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# The development of a Community Informatics(CI) model to support Irish Local Voluntary Organisations (LVOs) use Information and Communication Technology (ICT)

by

# TJ Mc Donald

Thesis

submitted in fulfillment of the requirements for the degree

**Doctor of Philosophy** 

in the

**School of Computer Science and Statistics** 

at

**Trinity College Dublin** 

Supervisors: Professor Frank Bannister Professor Dan Remenyi

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### **Abstract**

The value of Information and Communications Technology (ICT) as a management facilitator that can help deliver efficiencies to both the public and private sector is well established. However, there are other parts of society that have yet to appreciate and/or exploit the potential benefits of ICT. These include both formal and informal groups of people who have a common interest or bond and wish to interact with likeminded people. These groups, known as Local Voluntary Organisations (LVOs), have emerged as a special area of interest to Information System (IS) practitioners. LVOs can be based on community, political, sporting, recreational, or civil needs. They facilitate information dispersion, social interaction, employment creation and service provision in communities. In Ireland, the adoption of ICT by LVOs has not kept pace with their foreign counterparts. The majority of Irish LVOs have been slow to adopt ICT and some of those that have embraced technology have found it disappointing.

After a thorough literature review, questions were developed on Irish LVOs' uses of ICT, the barriers that hinder their progress with technology and the enablers that act as catalysts for it. Knowledgeable Informants were selected from three sectors of the Irish voluntary landscape: community, sporting and rural and agricultural. Forty seven informants were interviewed and a further 14 participated in two focus groups. The data gathered from the informants was analysed using hermeneutics as the primary analysis technique. Cognitive maps were used to graphically illustrate the findings. Subsequently, NVivo was used to complement the analysis and to identify any findings that may have been previously missed. The findings identified the reasons why some LVOs use ICT more efficiently than others to solve their problems and address their members' concerns. Specifically, the findings identified the barriers to and enablers of ICT diffusion in LVOs. They also verified that the majority of Irish LVOs need support in the form of a model to provide them with a plan of action to support their use of ICT.

The ENCITE model is the primary contribution from the research. ENCITE will facilitate Irish LVOs to use ICT more productively and provide them with a planned approach to technology. The ENCITE model consists of four lenses: Environment, Capital, ICT and End User. Each lens provides LVOs with a unique way to look at their use of ICT and contains activities and components that are useful during their technical journey. The activities and components of each lens perform a task that helps LVOs make progress towards a technical goal. ENCITE facilitates LVOs to plan and use ICT applications and services to support their operation and empower their members.

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# **Research Outputs**

Papers on the research were presented at the following conferences:

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- Mc Donald, T. (2010). Supporting ICT diffusion in Irish community, sporting and rural and agricultural voluntary groups. Community Informatics conference, Prato, Italy, October 23<sup>rd</sup>, 2010.
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(Joint winner of best PhD paper and presentation)

# Dedication

To my wife Una and children Tadhg, Caragh and Aoibhinn

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### **CHAPTER ONE**

# INTRODUCTION AND BACKGROUND TO THE RESEARCH

## Overview

The chapter begins by introducing the notion of Local Voluntary Organisations (LVOs). It continues by outlining the important function that LVOs play in Irish society and examines the limited role that Information and Communications Technology (ICT) has in the operation and development of these organisations. It goes on to introduce the field of practice called Community Informatics (CI) and presents research by notable academics and practitioners, who advocate the adoption and use of ICT by communities to solve their problems and provide efficiencies. The chapter examines CI research conducted in Ireland. The limited CI findings suggest that Irish LVOs encounter a number of barriers to ICT and need support in the form of a model to assist them use technology effectively. It continues by developing the research questions. Following this, the contribution of the research to various stakeholders is discussed. Finally, an overview of the other chapters in the dissertation is presented.

### 1.1 Introduction

Local Voluntary Organisations (LVOs) are an important part of Irish peoples' lives and make a valuable contribution to society. However, Irish LVOs are struggling to exist and maintain their relevance to their communities. In particular, these organisations recognise that they have been slow to adopt and use Information and Communication Technology (ICT) and this inaction has negatively impacted on their operation and future development. This research investigates how Irish LVOs use ICT to solve their problems, whilst others struggle with it. The research identifies the barriers that obstruct these technically inhibited LVOs from using ICT productively and the enablers that promote the diffusion of technology in their more technically proficient counterparts. The knowledge gathered from informants coupled with the work of other scholars as described in the literature review is used to develop the ENCITE model, which is the primary contribution of this research. The ENCITE model will support LVOs to plan, design and develop technical solutions in an inclusive and iterative manner.

# 1.2 Local Voluntary Organisations

According to Jacoby Brown (2006), voluntary organisations consist of people who have similar aims, pursuits, ethnicity or profession and interact collectively with a common purpose. These organisations provide a sense of camaraderie and solidarity between people who may be geographically dispersed. Traditionally, voluntary organisations consist of members from the same local area, but this may not always be the case. There is a vast spectrum of voluntary organisations that can be considered for inclusion in the so-called 'third' sector. Although many voluntary organisations rightfully claim to be part of the third sector, they often display quite different characteristics in terms of origin, funding, employment and focus.

At one end of the spectrum, there are organisations like the Red Cross, Barnardos and Saint Vincent De Paul, who although still predominantly dependent on voluntary support, also spend millions of euro each year to support their function. At the opposite end of the spectrum there are voluntary groups known as communities of interest that are very simple in terms of need and function, such as a church choir or cemetery committee. Somewhere in the middle of the voluntary spectrum are Local Voluntary Organisations (LVOs); they are predominantly dependent on voluntary effort to exist and function, although some may have paid employees. A suitable definition for a LVO will be developed in chapter two.

### 1.3 LVOs in Ireland

In Ireland, the term LVO is predominantly used to describe locally organised voluntary effort. Irish LVOs include parish committees, Gaelic Athletic Association (GAA) clubs, soccer and athletics organisations, parents' associations, The Irish Farmers Association (IFA), Irish Country Women's Association (ICA) and a plethora of other groups, some unique to a geographical area<sup>1</sup>. In general, LVOs exist at the bottom of the voluntary hierarchy and are usually supported by their organizations at county, provincial and national levels. For example, the local soccer club is affiliated to the county soccer board that is in turn a member of the national soccer executive. LVOs consist of members who pay a membership subscription each year. Some of these members may serve as officers on the management committee elected at an annual general meeting as decreed by their constitution.

LVOs are an integral part of the social fabric in Ireland and play an important role in integrating people into communities. However, for the vast majority of Irish LVOs a number of problems are stymieing their development and growth. These problems include: falling membership, declining relevance to community, decreasing levels of altruism among members, new government legislation (such as drink driving restrictions and smoking bans), social inclusion and cultural retention problems, accessing external resources and supports and increasing financial constraints. These problems are exacerbated by technical troubles such as a lack of ICT infrastructure, developing internal technical expertise, and confusion over emerging software trends (O'Donnell 1999, 2000; Gilligan, 2005; Dochas, 2006). In addition there is a paucity of opportunities for LVO members to upskill, reskill or improve their education in an environment conducive to learning (Massy, 2005). Finally, there is a lack of cooperation and collaboration between LVOs, resulting in each unnecessarily operating independently and often replicating the mistakes of others, to their own detriment (IRL, 2010), as well as numerous other issues which are outside the scope of this dissertation.

<sup>&</sup>lt;sup>1</sup> Certain areas of Ireland would have LVOs that are unique to that community, e.g. Irish language groups in parts of Cork, Galway and Kerry.

O'Donnell (2000) argues that the deployment of appropriate forms of ICT can help Irish LVOs address many of their problems. However, O'Donnell suggests that before these organisational problems can be tackled with various forms of ICT, LVOs need to become more technically competent and aware. The potential of ICT is not fully understood by many LVOs, a point acknowledged by 'The Wheel' (2010), which makes their adoption of ICT difficult, if not impossible. Consequently, LVOs are slow to adopt technology or even worse select unsuitable forms of ICT, a decision that negatively impacts on their future use of technology. Gilligan (2005) cautions that the deployment of ICT into Irish LVOs needs to be carefully planned, with an emphasis on recognising and embracing the impact that organisational culture has on the success of the initiative.

The Irish government also accepts the importance of addressing community concerns through the development of LVOs. Former Taoiseach<sup>3</sup> Mr Bertie Ahern (2000) stated that ICT will play an important role in helping Irish LVOs address their concerns and facilitate their strategic development. A number of national initiatives were developed at the beginning of the millennium to enable and support communities such as: 'A Framework for Supporting Voluntary Activity' (2000), which facilitated the creation of a number of support agencies; 'The Access, Skills and Content' (ASC) initiative (2007), which focused on the development of local communities. Other initiatives like 'e-Inclusion' (2005) were created by the European Union (EU). This initiative placed the spotlight on Internet provision and reduction of the digital divide, particularly in rural areas. These initiatives have concluded, with no credible replacements owing to the dire financial situation in Ireland and across Europe at the time of writing.

<sup>&</sup>lt;sup>2</sup> The Wheel is a support and representative body connecting community and voluntary organisations and charities across Ireland.

<sup>&</sup>lt;sup>3</sup> The term Taoiseach is used in Ireland to identify the Prime Minister of Ireland.

Two points can be extrapolated from these government led initiatives. Firstly, the scale of these initiatives is indicative of the importance that the Irish government places on sustaining and improving LVOs to ensure that they continue to make a meaningful contribution to society. Secondly, the termination of the initiatives with no direct replacements of any relevance indicates that the government is not in a position to support further research in the voluntary sector, thus placing the responsibility of community development and improvement primarily with LVOs and their respective communities.

To date, with the exception of work by O'Donnell (1996, 1999 and 2000) and Gilligan (2005), there has been very little research conducted on how Irish LVOs use ICT to support their function. Numerous findings have emerged from O'Donnell's and Gilligan's work, one of which is that Irish LVOs need assistance with their use of ICT (O'Donnell, 1996, 1999, 2000; O'Donnell & Trench, 1999; Gilligan, 2005). This research will focus on the development of a model to provide technical support for Irish LVOs.

The model will provide LVOs with an understanding about the potential role of ICT in their organisation and will assist them to develop technical solutions to help solve their problems. The model will help LVOs to include their members in the design of technical solutions and subsequently in the creation of a plan to create in-house or outsourced ICT solutions. The model will enable LVOs to consider ICT as a strategic part of their operation and assist management committees in identifying opportunities to mobilise members' skills for the benefit of others. In recent times, the use of ICT to support and develop communities and their LVOs has emerged to such an extent, that it has become its own research area: Community Informatics.

# 1.4 Introduction to Community Informatics

The term Community Informatics (CI) has emerged as an IS discipline in the last couple of decades. CI is a part of Social Informatics (SI), which Kling (2007) defines as the interdisciplinary study of the design, uses and consequences of information technology (IT) that takes into account their interaction with institutional and cultural contexts. SI refers to the body of knowledge, research and study that examines the social aspects of ICT deployment and usage. SI looks at social and community change and the ways the use of ICT is influenced by societal forces and practices, which helps researchers to understand and eventually overcome barriers to technology diffusion within communities (Gurstein, 2000; Kling, 2007).

The study of SI addresses three principal areas:

- Theories and models: understanding and explaining the social and organisational uses of ICT.
- Methodologies: development of approaches, which explore and address the social impacts of the design, implementation and use of ICT.
- *Philosophical and ethical issues*: deeper appreciation of the underlying concerns and moral implications that arise from the use of ICT in a socio-cultural setting.

Gurstein (2000) states that CI can be viewed in the context of SI as an interdisciplinary approach to community development that utilises ICT to enable communities realise their full ICT potential. Day (2010) suggests that CI represents two distinct, but related areas of social interaction and endeavour: firstly, how communities research and understand the potential uses of ICT secondly, how communities use ICT to enable and empower themselves. Community Informatics therefore comprises two main component parts — research and practice.

Gurstein (2007) comments that CI as a field of study and in practice has been described as systematically approaching IS with a 'community' focus. In an earlier contribution Gurstein (2000) claims that CI represents an evolutionary advance on traditional systems development by combining ICT with the dynamism and adaptability of life as lived in civil communities. In many respects, CI is an extension of the sociotechnical approach to systems design, but it shifts attention to the community and its LVOs.

This change of focus reflects the increasingly widespread distribution of ICT from business organisations to communities of end users. This shift in perspective is similar to Mumford's (1934) ETHICS methodology approach, where his paper on 'Technics and Civilisation' showed that successful technology deployment is a social and inclusive process which must be based on interactions between the stakeholders and their environment and thought and creation to achieve a specific goal.

# 1.5 The Need for Community Informatics

Gurstein (2000) argues that there is an emerging need for all sectors of society to find ways to optimize the opportunities presented by ICT. According to Beamish (1999), using ICT to support and meet the goals of a community has gathered momentum. Aspen (1997) notes ICT can revitalise, improve and strengthen the capacity of communities and their organizations to work individually and collectively to foster and sustain positive change. Indeed, Pinkett (2006) claims the role of ICT in the community is a direct driver of community building. He states there is a great deal to be learned from viewing community technology and community building as mutually inclusive rather than mutually exclusive.

However, McIver (2002) cautions that the deployment of ICT on its own a priori to address societal problems is a 'fallacy'. Although McIver clearly misuses the word fallacy, what he actually means is that the push of technology without appropriate consideration for social, cultural and community perspectives is doomed to failure, as many examples have previously shown (Margonelli, 2002). Loader and Keeble (2004) state that technocentric solutions have failed in the past because they have not taken into account the complex nature of developing systems for a community.

McIver claims that a purely technical solution to societal problems will not work and that an inclusive and iterative process is required for successful technical developments. Crucially, CI acknowledges that LVOs are complex and unique and behave differently from business organisations. As a result, LVOs need to evaluate the use of ICT through various evaluative, operational and technical lenses to reflect the complex nature of developing socio-technical solutions.

# 1.6 CI Research Opportunities

De Moor (2009) argues that CI is a 'meta field', building bridges between existing social and technical paradigms in both theory and practice. The amalgamation of social and technical perspectives is fraught with difficulties in terms of establishing transferable practices and generic models, which makes it hard to identify ways to move CI research forward. De Moor argues that the primary CI difficulty is its focus on practical solutions to community problems, to the detriment of establishing and propagating best practice through the development of theory. De Moor offers the following diagram as a way to look at the current status of CI.

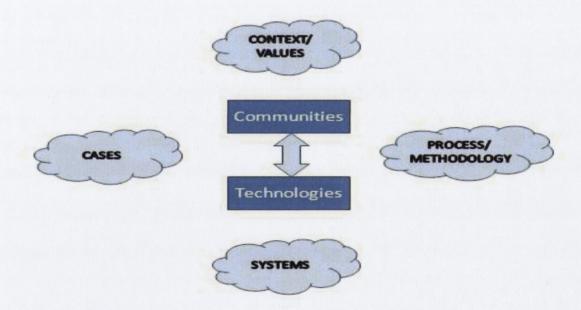


Figure 1.1: Framing Community Informatics Research (De Moor (2009))

Figure 1.1 illustrates De Moor's vision for CI. He sees individual cases having specific contexts and values based on the needs and expectations of their communities. Each project adopts suitable processes and methodologies that lead to the delivery of systems that fulfill the needs and expectations of end users. De Moor identifies two areas in particular, which need to be addressed in the short term to move CI research forward.

### These two areas are:

- 1. **Definitions**: De Moor argues that within CI, people are afraid to develop definitions, as they fear that they may not capture every possible meaning and overly constrain discourse, which is not strictly true. The reality is that CI practitioners are slow to develop definitions because the majority are practically focused and feel that development of theory is a superfluous theoretical act. On the other hand, De Moor points out that definitions are important to CI, as they point out new directions, open up unexpected views and help develop theory.
- 2. Identifying lessons learnt / best practice: De Moor proposes that the identification of best practice from initiatives helps crystallize ideas and spreads the value of CI research to communities. He argues that the development of theory from community projects supports the long term use of ICT by communities. As far as Stillman and Linger (2009) are concerned, CI is an under theorised area of Information Systems (IS), which needs to be strengthened conceptually and theoretically.

Gurstein (2009) warns that CI needs more models to support the practical work being done in communities. He suggests that CI has an opportunity to move the paradigm forward into new areas, with the development of ICT-enabled models, which provide a plan to facilitate communities to use ICT effectively. He claims that a CI model acts as a strategic tool for LVOs; it enables them to move away from the current position of outsourcing and top-down dependency (or for a small minority no usage) to a more sustainable self dependency. Indeed, the absence of theory was identified as a CI weakness by Geoff Walsham (2012) in his keynote address at the Community Informatics conference at Prato, Italy in November 2011.

The two CI areas offered by De Moor provide a number of opportunities for this research. Firstly, this research develops definitions in chapter two, which will define the concept of communities, LVOs and CI in an Irish context, adding to the body of knowledge in this area of IS. Secondly, in chapter six the research establishes how Irish LVOs use ICT to support their operation and solve their problems, providing an insight into the usefulness of technology to this sector; it also identifies the ICT enablers that assist some LVOs to use ICT effectively and help establish best practice for technical initiatives. This research uncovers the barriers that obstruct the adoption and use of ICT by LVOs, thus identifying areas that need to be remedied in the proposed CI model.

Finally, the research provides a model that will help LVOs identify their problems and look at opportunities where ICT may provide a solution. The proposed model will provide LVOs with a better understanding of how to use ICT to support their operation and empower their members. As the model will be inclusive in nature, it will get members involved in initiatives and help LVOs develop a plan that allows them to make progress with technology on a phased and iterative basis. The model will add to the CI theoretical knowledge base and may provoke further interest in this area of research from both academia and CI practitioners.

# 1.7 Information System Models

There has been considerable interest in creating Information Systems (IS) models over the past few decades. During that time, much debate has taken place on their usefulness and usability, which may be a consequence of the different types of model available (DeLone and McLean, 2003; Marghescu, 2008). One of the most prevalent type of IS models are conceptual models; they facilitate developers to understand a particular problem domain and provide direction on the development of a technical solution.

According to Ulrich (2002), conceptual models are a prerequisite for successfully planning, designing and developing IS. Conceptual models are a medium to foster communication with prospective users; they synthesise knowledge and provide a sound basis for system implementation. Recker (2005) suggests a conceptual model describes the relevant facets of a certain universe of discourse that represents a problem domain.

Lauesen and Vinter (2001) point out the quality of a conceptual model has a significant impact on the development of technical solutions and largely determines their acceptability and usability. Engelbart (1962) notes the development of a conceptual model requires the identification of the essential components of the area, coupled with their relationships. Also, he suggests that conceptual models have ontology, which is the set of self contained expressions that describe how they can be used to facilitate the development of a plan, design or practical solution. The ontology also provides the model with the flexibility to describe the subject matter in a specific context and the language through which it may be understood on a case by case basis.

Járvelin and Wilson (2005) argue that conceptual models provide the methodological tools for formulating hypotheses and theories. If the models are seen to represent schools of thought, chronological continuity or principles, beliefs and values of the research community, they become paradigms. Conceptual models help to map reality, guide research and systematise knowledge. Járvelin and Wilson comment that a conceptual model provides a working strategy, a scheme that contains major concepts and their interrelations. They further comment that conceptual models orient research towards specific sets of research questions and typically exhibit the following characteristics.

Firstly, in terms of simplicity, parsimony is better, all things being equal. Secondly, in regards to accuracy, precision and explicitness in concepts is desirable. Thirdly, in terms of scope, a broader approach is better, because it subsumes narrower ones. Fourthly, for organisation, concepts, relationships and data should be arranged in meaningful ways. Fifthly, to provide reliability, valid representations across the full range of possible situations should be tested. Finally, in regards to fruitfulness, the model should have the ability to suggest problems for solving and hypotheses for testing.

Járvelin and Wilson state that the construction of new conceptual models in any research area often requires theoretical and terminological development. This process may require defining and representing important concepts in a way that reflects their use within a given domain. Conceptual models should contain the essential concepts (objects, relationships, events) of the research area. More importantly, these concepts should differentiate and classify the phenomena in ways that lead to the creation of valid hypotheses or interesting research problems. This means that the concepts must relate to each other in systematic and fruitful ways, which are compatible with each other and with their research area.

Conceptual models are needed in CI (O'Donnell, 2000; De Moor, 2009; Walsham, 2012); they facilitate the identification of important community concepts and activities and the relationships that exist between them. A conceptual model facilitates communities to evaluate ICT deployment holistically and creates knowledge in the CI area. Without conceptual models, the growth of knowledge in the CI field will stagnate. CI will retain its mainly practical focus on CI initiatives which will have repercussions for communities, who require a model to facilitate the development of technological solutions to solve their problems. Chapter three will begin the investigation into the concepts and activities suitable for inclusion into the model.

# 1.8 Research Questions

The development of the research questions was motivated by the LVO problems identified in section 1.3, the CI opportunities outlined in section 1.6 and the usefulness of a model described in section 1.7. These sections and the literature review (chapters two and three) provided a conceptual understanding of the problems facing Irish LVOs and helped form the following research questions.

- Q1. How do Local Voluntary Organisations (LVOs) currently use Information and Communication Technology (ICT) to address their concerns and solve their problems?
- Q2. What are the barriers and enablers that affect the adoption and use of ICT by Irish LVOs?
- Q3. What concepts and activities are useful for the development of an Irish CI model and how do they interact to provide useful, usable and sustainable LVO applications? Specifically, how can a CI model adopted for Irish conditions improve the adoption and use of ICT by Irish LVOs and facilitate technological collaboration between them?

