td></td>
<td>0</td>
</tr>
</tbody>
</table>
In Question 4, the respondents were asked how they became the main decision maker in the organisation that they were currently involved with. The choices available to respondents included (1) Did the SME owner/manager start this particular business (2) did the SME owner/manager inherit this business? My intent was to see if this business was a family concern of more than one generation. Curran and Blackburn (2001) stated that SME owner/managers came from many diverse backgrounds. They stated that (1) some started the business,(2) some inherited the business,(3) some worked their way up,(4) others were headhunted, and (5) others became the owner/managers through a takeover. These were the metrics used in this question.

Figure 4: How did you become the main decision maker?

![Pie chart showing the distribution of responses to the question on how respondents became the main decision maker.]

Those who started their own businesses were the highest grouping with 64.6% of respondents accounting for this sector.

Table 12: How did you become the main decision maker in the organisation?

<table>
<thead>
<tr>
<th>Answer Options</th>
<th>Response Percent</th>
<th>Response Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>I started the business</td>
<td>64.6%</td>
<td>42</td>
</tr>
<tr>
<td>Inheritance</td>
<td>1.5%</td>
<td>1</td>
</tr>
<tr>
<td>I worked my way up</td>
<td>23.1%</td>
<td>15</td>
</tr>
<tr>
<td>Due to a takeover</td>
<td>3.1%</td>
<td>2</td>
</tr>
<tr>
<td>I was headhunted</td>
<td>7.7%</td>
<td>5</td>
</tr>
<tr>
<td>answered question</td>
<td></td>
<td>65</td>
</tr>
<tr>
<td>skipped question</td>
<td></td>
<td>0</td>
</tr>
</tbody>
</table>
Question 5 asked how long the SME owner/manager was in charge of this particular business. The respondent had to choose between (1) less than one year (2) 1-3 years (3) 4-6 years (4) 7-9 years (5) 10+ years.

Figure 5: How many years are you in charge of this particular company?

The highest grouping were those respondents who were in business between 4-6 (27.7%). Significantly the next highest group was from firmly established organisations of 10+ years (26.25%). Third were those respondents who were in business for between one to three years accounting for 21.5% of total respondents.

Table 13: How many years are you in charge of this particular company?

<table>
<thead>
<tr>
<th>Answer Options</th>
<th>Response Percent</th>
<th>Response Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than a year</td>
<td>13.8%</td>
<td>9</td>
</tr>
<tr>
<td>1 – 3</td>
<td>21.5%</td>
<td>14</td>
</tr>
<tr>
<td>4 – 6</td>
<td>27.7%</td>
<td>18</td>
</tr>
<tr>
<td>7 – 9</td>
<td>10.8%</td>
<td>7</td>
</tr>
<tr>
<td>10 +</td>
<td>26.2%</td>
<td>17</td>
</tr>
<tr>
<td>answered question</td>
<td><strong>65</strong></td>
<td></td>
</tr>
<tr>
<td>skipped question</td>
<td><strong>0</strong></td>
<td></td>
</tr>
</tbody>
</table>
**Question 6** focused on the hourly work content that the SME owner/manager personally invests in the business. The choices were (1) up to 35 hours (2) 36 -40 hours (3) 41-46 hours (4) 46-49 hours (5) 50 + hours

**Figure 6: How many hours do YOU work in an average week?**

This was almost a three way split, with those who worked 41-45 hours and 46 -49 both accounting for 26.2% of respondents. Next with 24.6%, which was only one respondent less were those who stated that they worked 50+ hours per average week.

**Table 14: How many hours do YOU work in an average week?**

<table>
<thead>
<tr>
<th>Answer Options</th>
<th>Response Percent</th>
<th>Response Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Up to 35</td>
<td>9.2%</td>
<td>6</td>
</tr>
<tr>
<td>36 – 40</td>
<td>13.8%</td>
<td>9</td>
</tr>
<tr>
<td>41 – 45</td>
<td>26.2%</td>
<td>17</td>
</tr>
<tr>
<td>46 – 49</td>
<td>26.2%</td>
<td>17</td>
</tr>
<tr>
<td>50 +</td>
<td>24.6%</td>
<td>16</td>
</tr>
<tr>
<td><em>answered question</em></td>
<td></td>
<td>65</td>
</tr>
<tr>
<td><em>skipped question</em></td>
<td></td>
<td>0</td>
</tr>
</tbody>
</table>
4.4 The SME in Business

This section comprised of two questions (Q7 & Q8) where the respondent is asked in Question 7 to state if this business is the first that they have been the main decision maker.

Figure 7: Is this the first company where you were the main decision maker?

Forty-six respondents (70.8%) stated that this was the first company in which they are the main decision maker.

Table 15: In this the first company where you were the main decision maker?

<table>
<thead>
<tr>
<th>Answer Options</th>
<th>Response Percent</th>
<th>Response Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>YES</td>
<td>70.8%</td>
<td>46</td>
</tr>
<tr>
<td>NO</td>
<td>29.2%</td>
<td>19</td>
</tr>
<tr>
<td>answered question</td>
<td>65</td>
<td></td>
</tr>
<tr>
<td>skipped question</td>
<td>0</td>
<td></td>
</tr>
</tbody>
</table>
In Question 8 the SME owner/manager is asked to state how many employees engaged in the business. The options available were (1) none – this choice was aimed at determining if the business entity was a sole trader. (2) 1-10 employees (3) 11-49 employees (4) 50 – 99 employees. (5) 100 – 249. The choices were drawn from the EU’s definition of an SME.

Figure 8: How many people do you employ?

![Pie chart showing employment categories](chart.png)

Those employing between 1-10 employees were the highest grouping accounting for 32 responses (49.2%) of total sample. Next highest sector were the sole traders with 17 responses (26.2%) of total respondents.

Table 16: How many people do you employ?

<table>
<thead>
<tr>
<th>How many people do you employ?</th>
<th>How many people do you employ?</th>
<th>How many people do you employ?</th>
<th>How many people do you employ?</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Answer Options</strong></td>
<td><strong>Answer Options</strong></td>
<td><strong>Response Percent</strong></td>
<td><strong>Response Count</strong></td>
</tr>
<tr>
<td>None (Sole Trader)</td>
<td>None (Sole Trader)</td>
<td>26.2%</td>
<td>17</td>
</tr>
<tr>
<td>1 - 10</td>
<td>1 – 10</td>
<td>49.2%</td>
<td>32</td>
</tr>
<tr>
<td>11 - 49</td>
<td>11 – 49</td>
<td>18.5%</td>
<td>12</td>
</tr>
<tr>
<td>50 - 99</td>
<td>50 – 99</td>
<td>3.1%</td>
<td>2</td>
</tr>
<tr>
<td>100 - 249</td>
<td>100 – 249</td>
<td>3.1%</td>
<td>2</td>
</tr>
<tr>
<td><strong>answered question</strong></td>
<td><strong>answered question</strong></td>
<td><strong>65</strong></td>
<td><strong>65</strong></td>
</tr>
<tr>
<td><strong>skipped question</strong></td>
<td><strong>skipped question</strong></td>
<td><strong>0</strong></td>
<td><strong>0</strong></td>
</tr>
</tbody>
</table>
4.5 The SME Owner/Manager’s Business style

Questions 9 – 14 deal with the SME Owner/managers business style. The objective of this section of the survey questionnaire is to allow SME owner/managers the opportunity to address their individual characteristics in a business setting. All the questions have been ranked similar to a Likert scale ranging along five options from strongly agree to strongly agree.

The aim of Question NO.9 is to address the assertiveness or otherwise of the SME owner/manager in everyday business situations.

Figure 9: I am very assertive in business

![Pie chart showing assertiveness levels]

Thirty-three (50%) respondents strongly agreed that they were assertive in business. Twenty-four (37%) slightly agreed that they were assertive, while only one respondent (1%) strongly disagreed.

Table 17: I am very assertive in business

<table>
<thead>
<tr>
<th>Strongly Agree</th>
<th>Slightly Agree</th>
<th>Neither Agree/Disagree</th>
<th>Slightly Disagree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>33</td>
<td>24</td>
<td>3</td>
<td>4</td>
<td>1</td>
</tr>
</tbody>
</table>
The aim of **Question No.10** is to measure the SME owner/manager’s openness to new suggestions. Zappala and Gray (2006) viewed SME owner managers who were more prone to risk taking would be more likely to adopt ICT. It was also felt by Gray (2006) in a separate study that these owner/managers would be more likely to provide training for their staff in advanced technologies.

![Figure 10: I am open to new suggestions](image)

Forty-three respondents (66%) strongly agreed that they were open to new suggestions.

Eighteen respondents (28%) slightly agreed. Four respondents (6%) were undecided.

**Table 18: I am open to new suggestions**

<table>
<thead>
<tr>
<th></th>
<th>Strongly Agree</th>
<th>Slightly Agree</th>
<th>Neither Agree/Disagree</th>
<th>Rating Average</th>
<th>Response Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>43</td>
<td>18</td>
<td>4</td>
<td></td>
<td>1.40</td>
<td>65</td>
</tr>
</tbody>
</table>
With **Question No.11** the objective is determine if the SME owner/manager considers themselves experts in the fields they operate in.

31 (48%) slightly agreed and 31 respondents (48%) slightly agreed that they were experts in their field of work. The remaining 3 (5%) respondents had no option on the matter. Interestingly even though both the “strongly agreed” & the “slightly agreed” had the same amount of respondents, the Excel graph measured it as a 1% differential.

**Table 19: I am considered an expert**

<table>
<thead>
<tr>
<th>Strongly Agree</th>
<th>Slightly Agree</th>
<th>Neither Agree/Disagree</th>
<th>Response Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>31</td>
<td>31</td>
<td>3</td>
<td>65</td>
</tr>
</tbody>
</table>

![I am considered an expert](Image)
**Question No. 12** measures the extent by which SME owner/managers consider themselves to be opinion leaders.

**Figure 12: I am considered an Opinion Leader**

Thirty-two respondents (49%) slightly agreed that they were considered as Opinion Leaders. Fifteen respondents (23%) strongly agreed with the statement that they were Opinion Leaders. Fifteen respondents (23%) also stated that they could not be sure if they were.