# 1.9 Research Aims and Objectives

In answering the research questions, this research will:

- Investigate how Irish LVOs are using ICT to support their operation and solve their problems through the collection of qualitative data from knowledgeable informants, who operate at various levels in the Irish voluntary sector.
- Identify the barriers that obstruct LVO members from adopting and using ICT from the data gathered during semi structured interviews and focus groups.
- 3. Categorise the enablers that promote the use of ICT in Irish LVOs from the data gathered from informants.
- 4. Detect suitable concepts and activities from the analysed data for inclusion in the CI model.
- 5. Develop a CI model to provide Irish LVOs with a better understanding of how to plan, develop and use ICT more effectively.

# 1.10 Possible Research Findings

The potential findings of this research are:

- 1. How Irish LVOs use ICT to support their operation and provide efficiencies to the members.
- 2. The barriers that inhibit Irish LVO members from adopting and using various forms of ICT.
- 3. The enablers that support Irish LVOs in using ICT sustainably.
- 4. How a conceptual model can help Irish LVOs develop ICT based applications, which addresses their needs, solves their problems and provides them with efficiencies across all levels of their organisation.
- How a conceptual model establishes best practice for ICT development in Irish LVOs.

# 1.11 Research Design and Methodology

This research adopts an interpretivist stance as its philosophical view. A qualitative methodology is subsequently chosen, with interviews and focus groups used to elicit data from knowledgeable informants, who operate at different levels (local, county or national) in Irish LVOs.<sup>4</sup> 47 interviews were conducted with informants and two focus groups with six and eight participants respectively. These informants and participants are members of sporting, community and rural and agricultural<sup>5</sup> LVOs scattered throughout the South East of Ireland.

<sup>&</sup>lt;sup>4</sup> The primary focus is to elicit data from local knowledgeable informants who support the use of ICT in LVOs. However, data will also be gathered from informants who volunteer or work at county, regional and national levels of LVOs or other agencies to complement the data gathered from local informants.

<sup>5</sup> These are the three sectors of LVOs evaluated by this research.

The data gathered from informants and participants will analysed through a combined approach of hermeneutics and NVivo<sup>6</sup>, a strategy that leads to the emergence of six findings. These findings provide an in-depth understanding of how Irish LVOs use ICT to solve their problems and provide them with efficiencies and new services; they also identify the barriers that inhibit LVOs from using ICT productively as well as the enablers that support the diffusion of technology in these organisations. The findings conclude with the concepts and activities that informants and participants feel are important to facilitate the adoption and use of ICT services by Irish LVOs and their members, which are subsequently used to create the ENCITE model.

#### 1.12 Importance of the Research

The research will make a contribution to the CI body of knowledge as it builds and extends existing scholarship in this field of study. Specifically, the research culminates in the development of a CI model that affords researchers and practitioners with a new way to look at technology adoption and diffusion in LVOs. As stated earlier there are few CI models; more are needed to allow it to grow and prosper as a research area. Therefore, this new model will add to the CI body of knowledge, providing members of academia and CI practitioners with a new way to look at ICT adoption and diffusion in LVOs.

The proposed model will provide Irish LVOs with a better understanding of technology and enable them to use ICT effectively. The model will provide assistance to LVOs who are currently using different forms of ICT, as it will help them look at using ICT strategically through its various lenses. For those LVOs beginning their ICT journey, the model may be of even greater benefit, as it will provide them with a starting point for their technical journey that is driven from within, satisfying their needs and solving their problems.

<sup>&</sup>lt;sup>6</sup> NVivo is a Computer Aided Qualitative Data Analysis Software (CAQDAS), which has been designed for qualitative researchers working with rich text-based data, where deep levels of analysis are required.

#### The ENCITE model will:

- Afford Irish LVOs a better understanding of how ICT can solve their problems and provide them with efficiencies.
- Assist LVOs to make ICT a focal point of their operation, encapsulating their local members' needs and expectations into an inclusive technical plan.
- Identify and mobilise internal assets to support LVOs' operation and needs.
- Encourage LVOs to conduct a SWOT analysis for strategic development.
- Help LVOs to use their ICT competent members and provide a path of education for those less technically literate.
- Provide a holistic approach to ICT development.
- Establish planning, development, support and management processes that make
   LVOs directly responsible for their own ICT future.

# 1.13 Overview of Chapters

The following is a brief description of the remaining chapters in the dissertation.

# **Chapter Two: Literature Review**

This chapter outlines the evolution of voluntary organisations and their importance to communities. The chapter provides scholarly definitions of communities, LVOs and CI, before developing alternatives for this research. The chapter goes on to critically evaluate three models developed in the CI field namely: Access Rainbow architecture, Liaise Framework and the Alliance model, exploring their strengths and weaknesses and identifying aspects in each of them that will be useful for the development of the proposed model. The initial purpose of this chapter is to define and understand the notion of a community, LVO and CI in Ireland. Subsequently, its purpose is to evaluate other models to identify useful concepts and activities in each of them to aid the development of a model to support Irish LVOs use ICT efficiently.

### **Chapter Three: Literature Review: CI Concepts**

This chapter introduces the concepts and activities to be considered for inclusion in the proposed model. It begins with a description of community assets, one of which is LVOs. It then examines the use of ICT by LVOs in various contexts such as communication, collaboration, social capital provision, cultural retention and the development of economic opportunities. Subsequently, the importance of an inclusive approach to CI initiatives is emphasised, before the use of socio-cultural constructionism is investigated as a means to educate and upskill LVO members in an appropriate local setting. The emergence of virtual communities is examined, before the application of the Technology Adoption Model (TAM) and Diffusion of Innovation (DOI) is explored. Finally, the inclusion of evaluation as an activity is considered. The purpose of this chapter is to identify the concepts and activities that other scholars have deemed to be important for the diffusion of ICT into communities and LVOs.

Therefore, these concepts and activities are worthy of consideration for inclusion in the proposed model developed for this research.

### Chapter Four: Research Philosophy and Methodology

This chapter describes the philosophical and methodological underpinnings of the research. The chapter begins with a description of various research philosophies and justifies the selection of an interpretivist stance for this research. The chapter contrasts research methodologies and explains the selection of a qualitative approach. The chapter explores the various qualitative approaches used for data collection and justifies the selection of semi structured interviews and focus groups. The operation of each data collection method is explored in detail. After this, the analysis of the data is explored, with hermeneutics and Computer Aided Qualitative Data Analysis Software (CAQDAS) selected as the most appropriate techniques. The purpose of this chapter is to identify a philosophical and methodological stance for the research and provide detail of how the data will be gathered and analysed.

#### Chapter Five: Strategies for Collection and Analysis of Data

This chapter outlines how informants from various LVOs were selected to participate in the data acquisition phase. After this, the interview schedule is defined, as well as a description of how the interviews and focus groups were conducted. Following this, how the data was handled after each interview is documented, before a discussion takes place about suitable data analysis techniques. Subsequently, the role of hermeneutics as an analysis technique is discussed and examples are provided as to how it may be applied in the research. Finally, the use of Computer Aided Qualitative Data Analysis Software (CAQDAS) is described to complement the hermeneutic process and add a new rich layer of analysis to the data. The purpose of this chapter is to show how the data is rigourously analysed through a number of complementary analytical techniques that develop a rich and deep understanding of the data.

# Chapter Six: Research Findings

This chapter begins with the set of findings from the data analysis, which are graphically illustrated using NVivo diagrams and cognitive maps and supported by informants' quotes. Each of the findings represents an evolving understanding of the data and contributes to the body of knowledge. The purpose of this chapter is to show how some LVOs are using ICT, whilst identifying the barriers that obstruct and the enablers that facilitate the diffusion of technology in these organisations.

# **Chapter Seven: The ENCITE model**

This chapter describes the final research outcome, which identifies the activities and concepts that are suitable for inclusion in the model. These concepts and activities form the basis of the ENCITE model, which is illustrated and the relevance of each of its four lenses described, before the concepts and activities visible through each are discussed and their contribution to the diffusion of ICT in LVOs outlined. The purpose of this chapter is to describe the potential concepts and activities that are used for the creation of the ENCITE model and to illustrate and describe its operation.

#### **Chapter Eight: Discussion and Conclusions**

This chapter reflects on the research journey, it concludes the research by reviewing the contribution of the findings and the proposed ENCITE model to the body of knowledge. The chapter describes the relevance of the findings to communities and their LVOs, before an evaluation of the work is conducted. The limitations of the research are detailed and future research opportunities outlined. A comparison is also conducted between the ENCITE model and the Access Rainbow architecture, Liaise Framework and the Alliance model to establish its potential advantages. Finally, some concluding remarks about the research journey are made. The purpose of this chapter is to conclude the research journey by outlining the contribution of the research to the body of knowledge and describing the opportunities for further work.

#### **CHAPTER TWO**

# LITERATURE REVIEW: DEFINITIONS AND COMMUNITY INFORMATICS MODELS

#### Overview

This chapter outlines the evolution of voluntary organisations and their importance to communities. Different definitions of community are explored as are some of the challenges faced by communities. Consequently, a suitable definition for a community and an Irish LVO is developed, before an appropriate description for CI is created. Following on from this, three existing CI models, Access Rainbow Architecture, Liaise Framework and the Alliance model are described, depicted and critiqued.

#### 2.1 Introduction

The overall aims of this chapter is to develop new definitions for a community, LVO and CI to reflect the needs and expectations of Irish society and to investigate the potential contribution of a model to aid the diffusion of technology in voluntary organisations. This research acknowledges that communities exist in many different ways, they can be based around people, relationships, feelings or geography and therefore need to be defined. LVOs are a special type of community that has contributed considerably to the development of society; they also need to be defined to set the context and scope for this research. CI is a field of study that describes the potential contribution of ICT to communities; it also needs to be defined in the context of how it potentially addresses the needs of Irish LVOs.

In CI, only a few models have been developed, most notably the Access Rainbow architecture, Liaise Framework and the Alliance model; each provides a strategy for the adoption and diffusion of ICT into communities or LVOs. These models need to be evaluated and critiqued to ascertain their potential contribution to this research and to identify concepts or activities that may be used for the development of the proposed model.

## 2.2 Community

Human activity with rare exceptions is based in communities. Beale (2000) argues that communities are profoundly important, both to our development as self-aware individuals and as members of society. According to Cohen (1985), a 'community' establishes a symbolic boundary around a class of people, who exhibit common characteristics to identify them as part of the group. These characteristics set the boundaries for a community, which may be marked in different symbolic ways. The symbols used by communities to identify their members may be based on language, personal interests, religion, location or many other things. A community can be many things to different people as the plethora of definitions demonstrates.

# 2.3 Definition of a community

The quest for a suitable definition of a community is a difficult task as George Hillery found in 1955, when he identified 94 definitions of a community from the social science literature and concluded that the only thing they all held in common was a reference to people. According to Ewalt et al (2001) the term community derives from the Latin 'communitatem' which refers to the quality of fellowship or feelings between people. Ewalt et al comment that Medieval Latin usage of community moulded the concept even further, so that it meant specifically a body of people who thought of themselves as a group. Ewalt et al's vision provides a starting point for identifying a suitable definition of a community, although the description lacks detail and the omission of relationships renders it too vague to be helpful.

A more useful definition is Toynbee's (1995) description of society, where he defines society as the total network of relations between human beings. Toynbee claims that in a social structure, individuals are merely the foci in the network of relationships. It could be argued that a community is a subset of society and thus has similar characteristics. Therefore, Toynbee's description of society is useful in the search for a suitable definition for a community in Ireland. Toynbee notes that society is not based on people, although they are obviously an important component, but instead on the relationships that exist between them, which is indeed true, albeit a

bit simplistic, as there is surely more to society than just associations between people. Nevertheless, Toynbee's definition does advance our understanding of a community and it is a step further than the limited views expressed by Ewalt et al, in terms of relationships.

McMillan and Charvis (1986) express more expansive views to Toynbee on communities. McMillan and Charvis define a community as a feeling that members have of belonging, a sentiment that people matter to one another and to the group and a shared faith that their needs will be met through their commitment to each other. McMillan and Charvis's definition is far-reaching; it portrays communities providing a sense of belonging to members, implying an awareness of camaraderie and supportiveness between them. This vision of a community identifies important attributes, such as feelings, faith, trust and commitment between members. However, McMillan and Charvis do not address the physical nature of what constitutes a community, which is an unfortunate omission that reduces the suitability and usefulness of this definition for this research. But the use of 'shared' is welcome and a step in the right direction in the quest for a suitable definition for community, as it intimates a collective association between members of a community.

Alternatively, Logan and Molotch (1987) describe a community from a physical perspective. They define a community as a town (village) with a shop, hardware store, pharmacy and a park that offers goods and services as demand develops among residents. Logan and Molotch's definition portrays a community with physical boundaries, where people feel safe and share similar local needs and concerns, as well as a largely common cultural background or identity that over time creates bonds and relationships between them.

Butcher et al (1993) adopt a people perspective for their description of a community. They define a community as social forms, structures, interactions or relationships that are observable among people, where responsible and neighbourly behaviour is a moral imperative. Butcher et al focus their definition on local development and how people participate and interact with each other and work with local organisations. They describe a community as a social structure that nurtures relationships and values friendship, which is similar to other scholars. However, their

definition is more expansive than others, as it identifies social interaction, individual participation and development as important human issues - another step forward in the search for a suitable definition for a community. Also, Butcher et al's definition explicitly mentions local organisations, which is significant as it intimates the important role that they play within a community. Therefore, Butcher et al's definition will form the basis for a definition of community for this research.

In the context of this research, several aspects of the definitions can be combined into a definition for a community that is appropriate in an Irish context. This research describes a community as:

'A physical or virtual location, which has clearly defined boundaries; populated with inhabitants and groups, who share a common bond of place and background, needs and relationships, who wish to enrich their own well being.'

This definition combines the important aspects of the definitions found in the literature and consolidates them into three pertinent areas. Firstly, this definition addresses the commonality among individuals in terms of their respective communities and agreed physical or virtual boundaries. Secondly, the definition captures the importance of relationships and bonds between inhabitants. Thirdly, the definition captures the need (willingness) of people to engage with their community as a means of self-enrichment.

Addressing the needs and concerns of physical communities is an important area of social science research. These 'Geocommunities' have been the primary location for CI research over the past couple of decades. LVOs play a pivotal role in the development of Geocommunities; they are essentially a special type of community. As outlined in chapter one, LVOs come in all shapes and sizes, which results in voluntary effort meaning different things in various countries. This research needs to establish a definition for a LVO that is appropriate for Ireland.

# 2.4 Definition of a Local Voluntary Organisation (LVO)

Before the quest for a LVO definition begins, three points need to be emphasised. Firstly, the voluntary activity that this research addresses is primarily based in a local area or Geocommunity, which in an Irish context equates to a parish, village or town. Secondly, these LVOs can be sporting, recreational, religious, environmental, cultural and musical or simply be people who share some other common interest<sup>7</sup>. Thirdly, the LVO is predominantly dependent on voluntary effort for its existence.

The CI literature offers different ways to describe organised voluntary effort which include: non-profit organisations (Denison, 2007); not for profit organisations (Pereira and Cullen, 2009) and Community and Voluntary (C&V) organisations (O'Donnell, 2001) as well as many other variations. Each of these descriptions of voluntary effort relate to how that activity is perceived in different countries. But, as the focus of this research is Ireland, the term Local Voluntary Organisation (LVO) is deemed to be most appropriate to describe voluntary organised effort for local common good. The following is an examination of different LVO definitions from various scholars. From these offerings a suitable definition for a LVO will be developed.

Brenton (1985) defines a voluntary organisation as a group that adds diversity and choice to society, which is seen as innovative, pioneering and experimental, ready to take risks and adopt new ideas and practices. To a certain extent, Brenton's definition is based on the concept of voluntarism, which primarily focuses on voluntary work in an organisation. Also, the definition does not focus on individual actions by members, but instead upon organisational characteristics and contributions in a plural<sup>8</sup> society. Brenton's definition is deeply flawed as it emphasises experimentation and innovation, which although a noble aspiration, does not represent or reflect the needs of many LVOs, thus reducing its usefulness as a definition.

<sup>&</sup>lt;sup>7</sup> In the area of South East Ireland, there are at least 12 LVOs of which the author is aware. These include parish committee, community centre, GAA, soccer, athletics, show society, pantomime, Macra na Feirme, Irish country women's association (ICA), and active retirement group.

<sup>&</sup>lt;sup>8</sup> A plural society comprises ethnic contrasts and economic interdependence between them.

Salamon and Anhiere (1999) define LVOs as formally constituted organisations, which are non-profit distributing, self-governing and have some dependency on voluntary effort to exist. Salamon and Anhiere's definition goes beyond the traditional viewpoint of a voluntary organisation as expressed by Brenton. Salamon and Anhiere's definition embraces the broad nature of how voluntary organisations are created and managed and contribute to society. Although Salamon and Anhiere's definition addresses some of the necessary aspects of a LVO such as constitutions and voluntary effort, it omits two important issues. Firstly, the definition needs to be extended to cater for the 'local' focus of voluntary organisations. Secondly, Salamon and Anhiere's description fails to address the important role of 'collaborative' voluntary effort within the community. Therefore, a LVO is described as:

'A non profit making, self governing, formally constituted local group of people, who work voluntarily together for some common purpose.'

This definition combines parts of LVO definitions offered by various scholars with the notable addition of the 'local' focus of the voluntary organisation. The definition also explicitly mentions 'common purpose', which indicates the collaborative nature of LVOs. Now that a suitable definition for LVOs has been identified, it is useful to have a brief overview of their origin and history to appreciate the important role they have played in society throughout the ages.

# 2.5 Origin of Voluntary Effort and Organisations

Courtney (2002) points out that the voluntary non-profit sector has ancient antecedents. From its inception, the voluntary sector has provided welfare and support to people and over the centuries has gone through periods of substantial growth and change (Hudson, 1995; Davis Smith, 1995, Marshall, 1996). Indeed, Kendall and Knapp (1996) comment that it is impossible to chart the development of society without frequent allusions to the pivotal role that voluntary organisations have played in changing ideologies, values, responsibilities and policies, not least the creation of political movements and parties. Gosden (1973) claims the origin of voluntary organisations can be traced back to at least the first century CE and most probably to BCE times, where Mutual Aid and Friendly Society actively supported communities. However, Davis Smith (1995) states that it was not until the thirteenth century that the 'golden age of small associations' emerged, an era that primarily focused on the delivery of liturgy and good work. Courtney suggests that in England alone, there were nearly five hundred hospitals founded with the support of voluntary organisations in the twelfth and thirteenth centuries.

Courtney comments that the sixteenth century experienced the emergence of legislation for charities and voluntary organisations in the United Kingdom, which was an important step, as it made them accountable for their actions. Courtney notes that the eighteenth century witnessed a series of reforms to charitable legislation and the emergence of philanthropy, with societies and organisations specifically created to promote a range of philanthropic causes. Kendall and Knapp (1996) found that the role of philanthropy in voluntary effort was extended in the early nineteenth century. They argue that this extension was primarily influenced by the growth of population in urban areas, recognition of the potential for revolution among ordinary people by the elite, emergence of sects and movements with strong moral tones and beliefs, and the role of middle class women. In many ways, community life had evolved in terms of tightened poor law, development of a range of evangelical and moral societies, new social reforms and the establishment of working class organisations such as burial and trade clubs.

According to Prochaska (1990), the second half of the nineteenth century witnessed a further growth in philanthropy, where the average middle class household spent more on charity than any other household item, other than food, which is quite astounding. In fact, Owen (1964) surprisingly claims that the income of some London charities during this period was greater than the earnings of many countries. The late nineteenth century also witnessed the emergence of charitable voluntary organisations such as Barnardos. However, Courtney argues that the twentieth century has seen the most radical change in voluntary organisations, with the creation of the welfare state and the provision of services for those in need by governments or public bodies, particularly following the upheaval of World War 2. Salomon (1987) states that the twentieth century has seen the perceived weakness of the voluntary sector in areas such as particularism<sup>9</sup>, amateurism, paternalism and insufficiency put under the spotlight. To a certain extent, this new focus led some notable proponents such as Crossman and Abel Smith to question the role and future of voluntary organisations, with assumptions being made that the this sector would 'wither on the vine, as the hegemony of the state grew' (Osborne, 1996, p.169).

Nevertheless, Davis Smith (1995) points out that the expected implosion of voluntary organisations did not transpire; instead they carved out a new altered role for themselves in society with a new dynamic community focus. Salomon and Anhiere (1994) argue that the sixties and seventies represented a new phase for voluntary organisations. This period experienced creativity, ingenuity and energy in the voluntary sector; many countries encountered a substantial numerical growth in volunteer led organisations. Subsequently, as the eighties witnessed further disenchantment by communities with the State's inability to meet their needs efficiently and effectively, voluntary activity flourished.

As the needs of communities changed and evolved, governments and the public sector were found more wanting than ever. Courtney (2002) notes that the relationship between communities, voluntary organisations and the statutory sector was becoming uncomfortable in the eighties. It became clear to communities that they needed to support themselves and take responsibility for their own development.

<sup>&</sup>lt;sup>9</sup> Particularism is the belief that one can know something without knowing how one knows that thing.