**Table 20: I am considered an Opinion Leader**

<table>
<thead>
<tr>
<th>Strongly Agree</th>
<th>Slightly Agree</th>
<th>Neither Agree/Disagree</th>
<th>Slightly Disagree</th>
<th>Rating Average</th>
<th>Response Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>15</td>
<td>32</td>
<td>15</td>
<td>3</td>
<td>2.09</td>
<td>65</td>
</tr>
</tbody>
</table>
Question No.13 measures the extent by which SME owner/managers keep up with technological advances.

Thirty-eight respondents (58%) stated that they liked to keep up to speed with technological advances. Only four respondents (6%) stated that they slightly disagreed. No respondents disagreed with the statement outright.

Table 21: I keep up to speed with technology

<table>
<thead>
<tr>
<th>Strongly Agree</th>
<th>Slightly Agree</th>
<th>Neither Agree/Disagree</th>
<th>Slightly Disagree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>38</td>
<td>18</td>
<td>5</td>
<td>4</td>
<td></td>
</tr>
</tbody>
</table>
**Question No.14** simply asks if the SME owner/manager is the final decision maker in the business.

Overwhelmingly 47 respondents (72%) stated that they were the final decision makers in the organisation. Another 8 respondents slightly agreed. Two said that they are the final decision maker. Two respondents (3%) strongly disagreed. Two respondents (3%) slightly disagreed.

![Pie chart showing the distribution of responses](image)

**Table 22: I am the final decision maker in this organisation**

<table>
<thead>
<tr>
<th></th>
<th>Strongly Agree</th>
<th>Slightly Agree</th>
<th>Neither Agree/Disagree</th>
<th>Slightly Disagree</th>
<th>Strongly Disagree</th>
<th>Response Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>47</td>
<td>8</td>
<td>6</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>65</td>
</tr>
</tbody>
</table>
4.6 ICT in the workplace

This section looks at the SME owner/managers attitude towards ICT in the workplace.

**Question No.15** measures the extent by which SME owner/managers consider ICT to be beneficial to their business operations.

![Figure 15: ICT is beneficial to my organisation](image)

Forty-four respondents (67%) strongly agreed that ICT was beneficial in business. Another eleven (17%) slightly agreed so, while only one respondent (1.5%) disagree.

**Table 23: ICT is beneficial to my organisation**

<table>
<thead>
<tr>
<th>Strongly Agree</th>
<th>Slightly Agree</th>
<th>Neither Agree/Disagree</th>
<th>Strongly Disagree</th>
<th>Response Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>44</td>
<td>11</td>
<td>9</td>
<td>1</td>
<td>65</td>
</tr>
</tbody>
</table>
**Question No.16** determines the level of ICT literacy among SME owner/manager’s.

Figure 16: I am ICT literate

Thirty-seven respondents (57%) strongly agreed that they were ICT literate; another 16 (25%) respondents slightly agreed. Three respondents (5%) strongly stated that they were not ICT literate.

Table 24: I am ICT literate

<table>
<thead>
<tr>
<th>Strongly Agree</th>
<th>Slightly Agree</th>
<th>Neither Agree/Disagree</th>
<th>Slightly Disagree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>37</td>
<td>16</td>
<td>8</td>
<td>1</td>
<td>3</td>
</tr>
</tbody>
</table>
Question No. 17 ponders if SME owner/managers have the necessary ICT skills to conduct their business efficiently.

Figure 17: I possess the necessary ICT skills

Thirty-two respondents (49%) strongly stated that they had the necessary IT skills to perform in their respective businesses. Another 22 (34%) slightly agreed, while only 2 (3%) strongly stated that they did not have sufficient IT skills.

Table 25: I possess the necessary ICT skills

<table>
<thead>
<tr>
<th>Strongly Agree</th>
<th>Slightly Agree</th>
<th>Neither Agree/Disagree</th>
<th>Slightly Disagree</th>
<th>Strongly Disagree</th>
<th>Response Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>32</td>
<td>22</td>
<td>8</td>
<td>1</td>
<td>2</td>
<td>65</td>
</tr>
</tbody>
</table>
The objective of Question No. 18 is to measure the SME owner/manager’s trust of ICT.

Figure 18: I do not trust IT

Twenty-seven (41%) respondents by strongly disagreeing with the statement, actually stated that they trust IT as a business function. Another 20 (31%) respondents stated that they slightly disagreed with a mistrust of I.T. Only two respondents (3%) mistrusted ICT.

Table 26: I do not trust ICT

<table>
<thead>
<tr>
<th></th>
<th>Strongly Agree</th>
<th>Slightly Agree</th>
<th>Neither Agree/Disagree</th>
<th>Slightly Disagree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2</td>
<td>7</td>
<td>9</td>
<td>20</td>
<td>27</td>
</tr>
</tbody>
</table>
**Question No.19** is a consideration of SME owner/managers viewpoint in relation to ICT/IT costs.

Figure 19: IT is too costly

![IT is too costly](image)

26 (29%) respondents strongly disagreed that ICT was too costly. 17 (26%) neither agreed/disagreed, while the same figure slightly disagreed that IT was too costly. Only two (3%) respondents agreed that IT costs were an impediment to adoption.

**Table 27: IT is too costly**

<table>
<thead>
<tr>
<th>Strongly Agree</th>
<th>Slightly Agree</th>
<th>Neither Agree/Disagree</th>
<th>Slightly Disagree</th>
<th>Strongly Disagree</th>
<th>Response Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>17</td>
<td>17</td>
<td>10</td>
<td>19</td>
<td>65</td>
</tr>
</tbody>
</table>
**Question No. 20** seeks to determine if SME owner/managers have the time to implement ICT into their business infrastructure.

Figure 20: I don't have the time to implement ICT

```
<table>
<thead>
<tr>
<th>Strongly Agree</th>
<th>Slightly Agree</th>
<th>Neither Agree/Disagree</th>
<th>Slightly Disagree</th>
<th>Strongly Disagree</th>
<th>Response Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>9</td>
<td>17</td>
<td>14</td>
<td>24</td>
<td>65</td>
</tr>
</tbody>
</table>
```

Twenty-four (37%) strongly disagreed that time constraints affected IT implementation.

Fourteen (22%) strongly disagreed. 17 (26%) neither agreed/disagreed. Only one (2%) respondent agreed that time was an impediment to IT implementation.

Table 28: I don't have the time to implement ICT
4.7 ICT Range

This section consists of only one question, namely Question No. 21. A menu of thirteen different ICT types is offered to the respondent. The respondent answers by stating if they (a) use the technology (b) don’t use the technology or (c) are unaware of the technology.

Figure 21: ICT Range

Table 29: ICT Range

<table>
<thead>
<tr>
<th>Options</th>
<th>USE</th>
<th>DONT USE</th>
<th>UNAWARE OF TECHNOLOGY</th>
</tr>
</thead>
<tbody>
<tr>
<td>e-CRM</td>
<td>18</td>
<td>34</td>
<td>13</td>
</tr>
<tr>
<td>ERP</td>
<td>3</td>
<td>39</td>
<td>23</td>
</tr>
<tr>
<td>LAN</td>
<td>46</td>
<td>17</td>
<td>2</td>
</tr>
<tr>
<td>Mobile telephony</td>
<td>63</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>VOIP</td>
<td>39</td>
<td>22</td>
<td>4</td>
</tr>
<tr>
<td>Teleconferencing</td>
<td>42</td>
<td>20</td>
<td>3</td>
</tr>
<tr>
<td>Video Conferencing</td>
<td>26</td>
<td>36</td>
<td>3</td>
</tr>
<tr>
<td>Cloud computing</td>
<td>18</td>
<td>38</td>
<td>9</td>
</tr>
<tr>
<td>SAAS</td>
<td>15</td>
<td>30</td>
<td>20</td>
</tr>
<tr>
<td>Data Mining</td>
<td>17</td>
<td>38</td>
<td>10</td>
</tr>
<tr>
<td>Business intelligence</td>
<td>26</td>
<td>32</td>
<td>7</td>
</tr>
<tr>
<td>RSS</td>
<td>29</td>
<td>24</td>
<td>12</td>
</tr>
<tr>
<td>Internet Social Networks</td>
<td>53</td>
<td>12</td>
<td>0</td>
</tr>
</tbody>
</table>
4.8 Social networks

This section consists of Five questions (Q22 - Q26). The objective of this section of questions is to determine if membership of social networks drive or inhibit ICT adoption.

**Question 22** is a menu of choices of five different social networks. The respondent is asked if they (a) use the social network for business purposes (b) don’t use the social networks in their business or (c) are unaware of the social network.

![Figure 22: Social Networks](image)

LinkedIn was the most used social network for business purposes, with 53 (81.5%) stating that they were a user. Next was Facebook with 34 respondents (52%), Third was Youtube with 31 (48%) respondents, Fourth most used was Twitter with 28 (43%) of users. Least used was MySpace with 10 (155) respondents stating that they used this social network for business purposes. All respondents stated awareness of all social networks, bar two (3%) respondents who were unaware of MySpace.
Table 30: Social Networks

<table>
<thead>
<tr>
<th>Answer Options</th>
<th>Use</th>
<th>Don’t Use</th>
<th>Unaware</th>
<th>Response Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Facebook</td>
<td>34</td>
<td>31</td>
<td>0</td>
<td>65</td>
</tr>
<tr>
<td>MySpace</td>
<td>10</td>
<td>53</td>
<td>2</td>
<td>65</td>
</tr>
<tr>
<td>Twitter</td>
<td>28</td>
<td>37</td>
<td>0</td>
<td>65</td>
</tr>
<tr>
<td>LinkedIn</td>
<td>53</td>
<td>12</td>
<td>0</td>
<td>65</td>
</tr>
<tr>
<td>You tube</td>
<td>31</td>
<td>34</td>
<td>0</td>
<td>65</td>
</tr>
</tbody>
</table>
Question No. 23 measures the SME owner/managers attitudes that accrue from being a member of a social network.

Figure 23: Social Networks are beneficial

29 respondents (45%) stated that social networks were beneficial to business. 24 respondents (37%) strongly agreed that social Networks were beneficial for business. Ten respondents (15%) neither agreed/disagreed, while had only two (3%) slightly disagreed as to the benefits of social networks. No respondents strongly disagreed.

Table 31: Social Networks are beneficial

<table>
<thead>
<tr>
<th>Strongly Agree</th>
<th>Slightly Agree</th>
<th>Neither Agree/Disagree</th>
<th>Slightly Disagree</th>
<th>Strongly Disagree</th>
<th>Response Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>24</td>
<td>29</td>
<td>10</td>
<td>2</td>
<td>0</td>
<td>65</td>
</tr>
</tbody>
</table>
**Question No. 24** addresses if being a member of a social network helps foster business relationships.