This disillusionment with the establishment became one of the primary drivers of communities identifying their needs and using voluntary organisations as a potential mechanism to fulfil them. Also, voluntary organisations recognised that to achieve empowerment and sustainable change, they needed to become more structured and better managed, an obstacle that proved to be the first of many challenges they had to face to maintain their role in society.

### 2.6 Modern LVO challenges

As described in chapter one, LVOs have experienced a number of challenges over the past couple of decades. Harlow (1998) suggests that some of these challenges can be traced back to their resistance to management structures, a defiance that has stymied their evolution as an organisation. Courtney (2002) notes LVOs have traditionally resisted and questioned the need for a managerial approach to their operation. Billis (1984) argues however that voluntary organisations cannot manage themselves on the basis of their obvious goodwill, flexibility, commitment and natural abilities. Mason (1984) is equally scathing about the lack of management structures within voluntary organisations. He states running a business like a voluntary enterprise would be as disastrous as running a voluntary enterprise like a business.

However, Handy (1998) argues that voluntary organisations need to be more 'businesslike' to survive and prosper. Whilst acknowledging that they are not businesses, voluntary organisations do have clients (members), provide services and have to finance themselves. Handy argues that it makes just as much sense to ask a voluntary organisation what its strategy is, as ask a business. Lyons (1996) argues that the objections to a management structure by voluntary organisations do not stand up to scrutiny. Leat (1995) comments that the effective management of voluntary organisations provides them with tangible benefits, such as creating a new discipline of efficiency, raising their status and profile, providing new concepts and tools, and increasing learning and collaboration opportunities. It is fair to say that in recent times, the majority of LVOs, especially those that have a national or international structure, have successfully adopted a management-based approach to their operation.

However, Munro and Farquharson (2008) suggest that there still exists a plethora of smaller LVOs who have opposed the adoption of management structures in a substantive manner; unfortunately these may also be the organisations that have also resisted the adoption of ICT. Courtney suggests that all voluntary organisations regardless of their size need to have a management structure with valid business plans, mission statements and active stakeholders. Harlow (1998) comments that voluntary organisations with appropriate management structures typically exhibit positive characteristics, such as, effective use of resources, efficiency of services and improved sustainability, similar to their business counterparts. Harlow concludes that the creation of a suitable management structure by voluntary organisations has a positive impact on their operation and their membership.

Similarly, if Harlow's management proposition is extended into the ICT realm, it suggests that the adoption and use of ICT to support LVOs is important. It can also be assumed that the deployment of ICT into LVOs requires a structure. This proposition implies there is a need for a model to support the utilisation of ICT by LVOs and help them move technologically with the times, as their business counterparts did in the past. Perhaps, the resistance to ICT that most LVOs have experienced from their members is similar to the fight that their membership fought previously against the imposition of management practices? A fight that promanagement members eventually won with those who were reluctant to embrace administration. Will the adoption and use of ICT by LVOs have such a successful outcome?

In some cases, LVOs are using ICT competently. However, some LVOs are reluctant to embrace ICT in a meaningful manner, especially those that do not have support from provincial or national levels of their organisation. This research conjectures that LVOs that fail to embrace, adopt and use ICT will become less relevant to society or possibly cease to exist. To appreciate and embrace ICT effectively, LVO need supports, one of which is a useful, comprehensible CI model.

# 2.7 Definition of Community Informatics

There have been many CI definitions offered by various scholars. Some adopt a technical view to CI, whilst others seem to place it in a community and social context, where ICT acts as a facilitator of change. McIver (2002) defines CI as an emerging interdisciplinary field concerned with the development, deployment and management of IS designed with and by communities to solve their own problems. McIver's definition portrays CI with a community focus. McIver views CI as a community led initiative that primarily focuses on problem solving, which although correct, is limited. CI consists of more than problem solving; it is about enabling and empowering people.

Carroll & Rosson (2007) define CI as the design and management of IS and infrastructures by civic and municipal entities, non-profit community groups, non-governmental social service providers and the lowest, most local level of government. Carroll and Rosson's definition is community focused and concentrates on the wider issues, such as, social services, local government and e-services. This definition has a broader focus than McIver's offering, which is an improvement. However, the definition has some failings in terms of its focus on governance and infrastructure, to the omission of support, inclusion and collaboration.

Loader and Keeble (2000) define CI as an approach, which investigates how ICT can be geographically embedded and developed by community groups to support networks of people who already know and care about each other. Loader and Keeble's definition addresses the potential of ICT as a catalyst for changes in community based organisations. Their definition adopts a community focus on the integration of ICT based applications to support individuals and their respective organisations. This definition outlines a bottom up approach to CI, which is the most appropriate for communities as it expresses the notion of care and self reliance among members. Overall, Loader and Keeble's definition is a positive step forward in the search for a suitable CI definition.

Gurstein (2000) defines CI as an approach that begins with the perspective that ICT can provide a set of resources and tools that communities use, initially to provide access to information management and processing, subsequently to pursue their goals in areas like local economic development, cultural affairs, civic activism, community based health and environmental initiatives. Gurstein's definition is one of the most comprehensive descriptions of CI; it has an ICT focus and sees the potential of CI as a technical enabler to provide LVOs with a myriad of services that allow them achieve their goals and satisfy their needs. Gurstein's definition will largely provide the basis for a suitable CI definition for this research, with some additional content and direction.

This research offers the following definition that reflects CI in Ireland. One of the most important aspects of community projects is sustainability; CI is no different in this regard. Initiatives that are transient are usually of little use to communities, with some rare exceptions. If CI is to make a contribution to communities and LVOs, it needs to be designed, developed and deployed through established development methods, in an inclusive manner with a definite goal. For this research, CI is described as:

'The application of IS tools and practices to inclusively plan, design and develop sustainable ICT solutions for communities, to support their operation, solve their problems, provide efficiencies and empower their members.'

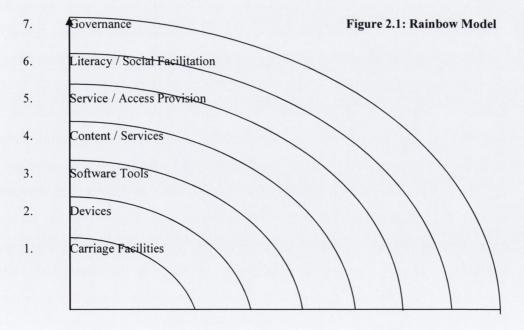
This definition captures the broad interdisciplinary nature of CI. The definition premises that CI should be based upon established IS techniques and methods. The definition explicitly mentions supporting operations, solving problems and providing efficiencies, which are some of the primary goals of ICT. Finally, the definition mentions 'empowerment', which is important for members' buy in, acceptance and long term use of ICT.

# 2.8 Existing CI models

There are only a few conceptual models identifiable in the CI literature; a fact alluded to by De Moor (2009) and Walsham (2012). The lack of models has stymied the development of CI and raised concerns from practitioners about its long term viability. A search of recent CI publications and projects offer three viable CI models for consideration.

#### 2.8.1 Access Rainbow Architecture

Clement and Shade (2000) offer the 'Access Rainbow Architecture'. They claim the architecture is a socio-technical integrated model for the provision of ICT based services to local community organisations. This architecture is inspired by the Open Systems Interconnection (OSI) network layer model, where lower levels focus on technical aspects of application access and the upper levels on provision and facilitation of services. Clement and Shade adopt a rainbow metaphor for the model, as they feel that it embodies several concepts central to public interest ideals, yet simultaneously suggests unity and diversity.



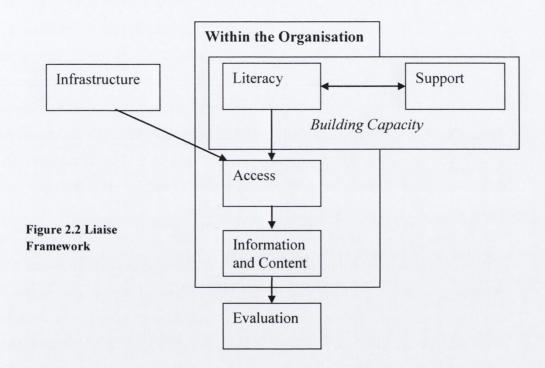
The carriage layer of the model describes the architectures and infrastructures that facilitate the storage of information and delivery of services. The devices layer identifies the physical hardware that provides access to information and services, e.g. laptops, modems and servers. The software tool layer categorises the applications that people use to operate the devices and establish connections to the services, e.g. browsers. The content service layer classifies the actual information and services that people find useful, e.g. local news, email and discussion groups. The service/access provision layer details how communities of users access information and services, e.g. via educational institutions or LVOs. The literacy/social layer acknowledges the skills required by the people of the community to effectively use and manage ICT, e.g. training courses.

Finally, the Governance layer legislates how the applications are operated, administered and maintained. Clement and Shade comment that a democratic process needs to be fostered among stakeholders that facilitates them to participate in application design and development and management process. It is not clear in the model where the inclusion of members needs is initiated or subsequently managed.

Clement and Shade's model is useful as a high level tool for CI development, in that it does identify important stages of technical development, such as, provision of services, access to facilities, technical literacy and maintenance. Nevertheless, the model has several limitations. Firstly, although the layers of the model can be distinguished from each other, some especially those at the higher levels have no definitive boundaries between them, which may prove troublesome for its use. Secondly, as each layer is intrinsically related to one another and no single layer is sufficient on its own, this places an onus on users to complete all layers before the application is usable, which implies an 'all or nothing' approach to development. Thirdly, the architecture needs further elaboration in areas like stakeholder inclusion and requirements elicitation, as it has a relatively narrow focus in these areas. Fourthly, the architecture adopts a technocentric focus to CI development, which may prove problematic in terms of identifying needs, gaining local support, promoting end user participation and providing usability and usefulness.

#### 2.8.2 Liaise Framework

Johanson et al (2007) claim that the Liaise Framework synthesizes the important elements of ICT development for LVOs and helps their members overcome their personal barriers for the use of technology. Figure 2.2 illustrates the Liaise Framework.



The Liaise Framework is based on the interaction of a number of elements that can be broken down into three stages of development. Firstly, the model is based on developing members' ICT capacities through technology literacy provision and supports. Delivery of literacy programmes facilitates LVO members to appreciate, access and use ICT based applications. Members subsequently interact with one another to further support their technological development, on an as needed basis. Secondly, the Framework examines how members access information and services, which will only be available if a suitable infrastructure such as broadband has been developed and appropriate resources such as web servers deployed. At this stage members need to be able to find information, access services, communicate and deliver content via ICT. Thirdly, the final stage evaluates the ICT implementation to ascertain its usefulness and identify improvements. This stage is a collaborative exercise between all stakeholders.

The Liaise Framework provides some interesting findings which are relevant to this research. Firstly, in regards to members' ICT literacy, Johanson et al comment that identifying members with sound and useful technical skills or a good external IT partner is a problem in most LVOs. Also, the absence of project management skills among LVO members further complicates ICT developments. Secondly, the authors point out that the use of Content Management Systems (CMS) needs to be encouraged, as it improves usage of web-enabled systems among members. They note that an adequate technical infrastructure is imperative for successful ICT implementations; although this is a truism, it is still a valid supposition. Thirdly, the provision of adequate services like broadband is paramount to CI initiatives. They note that areas with poor broadband bandwidth have reduced levels of ICT developments and find it more difficult to sustain their initiatives. Also, Johanson et al point out that availability of quality technical support affects development and adoption of applications in LVOs, especially in rural areas.

Johanson et al claim that the Liaise Framework helps LVOs interact and collaborate together. They argue that shared collaborative activities between LVOs although often initially difficult to initiate, provide mutual efficiencies in the long term. According to the authors, one of their primary findings is that most LVOs have an erroneous perception that ICT is a cost to the organisation that provides little or no return on investment. This misinformation creates tensions between those ICT focused members and those happy with the status quo. Johanson et al caution that achieving a balance between both sets of members is critical for the adoption and use of ICT by the LVO and the success of their technical initiatives.

Johanson et al point out that evaluation needs to be carried out at two different levels by LVOs. Firstly, evaluation needs to be conducted to measure the success of the website or application. Secondly, evaluation should assess the ability of the LVO to manage and sustain technical developments. The authors comments that almost all LVOs collect information on usage of applications and services, which is surprising owing to their relative newness to technology. They note that although user feedback is sought in many cases, it should play a greater role in the strategic technical path of LVOs, as the provision of appropriate services and applications reflects positively on it in many ways. Finally, Johanson et al argue that

the evaluation of ICT applications is an important stage in the Liaise Framework, as information gathered guides the evolution of the application and its associated services. The evaluation phase provides end users with a medium for feedback which makes them feel as though their opinions matter, which ultimately improves their adoption and use of the application.

Although the Liaise Framework is a useful model for LVOs to use to develop ICT applications, it does have some limitations. Firstly, the model is at a relatively high level of granularity, which results in a lack of detail in certain areas such as, ICT planning and selection of appropriate forms of ICT. Although the high level approach to ICT development advocated by the model is a benefit to LVOs who are technically competent, for those less technologically aware it may restrict their adoption and use of ICT.

Secondly, the model does not explicitly address the issue of culture and background of LVOs, which further reduces its contribution to this research, although the inclusion of user feedback does go some way to reduce the impact of this omission. The culture and background of LVOs influences how ICT will be accepted by members; understanding and appreciating this assumption is one of the first tasks for successful ICT deployment.

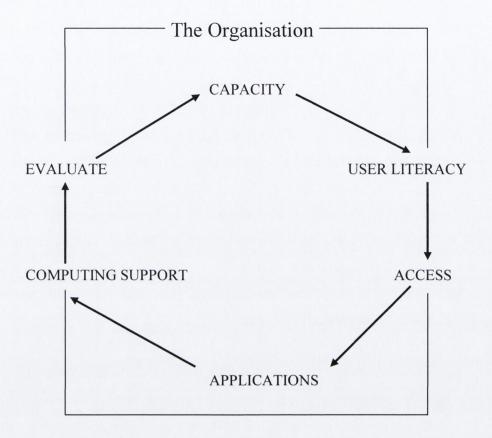
Thirdly, the Framework only involves end users at a relatively late stage in the development process, during capacity building and evaluation. The late inclusion of end user needs may prove problematic as earlier user involvement through a participatory design approach results in the creation of better applications that are more likely to be adopted by LVOs (Kretzmann and Mc Knight, 1993; Carroll and Rosson, 1996; Loader and Keeble, 2000). Nevertheless, the Liaise Framework has outlined areas that are pertinent to this research, such as planning, literacy provision, user inclusion and capacity building that will be adopted in the model later in chapter four.

#### 2.8.3 ALLIANCE Model

Denison (2008) developed the ALLIANCE model, which is closely based on Johanson et al's (2007) LIAISE Framework. The ALLIANCE model is designed to show that the successful implementation of ICT applications by LVOs is dependent on a number of factors. Firstly, LVOs need to have a willingness to use ICT effectively. Secondly, that willingness needs to be matched by their members having an adequate technical ability, as they will be the users of the applications and services. Thirdly, Denison argues that irrespective of the LVOs capacity or the technical literacy of members, it is imperative that a suitable ICT infrastructure is in place such as a good broadband telecommunications network to support the roll out of services.

Denison contends that the ALLIANCE model shows how LVOs must be able to access resources such as technical skills and funding to help them develop ICT applications. He argues that it is at this point of development that internal organisational networks between members and links with external stakeholders become extremely important to LVOs; especially as computing support often is externally sourced. Finally, Denison states that LVOs must be able to undertake an evaluation of their developments, to determine its impact on the organisation and the wider community. Denison argues that ALLIANCE illustrates that the implementation of ICT in LVOs is an ongoing process, which builds on previous experiences and grows in sophistication with each iteration. He comments that the evaluation of early attempts at creating technical applications generally leads to an improved knowledgebase for both the LVO and its members, which is reflective of the iterative process required for successful ICT development, as figure 2.3 illustrates.

# **NETWORKS**



# **INFRASTRUCTURE**

Figure 2.3 The ALLIANCE model adapted from Denison (2008)

The ALLIANCE model identifies the factors that influence LVOs to adopt and use web-based technologies. These factors include: accessing technical resources to facilitate the development of ICT applications; developing ICT capacity in the organisation; improving technical literacy among its members, providing access to various forms of technical support, predominantly external and evaluating developments with all stakeholders.

Denison argues that the ALLIANCE model was primarily developed to address the two key barriers to ICT adoption faced by community organisations in regional areas of Australia and Italy. Firstly, access to external knowledge, skills and resources. Secondly, access to a suitable ICT infrastructure. This narrow focus limits the contribution of the ALLIANCE model quite considerably to this research.

Another problem with the ALLIANCE model is that its primary focus is on assisting policy-makers and others at high levels of government to establish a vision for the delivery of web services to community organisations. It is a government oriented model rather than a LVO one, especially when some of Denison's key contributions are examined, such as the need to: focus on ensuring access to adequate ICT infrastructure, develop methods for building internal capacity and provide access to external knowledge, skills and resources. These findings may be directly addressed by national or local government agencies by providing ICT training programmes and better broadband connection speeds.

At a more micro level of examination, other drawbacks can be found in the ALLIANCE model. Firstly, the iterations between stages is linear implying that each will be always be visited in turn, when in reality this is not usually the case, for example after evaluation, changes may be made to applications. Secondly, ALLIANCE tends to have a narrow view of ICT development for LVOs, noticeably omitting areas like planning and design with no obvious way to address the culture of the organisation or its members. Thirdly, the focus of ALLIANCE seems to be primarily to support LVOs access ICT services, which although a valid area of concern is not the primary problem in Ireland, as the real issue seems to be the development of services for this technically deficient sector of society (O' Donnell, 2000; Gilligan, 2005). However, ALLIANCE will be useful for this research and will inform the creation of a model, most notably in two areas: development of members' technical literacy and evaluation of ICT developments.

# 2.9 Contributions of the Access Rainbow architecture, Liaise Framework and ALLIANCE model to the research.

Regardless of their limitations, the Access Rainbow, Liaise Framework and ALLIANCE models have each contributed to this research in a number of different ways.

Firstly, the Access Rainbow architecture illustrates the steps involved in ICT development and demonstrates the importance of a bridge between the technical and social considerations in relation to the creation of ICT solutions. In other words, the need for a model to have multiple lenses that allow LVOs view technical solutions in different ways. Also, the Access Rainbow architecture indicates the importance of planning a technical solution, which is a welcome contribution.

Secondly, the Liaise Framework contributes to this research by focusing on the needs of LVO members. Specifically, the framework addresses the need for members' technical literacy to be improved to facilitate them to access and use ICT based solutions. It is noteworthy that the Liaise Framework attempts to separate the needs of the LVO's management from those of its members, albeit in a rather unconvincing manner. Nevertheless, the inclusive and iterative approach adopted by the Liaise Framework make it a useful model and offers concepts and activities that will prove valuable later.

Thirdly, the ALLIANCE model offers a different strategy to consider for the use of ICT, which also contributes to the development of an understanding of how to develop a model to support LVOs use technology effectively. The ALLIANCE model illustrates the iterative nature of technical development and promotes a number of important activities: development of internal capacity through education and training, creating internal and external technical support structures and evaluation, all of which will be useful for this research.

#### 2.10 Conclusion

This chapter established new definitions for a community, LVO and CI. It is important that these new definitions are suitable and useful, as they set the context and in the case of a LVO the scope of the research. This chapter also investigated the potential of a conceptual model as a prerequisite for the development of an IS, outlining its components and explaining the role it plays in system planning, design and implementation.

The chapter concluded with an evaluation of how a CI model supported the adoption and diffusion of ICT into communities and their LVOs. Specifically, the usefulness of three models was investigated: Access Rainbow, Liaise Framework and ALLIANCE model. Each model was critiqued and their relevant components and structures noted to aid the development of the proposed model for this research. These models provided a foundation of what a CI model potentially looked like, but further investigation is required to identify other potential concepts and activities for consideration, which will be done in the next chapter.

# CHAPTER THREE LITERATURE REVIEW: CI CONCEPTS

#### Overview

This chapter introduces the concepts and activities to be considered for inclusion in the CI model. It begins with a description of community assets, one of which is LVOs. It then examines the use of ICT by LVOs in various contexts, such as communication, social capital provision, cultural retention and the development of economic opportunities. Subsequently, the importance of an inclusive approach to CI initiatives is emphasised, before the use of socio-cultural constructionism is investigated as a means to educate and upskill LVO members in an appropriate local setting. The emergence of virtual communities is examined and their potential to extend LVOs documented, before the application of the Technology Adoption Model (TAM) and Diffusion of Innovation (DOI) is explored. Following this, the evaluation of CI initiatives is considered. Finally a conceptual framework is developed to illustrate the connection between the concepts and the activities.

#### 3.1 Introduction

The aim of this chapter is to identify the concepts and activities that other scholars have deemed to be important for CI initiatives. These concepts and activities primarily focus on areas in LVOs where ICT can make a sustainable contribution to the organisation in terms of supporting its operation, providing benefits to not only its management but also to its members, helping to solve problems and addressing concerns. Some of these concepts and activities like improving ICT literacy, developing support structures and providing access to services have already been identified in the models critiqued in chapter two. However, other important concepts and activities like participatory design, social capital development, cultural retention, creation of economic opportunities, application of Technology Adoption Model (TAM) and Diffusion of Innovation (DOI) and evaluation have not been investigated yet. The potential contribution of these concepts and activities needs to be considered to ensure the developed model follows best CI practice. However, before the contribution of these concepts and activities can be investigated, the use of ICT by communities and LVOs needs to be explored to set a context for the research.