**Figure 24: Social Networks foster business relationships**

<table>
<thead>
<tr>
<th></th>
<th>Strongly Agree</th>
<th>Slightly Agree</th>
<th>Neither Agree/Disagree</th>
<th>Slightly Disagree</th>
<th>Rating Average</th>
<th>Response Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>26</td>
<td>28</td>
<td>9</td>
<td>2</td>
<td>1.80</td>
<td>65</td>
<td></td>
</tr>
</tbody>
</table>

28 respondents (43%) slightly agreed that Social networks foster business relations, while 26 respondents (40%) strongly agreed. Nine respondents (14%) were undecided. Only 2 (3%) slightly agreed. No respondents strongly disagreed.

Table 32: Social Networks foster business relationships
The objective of **Question No. 25** is to determine the extent that being a member of a social network helps foster a greater awareness of new technologies.

**Figure 25: Social Networks create awareness of new technologies**

26 respondents (39%) strongly agreed that Social networks create awareness of new technologies, while 20 respondents (31%) slightly agreed. Fifteen respondents (23%) were undecided. Only 3 (3%) slightly agreed. One respondent (2%) strongly disagreed that social networks create awareness of technological advances.

**Table 33: Social Networks create awareness of new technologies**

<table>
<thead>
<tr>
<th>Strongly Agree</th>
<th>Slightly Agree</th>
<th>Unsure</th>
<th>Slightly Disagree</th>
<th>Strongly Disagree</th>
<th>Response Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>26</td>
<td>20</td>
<td>15</td>
<td>3</td>
<td>1</td>
<td>65</td>
</tr>
</tbody>
</table>
Question No. 26 addresses the benefits of Social networks from a females perspective.

Figure 26: Social Networks are more beneficial for female SME Owner/Manager

The highest grouping with 34 responses (52%) were those owner/managers who were undecided if Social networks were more beneficial for females. Next highest were those who strongly disagreed with 13 (20%) responses. Another ten (15%) slightly disagrees. Overall the result is toward social networks not being beneficial according to gender, however the result is skewed somewhat due to the majority of respondents stating themselves undecided as regards to statement.

Table 34: Social Networks are more beneficial for Female SME Owner/Managers

<table>
<thead>
<tr>
<th>Strongly Agree</th>
<th>Slightly Agree</th>
<th>Neither Agree/Disagree</th>
<th>Slightly Disagree</th>
<th>Strongly Disagree</th>
<th>Response Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>3</td>
<td>34</td>
<td>10</td>
<td>13</td>
<td>65</td>
</tr>
</tbody>
</table>
Chapter 5. Conclusions

5.1 Introduction

This chapter is an analysis of the findings in Chapter 4 and the Literature review from Chapter 2.

To answer the research question “Is there a correlation between SME owner/manager characteristics and ICT adoption?” requires a sub-dividing of the individual characteristics. These sub-divisions were utilised as individual questions within the survey instrument.

These subdivisions were then tested individually, by cross-tabulation, for associations that may influence ICT adoption. Each subdivision was tested for strength of association by comparison with other questions in the survey. As these characteristics formed part of the questionnaire, they were also measured against each other for ICT adoption likelihood.

Eight sub-divisions correlated to the questionnaire results in eight different sections within this chapter which I measured before determining the extent of the Research Question.”Is there a correlation between SME owner/manager characteristics & ICT adoption?” . This allowed for a consideration of each characteristic as identified as (1) perceived benefits, (2) Computer literacy, (3) Assertiveness of SME owner/manager in business, (4) perceived control, (5) mistrust of IT, (6) lack of time by (Van Akkaren & Cavaye, 1999). (Zappaala & Gray, 2006). SME owner/manager characteristic (7) Education, mentioned in the literature from studies by McGregor (2004). SME owner/manager characteristic (8) Social Networks, mentioned in the literature from the studies by (Beckinsale & Ram, 2006), (Gray, 2006) (Manueli et al, 2007) and Braun (2004).

It is also pertinent to mention that figures used in cross-tabulation will differ from the response rate. This figure will also change from one cross-tabulation to another. While undertaking cross tabulation, the highest “strongly agreed” percent response was chosen in each case as I was trying to prove strength of correlations. Therefore I
was measuring one “Strongly Agreed” correlating to another “Strongly Agreed” response.

The SME owner/managers characteristics were then tested against fourteen variables identified in the Survey questionnaire. These results are shown in table form for each SME owner/manager characteristic. The philosophy is that there are correlations within each owner/manager characteristic which each affect ICT adoption.

This also allowed for the gathering of richer information from the survey instrument. This also allowed for an identification of the strongest and weakest correlations within each individual characteristic, which enabled me to answer the research question in a definitive manner.

This chapter is subdivided according to each individual characteristic, where I discuss the implications of the cross-tabulation results. The Cross-tabulation results were gathered in tabke form and are located in the appendices section of this paper.

5.2 Perceived Benefits

Perceived benefits were identified as an SME owner characteristic by (Van Akkeren & Cavaye, 1999) (Davis, 1989). It is represented in the survey instrument as Question No.15. 

Forty-four respondents from the initial sample of sixty-five were cross tabbed. In other words 67.69% of survey respondents indicated they strongly agreed with ICT as being beneficial to their organisations. This 67.69% were then cross-tabulated against a menu of questions from the survey instrument. The full results are shown in the tables below. This is further explained in the appendices. In this section I include a brief summary of the effect on the Research Question.
Table 35: Perceived benefits associations

<table>
<thead>
<tr>
<th>Perceived benefits Cross-Tabulated with</th>
<th>Resultant (A positive result indicates propensity to adopt ICT)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q9. I am assertive in business</td>
<td>24 respondents (54.5%) strongly agreed</td>
</tr>
<tr>
<td>Q10. I am open to new suggestions</td>
<td>29 respondents (65.9%) strongly agreed</td>
</tr>
<tr>
<td>Q11. I am considered an expert in my field</td>
<td>Interestingly 21 respondents (42.7%) strongly agreed &amp; 21 respondents (42.7%) slightly agreed</td>
</tr>
<tr>
<td>Q12. I am considered an opinion leader</td>
<td>22 respondents (50%) strongly agreed</td>
</tr>
<tr>
<td>Q13. I keep up to speed with technology.</td>
<td>30 respondents (68.3%) strongly agreed</td>
</tr>
<tr>
<td>Q14. I am the final decision maker</td>
<td>32 respondents (72.7%) strongly agreed</td>
</tr>
<tr>
<td>Q17. I possess the necessary IT skills</td>
<td>26 respondents (59.1%) strongly agreed</td>
</tr>
<tr>
<td>Q18. I don’t trust IT</td>
<td>23 respondents (52.3%) strongly disagreed</td>
</tr>
<tr>
<td>Q19. It is too costly</td>
<td>21 respondents (47.7%) strongly disagreed</td>
</tr>
<tr>
<td>Q20. I don’t have the time to implement ICT.</td>
<td>21 respondents (47.7%) strongly disagreed</td>
</tr>
<tr>
<td>Q23. Social networks are beneficial for business</td>
<td>The largest association is 21 respondents (47.7%) who slightly agreed. The next highest is 17 respondents (20.5%) who strongly agreed</td>
</tr>
<tr>
<td>Q24. Social networks foster business associations</td>
<td>The largest association is 19 respondents (43.2 %) who slightly agreed. The next highest is 18 respondents (40.9 %) who strongly agreed</td>
</tr>
<tr>
<td>Q25. Social networks creates new technology awareness</td>
<td>18 respondents (40.9%) strongly agreed. 16 respondents (36.4%) slightly agreed</td>
</tr>
</tbody>
</table>

**Result:** All the associations have proved positive. This indicates that perceived benefits of ICT in the mindset of the SME owner/manager is a strong positive to ICT adoption.
5.3 Computer Literacy

In this section thirty-seven respondents (56.9%) from the initial sample of sixty-five were cross tabbed. The results are shown in the table below.

Computer Literacy as a characteristic of IT /ICT adoption was identified as an SME owner characteristic by (Van Akkeren & Cavaye, 1999). It is represented in the survey instrument as Question No.16.

Thirty-seven respondents from the initial sample of sixty-five were cross tabbed. In other words 56.9% of survey respondents indicated they strongly agreed with having Computer literacy skills. This 56.9% were then cross-tabulated against a menu of questions from the survey instrument. The full results are shown in the tables in the appendices. In this section I include a brief summary of the figures and the effect on the Research Question.

Table 36: Computer Literacy Associations

<table>
<thead>
<tr>
<th>Computer literacy Cross-Tabulated with</th>
<th>Resultant (A positive result indicates propensity to adopt ICT)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q9. I am assertive in business</td>
<td>19 respondents (51.4%) strongly agreed Positive</td>
</tr>
<tr>
<td>Q10. I am open to new suggestions</td>
<td>25 respondents (67.6%) respondents strongly agreed Positive</td>
</tr>
<tr>
<td>Q11. I am considered an expert in my field</td>
<td>19 respondents (51.4%) strongly agreed Positive</td>
</tr>
<tr>
<td>Q12. I am considered an opinion leader</td>
<td>The highest respondents is “slightly agreed” with 18 (48.6%). Next is “strongly agreed” with 12 (32.4%) of respondents Positive</td>
</tr>
<tr>
<td>Q13. I keep up to speed with technology</td>
<td>27 respondents (73%) strongly agreed Positive</td>
</tr>
<tr>
<td>Q14. I am the final decision maker</td>
<td>29 respondents (78.4%) strongly agreed Positive</td>
</tr>
<tr>
<td>Q17. I possess the necessary IT skills</td>
<td>28 respondents (75.7 %) strongly agreed Positive</td>
</tr>
<tr>
<td>Q18. I don’t trust IT</td>
<td>23 respondents (62.1%) strongly disagreed</td>
</tr>
</tbody>
</table>
Positive

| Q19. | It is too costly | 21 respondents (56.7%) strongly disagreed |
| Q23. | Social networks is beneficial for business | 21 respondents (56.7%) strongly agreed |
| Q24. | Social networks foster business associations | 19 respondents (51.4%) slightly agreed 18 respondents (40.9%) strongly agreed |
| Q25. | Social networks creates new technology awareness | 18 respondents (48.6%) strongly agreed |
| Q20. | I don’t have the time to implement ICT | 18 respondents strongly (48.6%) disagree |

Positive

**Result:** All the associations have proved positive. This indicates that ICT Literacy among the SME owner/manager characteristics positive to ICT adoption.

5.4 **Assertiveness**

SME owner/manager Assertiveness as a characteristic of IT /ICT adoption was identified by (Van Akkeren & Cavaye, 1999). It is represented in the survey instrument as Question No.9.

Thirty-seven respondents from the initial sample of sixty-five were cross tabbed. In other words 50.7 % of survey respondents indicated they strongly agreed with having Assertiveness being an important Owner/manager characteristic for ICT adoption. This 56.9% were then cross-tabulated against a menu of questions from the survey instrument. The full results are shown in the tables and a further breakdown in the appendices. In this section I include a brief summary of the figures and the effect on the Research Question.
Table 37: Assertiveness Associations

<table>
<thead>
<tr>
<th>SME owner/manager Assertiveness Cross-tabbed with</th>
<th>Resultant (A positive result indicates propensity to adopt ICT)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q15. I am ICT literate</td>
<td>16 respondents (48.48%) strongly agreed: Positive</td>
</tr>
<tr>
<td>Q10. I am open to new suggestions</td>
<td>21 respondents (63.6%) strongly agreed: Positive</td>
</tr>
<tr>
<td>Q11. I am considered an expert in my field</td>
<td>20 respondents (60.6%) strongly agreed: Positive</td>
</tr>
<tr>
<td>Q12. I am considered an opinion leader</td>
<td>8 respondents (24.2%) strongly agreed while 14 respondents (42.4%) slightly agreed: Positive</td>
</tr>
<tr>
<td>Q13. I keep up to speed with technology.</td>
<td>24 respondents (72.7%) strongly agreed: Positive</td>
</tr>
<tr>
<td>Q14. I am the final decision maker</td>
<td>29 respondents (87.9%) strongly agreed: Positive</td>
</tr>
<tr>
<td>Q17. I possess the necessary IT skills</td>
<td>17 respondents (51.5%) strongly agreed: Positive</td>
</tr>
<tr>
<td>Q18. I don’t trust IT</td>
<td>13 respondents (39.4%) strongly disagreed while 10 respondents (30.3%) slightly disagreed: Positive</td>
</tr>
<tr>
<td>Q19. It is too costly</td>
<td>The highest respondent was the undecided option with 11 responses (33.3%): Inconclusive</td>
</tr>
<tr>
<td>Q23. Social networks are beneficial</td>
<td>17 respondents (51.5%) strongly agreed: Positive</td>
</tr>
<tr>
<td>Q24. Social networks foster business associations</td>
<td>16 respondents (48.5%) strongly agreed: Positive</td>
</tr>
<tr>
<td>Q25. Social networks creates new technology awareness</td>
<td>20 respondents (60.6%) strongly agreed: Positive</td>
</tr>
<tr>
<td>Q20. I don’t have time to implement ICT</td>
<td>14 respondents (42.4%) strongly agreed: Positive</td>
</tr>
</tbody>
</table>

**Result:** All the associations have proved positive with the exception of the association between Assertiveness/IT costings. 33.3% respondents had no exact opinion regarding IT costs, and therefore this factor was unproven and considered inconclusive. Overall the results are positive for the Assertiveness of owner/manager’s as a characteristic effecting ICT adoption.
5.5 Perceived Control

In this section Forty-seven respondents (72.3%) of the total sample of sixty-five who initially stated that they “strongly agreed” they were the final decision maker in the organisation were cross-tabulated against the associations. The statement I chose to cross-tabulate was Q.14 from the survey.” I am the final decision maker in this organisation”. The results are shown in the table below.

SME owner/manager’s Perceived Control as a characteristic of IT /ICT adoption was identified by (Van Akkeren & Cavaye, 1999). It is represented in the survey instrument as Question No.9.

Forty-seven respondents from the initial sample of sixty-five were cross-tabulated. In other words 72.3 % of survey respondents indicated they strongly agreed with SME owner/manager perceived Control being an important Owner/manager characteristic for ICT adoption. This 72.3% were then cross-tabulated against a menu of questions from the survey instrument. The full results are shown in the tables and summaries in the appendices. In this section I include a brief summary of the figures and the effect on the Research Question.

Table 38: Perceived Control Cross-tabulations

<table>
<thead>
<tr>
<th>Question</th>
<th>SME owner/manager Perceived Control Cross-tabulated with</th>
<th>Resultant (A positive result indicates propensity to adopt ICT)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q9.</td>
<td>I am assertive in business</td>
<td>29 respondents (61.7%) strongly agreed Positive</td>
</tr>
<tr>
<td>Q10.</td>
<td>I am open to new suggestions</td>
<td>31 respondents(66%)strongly agreed: Positive</td>
</tr>
<tr>
<td>Q11.</td>
<td>I am considered an expert in my field</td>
<td>25 respondents (53.2%) strongly agreed Positive</td>
</tr>
<tr>
<td>Q12.</td>
<td>I am considered an opinion leader</td>
<td>11 respondents (23.4%) strongly agreed while 23 (48.9%) respondents slightly agreed: Positive</td>
</tr>
<tr>
<td>Q13.</td>
<td>I keep up to speed with technology.</td>
<td>31 respondents (66%) strongly agreed Positive</td>
</tr>
<tr>
<td>Q15.</td>
<td>ICT is beneficial to my organisation</td>
<td>32 respondents(68.2%)strongly agreed Positive</td>
</tr>
<tr>
<td>Q17.</td>
<td>I possess the necessary IT skills</td>
<td>25 respondents (53.2 %) strongly agreed</td>
</tr>
<tr>
<td>Q18.</td>
<td>I don’t trust IT</td>
<td>20 respondents (42.6%) strongly disagreed</td>
</tr>
<tr>
<td>------</td>
<td>-----------------</td>
<td>----------------------------------------</td>
</tr>
<tr>
<td>Q19.</td>
<td>It is too costly</td>
<td>15 respondents (31.9%) were undecided. 12 respondents (25.5%) slightly agreed. 13 respondents (27.7%) strongly disagreed. The results are almost fairly evenly dispersed and therefore the final results are</td>
</tr>
<tr>
<td>Q23.</td>
<td>Social networks is beneficial</td>
<td>20 respondents (42.6%) strongly agreed</td>
</tr>
<tr>
<td>Q24.</td>
<td>Social networks foster business associations</td>
<td>20 respondents (42.6%) strongly agreed</td>
</tr>
<tr>
<td>Q25.</td>
<td>Social networks creates new technology awareness</td>
<td>22 respondents (46.8%) strongly agreed</td>
</tr>
<tr>
<td>Q20.</td>
<td>I don’t have time to implement ICT</td>
<td>15 respondents (31.9%) strongly disagreed: while 11 respondents (23.4%) slightly disagreed. However this positive predilection must be cautioned due to the 14 respondents (29.8%) who were undecided. This weakens the association somewhat</td>
</tr>
</tbody>
</table>

**Result:** All the associations have proved positive with the exception of the SME owner/managers who consider themselves Final decision makers (Perceived Control) / IT costs.

From the summary in the appendices, fifteen respondents (31.9%) were undecided, twelve respondents (25.5%) slightly agreed; thirteen respondents (27.7%) strongly disagreed. The results are almost fairly evenly dispersed and therefore the final results for this association between the Final decision makers (Perceived control) are inconclusive.

Another factor to consider is the association between Final decision makers / Time constraints. I again draw attention to the above table and a further explanation in the appendices where 15 respondents (31.9%) strongly disagreed that time was a constraint to ICT adoption, while 11 respondents (23.4%) slightly disagreed. However this positive predilection must be cautioned due to the 14 respondents
(29.8%) who were undecided. This weakens the association somewhat. For this reason I considered this association as a weaker positive.

However, overall the results are positive for SME owner/managers perceived control over final decisions as a factor effecting ICT adoption. Although with two of the associations proving inconclusive, Perceived Control as an SME owner/manager characteristic for ICT adoption is weakened somewhat.

5.6 Mistrust of I.T. Industry

In this section Twenty-seven respondents (41.5 %) of the total sample of sixty-five who initially stated that they “strongly disagreed” that they mistrusted I.T in the organisation were cross-tabulated against the associations with other questions in the survey questionnaire.

SME owner/manager’s Mistrust of IT as a characteristic of IT /ICT adoption was identified by (Van Akkeren & Cavaye, 1999). It is represented in the survey instrument as Question No.17.

Table 39: Mistrust of I.T. Cross-tabulated

<table>
<thead>
<tr>
<th>SME owner/manager Mistrust of I.T Cross-tabulated with</th>
<th>Resultant (A positive result indicates propensity to adopt ICT)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q9. I am assertive in business</td>
<td>13 respondents (48.1%) strongly agreed</td>
</tr>
<tr>
<td></td>
<td>The same number of respondents 13 (48.1%) slightly disagreed</td>
</tr>
<tr>
<td></td>
<td>Positive</td>
</tr>
<tr>
<td>Q10. I am open to new suggestions</td>
<td>19 respondents (70.4%) strongly agreed</td>
</tr>
<tr>
<td></td>
<td>Positive</td>
</tr>
<tr>
<td>Q11. I am considered an expert in my field</td>
<td>14 respondents (51.9%) strongly agreed</td>
</tr>
<tr>
<td></td>
<td>Positive</td>
</tr>
<tr>
<td>Q12. I am considered an opinion leader</td>
<td>16 respondents (59.3%) slightly agreed while 6 (22.2%) respondents strongly agreed</td>
</tr>
<tr>
<td></td>
<td>Positive</td>
</tr>
<tr>
<td>Q13. I keep up to speed with technology.</td>
<td>19 respondents (70.4%) strongly agreed</td>
</tr>
<tr>
<td></td>
<td>Positive</td>
</tr>
<tr>
<td>Q15. ICT is beneficial to my organisation</td>
<td>23 respondents (85.2%) strongly agreed</td>
</tr>
<tr>
<td></td>
<td>Positive</td>
</tr>
<tr>
<td>Q17. I possess the necessary IT skills</td>
<td>15 respondents (55.6 %) strongly agreed</td>
</tr>
<tr>
<td></td>
<td>Positive</td>
</tr>
</tbody>
</table>


<table>
<thead>
<tr>
<th>Question</th>
<th>Positive</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q14.</td>
<td>I am the final decision maker</td>
</tr>
<tr>
<td>Q19.</td>
<td>It is too costly</td>
</tr>
<tr>
<td>Q23.</td>
<td>Social networks are beneficial</td>
</tr>
<tr>
<td>Q24.</td>
<td>Social networks foster business associations</td>
</tr>
<tr>
<td>Q25.</td>
<td>Social networks creates new technology awareness</td>
</tr>
<tr>
<td>Q20.</td>
<td>I don’t have time to implement ICT</td>
</tr>
</tbody>
</table>

**Results:** In this regard all associations have proved positive. SME owner/managers would therefore not be considered as mistrusting I.T. This bodes well for ICT adoption. However the number of cross-tabulations for measuring this characteristic was quite low at 27 (41.5%). This alludes to a limitation in my study, namely the small sample size (65) of overall respondents.