### 3.2 CI concepts and activities

Communities have many assets, some of which are natural such as mountains and rivers; others need to be developed and nurtured, like LVOs. As outlined in chapter one, Irish LVOs have many problems, such as falling membership, poor management structures and a resistance to ICT. These factors diminish their contribution to society and in some cases, threaten their existence. Research defined in chapter one indicates that LVOs who successfully adopt and use ICT operate more efficiently and is better equipped to meet their members' needs. However, before LVOs begin their technical journey, they need the views and expectations of their members to be gathered in a participative manner. This inclusive approach provides LVOs with a number of opportunities to use ICT creatively to support their operation.

After gaining members support for initiatives and providing them with an understanding of the potential that ICT offers, LVOs can focus on addressing their concerns and solving their problems. LVOs can use ICT to improve communication between members and to develop social capital between them, which strengthens bonds and creates a more inclusive group. LVOs can also apply ICT to retain their cultural capital to ensure that local traditions and heritages are maintained and subsequently used to ensure that organisations of the future do not forget their valuable past. LVOs can exploit ICT to help develop badly needed funding initiatives.

LVOs need to look at opportunities to educate and upskill their membership. Socio-cultural constructionism facilitates LVOs to train and educate their members in a suitable environment. Specific forms of ICT such as virtual community technologies and social networking software, enables LVOs to extend their membership to include their diaspora, attract new members and help improve communication and interaction among members. The adoption and use of ICT services by LVOs is examined through the Technology Adoption Model (TAM) and Diffusion of Innovation (DOI). Finally, the evaluation of technical applications completes the development cycle, where the inclusion of members' views is continually used to improve LVO applications. An initial view of these concepts and activities is available in Table 3.1.

resea chron ident	e sorted by CI rcher nologically and ification of concepts activities	Community	Technology	Assets	End User Involvement	Economics	Social Capital	Culture	Socio-cultural Constructionism	Community Organisations	Virtual Communities	Technology adoption	Evaluation
1	Researcher	01	I	<b>∢</b> I	国山	园	SIOI	01	SIOI		>101	H &	国
1.	Kretzmann & Mc Knight (1993, 2007)	<b>√</b>	<b>√</b>	1	<b>✓</b>								
2.	Carroll & Rosson (1996,2007)	1	<b>√</b>		1	<b>✓</b>	<b>√</b>						
3.	Loader & Keeble (2000, 2004)	<b>✓</b>	✓		1	<b>√</b>	✓	<b>✓</b>		✓			
4.	Gurstein (1999, 2000, 2007, 2009)	1	1		1	<b>✓</b>	<b>√</b>	1		1	<b>✓</b>		
5.	O'Donnell (1999, 2001)	<b>√</b>	1							<b>√</b>		<b>√</b>	
6.	Mc Iver (2002)	1	1		1	<b>√</b>	✓				1		
7.	O'Neil (2002)	1	1			<b>√</b>	<b>√</b>			<b>√</b>			1
8.	Pinkett (2003)	✓	✓	1	<b>√</b>	✓	✓	<b>√</b>					
9.	Gilligan (2005)	✓	✓					<b>✓</b>				1	
10.	Erwin & Taylor (2004)	✓	✓	1	1					1		1	
11.	Stoecker (2005, 2009)	✓	✓		1		1	✓					
12.	Williamson (2005)	✓	✓				1			1	1	1	
13.	Denison et al (2006, 2007)	1	1				1			1		1	1

Table 3.1: Early view CI concepts and activities

### 3.3. Community Assets

Kretzmann and Mc Knight (1993) describe how American communities have attempted to revitalise themselves through the mobilisation of their assets, some with more success than others. Kretzmann and Mc Knight claim that community 'assets' are the skills, knowledge or services possessed by people that empower and enable communities. Several researchers advocate the use of assets to provide communities with new directions for revitalisation (Kretzmann and Mc Knight, 1993; Green and Haines, 2012).

Kretzmann and Mc Knight identify two alternative approaches for community improvement and empowerment. The first is a 'top down' approach, which focuses on how government organisations and agencies support the needs, identify the deficiencies and solve the problems of local communities. An example of a top down support agency is 'The Wheel', who provide support to community and voluntary groups on areas such as funding, training opportunities, use of ICT, advocacy and management. Top down groups like the Wheel develops programmes and supports for communities, who in turn are expected to translate into local activities to provide a solution to their problems.

Kretzmann and Mc Knight suggest that this top down approach to community problems is short sighted and problematic, as these communities begin to see themselves as people with special needs that can only be met by external intervention; they become consumers of top down services, with no incentive to be producers. Consequently, Kretzmann and Mc Knight argue that there is inevitability about this top down dependency for services that leads to the development of an isolated survivor motivated culture within the community that reduces the social and cultural glue that binds communities together.

The second approach is 'bottom up', where the community seizes control of its own development through locally led initiatives. This approach begins with a clear commitment by the community to discover and mobilise their assets. Kretzmann and Mc Knight caution that although a bottom up approach for community development may still require some external national support, especially in the early stages, it is the most appropriate. Bottom up community development leads to the creation of policies and activities that are based on the capacities, skills, assets and needs of individuals, local organisations and their community that are inclusive in operation and therefore more sustainable than top-down led initiatives. In relation to ICT, the bottom up approach looks at opportunities for communities or LVOs where technology can provide benefits, efficiencies, address concerns and solve problems.

It is clear that the bottom up approach for community development is the most appropriate; it is more sustainable than a top down approach because it is based on the idea that each community boasts a unique combination of assets, from which its future can be developed. The identification and mobilisation of these assets, especially for those who are disadvantaged, marginalised, economically impoverished or bear the burden of a disability ensures the inclusiveness and sustainability of this approach for community building initiatives. For example, if an LVO has an IT expert as a member, they would facilitate them to mobilise this asset/skill to develop new applications and services and to perhaps train other interested members. To support bottom up community development, Kretzmann and Mc Knight (1993) developed the Asset Based Community Development (ABCD) model to encourage communities to identify, mobilise and use their assets.

ABCD is based upon three simple interrelated principles. The first principle is 'asset based', that is, community development begins with the identification of the individual and organisational strengths of the community. The second principle is that the community development process should be 'internally focused', that is, the strategy concentrates on the mobilisation of local strengths to address concerns and solve problems. The third principal is that initiatives should be 'relationship driven', that is,

the process should focus on the development of relationships within and between communities. Morse (2004) is an advocate for the mobilisation of assets for community building. He offers the use of traditional craft development in North Carolina to stimulate the community economically as an example of how communities successfully identify and mobilise local assets for community development. Morse argues that the use of local assets creates a foundation for community development that is durable and sustainable. Kretzmann and Mc Knight comment that one of the primary challenges of community development is constructing, deconstructing and reconstructing relationships between and among individuals, LVOs and their communities. Establishing these relationships and networks helps combine the strengths and capacities of all stakeholders and provides a more holistic, inclusive and sustainable community solution.

Morse argues that 'communities have half full – half empty' complexes, which affect their view of themselves and the world (p. 15). He notes that communities need to identify, understand and use the rich assets they possess, whether it is human, physical or organisational. Although Morse's argument holds true, the mobilisation of assets is not a magic panacea for community problems; other factors like stakeholder inclusion, development of a plan and sometimes external support are equally important to provide solutions. Anderson (2000) comments that communities must realise their value to society and need to believe in themselves; otherwise, nobody would believe in them either. Anderson's comment exemplifies the predicament that most communities find themselves in: if they do not help themselves, how could they expect others to help them. The first step in community self help is to identify and mobilise their own strengths. Help begins in the community. In many ways, however, focusing exclusively on community strengths as proposed by Anderson, is problematic and misguided. Often until a community identifies and addresses weaknesses and threats and explores opportunities, very little progress can be made with asset mobilisation.

Kretzmann and Mc Knight (1993) and O'Donnell (2000) suggest that LVOs are an asset and an integral aspect of community life. Kretzmann and Mc Knight comment it is essential to understand the potential offered by LVOs, so that the gifts and skills of their members can be utilised by communities. Undoubtedly, the role of LVOs is vastly underestimated within communities and they are indispensable tools for community development. Indeed, many LVOs can be stretched beyond their original purposes and subsequently play a vital role in community development. For example, local ICA guilds often provide parties for the local aged and refreshments after funerals, none of which were part of their original remit. It is clear that LVOs constitute the most visible form of a community's social fabric and their inclusion into the community development process is critical to its success.

# 3.4 Local Voluntary Organisations (LVOs)

According to Jacoby Brown (2006), LVOs exist in all shapes, sizes and varieties. Each LVO comprises the complexities, hopes, expectations and visions of its members and strives to develop a sense of community and common purpose between stakeholders. Brown comments that affiliating with a LVO enables people to do things that they could not do by themselves. In a world of real problems, LVOs are useful at delivering solutions satisfactorily; they transform conditions that affect people's lives, thus providing power for the people. Brown points out that LVOs comprise people who share a common interest or goal: they realise that on their own, they achieve little, but as part of a group, they can fulfil their needs and form valuable friendships that are mutually beneficial. Furthermore, Brown adds that LVOs consist of people who are there for each other in times of need, which is especially relevant to communities under stress, unfortunately a common occurrence in modern society. These organisations provide a sense of camaraderie and solidarity between members, which imparts the feeling that one is part of something greater than oneself, but yet even when one is part of it, one still feels oneself.

Kamat (2003) argues that 'bottom up' LVOs is more effective at addressing local concerns than government agencies or larger charitable organizations, especially in developing countries. Kamat supports his argument with examples of community organisations in Mexico and India that contribute to the development and evolution of their communities. Additionally, Kamat comments that these LVOs place an emphasis on skills provision and training for the economic development of their community. In each case, these organisations have moved away from empowerment programmes that involved political organisation of the poor and education about discrimination or unequal distribution of resources. Instead, these organisations have adopted a skills training approach that militates against poverty and inequality and provides social and economic opportunities based on the capacities of their members and needs of the community. To sum up, it is clear that LVOs should focus on what they can change rather than what they want to change; unrealistic aims are futile. LVOs need to establish their role in the community and how they can contribute to society in a meaningful and sustainable manner.

O'Donnell and Trench (1999) argue that LVOs have become an integral part of modern Irish life. They claim that LVOs improve communication and collaboration between people, contribute to employment creation, provide external services and encourage socially excluded groups to play a more active role in their communities. LVOs make a significant contribution to the information society (O'Donnell, 2000; Wheel, 2003 and EU, 2007). However, geocommunities, that is, communities defined by physical boundaries and their LVOs have identified a number of concerns that potentially affect their future development (O'Donnell, 2000; Gilligan, 2005 and Denison, 2007). One of the primary concerns of LVOs is the paucity of ICT use among their membership, as outlined in chapter one.

#### 3.5. Role of ICT in LVOs and Communities

O' Donnell (2001) argues that ICT has a pivotal role to play in the development of LVOs. O'Donnell supports her argument with evidence from the Voluntary Social Inclusion in the Information Society (VSIIS) project. VSIIS conducted a series of interviews and focus groups with knowledgeable informants throughout Europe and established policies for the development and evolution of LVOs through the effective use of ICT. The findings from the VSIIS project was used for the development of the EU e-Inclusion report in 2007. The report suggests that LVOs that do not value and use ICT effectively will lag behind their more technically proficient counterparts, in terms of operational efficiency, service provision, relevance to members and usefulness to society.

Leadbeater (2008) points out in contrast that the use of ICT by community groups is not mandatory for their success. Leadbeater argues vehemently that the fomentation of creativity and innovation is necessary for the development of these communities, not a misguided dependency on ICT. Leadbeater comments that the role of ICT in some community development processes is questionable. He argues that the establishment and development of certain communities is exclusively dependent on it embracing technology. Leadbeater supports his argument with an example of the mountain bike industry, which had grown into a fifty eight billion dollar business by 2010. Mountain bikes were developed to meet the specialised needs of certain cycling enthusiasts. Leadbeater comments that technology had little or no involvement in the creation of this industry. He points out that as interactions between members of these communities are usually collaborative and interactive by nature; the role of ICT only becomes important as the community's needs evolve and this function is still questionable.

However, Leadbeater's views are partial and misleading, as it could be argued that although ICT may have played a small role in the development of mountain cycles, ICT still has a vital role to play in the operation of cycling clubs, supporting members to communicate, find routes and track progression. Also, there is no doubt that some form of ICT is used for the design and creation of mountain bikes, all of which reduces the potency of Leadbeater's opposition to ICT.

Alternatively, there are examples where ICT has a direct impact on the development of communities or LVOs. O'Donnell (2000) investigated the adoption of ICT by Community and Voluntary (C&V)<sup>10</sup> organisations in Ireland; she examined the evolution of technologies in this sector through the decades and identified a phenomenon called '*informatisation*'<sup>11</sup>, a logical continuity of recent developments in the information society, as a direct result of improvements and innovations in ICT. Kluver (2008) defines informatisation as the process by which ICT transforms economic and social relations in a community to such an extent that cultural and economic barriers are minimized and in some cases eliminated. Kluver believes that informatisation is a process whereby ICT shapes cultural and social discourse.

Indeed, Flor (2008) expresses stronger views on informatisation, when he claims that it is a process of change that features ICT to such an extent that technology becomes the dominant force enabling economic, political, social and cultural development in communities. Flor's views on informatisation are perhaps a little strong and his exclusive focus on ICT as a catalyst of change misguided. Nevertheless, the central role that ICT has in positively changing communities should not be underplayed, as it has an important, but not absolute role to play in the development and sustainability of communities.

<sup>&</sup>lt;sup>10</sup> Community and Voluntary (C&V) organisations will be denoted as Local Voluntary Organisations (LVOs)

<sup>&</sup>lt;sup>11</sup> Research findings by Giddens (1984); Schiller (1981, 1996) and Habermas (1989) are used to add empirical rigor to this phrase in research literature.

O'Donnell found that ICT had an important role to play in C&V organisations, especially in their management and development; but many technical problems were inhibiting the use of technology in that sector. In an attempt to understand the paucity of ICT use in the C&V sector, she surveyed three hundred Irish voluntary organisations, which were based in six areas of population, namely: community development, environment and international development, health, women, youth and religious congregations. O'Donnell again found that the use of ICT by C&V groups was sparse, erratic and flawed. She suggested that the dearth of technical developments was primarily attributable to members' poor understanding of ICT capabilities and lack of a technical vision in the organisations where they were unclear; and in some cases they had no idea about how to use technology to provide solutions to their problems.

In a subsequent study, O'Donnell (2001) focused on inner city groups in Dublin. The objective of this study was to ascertain how these groups used technology, specifically to evaluate the enablers and barriers to their use of ICT. The findings from this study were similar to her previous findings for ICT usage. However, in regard to the barriers and enablers in the use of technology, she found that women's groups were not making informed choices in ICT adoption and usage, owing to their lack of internal technical expertise. Also, the existence of organisational barriers such as members' technical prejudices, local culture and traditions were hindering their use of ICT. O'Donnell's findings are consistent with other similar studies (Denison and Johanson, 2007). However, O'Donnell's contribution to the research is limited, as she was unable to establish a reason for the discrepancy between the use of ICT between male and female organisations. Perhaps the disparity of ICT use between LVOs can be explained by one groups' willingness to experiment or having an ICT literate member.

O'Donnell states that the integration of C&V organisations into the information society is predominately dependent on support from external agencies, especially in relation to their adoption of ICT. Often, owing to a deficiency in internal skills, communities require access to external services in areas, such as project planning and management, funding, development, marketing and technical support. Although

O'Donnell's statement is largely true and widely accepted, as discussed in the previous section it is problematic and promotes a culture of dependency, which is not sustainable. It is important to note that some LVOs are technically self sufficient, developing useful systems and in some cases pioneering the use of new technologies to further their organisations (Denison, 2008). O'Donnell indicates that external support facilitates the social integration of voluntary organisations into the community, albeit at a cost. However, O'Donnell argues that before ICT can make a sustainable contribution to the community sector, there are a number of LVO concerns that need to be addressed.

Firstly, representatives from national voluntary organisations need to be on influential boards and agencies at government and EU level to ensure better representation of LVO and community needs, a notion alluded to by 'The Wheel' (2003). National and European policies need to address the concerns of marginalized and disadvantaged community groups and guarantee their inclusion in community initiatives to be promulgated by the EU and governments. Secondly, funding opportunities need to be established for voluntary organisations to facilitate their adoption of new technologies, especially those that face specific barriers to progress, such as low-income groups, women's organisations and those geographically disadvantaged. Thirdly, voluntary organisations need education, training and technical support for hardware and software to ensure their continued access to and use of appropriate forms of ICT. Lastly, but certainly not least, voluntary organisations need a technical plan that will enable them to evaluate and use IT effectively and efficiently.

Salamon and Geller (2005) conducted research on the impact of ICT on 'non profit' organisations in the United States; they limited their research to five categories <sup>12</sup> of non profit organisations, one of which was the community development sector. Salamon and Geller comment that community organisations need significant investment capital to support their needs, one of which is the provision of ICT services. Salamon and Geller conclude that ICT provision and training are essential requirements for non profit organisations and this often results in a mismatch between capital availability and

<sup>&</sup>lt;sup>12</sup> Other categories investigated were children and family services, elderly services, museums and theatres.

members' needs. Finally, Salamon and Geller caution that the lack of appropriate funds in this increasingly competitive environment leads to the generation of serious problems for non profit organisations, such as provision of services and information, retention of their vibrancy and relevance to members and society.

Laforest and Philips (2003) conducted work for Canada's Innovation Strategy. They point out that the voluntary sector contributes to the Canadian economy and the lifestyle of its inhabitants by its positive impact on communities. The study found that voluntary organisations provide innovative service delivery mechanisms, help build social capital and cohesion, develop networks and encourage participation of people in public policy development. However, it is clear that to achieve their potential, voluntary organisations face several challenges. Firstly, the development of human capital needs to be prioritised to empower members as individuals. Secondly, a capacity for creativity, which promotes innovations in voluntary organisations, needs to be encouraged. Thirdly, knowledge creation and transfer need to focus 'on 'and 'in' the voluntary sector. Laforest and Philips claim that research on the use of ICT by Canadian voluntary organisations lags behind their US and UK counterparts<sup>13</sup> and this is a trend that needs to change. In particular, attention is needed on how voluntary organisations govern themselves, a point alluded to in chapter two and provide a suitable inclusive and sustainable environment for their members.

Other similar pieces of research into the role of voluntary organisations in communities and their usage of ICT has been published by scholars such as Burt and Taylor (1999), Surnam (2001) and Schauder et al (2005), all of whom have recognised how the evolution of technologies provides a myriad of opportunities for communities to develop new services and improve their operations. However, one of the most notable contributions to the CI literature has been the research on 'structuration' carried out by Stillman (2007). At its most basic level, the theory of structuration holds that all human action is performed within the context of a pre-existing social structure, which is

<sup>&</sup>lt;sup>13</sup> This is a strange assertion, because notable CI academics such as Gurstein and O'Donnell are now conducting a plethora of research in Canada. However, it can be explained by the fact that in 2003 at the time of Laforest and Philips's work, neither Gurstein nor O'Donnell was resident in Canada.

governed by a set of established social norms and practices. Therefore, all human action is based on the varying contextual rules and social practices under which it occurred. However, the key caveat to 'structuration' is that the norms, structures and rules are not permanent, but sustained and evolved by human action. According to Stillman (2007), structuration theory is frequently associated with the work of Anthony Giddens (1984), though other researchers such as Orlikowski (2000) and Rose (1999) have also adapted it to study the application of ICT in communities. Additionally, Stillman claims that structuration theory may be used to understand how social structures divide or restrict individuals' use of ICT and how people define situations that overcome the challenges created by them.

Indeed, Orlikowski (2000) claims that technology is an intervention into the relationship between human agents and organizational structure, which potentially changes it. She asserts that technology is created and changed by human action, but it is also used by humans to accomplish action. She provides figure 3.1 to illustrate her understanding of structuration and its impact on organisations.

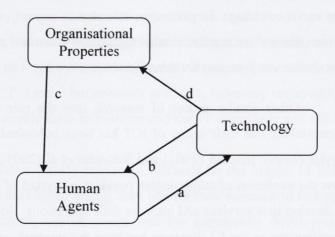


Figure 3.1 - Orlikowski's structuration model of technology

# 3.5.1 Explanation of structuration model

Arrow	Type of Influence	Nature of Influence
A	Technology as a product of	Technology is an outcome of such human
	human agency	action as design, development, appropriation
		and modification.
В	Technology as a medium of	Technology facilitates and constrains human
	human action	action through the provision of interpretive
		schemes, facilities and norms.
С	Organisational conditions of	Institutional properties influence humans in
	interaction with technology	their interaction with technology, for example
		intentions, professional norms, state of the art
		in materials and knowledge, design standards
		and available resources.
D	Institutional consequences	Interaction with technology influences the
	of interaction with	institutional properties of an organisation
	technology	through reinforcing or transforming structures
		of signification, domination and legitimation.

Table 3.2 Structuration model explanation

However, the application of structuration theory to date has been largely theoretical, with a few exceptions (Stillman and French, 2007). Although the theory itself implies that it will eventually feed back into practice, more often than not this is not the case. The simple reason for the lack of practical use of structuration may be that its complexity makes it too abstract to be of use in a functional sense, especially in communities which exhibit diverse backgrounds and needs. Nevertheless, some scholars such as Stillman and Stoecker (2005) have successfully adopted structuration theory to investigate the use of ICT by communities.