5.7 **Lack of Time**

SME owner/manager’s lack of time as a characteristic of IT /ICT adoption was identified by (Van Akkeren & Cavaye, 1999). It is represented in the survey instrument as Question No.20. However the number of cross-tabulations for measuring this characteristic was quite low at only one (3.7%) respondent who strongly agreed, 9 (33.33%) who slightly agreed. Combined this only accounted for 37% of all respondents who could be cross tabulated. The majority which were the other 17 respondents (63 %) were all undecided. From this it was unsafe to draw any meaningful conclusion. Therefore as an SME owner/manager characteristic affecting ICT, this study does not align to the findings of Van Akkeren (1999), and must be deemed inconclusive.
### Table 40: Time contraints Cross-tabulated

<table>
<thead>
<tr>
<th>SME owner/manager Time Constraints Cross-tabulated with</th>
<th>Resultant (A positive result indicates propensity to adopt ICT)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q9. I am assertive in business</td>
<td>13 respondents (48.1%) strongly agreed The same number of respondents 13 (48.1%) slightly disagreed</td>
</tr>
<tr>
<td>Q10. I am open to new suggestions</td>
<td>19 respondents (70.4%) strongly agreed</td>
</tr>
<tr>
<td>Q11. I am considered an expert in my field</td>
<td>14 respondents (51.9%) strongly agreed</td>
</tr>
<tr>
<td>Q12. I am considered an opinion leader</td>
<td>16 respondents (59.3%) slightly agreed while 6 (22.2%) respondents slightly agreed</td>
</tr>
<tr>
<td>Q13. I keep up to speed with technology</td>
<td>19 respondents (70.4%) strongly agreed</td>
</tr>
<tr>
<td>Q15. ICT is beneficial to my organisation</td>
<td>23 respondents (85.2%) strongly agreed</td>
</tr>
<tr>
<td>Q17. I possess the necessary IT skills</td>
<td>15 respondents (55.6%) strongly agreed</td>
</tr>
<tr>
<td>Q14. I am the final decision maker</td>
<td>20 respondents (74.1%) strongly agreed</td>
</tr>
<tr>
<td>Q19. It is too costly</td>
<td>16 respondents (59.3%) strongly disagreed that I.T is too costly</td>
</tr>
<tr>
<td>Q23. Social networks are beneficial</td>
<td>14 respondents (51.9%) slightly agreed, while 11 respondents (40.7%) strongly agreed</td>
</tr>
<tr>
<td>Q24. Social networks foster business associations</td>
<td>14 respondents (51.9%) slightly agreed, while 12 respondents (44.2%) strongly agreed</td>
</tr>
<tr>
<td>Q25. Social networks creates new technology awareness</td>
<td>11 respondents (40.7%) strongly agreed</td>
</tr>
<tr>
<td>Q18. I do not trust I.T</td>
<td>16 respondents (59.3%) strongly disagreed that time constraints were a factor in not adopting ICT.</td>
</tr>
</tbody>
</table>
5.8 Social Networks

After cross-tabulation, 24 respondents (37%) from the survey questionnaire stated that they strongly agree with Social Networks being beneficial for business purposes.

LinkedIn was the most used social network for business purposes, with 21 (87.5%) respondents stating that they use this social network in business, this was also the highest user in the original survey with 53(81.5%) respondents stating that they were a user.

Facebook and Twitter tied for second place amongst users with 16 (66.7%) respondents stating that they used these networks in business. Interestingly, before cross-tabulation, Facebook was the second highest network used with 34 (52%) respondents while Twitter was only fourth with 28 (43) respondents using the network. This would suggest that the benefits of Twitter and RSS feeds in business are more fully recognised among those who would have a more favourable predisposition towards technological adoption.

Youtube, after cross-tabulation was the fourth most used with 14 (58.3%) respondents using this network for business. This is an indicator of the weakness of a relatively small sample, as only two respondents separate YouTube from Facebook and Twitter, although taken as a percentage value the differential seems greater.

Myspace was the least used, with 8 (33.3%) respondents stating that they utilised this network. Figures from the survey show that of the total sample of 65, 15 % or ten respondents used MySpace.

<table>
<thead>
<tr>
<th>Answer Options</th>
<th>Use</th>
<th>Don't Use</th>
<th>Unaware</th>
<th>Response Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Facebook</td>
<td>66.7%</td>
<td>33.3%</td>
<td>0</td>
<td>24 (100%)</td>
</tr>
<tr>
<td>MySpace</td>
<td>33.3%</td>
<td>66.7%</td>
<td>0</td>
<td>24 (100%)</td>
</tr>
<tr>
<td>Twitter</td>
<td>66.7%</td>
<td>33.3%</td>
<td>0</td>
<td>24 (100%)</td>
</tr>
<tr>
<td>LinkedIn</td>
<td>87.5%</td>
<td>12.5%</td>
<td>0</td>
<td>24 (100%)</td>
</tr>
<tr>
<td>Youtube</td>
<td>58.3%</td>
<td>41.7%</td>
<td>0</td>
<td>24 (100%)</td>
</tr>
</tbody>
</table>
Males (aged 35-49) were the highest grouping with 9 (37.55) responses. The next highest group were also Males, this time with 5 (20.8%) respondents. Females (aged 35-49) and (50-64) both tied for third place with 4 respondents (16.7%) each.

From an educational perspective, 10 (41.7%) respondents had a primary degree, while 6 (25%) had a Masters Degree.

Ten (42%) respondents started the business, while six (25%) respondents had been in charge for 4-6 years, similarly this equated to the same number of respondents who had been in charge for 10+ years. Eight respondents (33.3%) stated that they were sole traders, while ten respondents (42%) indicated that they employed between one and ten employees.

Table 42: Benefits of Social Networks Cross-tabulated

<table>
<thead>
<tr>
<th>Benefits Of Social networks Control Cross-tabulated with</th>
<th>Resultant (A positive result indicates propensity to adopt ICT)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q9. I am assertive in business</td>
<td>17 respondents(70.8%) strongly agreed</td>
</tr>
<tr>
<td>Q10. I am open to new suggestions</td>
<td>16 respondents(66.7%) strongly agreed</td>
</tr>
<tr>
<td>Q11. I am considered an expert in my field</td>
<td>15 respondents(62.5%) strongly agreed</td>
</tr>
<tr>
<td>Q12. I am considered an opinion leader</td>
<td>9 respondents (37.5%) neither agreed/disagreed. 7 respondents (29.25) strongly agreed, while 8 (33.3%) slightly agreed. Although the results are pointing towards a positive, the undecided is a sizeable portion in a small sample</td>
</tr>
<tr>
<td>Q13. I keep up to speed with technology</td>
<td>15 respondents(62.5%) strongly agreed</td>
</tr>
<tr>
<td>Q15. ICT is beneficial to my organisation</td>
<td>17 respondents(68.2%) strongly agreed</td>
</tr>
<tr>
<td>Q17. I possess the necessary IT skills</td>
<td>12 respondents(50%) strongly agreed: 8 respondents (33.3%) slightly agreed.</td>
</tr>
<tr>
<td>Q18. I don’t trust IT</td>
<td>11 respondents (45%) strongly disagreed with this statement.</td>
</tr>
<tr>
<td>Q19. It is too costly</td>
<td>8 respondents (33.3%) were undecided, 8 respondents (33.3%) strongly disagreed with the statement, while 7 (29.2%) slightly agreed. The results are almost fairly evenly dispersed and therefore the final results are Inconclusive</td>
</tr>
<tr>
<td>Q14. I am the final decision maker</td>
<td>20 respondents(83.3%) strongly agreed</td>
</tr>
<tr>
<td>Q23. Social networks foster business associations</td>
<td>22 respondents(91.7%) strongly agreed</td>
</tr>
<tr>
<td>Q25. Social networks creates new technology awareness</td>
<td>20 respondents(83.3%) strongly agreed</td>
</tr>
<tr>
<td>Q19. I don’t have time to implement ICT</td>
<td>10 respondents (41.7 %) strongly disagreed: while</td>
</tr>
</tbody>
</table>
Result: Overall all the associations are positive, barring the two inconclusive (Opinion Leader and IT costs). Therefore this would indicate that belonging to a social network is a positive SME owner/manager characteristic for ICT adoption. However I would caution this finding due to the small sample size of the overall survey and also the small cross-tabulation sample.
5.9 Answering the Research Question

The research question can be answered by combining the results of the survey instrument in Chapter Four and the analysis in this chapter.

SME owner characteristics as identified by (Van Akkeren & Cavaye, 1999) formed the basis of this paper. From the findings in this paper, the effect of individual characteristics on ICT adoption can be stated by the following statements.

**Hypothesis No 1:** Perceived benefits of ICT as a SME owner/manager characteristic adoption driver is proved: Positive (H1)

**Hypothesis No 2:** ICT/IT Literacy as a SME owner/manager characteristic adoption driver is proved: Positive (H1)

**Hypothesis No 3:** Assertiveness as a SME owner/manager characteristic adoption driver is proved: Positive (H1)

**Hypothesis No 4:** Perceived Control as a SME owner/manager characteristic adoption driver is proved: Positive (H1)

**Hypothesis No 5:** Mistrust of ICT/IT as a SME owner/manager characteristic adoption driver is proved: Positive (H1)

**Hypothesis No 6:** Time Constraints as a SME owner/manager characteristic adoption driver is not proved: Null (H0)

**Hypothesis No 7:** Being a member of a social network as a positive driver for ICT adoption: Positive (H1)
Chapter 6. Recommendations

6.1 Action Plan

This study has been based on a small sample size (69), and therefore the results should be noted according to the surveys limitations. However, the findings are of value to SME owner/managers and to those who wish to study this topic, as this dissertation could be used as signposting a roadmap for further studies.

It is on my wish list that a study of Irish SME’s be undertaken, and that my findings may illuminate in some way future academia.

My findings act as pointers to very strong correlations for the following SME owner/manager characteristics as ICT adopters (1) Perceived Benefits (2) Computer Literacy and (3) Assertiveness.

SME owner/manager characteristics which also prove positive were (4) Perceived Control, which had a slightly weakened correlation than the aforementioned.

Two other positive correlations, (4) Mistrust and (5) Social Networks are urged with caution due to the relatively low cross tabulation figure. There are grounds for further studies along these variables.

Time constraints as a SME owner/manager characteristic ICT adopter driver proved Null, and again I urge further studies along a larger population to ascertain if this is true.

Whilst I utilized Survey Monkey’s cross-tabulation facility, it would also be possible to test these findings by ANOVA two-way using SSPS. I feel that this may prove interesting, although the differentials between these two relational measurements may not be so great. It is of course possible to conduct this survey by qualitative methods, which again would be interesting.

To conclude, I would hope that this study fires the imagination of another researcher and that they take up the baton and run with the challenge. SME’s are important integral element of the fabric of first world and developing economies. Any
academic illuminations, no matter how minute may prove ultimately beneficial not just for SME owner/managers but also for society too.

Government Agencies and Small Business Networks have an important part to play, in creating awareness of IT/ICT, by fostering opportunities through various mechanisms be that financial aid, grant aid or access to expert mentoring
Chapter 7. Self Reflection on own Learning & Performance

7.1 Introduction

Boyd & Fales (1983, pp 99-117) define reflective learning as the process on internally examining and exploring issues of concern. These issues are triggered by experiences, which in turn create and clarify meaning in terms of selfhood, and which results in a changed conceptual perspective. Boyd & Fales (1983) further state that this process is central to ones understanding of the experiential process.

Self reflection is an important part of any learning experience. When a person learns, in effect there is a shift from one mind set to another. While it is difficult to tangibilise this movement, it is possible to conceptually benchmark the change that has occurred.

Taking account of the importance of benchmarking aspects within learning, I have divided this chapter into three sections, namely (7.2) Dismantling the ego, and Metacognition, (7.3) Realising Values and (7.4) Reassembling the Self.

7.2 Dismantling the ego and Metacognition

In an RTE Radio 1 interview with Ryan Tubridy (3/6/10), the celebrated chef Marco Pierre White spoke of the philosophy of dismantling the ego when it came to learning and personal development. He stated that a person’s attributes could be inferred by how they made a sandwich. Most new trainees to his establishment when asked to make a simple egg sandwich would embellish it with other ingredients such as onions, lettuce or tomatoes, in an obvious effort to impress. However after training if asked to make an egg sandwich, they made an egg sandwich. Quite clearly a process of learning took place during this time period.

What Pierre White describes so eloquently, we would more commonly refer to as the reflective process. I would say that at the start of this dissertation if asked to make the academic equivalent of an egg sandwich I too would have embellished with un-necessaries. I had a similar experience when first meeting my dissertation mentor. Having scored a 1.1 in my Research proposal, I had considered that I was already a
long way towards completing my dissertation. However my mentor questioned my Research Question in terms of scope. It was felt that I was too broad in my outlook and that I should adopt a narrower approach. The mentor’s opinion was that I should “Stop paddling in a lake & instead go down, deeper and deeper down into the well”. Although slightly disheartened, I could not help but agree.

I realised that I was entering a process of Metacognition when my mentor guided me towards better quality academic readings for my research. The first process of Metacognition is to be made aware of task requirements; Kentridge and Heywood (2000) argue that Metacognitive processes need not operate in a person’s conscious awareness, whilst the second phase is the ability to use self-monitoring skills. Flavell, (1979, 1987), stated that this consists of Metacognitive knowledge and Metacognitive experiences. Flavell breaks Metacognitive knowledge into three categories: knowledge of person variables, task variables and strategy variables.

Biggs & Moore (1993), state that in terms of Metacognition awareness, students have two key considerations namely (1) their motives, (2) their strategies.

7.2.1 Personality Types

From thinking about thinking (Metacognition), I began thinking about myself. Quoting Charles Taylor (1989) "To know who I am a species of knowing where I stand”, my consideration was towards self-identity and answering Taylor’s question, “Who am I “?

From this and in the context of this dissertation I considered a benchmarking of my personality type and learning style. Handy (1990 pg 22) categorized personality types in terms of humours described by Aristotle. These I have adapted into table form highlighting my personal personality humours.
Handy makes the point that every human being has aspects of the four different humours but overall we have a general tendency towards one type. Using the above table to describe myself, I can declare that I am; Moody, Touchy, Excitable, Impulsive, Optimistic, Active, Sociable, Outgoing, Talkative, Responsive, Easygoing, Carefree, Lively, Passive, Thoughtful, Calm, even tempered.

### 7.2.2 Learning Styles

With the urge to align my personality type to a learning style I partook of Honey & Mumford (1992) Learning style Inventory (LSI) which was adapted by Dr Phil Kelly’s (2007) Questionnaire. The result being that I am completely Sanguine, slightly more Choleric than Phlegmatic and with the minimum of a Melancholic aspect to my personality, with a Moderate Preference towards Activism, A Moderate preference towards Reflection, A low Preference towards a Theorist style and also a low Preference towards Pragmatism.

Harrison (1997 pg 119) speaks of the aforementioned Honey & Munford model and states that “despite the popularity of LSI’s, there is a question regarding their validity”. She reports on research done at Newcastle University where the results were inconsistent and not statistically meaningful. However in my case, my interaction with two tests really spoke true of my personality.
Kolb (1984) developed his Experiential Learning Model based on a four stage cycle of learning namely (1) Concrete Experience (2) Reflective Observation (3) Abstract Conceptualization, and (4) Active Experimentation.

The Model also takes account of different learning styles. Kolb identified the Learning Styles as combinations of two of the above Learning cycles, namely (1) Diverging - a combination of concrete experience & reflective observation, (2) Assimilating - a combination of abstract conceptualization and Reflective observation, (3) Converging - a combination of Abstract Conceptualization and Active Experimentation, and (4) Accommodating - which combines Concrete Experience and Active Experimentation. The view is that concrete experiences create an environment for reflecting and observing.

Table 44: Kolb Cycle with Learning Styles included

7.2.3 Learning Process /Gagne

In his book “Conditions of Learning”, Gagne (1965) identified the nine events that occur when Learning takes place.
Table 45: Gagnes Nine Events of Learning

<table>
<thead>
<tr>
<th>Instructional Event</th>
<th>Internal Mental Process</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Gain attention</td>
<td>Stimuli activates receptors</td>
</tr>
<tr>
<td>2. Inform learners of objectives</td>
<td>Creates level of expectation for learning</td>
</tr>
<tr>
<td>3. Stimulate recall of prior learning</td>
<td>Retrieval and activation of short-term memory</td>
</tr>
<tr>
<td>4. Present the content</td>
<td>Selective perception of content</td>
</tr>
<tr>
<td>5. Provide &quot;learning guidance&quot;</td>
<td>Semantic encoding for storage long-term memory</td>
</tr>
<tr>
<td>6. Elicit performance (practice)</td>
<td>Responds to questions to enhance encoding and verification</td>
</tr>
<tr>
<td>7. Provide feedback</td>
<td>Reinforcement and assessment of correct performance</td>
</tr>
<tr>
<td>8. Assess performance</td>
<td>Retrieval and reinforcement of content as final evaluation</td>
</tr>
<tr>
<td>9. Enhance retention and transfer to the job</td>
<td>Retrieval and generalization of learned skill to new situation</td>
</tr>
</tbody>
</table>

7.3 **Realizing Values**

This section deals with value added aspects of education and life long learning.

7.3.1 **Value added to me**

Personally, the value of this undertaking this dissertation and the MBS in general can be succinctly summed up in the following well known parable:

“In ancient times, a King had a boulder placed on a Roadway. Then he hid himself and watched to see if anyone would remove the huge rock. Some of the King’s wealthiest merchants and courtiers came by and simply walked around it... Many
loudly blamed the King for not keeping the roads clear, but none did anything about getting the stone out of the way. Then a peasant came along carrying a load of Vegetables. Upon approaching the boulder, the peasant laid down his burden and tried to move the stone to the side of the road. After much pushing and straining, he finally succeeded. After the peasant picked up his load of vegetables, he noticed a purse lying in the road where the boulder had been. The purse contained many gold coins and a note from the King indicating that the gold was for the person who removed the boulder from the roadway. The peasant learned what many of us never understand! Every obstacle presents an opportunity to improve our condition”.

Placing oneself in an environment where learning can occur is often very challenging experience for an individual. As I mentioned earlier in this section, I too was challenged by my mentor to rethink my dissertations focus. The result for me was very positive, and I do feel that I created in this paper, a body of work that was more relevant, more beneficial and ultimately of greater value. Quite simply I had learned to listen and take on board others advice without considering it to be a personal criticism.

7.3.2 Value added to an organisation

I am in the same employ since 1998. The organisation is a semi-state utility currently enjoying a monopoly situation. This however will change on 1/1/2011 when the market my employer operates in is opened up to competition. This is set to have a profound effect on the organisation and according to interest groups there will be a profound effect on society.

The organisation core activity is delivering communications through traditional methods, and naturally this has been severely threatened by technological advances. Presently this organisation is restructuring and there have been letters of interest circulated with a view to downsizing.

In the course of my researching for this paper, and before I changed the scope of my paper I interviewed a number of key members of this organisation namely CEO Mr. Donal Connell, Projects Director Mr. Jack Dempsey, and Marketing Director Mr.
Liam Sheehan

Primarily I was interested in how the company viewed the forthcoming years. There was a unanimous resounding positive attitude towards competition. There is in place a Transformation Programme Roadmap whose objective is to “win and grow” through increased competitiveness. The main tenet of this roadmap is to “Get Fit”, and this appears to engage in staff and invest in staff capabilities, which I understand to mean an up-skilling of staff. By undertaking a MBS I have in effect up skilled myself and I would be quite confident that my efforts would not go unnoticed.