They carried out their work through a community based research project in Melbourne, Australia. This is a region of high social and economic need and is defined by the Australian government as a 'major growth corridor'. The research acquired its findings through a series of interviews and focus groups; it identified a decline in ICT investments by communities, which created service and information deficits. Stillman and Stoecker used structuration theory to identify six areas of concern for ICT usage and sustainability among that community: computer troubleshooting, quality technology support, resource directories, web page development, communication costs, and relationships with local councils. These areas are examples of how acknowledgement of existing social structures and the creation of supplemental activities improve interactions and the provision of services among residents, which subsequently facilitates positive changes in the community.

However, Stillman (2007) cautions that the application of structuration theory to community initiatives, particularly to voluntary organisations, is challenging. He argues that structuration theory has traditionally focused on the constructions of technology for business organisations and its use in community applications often proves difficult. This limitation places an onus on communities who wish to use ICT to acknowledge the diversity of their inhabitants, yet still develop an inclusive, holistic and comprehensive technical vision for the community. In addition, Denison (2007) points out the importance of identifying the barriers to ICT adoption by community organisations. These barriers directly impact on the success of technical solutions. Denison claims that negative attitudes to ICT, limited access to professional knowledge, lack of resources, poor understanding of technology needs, paucity of internal technology skills and knowledge, insufficient project management skills and lack of training and support opportunities, all contribute to ICT failures. It is clear that communities and organisations that acknowledge their social norms and practices, detect their technical barriers and identify appropriate success factors or enablers will experience many benefits from their use of ICT. However, an important aspect of any community initiative is inclusion. End users need a medium to voice their needs and provide feedback that makes them feel as though their opinions matter, which ultimately improves their adoption and usage of the technical applications.

# 3.6 Participatory Design in CI

Participatory design is an approach for application development that actively involves stakeholders in the design process, which ensures that the end product is usable and meets their needs. Carroll and Rosson (2007) suggest that communities have a voice and participatory design allows it to be heard. Participatory design was pioneered in the 1960s by the computer scientist Kristin Nygaard, who advocates user involvement at all stages of technical developments. This interaction improves the development of user centred applications and hence improves the adoption and usage rates of technology. However, Gurstein (2008) cautions that participatory design places a responsibility on stakeholders to be aware of each other's diverse needs and to recognise the heterogeneity of people and their organisations; this ultimately introduces more complexity to the design and development process. Nevertheless, many scholars advocate the use of participatory design into CI initiatives (Kretzmann and Mc Knight, 1993; Carroll and Rosson, 1996; Loader and Keeble, 2000; Gurstein, 2000; Mc Iver, 2002; Pinkett, 2003; Erwin and Taylor, 2004; Stoecker, 2005; Stillman and French, 2007).

As far as Schuler and Namioka (1993) are concerned, participatory design is a social negotiation between all stakeholders that begins at project conception and continues through the design iterations, implementation, installation, operation and evolution of the system. Participatory design moves end users into the world of researchers and developers, as it provides new opportunities and challenges for all stakeholders and their organisations. Kensing and Bloomberg (1998) argue that participatory design is an accepted professional practice for the development of IS applications and technical infrastructures, which includes socio-technical systems.

Carroll & Rosson (1996, 2007) are among the primary proponents for the inclusion of participatory design in CI initiatives. They argue that participatory design is an inclusive approach to IS development that is based on two propositions. Firstly, the *moral* proposition, which proposes that people whose activities and experiences are affected most directly by the design outcome have a right to be involved in a substantive way in development of the application. Secondly, the *pragmatic* proposition, which proposes that people who use the application should be included in the design and development process, so that they offer their experiences and preferences, and in doing so, increase the likelihood of developing a useful, successful and sustainable application.

Carroll and Rosson point out that participatory design is an ideal complementary approach for the development of community applications. This inclusive design approach allows end users to address their diverse and wide ranging set of needs at all stages of the system lifecycle. Landauer (1995) proposes that a user-centred approach is essential for the development of community systems. Landauer's proposition is based on the premise that failure to design well through stakeholder inclusion is the primary cause of problems in regards to the usefulness and usability of community applications. Landauer suggests that ICT failures in communities are predominantly due to a lack of focus on user requirements and concerns. Using participatory techniques helps communities avoid these failures, as it places an onus on CI developers to ensure that community initiatives work continually with end users throughout the systems lifecycle. This interaction facilitates the acquisition of an in-depth understanding of community needs and requirements and ultimately results in the development of more usable, inclusive and sustainable applications.

Carroll and Rosson (1996) investigated the use of participatory design in ICT deployment within communities through numerous case studies. Initially, their research began with the Blacksburg Electronic Village (BEV) project, which started in the early nineties as a partnership between Virginia Tech, Bell Atlantic Corporation and Blacksburg town. In this project, local voluntary organisations entered into one-year partnerships with researchers at the University of Pennsylvania. Carroll and Rosson's

research evaluated the ways LVOs analyse, plan and use ICT. Based on the results from this project, Carroll and Rosson provided LVOs with help and guidance to support their adoption and use of ICT. Since then, Carroll and Rosson (2007) started the Civic Nexus project, which is a CI<sup>14</sup> initiative between Centre County, Pennsylvania and Pennsylvania State University. This project involves different LVOs (e.g. historical society, youth services and conservation society) based in that community, where it assists them with ICT deployment to improve their operation and their contribution to society.

Figure 3.2 illustrates some of the high level findings from the Civic Nexus project. The arrows on either side (stages A and C) represent the complexities and resource requirements of a community initiative and identify how direct end user participation impacts on the development of the application. The box in the centre (Stage B) outlines the critical high level organisational concerns.

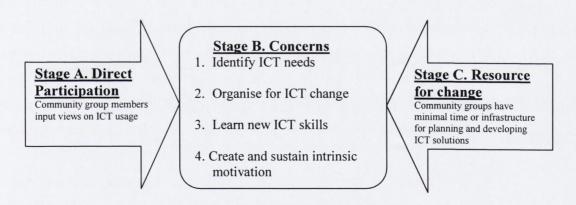


Figure 3.2 Participatory design activities from Civic Nexus project

(Source: https://cscllab.ist.psu.edu/projects/civic\_nexus)

<sup>&</sup>lt;sup>14</sup> At the time of the Civic Nexus Project, the term CI had been coined and used in research literature.

Carroll and Rosson argue that before communities can identify their needs, they require a higher level of understanding of the potential uses of ICT, which in turn helps them see the potential benefits of technology deployment. This understanding requires a reflective analysis of ICT, its capabilities and its practices, which creates a community-learning loop, similar to organisational loops as identified by Argyris and Schon (1978). This loop reflects how communities and organisations need a basic, yet evolving knowledge of ICT in order to know how to use it successfully. As systems are designed and implemented, communities and their LVOs learn more about ICT and see new possibilities. On the other hand, sometimes owing to a poor technological understanding, communities overestimate possibilities and exceed specifications, which negatively impacts on the application in terms of its delivery and ultimately its acceptance.

Carroll and Rosson suggest that when members understand and appreciate the capabilities of ICT, it reduces the potential negative impact of community and organisational loops on developments. Subsequently, further improvements are achievable by liaising with technology experts at local universities. Carroll and Rosson advocate that interaction, both internally and externally, helps communities and their LVOs initiate a change process that makes analysis and planning of ICT projects a strategic goal. This contact leads to the development of ICT supported opportunities for LVOs and provides new sources of sustainable and intrinsic motivation to its members.

Carroll and Rosson's research at Blacksburg village and Civic Nexus demonstrates how communities and their LVOs, who develop technically supported services, experience a positive change towards ICT among their membership, with many other tangible benefits. This attitude change towards technology is a result of members better understanding the potential uses and benefits of ICT and subsequently being less intimidated using it. Consequently, LVOs also recognise the importance of ICT within

their strategic plans in terms of sustainability and development<sup>15</sup>. According to Carroll and Rosson, CI is an important context for the use of participatory design in communities, because it facilitates the way people live. They argue that the inclusion of stakeholders' needs and expectations into CI initiatives provides an inclusive community application, which reflects and improves people's daily way of life.

Carroll and Rosson argue participatory design has become a key tool in the realisation of ambitious<sup>16</sup> community goals. They suggest that communities need a sustainable model for CI initiatives, where participatory design is a central part of the process. However, the integration of the participatory design concept into a CI model is contentious, as there is considerable disagreement among CI researchers about the timing and amount of input required from end users. Gurstein (2008) cautions that too much interaction with end users results in 'paralysis by analysis', ultimately stagnating the initiative.

On the other hand, research by Carroll and Rosson (1996, 2007) and Loader and Keeble (2000) suggest that a lack of interaction with end users results in inadequate and inappropriate community applications. Finding a balance of user interaction is crucial and often is dependent on each individual project. It could be argued that the level of user interaction depends on the size and importance of developments coupled with the technical literacy of stakeholders. Those members with an appreciation of ICT are valuable in guiding developments, yet those not as technically literate are perhaps even more important as their adoption of the application will often decide whether it is sustained or falls into a state of disuse.

<sup>&</sup>lt;sup>15</sup> The strategic plan is the set of activities that the community wishes to achieve over a number of years to improve the lives of its inhabitants; it often includes mission statement, SWOT analysis and community plan.

plan.

16 The term 'ambitious' denotes the requirement of communities to strive to develop value added community services, such as social and economic services, from their CI application.

Stillman and French (2007) adopt a participatory design approach for their 'Doing IT Better' initiative. This is a project based in Melbourne, Australia that examines the use of ICT by community organisations. Stillman and French advocate the use of a participatory approach for CI initiatives. They argue that socio-technical relationships are only uncovered through active engagement between people, where tacit knowledge is discovered and explicit information recorded. Stillman and French state that communities and LVOs that adopt a participatory approach for their technical initiatives benefit from the identification of potential 'valuable outcomes', which lead to more achievable, realistic and sustainable community applications. Although the adoption of a participatory approach to community development is supported by many practitioners, it is foolhardy to suggest that it is the only way to develop effective applications. It could be argued that a small cohort of members representing various aspects of a LVO can equally specify and design solutions for their organisation.

De Alvear and Thiollent (2011) state for ICT to contribute effectively to people's lives, it must be used in a democratic way. The use of ICT needs to be thought out, adapted or developed so as to foster collective dynamics in the community. Otherwise, the deployment of ICT will only establish other unequal power relations in the community. However, De Alvear and Thiollent claim if the integration of ICT into communities is done in a participatory manner between all stakeholders, it strengthens bonds and increases mutual trust and reciprocity between individuals and their LVOs, ultimately developing social capital between stakeholders.

## 3.7 Social Capital

According to Field (2003), the central premise of social capital theory is that relationships matter and social networks are a valuable community asset. Smith (2007) argues that social interaction enables people to be committed to each other. In turn, this commitment facilitates the development of a social fabric within the community. Smith comments that communities that have a 'good stock' of social capital are more likely to benefit from lower crime figures, better health, higher educational achievements and better economic growth. However, Mignone and Henley (2009) caution that the development of social capital through pre-existing community networks is a difficult task and is often dependent on the power relations that already exist between communities, LVOs and individuals.

Alternatively, Gaved (2011) points out that the development of social capital should be encouraged through traditional methods, before ICT initiatives are introduced to complement it. Gaved claims that a social network needs to be well established, before a complementary technological support initiative can be developed. Often there is a need to establish a new synergy of social capital as a pre-requisite for its development. It is clear that ICT can support the development of social capital in communities. The key concern, however, is the subtle differences between what constitutes social capital, as it seems to mean different things to various people.

Numerous scholars such as Bourdieu (1983), Coleman (1988) and Putnam (2000) define social capital, with different perspectives. Bourdieu (1983) defines social capital as the actual or potential resources held by people and the relationships of their mutual acquaintances. This definition of social capital is simplistic, as it views it exclusively as the mobilisation of personal assets and associations. Coleman (1988) argues that social capital is an aspect of a social structure and facilitates actions of individuals. Once again, Coleman's definition is a basic interpretation of social capital that premises it is based on personal activities and social norms.

Putnam (1995) however defines social capital as the collective value of all social networks and the inclination to do things for each other. Putnam's vision embraces social interaction and personal associations and in particular altruism; all of these are valuable social capital characteristics, thus making it the most appropriate definition. Putnam (2000) points out that social capital is an important concept for communities and can be measured by the amount of trust, altruism and reciprocity between individuals. Social capital is closely related to what Putnam identifies as 'civic virtue', which is the glue that holds individuals together and enables bridges to be built to others in the community. Social capital allows collective community problems to be resolved more easily, as it promotes co-operation and interaction. Consequently, social capital broadens people's perspectives to enable them to see the benefits of how collaboration with trusted individuals helps them achieve a collective goal.

However, as might be expected with a concept like social capital that is treated so broadly in IS literature, as to be an explanation for an array of changes and a solution for social problems, a number of weaknesses can be identified that have implications for this research. Firstly, it is hard to measure social capital, as it is predominantly based on human involvement, which can vary depending on circumstances. Secondly, the establishment of how changes in social capital impact on a community and vice versa raises concerns on the direction of causality making it difficult to determine the origin of improvement. Thirdly, social capital depends on a myriad of loose themes such as trust, participation, interaction and altruism, all of which it may be more appropriate to consider individually, rather than holistically. Nevertheless, social capital as a concept has been extensively researched in recent times and its impact on positive community development detailed and validated by numerous scholars such as Coleman (1988), Portes (1998) and Putnam (2000).

Putnam (2000) investigated the impact of social capital on American communities and found that social interaction has plummeted since the 1980's, which has resulted in a deterioration of American society. Putnam supports his argument with statistics, which illustrate a reduction in meetings attended by people, a diminution in family members dining together and decreased visitations between friends. Putnam claims that people sign fewer petitions, belong to a smaller number of organisations, meet friends less frequently and socialise less. Consequently, certain communities have become isolated from society and are socially impoverished with some people even disconnected from family, friends and neighbours.

Putnam gathers evidence from approximately five hundred thousand interviews carried out over a twenty-five year period and three other social research projects<sup>17</sup>. The scale of this study indicates the enormous task and time required to research the provision of social capital. Putnam proposes that the primary drivers for the reduction of social capital in communities are: changes in work practices, new family structures, more computer usage and the changing role of women in society. Putnam comments that communities need to socially reinvent themselves to maintain their contribution to society, as traditional ways of social interaction are no longer adequate to meet the needs of their members. This reinvention requires communities to find new and innovative ways that promote social interaction and activity. Moreover, communities need to evaluate what constitutes social capital, so that mechanisms that satisfy their local needs can be implemented.

Typical examples of social needs are visitations between people, formation of new groups of people with similar hobbies or interests and the creation of links between local organisations. These and other needs form the foundation on which the social capital of a community can be built. Putnam identifies mutual support, cooperation, trust and organisational effectiveness as characteristics of social capital and classifies it into the following forms. Firstly, *episodic*, *single stranded and anonymous*: typically, this is

<sup>&</sup>lt;sup>17</sup> Three primary data sets are used in the research, the first is the DDB lifestyle data, the second is the 14 state level measures of social capital study and the third is the Roper social and political trends archive. Further details can be accessed at http://www.bowlingalone.com/data.htm

the faintly familiar face met occasionally. Secondly, repeated, intensive, multi-stranded networks: typically, these informal networks comprise people who work together or perhaps meet in a pub on a Friday evening. Thirdly, formally organised networks: typically, these are local organisations that contain members who share a common purpose, interest or bond. These formal networks exist for an explicit community purpose or for their members' private needs.

Carroll and Rosson (2007) propose a community perspective for social capital provision that is primarily based on the activation and mobilisation of formal community groups, commonly known as LVOs. Carroll and Rosson examine numerous areas of community concern, one of which is the provision of social capital. Carroll and Rosson argue that the command of technology facilitates LVOs to more appropriately represent their social needs and shape what they can socially accomplish as a group. It is clear that appropriate ICT deployment facilitates the provision of democracy, development of social capital and provision of social regeneration opportunities for communities.

Haddon (2000) adopts a different perspective for social capital provision in communities. Haddon's project focuses on how ICT developments support specific groups of society, rather than the whole community. Although the primary focus of his project is on the use of basic ICT by single parents and the young elderly, which is a small subset of society, its findings provide a direction for social capital provision in communities. Haddon argues that his research demonstrates two key points in regard to social capital provision. Firstly, understanding people's lives creates the societal foundation, from which ICT may be used for the provision of social capital opportunities. Without this understanding, the use of technology is socially constrained. Secondly, before end users engage and use ICT, they need to see the benefits and the usefulness of it to support their daily lives. The primary focus of Haddon's research is the use of basic ICT and this is only a subset of the technological world. It is conceivable however, that Haddon's research could be extended to more complex technologies, such as virtual communities, which may also be used for the development of social capital opportunities.

Perkins and Long (2002) also conducted research on the application of ICT for the provision of social capital opportunities to groups that had traditionally been socially excluded. Bishop et al (2006) focus on low-income residents of Champaign, Urbana in America. They identify the social needs of residents and claim that high speed Internet access is vital to homeowners for social capital provision, which is a strange assertion, considering that email and more recent ICT developments like Twitter and Facebook require a relatively low speed Internet connection. Rommes (2002) argues that ICT facilitates the provision of social capital through the development of communication and collaboration opportunities among women groups in Amsterdam. Rommes points out women's groups fought against the stereotype of being technologically incompetent, because of their sex and through the development of ICT based services, subsequently improved the social quality of their lives. Collectively, these projects demonstrate the potential of ICT to create an inclusive environment and to solve social exclusion problems. Projects like these can reduce the social cleavage between those who can and those who cannot meet face to face instead rely on ICT to provide interaction and communication opportunities.

However, Mc Iver (2002) argues that the identification and prioritisation of social concerns have greater priority in community applications than they have in business organisations. Therefore, CI applications require the production of more creative social solutions that appeal to the wider community. Social capital development needs to be considered outside the orthodoxy of cost benefit analysis, traditionally found in business organisations. Laforest and Philips (2003) comment that social capital provision and cohesion is one of the primary contributions of voluntary organisations to Canadian society. They argue that a good measurement of social capital in communities and voluntary organisations is obtained through assessment of three variables: volunteering and participation, social trust and associational activity. These variables help communities measure their levels of social capital and cohesion and assists with societal development. To sum up, social capital development in communities is dependent on people interacting with others for mutual benefit, freely giving up their time to work and collaborate to carry out work on behalf of LVOs.

Erwin and Taylor (2004) propose a different perspective for the social appropriation of ICT and focus on its contribution for community development in South Africa. Erwin and Taylor claim there is now an understanding that ICT provision through government and private sector efforts exclusively are insufficient for addressing the societal concerns of communities. As discussed earlier in the chapter, top-down initiatives have largely failed to deliver positive results in the past (Clement and Shade, 2000; Gurstein, 2003). CI initiatives need to be community driven. Erwin and Taylor argue that a new social contract is required that binds and partners civil, private and public sectors in the delivery of social inclusion and cohesion in ways that strengthen social bonds in society. Erwin and Taylor point out CI initiatives facilitate the creation of a new social dynamic within communities, which is based on both internal and external relationships and networks. CI initiatives need to support community needs, where co-operation and trust are pivotal characteristics of a new social relationship between government agencies and their communities. Unfortunately, Erwin and Taylor's focus on top down support for the development of social capital is problematic, as social capital provision is more sustainable if it is locally nurtured through existing relationships and networks, rather than being 'forced' through unnatural and unsustainable links.

Schuler (2009) argues that a new type of social capital is evolving in communities. Schuler calls this form of capital 'civic intelligence'; it refers to the ability of humankind to use information and communication in order to engage in collective problem solving. Schuler claims that like the 'intelligence' of an individual, civic intelligence can be developed incrementally in communities through human effort. According to Schuler, by transcending the individual, civic intelligence adds another level to the idea of intelligence and is effectively a community level of intelligence, which is based on their collective skills and experiences. Schuler claims that civic intelligence, probably to a much higher degree than an individual's intelligence, can be improved and made more effective.

The challenge is how best to capture this new form of intelligence and mobilise it collectively for the betterment of the community. It could be argued that LVOs are the most appropriate community structure where this new form of civic intelligence is visible and reusable. Perhaps, LVOs have an organisational form of social capital that can be leveraged to boost its level in other less socially privileged groups and throughout the entire community. If this is the case, undoubtedly, ICT would have a pivotal role to play in the identification, mobilization and utilisation of various forms of cultural, economic and social capital.

# 3.8 Cultural Capital and Community Culture

Loader and Keeble (2000 and 2004) found that the inclusion of a community's culture and its unique local identity ideals were fundamental to the success of a CI initiative. However, culture is a multi faceted concept. Therefore, culture and its associated ideals need to be examined from a number of different perspectives to appreciate its contribution to CI projects.

Firstly, Bourdieu (1985) defines cultural capital as the knowledge, skills, experiences, education and/or connections that individuals experience during the course of their life, which enables them to succeed more so, than someone from a less experienced background (see section 6.6.3). Bourdieu's vision of cultural capital has an individual view of culture, one that is unique to a person. Although it is reasonable to consider the potential role of an individual's cultural capital in a CI application, it is arguably more appropriate to place the emphasis of cultural concern at a higher level, such as at the community level.