However, where a Masters degree adds value for an organisation is that the firm has on their books a well educated, disciplined, organized, responsible member of staff. While this may not have been apparent before I undertook a course of this magnitude, it is more evident now. Certainly I feel that I am accorded more respect, or maybe I recognize it more clearly. Is should also be mentioned that I have natural concerns regarding my position with this organisation. I have studied the effects on liberalization on other similar utility organisations in the EU. There will be a downsizing, and this process of which has been agreed by the relevant unions who represent employees in this organisation is ongoing. For those employees who don’t participate in the Voluntary Redundancy Programme, work conditions are set to change.

7.3.3 Future Career

As this experience is still so fresh in my mind I can readily align myself with the concept of lifelong learning. It would be churlish to assume that completion of this MBS is the finale to my education. Reflective Learning is an ongoing process which according to Thorpe (2004) is essential to professional development and practice. Thorpe (2004) further posits on the transferability of management skills to “any position and to any setting”. I could draw comfort from Thorpe’s philosophy which recognizes the value of education in pursuing a career path. For If I were to leave my present employ through redundancy ,my future would not be as bleak as quite clearly it would have been without this most sought after qualification.
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Appendices

A. Survey Questionnaire as hosted by SurveyMonkey website 2010

This Survey was intended for SME owner/managers only.

1. Please indicate if you are An SME Owner/Manager
2. Please indicate your age and gender
3. What is your highest educational achievement?
4. How did you become the main decision maker in this organisation?
5. How many years are you in charge of this particular company?
6. How many hours do YOU work in an average week?
7. Is this the first company where you were the main decision maker?
8. How many people do you employ?
9. I am very assertive in the day to day running of my business
10. In work I am open to new suggestions
11. I am considered an expert in my field
12. I am considered to be an Opinion Leader
13. I like to keep up to speed with technological advances
14. I am the final decision maker in this organisation
15. ICT is beneficial to my Organisation
16. I am ICT Literate
17. I possess the necessary ICT skills for my business
18. I do not trust IT
19. ICT is too Costly
20. I Don't have the time to implement ICT in my business
21. This section deals with your use of and awareness of different ICT business communications
22. Do you find that being a member of a networked association is beneficial for business?
23. Being a member of a network helps foster business relationships
24. Being a member of a network helps create awareness of new technologies
25. This section deals with your business use of, and awareness of different Social networks.
26. Being a member of a network is more beneficial for female SME Owner/Managers than their male counterparts
B. Perceived benefits

Cross-tabulating Question 15 with Question 9 (Assertiveness), indicated there were 24 respondents (54.5%), who strongly agreed with the association Perceived Benefits/Assertiveness. This was a positive result.

Cross-tabulating Question 15 with Question 10 (Openness to New suggestions), indicated there were 29 respondents (65.9%), who strongly agreed with the association Perceived Benefits/Open to New suggestions. This was a positive result.

Cross-tabulating Question 15 with Question 11 (Considered an Expert), was interesting in that the indication were 21 respondents (54.5%), who strongly agreed with the association Perceived Benefits/Considered an Expert, and also the same figure 21 (54.5%) who slightly agreed. This was a positive result.

Cross-tabulating Question 15 with Question 12 (Considered an Opinion Leader), indicated there were 22 respondents (50%), who strongly agreed with the association Perceived Benefits/Opinion Leader. This was a positive result.

Cross-tabulating Question 15 with Question 14 (I am the final decision maker), indicated there were 32 respondents (72.7%), who strongly agreed with the association Perceived Benefits/being the final decision maker. This was a positive result.

Cross-tabulating Question 15 with Question 16 (I am the ICT Literate), indicated there were 32 respondents (72.7%), who strongly agreed with the association Perceived Benefits/being the final decision maker. This was a positive result.

Cross-tabulating Question 15 with Question 17 (I Possess necessary IT skills), indicated there were 26 respondents (59.1%), who strongly agreed with the association Perceived Benefits/I possess the necessary IT skills. This was a positive result.

Cross-tabulating Question 15 with Question 18 (I Mistrust IT), indicated there were 23 respondents (52.3%), who strongly disagreed with mistrusting IT. Therefore the association Perceived Benefits/I Mistrust IT is another positive association.

Cross-tabulating Question 15 with Question 19 (It is too costly), indicated there were 21 respondents (47.7%), who strongly disagreed that It was too costly for their business. Therefore the association Perceived Benefits/IT costs is another positive result.

Cross-tabulating Question 15 with Question 20 (Time Constraints) indicated there were 21 respondents (47.7%), who strongly disagreed that Time was a factor in not implementing IT. Therefore the association Perceived Benefits/Time constraints are another positive result.

Cross-tabulating Question 15 with Question 23 (social networks are beneficial for business), was interesting in that the indication were 21 respondents (47.7%), who slightly agreed with the association Perceived Benefits/Social Network is Beneficial.
This was the highest response rate, although 17 (38.6%) strongly agreed. Combining all those who agreed yields 38 (86.3%) of total responses. This was a positive result.

Cross-tabulating Question 15 with Question 24 (social networks can foster business relationships) was interesting in that the indication were 19 respondents (43.2%), who slightly agreed with the association Perceived Benefits/Social Network Foster business relationships. This was the highest response rate, although 18 (40.9%) strongly agreed. Combining all those who agreed yields 37 (84.1%) of total responses. This was a positive result.

Cross-tabulating Question 15 with Question 25 (social networks create New technology awareness relationships) was interesting in that the indication were 18 respondents (40.9%), who strongly agreed with the association Perceived Benefits/Social Network create technology awareness. This was the highest response rate, although 16 (36.4%) slightly agreed. Combining all those who agreed yields 34 (77.3%) of total responses. This was a positive result.

All the associations have proved positive. This indicates that perceived benefits of ICT in the mindset of the SME owner/manager is positive to ICT adoption.

C. Computer Literacy

Cross-tabulating Question 16 with Question 9 (Assertiveness), indicated there were 19 respondents (51.4%), who strongly agreed with the association ICT Literacy Assertiveness. This was a positive result.

Cross-tabulating Question 16 with Question 10 (Openness to New suggestions), indicated there were 25 respondents (67.6%), who strongly agreed with the association ICT Literacy/Open to New suggestions. This was a positive result.

Cross-tabulating Question 16 with Question 11 (Considered an Expert), indicated there were 25 respondents (67.6%), who strongly agreed with the association ICT Literacy/Open to New suggestions. This was a positive result.

Cross-tabulating Question 16 with Question 12 (Considered an Opinion Leader), was interesting in that the indication were 18 respondents (48.6%), who slightly agreed with the association ICT Literacy/Being an Opinion Leader. While 12 (32.4%) strongly agreed. Combining all those who agreed slightly/strongly agreed amounted to 30 (81%) of respondents. This was a positive result.

Cross-tabulating Question 16 with Question 13 (Keeping up with Technology), indicated there were 27 respondents (73%), who strongly agreed with the association ICT Literacy/being the final decision maker. This was a positive result.

Cross-tabulating Question 16 with Question 14 (I am the final decision maker), indicated there were 29 respondents (78.4%), who strongly agreed with the association ICT Literacy/being the final decision maker. This was a positive result.

Cross-tabulating Question 16 with Question 15 (Perceived Benefits), indicated there were 32 respondents (72.7%), who strongly agreed with the association ICT Literacy/being the final decision maker. This was a positive result.
Cross-tabulating Question 16 with Question 17 (I Possess necessary IT skills), indicated there were 28 respondents (75.7%), who strongly agreed with the association ICT Literacy / I possess the necessary IT skills. This was a positive result.

Cross-tabulating Question 16 with Question 18 (I Mistrust IT), indicated there were 23 respondents (62.1%), who strongly disagreed with mistrusting IT. Therefore the association ICT Literacy / I Mistrust IT is another a positive association.

Cross-tabulating Question 16 with Question 19 (It is too costly), indicated there were 21 respondents (56.7%), who strongly disagreed that It was too costly for their business. Therefore the association ICT literacy / IT costs are another positive result.

Cross-tabulating Question 16 with Question 20 (Time Constraints) indicated there were 21 respondents (56.7%), who strongly disagreed that Time was a factor in not implementing IT. Therefore the association ICT Literacy / Time constraints are another positive result.

Cross-tabulating Question 16 with Question 23 (social networks are beneficial for business), was interesting in that the indication were 21 respondents (47.7%), who slightly agreed with the association ICT Literacy / Social Network is Beneficial. This was the highest response rate, although 17 (38.6%) strongly agreed. Combining all those who agreed yields 38 (86.3%) of total responses. This was a positive result.

Cross-tabulating Question 16 with Question 24 (social networks can foster business relationships) was interesting in that the indication were 19 respondents (51.4%), who slightly agreed with the association ICT Literacy / Social Network Foster business relationships. This was the highest response rate, although 18 (48.6%) strongly agreed. Combining all those who agreed yields 37 (100%) of total responses. This was a positive result.

Cross-tabulating Question 15 with Question 25 (social networks create New technology awareness relationships) indicated there were 18 respondents (48.6%), who strongly agreed with the association ICT Literacy / Social Network create technology awareness. This was a positive result.

Result: All the associations have proved positive. This indicates that ICT Literacy among the SME owner/manager characteristics positive to ICT adoption.

D. Assertiveness

Cross-tabulating Question 9 with Question 10 (Openness to New suggestions), indicated there were 16 respondents (57.6%), who strongly agreed with the association SME owner/manager Assertiveness / Open to New suggestions. This was a positive result.

Cross-tabulating Question 9 with Question 11 (Considered an Expert), indicated there were 21 respondents (63.6%), who strongly agreed with the association Assertiveness / Open to New suggestions. This was a positive result.
Cross-tabulating Question 9 with Question 12 (Considered an Opinion Leader), was interesting in that the indication were 14 respondents (42.4%), who slightly agreed with the association Assertiveness/Being an Opinion Leader. While 8 (24.3%) strongly agreed. Combining all those who agreed slightly/strongly agreed amounted to 22 (66.7%) of respondents. This was a positive result.

Cross-tabulating Question 9 with Question 13 (Keeping up with Technology), indicated there were 24 respondents (72.7 %), who strongly agreed with the association Assertiveness/being the final decision maker. This was a positive result.

Cross-tabulating Question 9 with Question 14 (I am the final decision maker), indicated there were 29 respondents (87.9 %), who strongly agreed with the association Assertiveness/being the final decision maker. This was a positive result.