Secondly, Stoecker (2005) points out that how technical applications fit into the community's culture needs to be considered by CI practitioners. Communities need to understand their local needs, cultural expectations and unique characteristics, before they create useful and sustainable applications. Stoecker supports his argument with a

case study conducted in Cedarwood-Riverside, Minneapolis. The community opposed urban developers' redevelopment of their town. The people of Cedarwood-Riverside believed that this new development would decimate the local community, erode their traditions, culture and ideals, which had existed for centuries.

The community of Cedarwood-Riverside took responsibility for the maintenance of their own way of life. This responsibility was represented by a small gold shovel given to each member of the community. The shovel symbolised how a lot of people who made small efforts and worked together accomplished great things. The people of the community used ICT in the form of mobile phones, texts, websites and discussion boards to promote their cause. Stoecker argues that Cedarwood-Riverside demonstrates how a community that acknowledges and mobilises its assets with ICT can triumph against adversity. Additionally, he adds that Cedarwood-Riverside is an example of how CI can be a support field for cultural maintenance within communities. Stoecker believes that there is no longer CI projects; instead there are initiatives that acknowledge and incorporate local concerns, one of which is the retention of cultural heritage and local identity.

Bishop et al (2006) provides examples of successful CI cultural based applications, such as youth media workshops and a refugee assistance centre in Illinois and an after school program in Islington, USA. These examples support Bishop's premise that the inclusion of cultural concerns of the community and its inhabitants is imperative to the sustainability and success of community initiatives. Bishop's truism is a logical extension of Stoecker's (2005) argument that the provision of a holistic approach to community-based applications encourages the adoption and promotion of the application and ensures it incorporates local traditions and meets cultural expectations.

Gilligan (2005) comments 'rural identity' is complex and varied, as Irish communities are diverse in terms of social composition, economic structure, history and culture. Gilligan points out that this cultural uniqueness explains the reluctance of rural Ireland to embrace technology and illustrates the enormous task of changing this 'worrying trend'. Gilligan argues that cultural factors, such as demographics, lifestyle and economics, contribute to the lack of ICT adoption by rural communities and the creation of a digital divide in Ireland. Gilligan states that the acknowledgment of local culture, ideals and expectations facilitates communities to develop more appropriate, usable and sustainable applications that enable and empower people.

Typical cultural concerns for communities would be the retention of: local heritage and ideals, regional attitudes and customs, craft skills, art, music and historical moments. Often 'old' ways of doing things are best, but unfortunately sometimes get lost, through someone leaving the community or changing times. These valuable pieces of culture manifest themselves in a technology context, in websites with local content and services, mobile applications, discussion boards to promote collaboration, online interaction between individuals and e-learning applications for education and training.

Thirdly, the concept of cultural capital may be looked at through an organisational lens, where arguably it shares common characteristics to institutional theory. Scott (2004, Pg. 408) states 'institutional theory attends to the deeper and more resilient aspects of social structure'. Institutional theory considers the processes by which structures, including schemas, rules, norms, and routines become established as authoritative guidelines for social behaviour. Institutional theory establishes how elements are created, diffused, adopted, and adapted over space and time in organisations and how they subsequently fall into decline and disuse. In the context of this research, it can be argued that institutional theory is closely related to organisational culture and therefore similar principles apply to its application in community projects and how it is embraced by CI initiatives. It would be foolhardy to believe that the introduction of new structures, ways of operating and practices in the LVO through ICT would not be impacted by the social expectations and behaviour of its members.

Similarly, Gaved (2011) cautions that 'internal politics' is another cultural problem that affects the adoption and use of ICT by community groups. These internal games of brinkmanship are often based on cultural backgrounds, identities and thinking. He cautions that even small groups can have differences of opinion leading to members rejecting initiatives and that the management committee may also differ in their opinions on the use of technology, further confusing the project. However, this research conjectures that the impact of internal politics can be negated through the introduction of technology into the LVO by a trusted and respected member, who has support from the majority of the membership. Internal wrangling may still ensue in the LVO for a time, but its impact will be minimized.

Gurstein (2000) states that CI links cultural capital provision to sustainable economic opportunities at a community level. Gurstein cites the Cape Breton case study in Canada as an example of how the use of cultural capital and heritage provides economic opportunities through the provision of electronic commerce opportunities, community and civic networks, electronic democracy, on-line participation, self help programmes and virtual communities. Cape Breton is an example of how a community with a strong cultural background has fallen on hard times. Members of the community recognised their cultural assets in terms of local music, the Breton language and other local activities such as fishing. Cape Breton mobilised their natural assets to economically stimulate the community. ICT provided a medium that facilitated the community to market and sell their natural assets. This initiative stimulated the local economy as a tourist resort, led to a growth in employment and saved the community from the ravages of economic ruin.

## 3.9 Economic opportunities

According to Loader and Keeble (2000), ICT is important to modern society, especially in areas like economic development in local communities. Loader and Keeble posit that there is a correlation between the information 'poor' and those who are currently economically isolated. This phenomenon is commonly known as the 'digital divide', which refers to the notion of access and usage of ICT and usually incorporates social exclusion, economic struggles and the breakdown of community relations (Warschauer, 2003). Erwin and Taylor, (2004) claim that at government level in many countries, there is a gradual realization that CI research and initiatives potentially creates an inclusive environment that reduces the digital divide. This realisation has led to the creation of support agencies by governments and the provision of funding opportunities for the development of a knowledge economy<sup>18</sup>. However, as previously stated earlier in this chapter, these 'top down' initiatives have largely failed.

Loader and Keeble (2000) argue that CI is an approach that may be used to address the digital divide within communities, where ICT facilitates development of the local economy. In a later contribution, Loader and Keeble (2004) state that one of the primary objectives of CI initiatives is the provision of economic regeneration opportunities for communities. However, they found a paucity of useful research findings on the economic impact of ICT in communities, which is worrying. Research carried out by the Morino Institute (2001) recommends figures on expenditure allocation for community initiatives, where a maximum of one-third of expenditure should be spent on hardware and software. At the time of writing, expenditure of one third on hardware and software would seem excessive, considering the fall in price of technology in recent times. The Institute suggests that access to technology is not the concern of communities, a suggestion that some Irish rural communities may disagree with, considering a local group of women in Wexford recently had to travel 12 mile to their nearest computer training course. Instead, the Institute claims that the adoption and

<sup>&</sup>lt;sup>18</sup> The term knowledge economy is used to define the use of knowledge to produce economic benefits.

usage of the technology is more important, a change of focus that places an emphasis on the provision of education and training programmes.

Dabinett (2000) suggests that the introduction of ICT into LVOs to stimulate economic development will have, at best, a minimal effect, unless members' specific needs are explicitly identified and addressed as parts of the solution. Davinett argues that ICT on its own provides little economic opportunities for communities. He claims ICT only facilitates positive economic change when it supports established community and organisational needs, with a particular emphasis on members requirements and expectations. Dabinett additionally comments that economic development through technology provision needs to be based on the strengths of the organisation, highlighting coordination and collaboration between LVOs.

Gurstein (2009) points out that the availability of high speed Internet has lifted the technical restrictions on high volume information access and helped economic development. As a result of this technical improvement a highly expanded range of web services and information management capabilities are rapidly appearing, some of which offer economic opportunities. The challenge, however, is how LVOs particularly in disadvantaged communities can take advantage of these technical developments to realise new economic opportunities for themselves and their community, with some still suffering from the impact of the digital divide. Gurstein argues that there is a risk that high speed Internet will result in a technical drain from local economies into more highly developed and capital intensive applications rather than focus on local LVO or community needs. This argument is inaccurate, as it could be argued that good Internet connectivity supports all communities, regardless of origin or focus. A rising tide floats all boats. Nevertheless, it is fair to say that high speed Internet connectivity presents a challenge to communities in different ways. Firstly, it is often difficult for some rural communities to obtain high speed Internet. Secondly, communities often find it difficult to explore the potential of ICT and identify opportunities for bottom up technical developments.

Toland and Yoong (2011) point out that ICT enhances the efforts of communities to enable them to achieve sustainable economic success. Toland and Yoong offer a '7-I framework' which identifies the necessary characteristics that these regions need in order to successfully use ICT for the development of economic opportunities. These community characteristics are: Informing, Interconnecting, Innovating, Interacting, Infrastructure, Industry and Income. Toland and Yoong explore the relevance and importance of the first two characteristics of the framework 'informing' and 'interconnecting' in two case studies based in rural and urban communities in New Zealand.

The main findings from the case studies is that in terms of 'informing', both communities have adopted a bottom up approach to community development, where the needs of the community are driven by its inhabitants and local organisations - a correct approach for community development as earlier in section 3.3. The research also found that being ICT informed facilitated communities to have confidence in ICT, establish links and identify and utilise local tacit knowledge for mobilisation. Although a truism, LVOs that deploy ICT applications without technically enabling their membership will see their systems eventually fall into disuse.

In terms of 'interconnecting', Toland and Yoong share similar sentiments to Gurstein, they comment that the existence of suitable telecommunications networks and infrastructure is essential for the provision of economic opportunities. Also, they found that successful economic development through ICT deployment only occurs when the local needs are considered in a holistic and inclusive manner, which once again is similar to comments made by Loader and Keeble (See section 3.5). Toland and Yoong argue that ICT increases interconnection and provides economic opportunities at local levels, particularly between LVOs. Technical collaboration between LVOs is a noble aspiration, but in reality there are many concerns and issues that need to be resolved before it is feasible.

The research indicates that raising awareness of ICT capabilities and opportunities is not a magic panacea for economic development. However, there is little doubt that ICT makes a positive economic contribution to communities, if the deployment of technology is planned using a participatory approach with members. But, it is important to note that unless the technical abilities of members are improved through the provision of ICT education and training programmes, most initiatives will become unsustainable and ultimately will fail. Also, emphasis needs to be placed on the mobilisation of local assets and acknowledgement of cultural traditions to promote inclusion and ensure a greater uptake of community services by LVOs and its members.

#### 3.10 Sociocultural Constructionism

Sociocultural constructionism is a synthesis of Shaw's (1995) social constructionism theory and Hooper's (1998) cultural constructionism theory, both of which are based on Papert's (1993) theory of constructionism. Constructionism is a theory about learning and is based on the premise that people learn best when they are active participants in design activities (Papert, 1993). Constructivists argue that individuals learn by the active construction, deconstruction and reconstruction of their conceptual model of the world, given a particular social and cultural context (Piaget, 1954). Constructionism facilitates people to learn and to apply their own experiences in various contexts to construct knowledge.

According to Pinkett (2003), a constructionist learning environment provides individuals with the freedom to explore their natural interests, which offers a deeper understanding of the subject matter and facilitates interaction with a community of both expert and novice learners. Pinkett uses the Camfields estate - MIT case study as an example of how a constructionist environment facilitates members of a community to use ICT for development of their skills, knowledge and experiences. A constructionist learning environment is characterized as a rich exchange of ideas between individuals, which is controlled by their interaction with each other, as well as their shared physical

and virtual constructions. A constructionist-learning environment places emphasis on individuals' cognitive capacity to support and improve themselves and their community. Pinkett demonstrates the application of constructionist learning in Camfields for the development of successful training programs for inhabitants, which is based on the activation of their assets. Both social and cultural constructionism represent extensions to the constructionist paradigm.

Shaw's (1995) theory of social constructionism is a useful framework for the identification of community needs. Shaw claims that individual developmental cycles are enhanced by shared constructive activity in a familiar social setting. He identifies five 'social constructions' which are applied by communities:

- (i) social relationships e.g. talking, interacting or playing sport,
- (ii) social events e.g. meetings or field days,
- (iii) shared physical artefacts e.g. halls, centres or sports grounds,
- (iv) shared social goals and projects e.g. fundraising,
- (v) shared cultural norms and traditions e.g. attending school or celebrating festivities.

Shaw argues that these social constructions are important to communities, as they provide individuals and LVOs with a valuable starting point for ICT initiatives. This understanding facilitates communities to identify a prioritised set of needs, which are subsequently addressed through the development of CI applications to support the identified social constructions.

According to Hooper (1998), cultural constructionism is defined by the fact that individuals learned particularly well through object construction in the world that acknowledges their cultural identity and has shared meaning within their local cultures. Hopper's assertion supports earlier statements about the importance of cultural identity to communities as outlined in section 3.8 (Loader and Keeble 2000; Gilligan 2005; Stoecker 2005). Cultural constructionism is a useful framework for the preservation of

local cultural heritage and promotion of communities. In similar fashion to social constructionism, ICT has a role to play in the provision of cultural constructionism for communities. Cultural constructionism is a tool that captures the cultural heritage, nuances and expressions of both individuals and their LVOs. The incorporation of these cultural preferences into CI initiatives improves the quality of the applications and consequently its sustainability with the community.

Sociocultural constructionism views communities, LVOs and its individuals as active producers of information and content, as opposed to passive consumers and recipients. Sociocultural constructionism is based on the principle that individuals and communities are mutually enhanced by independent and shared constructive activity. This principle is resonant with the social environment of the community as well as the unique cultural beliefs of the learners themselves. A sociocultural construction is any physical, virtual or cognitive artefact that is meaningful in both a social or cultural sense to the community. Typical examples include: newsletters, websites, discussion boards, education material and e-services.

The primary premise of a sociocultural approach to community development is to view users and their knowledge as a valuable commodity that can be mobilised and enhanced. Essentially, sociocultural constructionism sees users as a community asset, whose social and cultural capital can be used for the empowerment of others. However, the relevance of people as a community asset depends upon their experiences, their expertise in different areas, the usefulness of that expertise, their abilities as individuals and their willingness to contribute to the development. For a successful CI initiative, usually member training and capacity building is needed, which requires a formal set of community activities that identify assets and coordinates their dissemination among individuals. In recent times, other non physical communities have emerged. These new communities are a departure from the traditional depicted up to now, as they depend on ICT for their existence. Nevertheless, they have an important role to play in the development of communities in the future.

### 3.11 Virtual Communities

Virtual communities have existed on the Internet for almost a quarter of a century. In their infancy, virtual communities primarily consisted of USENET<sup>19</sup> newsgroups. Over time, virtual communities have matured and evolved from static web pages to highly interactive dynamic web content that facilitate communication between users and their community. Information Systems (IS) researchers such as Wellman (1999); Preece (2001) and Lee et al (2003) have investigated the function and role of virtual communities for community development. These scholars found that virtual communities and their associated technologies provide many benefits like communication and collaboration opportunities, innovative services and new directions for community research, one of which is in CI initiatives.

According to Baker (2000) virtual communities have gone from being exotic places of interaction inhabited by a few intrepid souls to a teeming bazaar of information activity. Castells (2001) argues that these non-physical spaces are constructed of digital bits and can be classified as a 'space of flows', where the virtual community dictates the content and direction of the flows and what tools and technologies are used to enable it. Ridings and Gefen (2004) state virtual communities are filling the void of conventional communities and facilitate the provision of utilitarian information exchange and social support. Putnam (2000) points out that membership in conventional face-to-face types of communities, such as voluntary organisations has fallen over the past two decades and this period has seen the exponential growth of virtual communities. Typically, these communities may be based on local concerns, topical needs or just common interests. The size of the community varies depending upon the interest generated by the community's content. Some communities may be quite small with only a handful of members, whilst others such Second Life<sup>20</sup>, have a 'community' of over one million

<sup>&</sup>lt;sup>19</sup> USENET is one of the first computer network communications systems; it was established in 1980 at University of North Carolina, Chapel Hill and Duke University. USENET is the system that over a decade later evolved into the World Wide Web and provided the general public access to the Internet.

<sup>&</sup>lt;sup>20</sup> Second Life is a vast digital continent, populated with people, entertainment, experiences and opportunities, where people can interact, buy, sell or trade with each other and create for themselves a virtual life.

active residents who share a virtual 3-D world. The depiction of Second Life as a community obviously stretches the boundaries of what constitutes a community. However, it is useful as it illustrates the various sizes of virtual communities and suggests the differing expectations and requirements of its members.

Notwithstanding the size and diversity of any virtual community, Preece (2001) argues that the provision of 'sociability' and 'usability' is vital for their success. These two concepts form a bridge linking knowledge about human behaviour to appropriate social planning, policy development and system design. Preece offers several examples to support her argument for the inclusion of sociability and usability in virtual applications. These examples demonstrate how sociability and usability provide a framework for the development of efficient virtual communities, which facilitate their integration into other applications. Although it is reasonable to suggest that sociability and usability are important cornerstones of technical developments, it is erroneous to omit the impact of usefulness on the adoption and diffusion of a technical artefact.

Preece defines 'sociability' as concern for the goals and roles of virtual community members and the policies that shape their social interaction. She argues that the purpose, policies and regulations define the social framework of the virtual community. This implies that the social framework dictates how members appropriately interact and collaborate with each other and use the community's content and services for the satisfaction of their individual needs; for example, they exchange opinions on last night's football game, support those with a particular illness or provide advice and services. Preece (2001) states 'usability' is concerned with the development of computer systems that support rapid learning, high skill retention and low error rates. Usability facilitates the development of systems that are consistent, controllable and predictable, which make them pleasant and effective to use (Shneiderman, 1998). The provision of usability in virtual communities facilitates users' communication with greater ease and improves access to information and services. Preece proposes the following model for the application of sociability and usability in virtual communities.

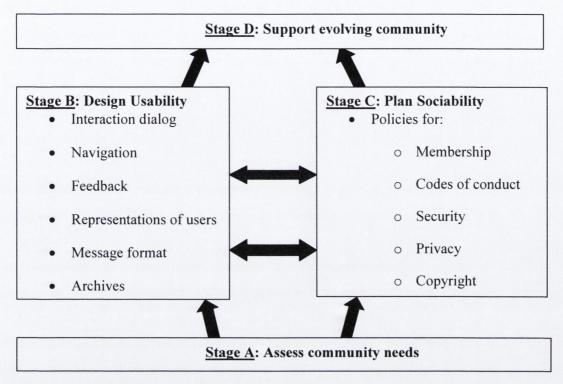


Figure 3.3 Preece's Usability and Sociability Framework

(Source: Preece, J. (2000). Online Communities: Supporting Sociability, Designing Usability. Chichester: John Wiley & Sons Ltd)

Figure 3.3 illustrates how communities address some of their needs through the deployment of virtual content and services, where emphasis is placed on the provision of usability and sociability to support user adoption and acceptance. This framework is relatively comprehensive and self-explanatory. The framework begins at Stage A with the acquisition of community needs and expectations. Stages B and C provide the filters through which the community requirements are processed and categorised via a sociability and usability process. These stages place an emphasis on representation, interaction and navigation of content and the provision of policies and procedures, which dictate how the community operates. Stage D is responsible for the usage and evolution of the community as members' needs continue to change and evolve.

Preece's earlier statement about the importance of usability and sociability may also apply for the integration of virtual communities into physical communities via CI initiatives. Lee et al (2003) state physical communities are beginning to embrace virtual communities, as they constitute a new overlay in the fabric of society, providing an alternative to face-to-face interaction. Baker (2000) argues that ICT and in particular web technologies offer communities and LVOs many benefits: reduces the problem of distance, amplifies flows of information, allows groups to be everywhere and anywhere, sustained by information connection rather than grounded in a proximate space. The traditional notion of commonality of 'place' is now replaced by an interest in a 'conceptual construct', i.e. common connection or mutual interest. According to Lee et al (2003), the application of virtual communities to support physical communities is gaining prominence. Lee et al argue that further research into virtual community and their associated technologies is needed, as they have a potential role to play in the provision of information, development of learning material and creation of services for physical communities. These opportunities are some of the areas where CI initiatives may have a role to play in this merger of physical and virtual spaces.

## 3.11.1 CI and Virtual Communities

Lee et al (2003) point out that CI is a powerful tool that facilitates relationship building and knowledge sharing between both physical and virtual communities. This new technical partnership provides an opportunity for CI initiatives to use virtual communities to address areas of concern for mutual benefit. CI to varying extents occupies 'space' in both the physical and virtual worlds and draws on their respective strengths to weave a new inclusive community.

Gurstein (2007) argues that a new vision of CI has emerged, which includes both physical and virtual communities. A new form of virtual community has come to prominence in the last few years with the creation of social networking sites such as Facebook and Twitter. These new social networking phenomena did not exist in the mid nineties when CI was created. However, these new technologies have now become

accepted as suitable for inclusion in CI initiatives. According to Gurstein, a convergence has emerged between virtual and physical communities, with both seeking opportunities to integrate together and utilise the potential benefits of ICT. Gurstein proposes that there is now a common focus between both communities, where they embrace each other, share value information and added services and develop a long term goal of optimal seamless interconnection. The integration of both physical and virtual communities forms a synergy of collaborative aims, objectives and outcomes, which enhances both of them.

Gurstein (2000) argues that CI is useful for the development of virtual communities, because it addresses the question of how communities are interpenetrated, enhanced and enabled by ICT. For example, the 2008 Obama presidential campaign was one of the first times that virtual communities were used by physical communities to bring their election manifesto to the attention of a larger audience. This type of interaction and collaboration between communities develops a synergy between both, which amplifies physical community objectives and achievements. The sophistication of virtual community technology and social networking software provides in many instances, a seamlessness from the physical to the virtual and vice versa. A typical example is the diaspora communities, who use a myriad of web technologies for communication, interaction and collaboration.