Cross-tabulating Question 9 with Question 15 (Perceived Benefits), indicated there were 24 respondents (72.7 %), who strongly agreed with the association Assertiveness/being the final decision maker. This was a positive result.

Cross-tabulating Question 9 with Question 17 (I Possess necessary IT skills), indicated there were 17 respondents (51.5 %), who strongly agreed with the association Assertiveness /I possess the necessary IT skills. This was a positive result.

Cross-tabulating Question 9 with Question 18 (I Mistrust IT), indicated there were 13 respondents (39.4 %), who strongly disagreed with mistrusting IT. A further 10 (30.3 %) respondents slightly disagreed. Combined this was 23 (69.7 %) who stated that they did not mistrust IT. Therefore the association Assertiveness/I Mistrust IT is another positive association.

Cross-tabulating Question 9 with Question 19 (IT is too costly), indicated there were 11 respondents (333.3 %), who were undecided if ICT was too costly. As this was the highest respondent group, the association between Owner/manager Assertiveness/ICT being too costly was not proven and is deemed to be inconclusive.

Cross-tabulating Question 9 with Question 20 (Time Constraints) indicated there were 14 respondents (42.4 %), who strongly disagreed that Time was a factor in not implementing IT. Therefore the association Assertiveness/Time constraints are another positive result.

Cross-tabulating Question 9 with Question 23 (social networks are beneficial for business), the indication were 17 respondents (51.5%), who strongly agreed with the association Assertiveness/Social Networks are beneficial. This is a positive association.

Cross-tabulating Question 9 with Question 24 (social networks can foster business relationships) were 16 respondents (48.5%), who strongly agreed with the association “Assertiveness/Social Networks can Foster Business relationships”. This is a positive association.

Cross-tabulating Question 15 with Question 25 (social networks create New technology awareness relationships) indicated there were 20 respondents (60.6%),
who strongly agreed with the association ICT Literacy/Social Network create technology awareness. This was a positive result.

Result: All the associations have proved positive with the exception of the association between Assertiveness / IT costings. 33.3% respondents had no exact opinion regarding IT costs, and therefore this factor was unproven and considered inconclusive. Overall the results are positive for the Assertiveness of owner/manager's as a characteristic effecting ICT adoption.

E. Perceived Control

Fourty-seven respondents from the initial sample of sixty-five were cross-tabulated. In other words 72.3% of survey respondents indicated they strongly agreed with SME owner/manager perceived Control being an important Owner/manager characteristic for ICT adoption. This 72.3% were then cross-tabulated against a menu of questions from the survey instrument. The full results are shown in the tables in the appendices. In this section I include a brief summary of the figures and the effect on the Research Question.

Cross-tabulating Question 14 with Question 9 (assertiveness), indicated there were 29 respondents (61.7%), who strongly agreed with the association SME owner/manager Perceived Control /assertiveness. This was a positive result.

Cross-tabulating Question 14 with Question 10 (Openness to New suggestions), indicated there were 31 respondents (66%), who strongly agreed with the association SME owner/manager Perceived Control /Open to New suggestions. This was a positive result.

Cross-tabulating Question 14 with Question 11 (Considered an Expert), indicated there were 25 respondents (53.2%), who strongly agreed with the association Perceived Control/Open to New suggestions. This was a positive result.

Cross-tabulating Question 14 with Question 12 (Considered an Opinion Leader), was interesting in that the indication were 23 respondents (48.9%), who slightly agreed with the association Perceived Control/Being an Opinion Leader. While 11(23.4%) strongly agreed. Combining all those who agreed slightly/strongly agreed amounted to 34 (72.3%) of respondents. This was a positive result.

Cross-tabulating Question 14 with Question 13 (Keeping up with Technology), indicated there were 31 respondents (66%), who strongly agreed with the association Perceived Control/keeping up with technology. This was a positive result.

Cross-tabulating Question 9 with Question 15 (Perceived Benefits), indicated there were 32 respondents (68.2%), who strongly agreed with the association Perceived Control/Perceived benefits of ICT. This was a positive result.

Cross-tabulating Question 9 with Question 17 (I Possess necessary IT skills), indicated there were 25 respondents (53.2%), who strongly agreed with the
association Assertiveness /I possess the necessary IT skills. This was a positive result.

Cross-tabulating Question 9 with Question 18 (I Mistrust IT), indicated there were 20 respondents (42.6 %), who strongly disagreed that they had a mistrust of IT. This association. Between Perceived Control and Mistrust of IT is deemed a positive as an indicator of possible ICT adoption.

Cross-tabulating Question 9 with Question 19 (IT is too costly), indicated there were 15 respondents (31.1 %), who were undecided if ICT was too costly. 12 (25.2 %) respondents slightly agreed, while 13 (27.7 %) slightly disagreed. As these results were evenly dispersed among the choices available and due to the undecided grouping having the highest respondents, the association between Owner Perceived Control /ICT being too costly was not proven and is deemed to be inconclusive.

Cross-tabulating Question 9 with Question 20 (Time Constraints). Indicated there were 14 respondents (29.8 %), who were undecided if Time was a constraining factor in the adoption of ICT. 11 (23.4 %) respondents slightly agreed, while 15 (27.7 %) strongly agreed Overall 26 (51.1 %) respondents agreed when combining the two agreed choices. However this does not indicate a positive association as 14 (29.8 %) of respondents are undecided. Therefore the association between Owner Perceived Control /Time constraints was not proven and is deemed to be inconclusive.

Cross-tabulating Question 9 with Question 23 (social networks are beneficial for business), the indication were 20 respondents (42.6 %), who strongly agreed with the association Perceived Control/Social Networks are beneficial. This is a positive association.

Cross-tabulating Question 9 with Question 24 (social networks can foster business relationships) were 20 respondents (42.6 %), who strongly agreed with the association “Perceived Control/Social Networks can Foster Business relationships”. This is a positive association.

Cross-tabulating Question 15 with Question 25 (social networks create New technology awareness relationships) indicated there were 22 respondents (46.8 %), who strongly agreed with the association Perceived Control/Social Network create technology awareness. This was a positive result.

Result: All the associations have proved positive with the exception of the SME owner/managers who consider themselves Final decision makers / IT costs. From the summary in the appendices, fifteen respondents (31.9 %) were undecided. Twelve respondents (25.5 %) slightly agreed. Thirteen respondents (27.7 %) strongly disagreed. The results are almost fairly evenly dispersed and therefore the final results are inconclusive. Another factor to consider is the association between Final decision makers /Time constraints. I again allude to the summary in the appendices where 15 respondents (31.9 %) strongly disagreed that time was a constraint to ICT adoption, while 11 respondents (23.4 %) slightly disagreed. However this positive predilection must be cautioned due to the 14 respondents (29.8 %) who were undecided. This weakens the association somewhat. For this reason I considered this association as a Weaker Positive. However, overall the results are positive for SME owner/managers perceived control over decisions as a factor effecting ICT adoption.
Although with two of the associations proving inconclusive, Perceived Control as an SME owner/manager characteristic for ICT adoption is weakened somewhat.

F. Mistrust of I.T Industry

SME owner/manager’s Mistrust of IT as a characteristic of IT /ICT adoption was identified by (Van Akkeren & Cavaye, 1999). It is represented in the survey instrument as Question No.17.

Cross-tabulating Question 17 with Question 9 (assertiveness), indicated there were 13 respondents (48.1 %), who strongly agreed with the association SME owner/manager Perceived Control /assertiveness. Similarly 13 (48.1%) respondents also slightly agreed. Overall 96.2 % agreed in some format. This was a positive result for the association between Assertiveness/Trust of IT.

Cross-tabulating Question 17 with Question 10 (Openness to New suggestions), indicated there were 19 respondents (70.4 %), who strongly agreed with the association SME owner/manager Trust of I.T /Open to New suggestions. This was a positive result.

Cross-tabulating Question 17 with Question 11(Considered an Expert), indicated there were 14 respondents (51.9 %), who strongly agreed with the association Trust of I.T/Open to New suggestions. This was a positive result.

Cross-tabulating Question 17 with Question 12 (Considered an Opinion Leader), was interesting in that there were 16 respondents (59.39%), who slightly agreed with the association Trust of I.T/Being an Opinion Leader. While 6 (22.2%) strongly agreed. Combining all those who agreed slightly/strongly agreed amounted to 22 (81.4%) of respondents. This was a positive result.

Cross-tabulating Question 17 with Question 13 (Keeping up with Technology), indicated there were 19 respondents (70.4 %), who strongly agreed with the association trust of I.T /keeping up with technology. This was a positive result.

Cross-tabulating Question 17 with Question 15 (Perceived Benefits), indicated there were 23 respondents (85.2 %), who strongly agreed with the association trust of IT/Perceived benefits of ICT. This was a positive result.

Cross-tabulating Question 17 with Question 16 (I Possess necessary IT skills), indicated there were 15 respondents (55.6 %), who strongly agreed with the association trust of I.T / IT skills. This was a positive result.

Cross-tabulating Question 17 with Question 15 (Final decision maker), indicated there were 20 respondents (74.1 %), who strongly disagreed that they had a mistrust of IT. This association between Trust of I.T/Final decision makers is deemed a positive as an indicator of possible ICT adoption.

Cross-tabulating Question 17 with Question 19 (IT is too costly), indicated there were 16 respondents (59.3%) who strongly disagreed that I.T is too costly. The association of Trust of I.T / I.T costs is proven.
Cross-tabulating Question 17 with Question 20 (Time Constraints). Indicated there were 16 respondents (59.3%) who strongly disagreed that time was a constraining factor in adopting ICT. The association of Trust/Time constraints is deemed positive for ICT adoption.

Cross-tabulating Question 17 with Question 23 (social networks are beneficial for business), the indication were 14 respondents (51.9%), who slightly agreed with the association “Trust of I.T/Social Networks are beneficial”.11 (40.7%) respondents strongly agreed. This is a positive association.

Cross-tabulating Question 17 with Question 24 (social networks can foster business relationships). The indication were 14 respondents (51.9%), who slightly agreed with the association “Trust of I.T/Social Networks can foster business relationships”.12 (44.2%) respondents strongly agreed. This is a positive association.

Cross-tabulating Question 15 with Question 25 (social networks create New technology awareness relationships) indicated there were 11 respondents (46.8%), who strongly agreed with the association “Trust of I.T/Social Network” create technology awareness. This was a positive result.

G. Email from Suzanne Behan (Millward Brown)