Gurstein additionally comments that a powerful seamless relationship has evolved between physical and virtual communities for mutual support, collaboration and economic development. Gurstein argues that this is now a 'continuum' rather than a separation of communities. Although the use of the word continuum is not strictly accurate in his argument, it represents Gurstein's vision of the convergence and integration of the concerns of both communities. Gurstein asserts that social networking software applications have emerged within virtual communities and the fusion of these within physical communities is probably the direction of future CI initiatives. The challenge is to develop a CI model that embraces virtual communities and its associated technologies to develop usable and social applications to provide benefits that enhance

and empower both communities. To successfully achieve these new technical developments, the adoption and diffusion of technology by communities need to be appreciated, understood and applied.

## 3.12 Technology Adoption and Diffusion of Innovation

According to Carr (1996), technology adoption refers to the stage at which a technology is selected for use by an individual or an organization. Innovation is similarly used with the nuance of a new or innovative technology being adopted. Diffusion refers to the stage at which the technology spreads to general use, while integration connotes a sense of acceptance and perhaps transparency within the user environment. Therefore, Carr suggests that technology adoption and diffusion of innovation are closely related, yet distinct concepts. Carr's vision of technology adoption and diffusion of innovation illustrates two of the many schools of thought in the area of adoption and diffusion. Firstly, in the area of technology adoption, there is the Technology Acceptance Model (TAM) as proposed by Davis (2003). Secondly, in the area of technology diffusion, there is the Diffusion of Innovation (DOI) model as advocated by Rogers (1962).

## 3.12.1 TAM

TAM is a model that describes how users accept and use technology. Davis (2003) posits that TAM is based on the premise that when users are presented with a new technology, a number of factors influence their decision about how and when they use it, most notably:

- Perceived Usefulness (PU): This is the degree to which a person believes
  that the usage of a particular system enhances his or her job
  performance.
- Perceived Ease of Use (PEOU): This is the degree to which a person believes that the usage of a particular system is free from effort.

TAM is an extension of Azjen and Fishbein's Theory of Reasoned Action (TRA) and was developed by Davis and Bagozzi. Both TRA and TAM have strong behavioural elements that assume that when a person forms an intention to act, they are free to act without limitation.

Bagozzi (2007) argues that although TAM is widely acknowledged as a useful model, which had been demonstrated in a number of studies (Davis 1989; Ventakesh et al, 2003). TAM's greatest strength of parsimony may be its biggest weakness. It is unreasonable to expect that one simple model explains decisions and behaviour across a wide range of technologies, adoption situations and differences in decision-making. Bagozzi expresses similar concerns when he comments that TAM seduces researchers into overlooking the fallacy of its simplicity. That is, in favouring a simple model, researchers have overlooked the omission of essential determinants of decision-making and turned a blind eye to the inherent limitations of TAM.

Bagozzi further develops his argument by identifying two critical gaps in the model. Firstly, the intention, behaviour linkage, is probably the most uncritically accepted assumption in social science research. Secondly, linking an individual's reactions to how they use information and their intentions to act on it is not as simple as TAM implies. Other TAM limitations include: the absence of a sound theory and method for the identification of the determinants of PU and PEOU; the neglect of group, social and cultural aspects of decision making; and the reliance on naive and over simplified notions of affect or emotions.

Much attention on the model also focuses on the robustness and validity of the survey instrument used by Davis. Problems cited include the selection of the households by telephone directory. This omitted households who did not have a phone, which may have biased the findings towards those less economically or technically challenged. The follow up interview process was also questionable, in terms of content and size. More recently, Venkatesh and Davis (2000) proposed a new version of TAM. TAM2 was developed to address some of the acknowledged deficiencies in TAM; it includes

subjective norms and was tested with longitudinal research designs. Legris et al (2003) claim that overall both TAM and TAM2 explain about 40% of variance in the use of a system. However, analysis of empirical research using both models shows that results are not totally consistent or clear. This suggests that significant factors are still omitted from the models; for example, the influence of some social and human factors on intention to use systems varies at different stages in the development process. Finally, the focus on office applications is very narrow and the dependency on self reporting by participants is prone to error and interpretation.

Nevertheless, TAM is a useful model for this research as its two primary characteristics of PU and PEOU will be adopted for this research, as it is closely related to a number of CI concepts such as participatory design (section 3.6), which focuses on perceptions, perceived benefits, usefulness and virtual communities (section 3.11), where attention is placed on the provision of usability and sociability.

#### 3.12.2 Diffusion of Innovation

The second school of thought in the area of technology adoption is the Diffusion of Innovation (DOI), which is a theory of how, why and at what rate, new ideas and technology spread through cultures (Rogers, 2003). Rogers (1962) developed an 'S' curve to illustrate the different rates of innovation adoption by categories of people within communities. Rogers claims that early adopters are usually a small subset of the community, who are willing to experiment with innovative methods and technologies. The majority adopt at a later stage, when the early adopters have identified definitive advantages and tangible benefits. Finally, the innovation reaches a saturation point in the community, when the vast majority have adopted the innovation.

Although Rogers' categorisation of adopters is useful, there are a number of deficiencies that weaken its contribution to this research. Firstly, as ICT is continually evolving it is hard to evaluate the diffusion of a technology at any given time. Secondly, most of Rogers' work was conducted in the agricultural and medical areas, which may

not be as applicable in other areas, like the community and voluntary sector. Thirdly, the influence of biases and equality between adopters is not addressed in an adequate manner. Nevertheless, the different categories of adopters identified by Rogers will be useful to this research, in particular their group characteristics.

Moore (1991) views these categories of adopters as significantly different 'markets' in the 'selling' of an innovation to communities. Carr suggests that the transition from the early adopters to the early majority, one that is essential for the success of the innovation, offers particular potential for breakdown, because often the differences between both groups are striking.

Early Adopters	Early Majority
<ul> <li>Technology focused</li> <li>Proponents of revolutionary change</li> <li>Visionary users</li> <li>Project oriented</li> <li>Willing to take risks</li> <li>Willing to experiment</li> <li>Individually self-sufficient</li> <li>Tend to communicate horizontally (focused across disciplines)</li> </ul>	<ul> <li>Not technically focused</li> <li>Proponents of evolutionary change</li> <li>Pragmatic users</li> <li>Process oriented</li> <li>Averse to taking risks</li> <li>Look for proven applications</li> <li>May require support</li> <li>Tend to communicate vertically (focused within a discipline)</li> </ul>

Table 3.3 Characteristics differences between early adopters and early majority

Table 3.3 illustrates the characteristics of both adopters and clearly shows the differences between them. The differences illustrate the diffusion challenge to bridge the divide between both types of adopters, when designing diffusion strategies and developing applications. Acknowledgement of the different characteristics and requirements of both groups greatly enhances the likelihood of a technology being successfully adopted by groups beyond the innovators and early adopters.

Rogers (1962) identifies five stages of diffusion: knowledge, persuasion, decision, implementation and confirmation. These stages constitute a linear process traversed by individuals that adopt an innovation. The diffusion process begins with potential adopters attaining knowledge and forming an opinion about an innovation; subsequently they make a decision on its adoption and implementation and confirm their choice by its continued use. Rogers (2003) points out that the adoption of technology by communities is complex and it is difficult to ascertain reasons and conditions for the diffusion of one innovation over another in certain communities. The non conformity of technology diffusion among LVOs demonstrates the substantial task of bridging the gap between the early adopters and the early majority, who are largely happy with the status quo. Unfortunately, most Irish LVOs are situated in the early majority and exhibit many of the characteristics displayed in table 3.3, which makes adoption of ICT difficult.

Rogers argues that the diffusion of an innovation is dependent upon the existence of certain conditions that increase or decrease the likelihood of it being adopted. One of these conditions is people's attitude to innovation. Also, culture (section 3.8) is another condition that has an impact on the adoption of technology by a community, especially among LVOs (O'Donnell, 2000). Gilligan (2005) used Roger's (1962) diffusion model to understand and explain the lack of ICT adoption by communities in rural Ireland. She found that traditionally rural Ireland had been late adopters of technology and that this has hampered their development as a community. Gilligan concludes that it is difficult to ascertain the impact that ICT has on Irish communities and their respective rates of technology adoption and diffusion, as a result of the few evaluative studies carried out in Ireland and elsewhere.

#### 3.13 Evaluation in CI

The evaluation of the impact and success of CI initiatives is a challenging task for researchers. According to O'Neil (2002), it cannot be based on the simple measurement of ICT adoption or use by a community; other factors need to be identified and measured to adequately evaluate the success of a project. Gurstein (2000) argues that the evaluation of CI success is linked to the objectives of the project. However, Gurstein's argument is weak, as CI initiatives have a community dimension to them: factors such as social change, cultural provision, education, new services, self-efficacy and economic empowerment become important measurements.

Perhaps the dilemma of CI evaluation is more eloquently summarized by Brynin and Kraut (2006). They state that it is easier to measure the impact of ICT, if technological determinism is true. If telephones and computers are like medications prescribed by a doctor in standardized doses, the assessment of their impacts is relatively straight forward. Gurstein (2000) further comments that the challenge of evaluation is to place a value on non monetary outcomes. This comment raises a number of interesting questions. Firstly, how are CI initiatives evaluated? What are the appropriate baselines and evaluation criteria<sup>21</sup>? What impacts should be measured and how should this measurement be done? These are difficult questions to answer with any degree of authority. Nevertheless, these questions and more importantly their answers are important aspects of CI initiatives.

Kehoe et al (2012) argue that the early phases of community projects are fundamentally immeasurable because they are essentially concerned with values, significances and community sensemaking. This argument is strictly not true; variables that can be measured at this early juncture include: engagement by individuals and LVOs, number of ideas offered and used by stakeholders, changes in direction for project and reasons for that alteration. However, Kehoe et al correctly claim that later phases, particularly those concerned with the implementation of a specific application,

<sup>&</sup>lt;sup>21</sup> The theme of the CI conference at Prato, Italy was measurement; many debates were had on how measurement of CI initiatives could be done and when it was most suitable.

strongly benefit from an appropriate measurement approach. Indeed, they argue that evaluation and measurement of CI initiatives require their own methodology.

Jaeger (1999) argues in contrast that the evaluation of CI initiatives is subjective. She claims that if evaluation did not exclusively focus on the objectives of a CI initiative, but instead on some less tangible outcomes, such as improving co-operation in the community, it would be easier to achieve as evaluation and outcomes often look quite different. Jaeger supports her argument with convincing examples of Danish ICT based initiatives where their success was not measured on explicit objectives; instead it was based on less tangible, yet equally important factors, such as provision of social inclusion, integration of diverse communities and improvement of quality of life.

Jaeger also raises the issue of causality in CI initiatives and in particular their evaluation. She questions how the qualitative change in a community can be exclusively attributed to the introduction of ICT. Jaeger argues that while it is possible to postulate that there is an association between the introduction of ICT and the change in community behaviour, this casual relationship is ambiguous and misleading. Initiatives like Pew Internet and American Life Project are examples of where projects seemingly enhanced social connectivity in their respective communities. This enhancement was largely attributed to the introduction of ICT in the communities. However, it could be argued that this myopic ICT finding is misleading. Perhaps the improved levels of social capital were attributable to more extroverted people being 'drawn' to the project, which had little to do with ICT provision. Nevertheless, it could be argued that without the early ICT intervention, the initiatives may not have begun, let alone be evaluated.

O'Neil (2002) focuses on the methodological approaches used for the evaluation of CI initiatives, specifically the measurement of community networks (CN) and community technology centres (CTCs). O'Neil argues that community networking is a process that serves the local geographic community, responds to their needs and provides solutions to its problems. Extensive research on community networking has been done by Beamish (1999); Carroll and Rosson (1996); Gregson and Ford (1998);

who all agree that it is difficult to develop general evaluation measures for the measurement of CNs and importance of CTCs to communities.

O'Neil (2002) points out that there is a dearth of objective evaluation research on CI initiatives. One of the reasons for the paucity of CI evaluation is that although researchers recognise the need for evaluation metrics for initiatives, there is difficulty in the identification of what is to be measured and attainment of agreement about how this should to be done. O' Neil further explores the research literature and identifies five key indicators, where measurements should be taken for the measurement of the success and contribution of CI initiatives to the community. These are the provision of:

- (i) Strong democracy: Increased democratic participation in a community.
- (ii) Social capital: Improved social interaction and co-operation.
- (iii) Individual empowerment: Development of personal skills and knowledge.
- (iv) Sense of community: Encouraged community involvement.
- (v) Economic development opportunities: Facilitated business opportunity development.

Subsequently, O'Neil identified sixteen worldwide CI initiatives and applied the five indicators to each, in an attempt to ascertain their relevance and importance in the determination of the success of a community project. From this investigation, she modified and extended her indicators of success.

## They now included:

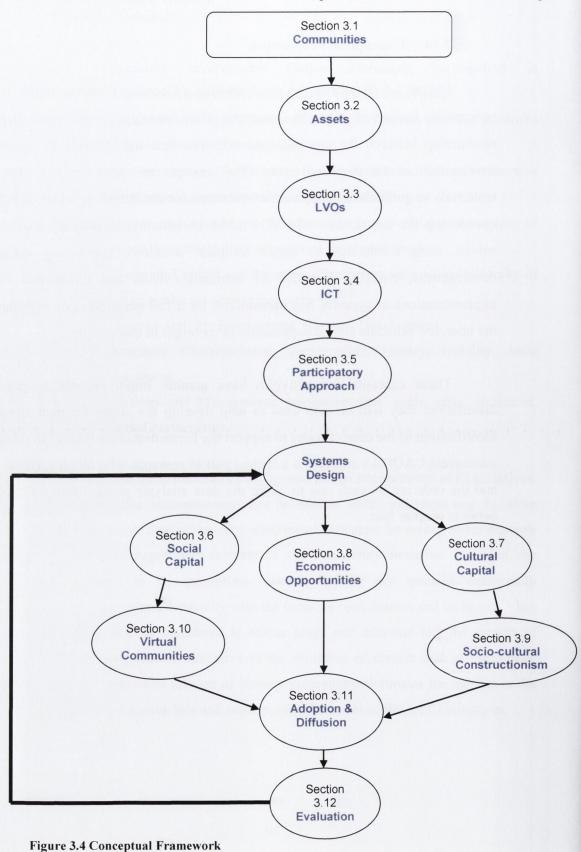
- (i) Community Involvement: Online interaction, participation in organisations, face to face interactions, community events.
- (ii) Access to Facilities: ICT penetration rates, ICT access facilities, networks and Internet Service Providers (ISPs).
- (iii) Usage Information: Traffic usage logs, bulletin board listings, connection and usage time, user characteristics and satisfaction.
- (iv) Attitudes and Awareness: Sense of place, self-efficacy, awareness of community resources, use of personal time, participation.
- Information Content and Structure: Community information, diversity of content, public services and opportunities.
- (vi) Economic Activity: Employment, Business Development.
- (vii) Community Characteristics: Demographic, literacy, mobility, local environment.
- (viii) Operation and Management: Implementation, goals, costs, structures, staff and partnerships.

It is clear that these indicators may be used for the measurement of CI initiatives. However, all of these indicators may not be used at once, and some may be more suitable measurements than others. The selection of indicators for measurement depends upon the different stages and contexts of the community initiative and what the stakeholders deem to be appropriate. Specifically, for this research, community involvement is important, especially with the focus on participation and inclusion. Also, use of facilities can be monitored to assess usage and adoption and the growth of information and services is indicative of the evolution of content and its usefulness. Finally, the provision and take-up of literacy programmes intimates the interest in the use of ICT among communities and subsequently the sustainability of CI initiatives.

# 3.14 Conceptual Framework

Figure 3.4 illustrates the amalgamation of concepts and activities to form a conceptual framework for the research. The conceptual framework depicts the relationship between the concepts and activities that will provide the basis for the development of the proposed model. The concepts and activities will also be used tentatively to guide the development of questions for the interview schedule in terms of: questioning the contribution of LVOs in the community, identifying problems to be solved, using technology to create technical solutions, conducting iterative ICT developments, ensuring inclusion of members' views and needs and evaluating implementations of systems. See appendix A for a full description of each question in the interview schedule and an explanation of its origin in this chapter.

These concepts and activities have another important role to play in this dissertation; they will be also used to help develop the codes for data analysis. The identification of the correct codes to support the hermeneutic analysis of the data and the subsequent CAQDAS analysis is a critical part of research. The initial creation of codes and the ordering of each one to guide the data analysis process will be explained in detail in chapter four.



#### 3.15 Conclusion

This chapter described the concepts and activities that other scholars have deemed to be important for CI initiatives. Each concept and activity has the potential to make a sustainable contribution to LVOs individually and collectively, provided they are set in an appropriate context and well planned with sufficient support structures in place. The conceptual model depicted the key consideration at this juncture in the research, which is how these concepts and activities may be linked in a coherent and useful manner. The conceptual model demonstrated one of the potential ways that these concepts and activities may combine to form a plan of action that will inform the development of the proposed model.

The next stage of the research is to investigate how the data will be gathered from the knowledgeable informants and subsequently analysed. To complete this stage, the philosophical and methodological stance of the research must be established, before appropriate data acquisition and analysis techniques are selected. All of these philosophical and methodological considerations will be discussed in the next chapter.

# CHAPTER FOUR RESEARCH PHILOSOPHY AND METHODOLOGY

#### Overview

This chapter introduces the research philosophy and methodology. Following this, different research philosophies are examined and some observations about each are made, before one is adopted for the research. Qualitative and quantitative research methods are compared and contrasted, before semi structured interviews and focus groups are chosen as the knowledge acquisition methods. After this, the analysis of the data is explored, with hermeneutics and Computer Aided Qualitative Data Analysis Software (CAQDAS) selected as the most appropriate techniques. Finally, a conceptual framework for the research is presented.

#### 4.1 Introduction

The aim of this chapter is to identify and evaluate suitable research philosophies and methodologies for this research. Positivism, Interpretivism and Critical Theory are evaluated as potential paradigms, prior to an interpretivist philosophy being selected as the most suitable. Quantitative and Qualitative methodologies are compared and contrasted, before qualitative is deemed to be the most appropriate for this research. Subsequently, research methods that are aligned with a qualitative stance are evaluated, with interviews and focus groups selected as the most suitable data acquisition techniques. The next section examines the analysis of the data, where the merits of hermeneutics and a suitable CAQDAS are investigated and subsequently selected as the most rigourous and comprehensive analytical approach. Finally, the development of a narrative is documented as a mechanism that mixes the objective and subjective aspects of data and facilitates the development of a model.

#### 4.2 Introduction to Research

According to Remenyi (2008), research is the formulation of a question, collection and interpretation of evidence and thus the creation of some finding/s in the pursuit of answering research questions. The research process is shown in Figure 4.1.

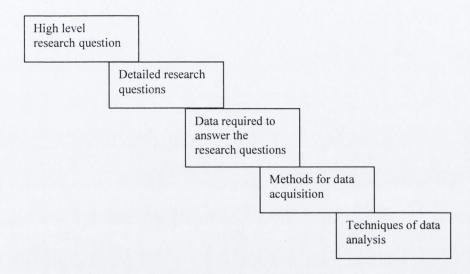


Figure 4.1 The steps from high level research questions to data analysis.

Adopted from Remenyi and Bannister (2012)

Remenyi and Bannister (2012) point out that the logical chain from high level research to data analysis is an important one, both from a philosophical and practical point of view. However, to do good research, the social science researcher requires not only a process to follow, but also a mixture of skills and an ability to perform a diverse range of activities. Creswell (1998) argues that a social science researcher has to be able to work well with a wide variety of people, understand the specific methods available to conduct research, comprehend their subject matter, convince people that they are knowledgeable, scholarly and be able to speak and write persuasively. Wilson (1998) states that social science research is hyper complex; it is inherently far more difficult than chemistry and physics. Social science just seems easier because we can talk to other humans, but not with photons, gluons and sulphide radicals.

Before conducting social science research, researchers need to consider the philosophical and methodological assumptions that underlie their work. According to Remenyi (2008) there are many factors to consider before the appropriate research philosophy and methodology can be selected. He states that in the first place the literature review should reveal not only a problem to investigate, but also a suitable philosophy and methodology previously applied to this type of research question. To make this selection, the researcher needs to be familiar with the range of methodologies available, as well as knowledgeable about their strengths and weaknesses.

Ritchie and Lewis (2003) claim that one of the most challenging tasks for researchers is appreciating the philosophical nuances between different social science theories. They note that there is no single accepted way of doing research: how it is carried out depends on a number of factors. Firstly, the researcher's belief about the nature of the social world and what is known about it, in other words its ontology. Secondly, the nature of knowledge and how it is acquired often referred to as epistemology. Thirdly, how the purposes and goals of the research influence the type of research conducted. This is usually a choice between quantitative and qualitative approaches, although in recent times a mixed method approach has come to prominence (Creswell, 2008). Fourthly, how the characteristics of the research participants impact on the selection of methodology used for data elicitation. Once these factors are understood, social scientists have to decide on their philosophical position for each, before they begin their research. To a significant extent, the research approach and the tools they adopt are largely determined by their philosophical stance and the research questions being investigated.

## 4.3 Philosophical perspectives for the research

Remenyi (2008) points out that there are different philosophical perspectives available to understand a body of knowledge and how research is used to enhance it. He argues that researchers need to develop their own research perspective and to do this, one of their critical tasks is to understand research language. All research is based on some underlying assumptions about what constitutes valid research and what are appropriate methods. In order to conduct research, it is important to understand these assumptions. One of the primary philosophical assumptions relates to the underlying epistemology that guides the research.

The Scottish philosopher James Frederick Ferrier was one of the first scholars to coin the term epistemology in the nineteenth century. Henning (2004, p.15) states that epistemology is the philosophy of knowledge or 'how we come to know'. Epistemology is concerned with the nature and scope of knowledge and is directly related to research methodologies. Epistemology defines the philosophy of how we come to know the world and the research methodology identifies the practice used for this discovery.

# 4.4 Traditional philosophical paradigms

Orlikowski and Baroudi (1991) offer a different philosophical perspective for research. They identify three philosophical approaches, positivism, interpretivism and critical theory. Lee (1989) argues that although these paradigms are philosophically distinct in practice, these distinctions are not always clear and considerable debate continues as to whether these different paradigms can actually be accommodated within the same study. The following diagram illustrates the underlying philosophical assumptions for this perspective.

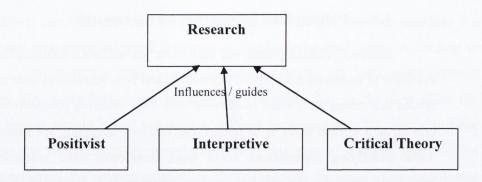


Figure 4.2 Philosophical perspectives of research

#### 4.4.1 Positivism

Positivism came to prominence with the work of Auguste Comte (1798-1857), who outlined an approach to positivism in his 'Course in Positive Philosophy'. Myers (1997) states positivists generally assume that reality is objectively given and can be described by measurable properties, which are independent of the researcher. Wacquant (1992) suggests that positivism sees the researcher as an objective analyst and interpreter of a tangible social reality. Positivism is based on certain assumptions such as the independence of the researcher from the research, determinism, cause and effect, the criticality of evidence, parsimony and the ability to generalise or model. The focus of positivism is on quantifiable observations that predominantly lend themselves to statistical analysis.

Hacking (1981) argues that positivism focuses on science as a product; it demonstrates a coherence of statements and insists that these are testable, verifiable or falsifiable. The primary positivist tools used to test a theory are surveys, questionnaires and experiments. Myers suggests that a positivist's view of the world is that science is a way to get at the truth, to understand the world well enough, so that predictions can be made.

Smith (1998) provides a useful insight into positivist thinking within social science. He claims that positivism can be studied as hard facts and the relationship between them can be established as scientific laws. Indeed, Hatch and Cunliffe (2006) posit that positivists assume that what truly happens in organisations can only be discovered through categorization and scientific measurement of the behaviour of people and systems, culminating in a true representation of the reality.

Although the positivist approach is extensively used by researchers, there has been much debate on the issue of whether this paradigm is suitable for the social science research (Hirschheim, 1985). Many scholars have called for a more pluralistic attitude towards IS research (Kuhn, 1970; Remenyi et al, 1998), as they believe that viewing situations through a series of numbers is not an appropriate way to understand or solve complex social problems. To achieve this diversity, alternative philosophical approaches have emerged, one of which is critical theory.

## 4.4.2 Critical Theory

Critical theory was developed as a result of criticism of other research approaches: specifically how they neglected to acknowledge the political and ideological influences on knowledge and social reality (Cohen, 2007). While the positivist researcher sought to explain social phenomena and the interpretivist researcher tried to understand it, the researcher who strived to change and to challenge social phenomena was not represented. Mingers (2001) argues that critical theorists assume that social reality is historically constituted and that it is produced and reproduced by people who consciously act to change their social and economic circumstances. Critical theory recognizes that changes made are constrained by various forms of social, cultural and political domination. Habermas (1962) was one of the primary proponents of critical theory. He argues that critical theory acknowledges that bias is inherent in humans and is declared in the researcher's interests, purposes and uses.

Babbie and Mouton (2001) point out that one of the most distinctive features of critical theory is its insistence on science and knowledge becoming an emancipatory and transitive force in society. Myers (1997) suggests that one of the primary tasks of critical theory research is social critique, whereby conditions outside of the status quo are brought to light. He argues that critical theory focuses on the oppositions, conflicts and contradictions in contemporary society and seeks to be emancipatory, which makes it suitable for critical research. However, opponents of critical theorists argue that this type of research goes too far, in that it often supports a political agenda and is seen as transformative (Creswell, 2008; Hammersley, 2009), which reduces its usefulness to this research.

# 4.4.3 Interpretivism

Interpretivism is based on the assumption that access to reality is only available through social constructions such as language, consciousness and shared meanings (Myers, 1997). Interpretivists believe that the best way to understand these constructions is not through numerical or statistical data, but instead by interpretation in their specific contexts. Walsham (1995) comments that interpretive studies generally attempt to understand phenomena through the meanings that people assign to them. He states (pp. 4, 5):

'Interpretive methods of research in IS are aimed at producing an understanding of the context of the information system, and the process whereby the information system influences and is influenced by the context.'

Kaplan and Duchon (1994) point out that interpretive research does not predefine dependent and independent variables, but focuses on the full complexity of human sense making as the situation emerges. Interpretivists acknowledge that bias is inherent in individual researchers and at least to some extent controlled. However, the reality is that avoiding bias is impossible; instead, its existence should be acknowledged and catered for during data elicitation, analysis and interpretation.

Indeed, Walsham (1995) points out interpretivists believe that 'value free' data cannot be obtained, since enquirers use their own preconceptions in order to guide the process of enquiry, which changes the perceptions of both parties. According to Babbie and Mouton (2001), while positivism emphasises the similarities between the objects of the natural and social sciences, interpretivism recognises the differences between them. The recognition of these differences provides social scientists with an invaluable insight into the social constructs of a phenomenon and this understanding facilitates the creation of knowledge.

## 4.5 Selection of research paradigm

All three paradigms offer an insightful perspective on IS research. Researchers need to understand and acknowledge the extent to which the perspective they adopt focuses their attention on some things and not on others, before making a choice of philosophy. The selection of the appropriate philosophy is an important part of the research as it largely dictates the research journey, a choice that often depends upon the researcher's individual perspectives, personal preferences and the research topic itself.

Positivism is deemed unsuitable as the research philosophy for this study owing to its focus on quantitative measurement, which does not lend itself easily to talking with knowledgeable informants. Also, the emphasis that positivism places on independence of the researcher from the subject matter and its focus on cause and effect negates the appropriateness of this philosophy for this research. Critical theory is not adopted as the research philosophy because of its focus on social change and its emancipatory ethos, none of which are primary considerations for this research. Instead, this research will adopt interpretivism as its epistemological underpinning. Interpretivism is suitable because it is based on the premise that the researcher and the research subject are inseparable and that knowledge is constituted through lived experiences, a point of particular importance to CI research. Remenyi (2009) argues that interpretivists believe that 'the facts do not speak for themselves' and there is no such thing as 'hard' data. He comments that interpretivism is a suitable technique to use to understand the world and thus to add something of value to the body of knowledge.

## 4.6 Quantitative and Qualitative Research Methodologies

In social science research, there are two major approaches: Quantitative and Qualitative. Remenyi and Bannister (2012) comment that although much is made of the differences between quantitative and qualitative research, virtually all academic research requires both types of data. For example, questionnaires although traditionally seen as a quantitative technique, often contain open ended questions that need qualitative answers. In contrast, interviews which are traditionally considered a qualitative technique often contain questions that require quantitative responses. Therefore, there is an element of mixed methods in all research. However, both Qualitative and Quantitative approaches need to be understood individually, before they can be appreciated on their own or collectively.

## 4.6.1 Quantitative research

Quantitative research is predominantly a positivist approach that was originally developed in the natural sciences to study phenomena. Positivist researchers such as Popper (2002) and Maxwell and Delaney (2004) believe that social observations should be analysed in the same way that scientists carried out their experiments, i.e. the analysis should be objective. According to Popper, positivists view scientific legitimacy as those statements which are reducible to sense-experience and those theories that are derived from inductive logic. Quantitative data tends to be collected in a sequential process, where often previously validated research instruments are used that have been pre-tested and field tested as figure 4.3 illustrates.

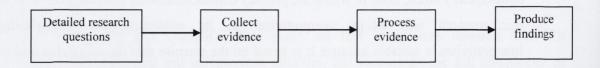


Figure 4.3. The processes of quantitative research

Adopted from Remenyi and Bannister (2012)

Johnson and Onwuegbuzie (2004) identify quantitative methods as surveys, laboratory experiments, formal methods and mathematical modelling. They claim that quantitative methods have several advantages over others. Firstly, constructed theories are tested and validated. Secondly, tested hypotheses are constructed before the data is collected. Thirdly, data collection is usually quick and provides precise quantitative numerical data. Fourthly, results are independent of the researcher. Finally, this method is useful for studying large groups of people.

However, Johnson and Onwuegbuzie acknowledge that quantitative methods have some limitations. Firstly, the theories and categories used may not reflect local nuances, a problem widely acknowledged by CI researchers (Gurstein, 2000, 2007). Secondly, the researcher often misses out on phenomena that occur because it focuses exclusively on the hypotheses or theory being tested. Thirdly, knowledge produced may be too abstract to be used for specific situations or contexts. All of these force some researchers to evaluate an alternative method.

#### 4.6.2 Qualitative research methodology

Qualitative research is predominantly an interpretive approach, although there has been some qualitative positivist research carried out by researchers such as Yin (2009). Followers of this approach reject positivism and argue for the superiority of theoretical foundations such as constructivism, idealism, relativism, hermeneutics and symbolic interactionism (Guba and Lincoln, 1989; Schwandt, 2000). According to Sarantakos (1993), qualitative researchers opt for these theoretical frameworks because they believe that social life is formed, maintained and changed through interaction with people. Qualitative research is developed in the social sciences so that social and cultural phenomena can be studied, appreciated and understood. Qualitative research facilitates researchers to attain a deeper understanding of the informant's world and aids investigation into matters that are relevant to their everyday lives as figure 4.4 illustrates.

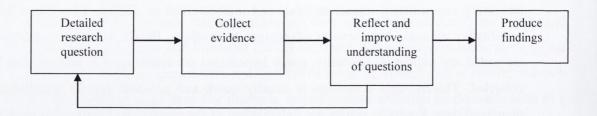


Figure 4.4 The processes of qualitative research

Adopted from Remenyi and Bannister (2012)

Richie and Lewis (2002) comment that properly executed qualitative research is a skilled craft that provides a unique understanding of people's lives and the social phenomena that form it. Corbin and Strauss (1998) argue that qualitative research is any type of research that produces findings not arrived at by statistical procedures or any other means of quantification. One of the key objectives of qualitative research is a holistic understanding of a phenomenon. Examples of how this type of understanding can be attained are methods such as interviews, focus groups, action research, case studies and ethnography.

Johnson and Onwuegbuzie (2004) argue that qualitative research offers many advantages over other approaches. Firstly, data is based on the participant's own categories of meaning. Secondly, it studies a specific number of cases in depth. Thirdly, it describes a rich detail of phenomena that are situated in the research matter. Fourthly, it determines how participants interpret constructs. Fifthly, data is collected in a naturalistic setting. Finally, it responds to local situations, conditions and stakeholders' needs. However, they also identify some weaknesses in qualitative research that must be addressed if it is the chosen methodology. Firstly, knowledge produced may not generalize to other people or other settings. Secondly, it is generally more time consuming than quantitative methods, in particular data analysis may be more prolonged. Thirdly, results may be influenced by the researcher's biases and idiosyncrasies. Further comparisons between qualitative and quantitative research identify more subtle differences between each approach, as table 4.1 illustrates.

Elements of Qualitative research tend toward	Process of Research	Elements of Quantitative research tend toward
<ul> <li>Understanding meanings individuals give to phenomena inductively</li> </ul>	Intent of the research	Test a theory deductively to suppor or refute it
<ul><li>Minor role</li><li>Justify problem</li></ul>	How the literature is used	<ul><li>Major role</li><li>Justify problem</li><li>Identify questions and hypotheses</li></ul>
<ul> <li>Ask open ended questions</li> <li>Understand the complexity of a single phenomenon</li> </ul>	How intent is focused	<ul> <li>Ask closed ended questions</li> <li>Test specific variable that form hypotheses or questions</li> </ul>
<ul> <li>Words or images</li> <li>From a few knowledgeable informants</li> <li>Study knowledgeable informants at their location</li> </ul>	How data is collected	<ul> <li>Numbers</li> <li>From many knowledgeable informants at many locations</li> <li>Sending or administering instruments to participants</li> </ul>
<ul> <li>Text or image analysis</li> <li>Themes</li> <li>Larger patterns or generalizations</li> </ul>	How data is analysed	<ul> <li>Numerical statistical analysis</li> <li>Reject hypotheses or determination of effectives</li> </ul>
<ul><li>Identify personal stance</li><li>Report bias</li></ul>	Role of the researcher	<ul><li>Remain in backgroun</li><li>Take steps to remove bias</li></ul>
Use validity procedures that rely on the participants, researcher and reader	How data is validated	<ul> <li>Use validity procedures based on external standards, such as past research and statistics</li> </ul>

Table 4.1 Comparison of Qualitative and Quantitative methods (Creswell, 2008)

Creswell (2008) argues that the differences between qualitative and quantitative approaches illustrated in figure 4.5 are not opposites, rather, differences on a continuum. The first difference is in the intent of the research. In qualitative research the intent is for views and expectations to be learned about a phenomenon; whereas in quantitative research, the intent of the researcher is the evaluation of how data provided by participants allows them to support or refute a theory. In qualitative research, the researcher reviews the literature and uses it to briefly justify the problem, but it may not guide the development of a research question; whereas, in quantitative research, the literature has a major role to play in the establishment of the purpose of the study, its objectives and the identification of a theory to test.

In regard to the focus of the research, qualitative research usually leads to more complex and diverse answers, because of the open nature of the questions and the different views of the knowledgeable informants; whereas in quantitative research the focus is narrower as the questions are usually closed ended and the researcher tends to find the data to test the hypotheses easier. The collection of data is another area of difference between both approaches, as qualitative research tends to elicit words from knowledgeable informants via methods such as interviews or focus groups, which facilitates the development of a deep understanding of the research matter. Quantitative research tends to focus on the identification of numbers from surveys and checklists gathered from a large amount of sources to test the validity of the theory under test.

The next step of the research process is data analysis. In qualitative research, data is analysed and coded, with the identification of themes that form broad generalizations about the phenomenon under investigation. In quantitative research, the task is to use the acquired data to reject the hypotheses or to establish a theory. The role of the researcher also differs between both methodologies. In qualitative research, researchers have their own experiences and acknowledge their biases through their interpretation of results; whereas, in quantitative research, the researcher stays primarily in the background and takes steps to ensure that no bias is introduced into the research that results in data inaccuracy.

The validity of the results is an important step of the research process and once again differences can be identified between both methodologies. Indeed, it is validity that has arguably triggered most debate about the suitability and appropriateness of qualitative methods. For example, in quantitative research, validity does not reside with the knowledgeable informants. The evidence produced is based on the content and the theoretical or empirical analysis of it, coupled with any relevant data gathered from previous research. In qualitative research, however, researchers are primarily interested with the final outcome, which is largely influenced by the data they have analysed and interpreted. Although qualitative researchers often use multiple sources of data and appropriate checks with knowledgeable informants to ensure the validity of the data, questions still remain about the validity of their findings.

Indeed, Whittemore et al (2001) argue that much debate focuses on the difficulty of establishing validity in qualitative research. It is commonly accepted that certainty in scientific inquiry is futile (Maxwell, 1990). However providing validity in research is still important, even more so in qualitative research because of the need to demonstrate rigour in this methodological approach. See section 4.8 for an in-depth discussion on validity and reliability in qualitative research.

## 4.6.3 Selection of methodology

This study adopts a qualitative approach as its methodology because it facilitates an inductive understanding of a phenomenon, allows open ended questions to be asked to a select group of informants, acknowledges the personal biases of the researcher and aids the development of themes, patterns and generalizations. The selection of a qualitative approach for this research is further vindicated by the fact that it is closely aligned with interpretivist research and also because it is the most widely used methodology in CI research.

As Ritchie and Lewis (2003) state, qualitative research aims to provide an indepth understanding of people and their experiences. It is characterized by a concern with exploring phenomena from the perspective of those being studied, with the use of methods which are sensitive to the social context of the study answering 'what is', 'how' and 'why' questions. Myers (1997) points out that one of the primary motivations for doing qualitative research as opposed to quantitative research comes from the observation that if there is one thing which distinguishes humans from the rest of natural world, it is their ability to talk. Myers comments that qualitative research methods are designed to help researchers understand people and the social and cultural contexts within which they live.

Snape and Spencer (2005, p.6, 7) quote the following from Kant to explain the appropriateness of qualitative methods to elicit perception, thoughts and views from knowledgeable informants.

'Perception relates not only to the senses but to human interpretations of what our senses tell us; our knowledge of the world is based on understanding which arises from thinking about what happens to us, not just simply from having had particular experiences; knowing and knowledge transcend basic empirical enquiry; distinctions exist between scientific reason (based on causal determinism) and practical reason (based on moral freedom and decision making, which involves less certainty'

However, to strengthen qualitative research, as mentioned in section 4.5.2, the issues of reliability and validity need to be addressed and plans made for their inclusion in the research.

#### 4.7 Research Rigour

According to Morse et al (2002) without rigour, research is worthless; it becomes fiction and loses its utility. Guba and Lincoln (1981) state that while all research must have 'truth value', 'applicability', 'consistency', and 'neutrality' in order to be considered worthwhile, the nature of knowledge within quantitative and qualitative paradigms is different. Davies and Dodd (2002) point out that the application of rigour differs in quantitative and qualitative research, but by accepting that there is a quantitative bias in the concept of rigour, a new re-conception of rigour can be developed for qualitative research that is built on the provision of reliability and validity.

#### 4.7.1 Reliability

According to Eisner (1991) the term 'reliability' is used predominantly in quantitative research. Stenbacka (2001) argues that the use of reliability in qualitative research is misleading. She claims that if a qualitative study is discussed in terms of reliability, often the consequence is that it is inadequate or unsatisfactory. Seale (1999) suggests that to ensure reliability in qualitative research, an examination of trustworthiness is crucial. He states that the trustworthiness of research lies at the heart of issues conventionally discussed in terms of reliability. Strauss and Corbin (1990, p. 250) suggest that the 'usual canons of good science' apply when adjudicating qualitative research, but often these characteristics need to be redefined to fit the realities of this type of research. Patton (2002) states that ensuring the reliability of research is important, but perhaps ensuring the validity of the study may be even more significant.

## 4.7.2 Validity

Winter (2000) argues that the concept of validity in qualitative research is not a single, fixed or universal concept, but rather a contingent construct, inescapably grounded in the processes and intentions of particular research methodologies and projects. McMillan and Schumacher (2006) point out that validity refers to the degree of congruence between the explanations of the phenomena and the realities of the world. They claim that although the concept of validity is traditionally associated with quantitative research, it has a place in qualitative research. Guba and Lincoln (1989) claim that validity can be viewed either internally or externally. Internal validity can be attained through the credibility of the research; whilst external validity is tested by the transferability of the findings. However, Davies and Dodd (2002) suggest that any consideration of validity in qualitative research is futile unless it is considered in conjunction with reliability.

# 4.7.3 Ensuring Reliability and Validity in research

Lincoln and Guba (1985) point out that triangulation is a suitable strategy for ensuring the validity and improving the reliability of research. Patton (2002) claims that the use of triangulation strengthens a study by combining methods. Creswell (2003) describes triangulation as a method that uses different data sources of information to build a coherent justifiable set of themes<sup>22</sup>. Johnson (1997) comments that adopting multiple methods such as observations and interviews leads to more valid, reliable and diverse construction of realities.

McMillan and Schumacher (2006) argue that reliability and validity are often conceptualized as trustworthiness, rigour and quality in a qualitative paradigm. They point out that these attributes can be achieved using triangulation. They offer the following combination of strategies to ensure reliability and validity in qualitative research.

<sup>&</sup>lt;sup>22</sup> See section 4.7.5 for a more in-depth description of triangulation

Strategy No.	Strategy	Description
1.	Prolonged and persistent field work	Allow interim data analysis and corroboration to ensure match between findings and participants reality
2.	Multi-method strategies	Allow triangulation in data collection and data analysis
3.	Participant language	Verbatim accounts, obtain literal statements of participants and quotations from documents
4.	Low-inference descriptors	Record precise, almost literal, and detailed descriptions of people and situations
5.	Multiple researchers	Agreement on the descriptive data collected by the researcher
6.	Mechanically recorded data	Use of tape recorders, photographs, and videotapes
7.	Participant researcher	Use of participants' recorded perceptions in diaries or anecdotal records for corroboration
8.	Member checking	Check informally with participants for accuracy during data collection; frequently done in participant observation studies
9.	Participant review	Ask participants to review researcher's synthesis of interviews with person for accuracy of representation; frequently done in interview studies
10.	Negative or discrepant data	Actively search for record, analyse, and report negative or discrepant data that is an exception to patterns or that modify patterns found in data

Table 4.2 Qualitative strategies for reliability and validity (McMillan and Schumacher (2006)).

Kvale (1996) suggests that the canons by which quantitative studies are judged are quite inappropriate for judging the merits of qualitative research.

## Kvale (p. 229) states:

'In modern social science, the concepts of generalizability, reliability and validity have reached the status of a scientific holy trinity. They appear to belong to some abstract realm in the sanctuary of science far removed from the interactions of the everyday and to be worshipped with respect by all true believers in science.'

Henning (2004) points out that the qualitative researcher is expected to guard against the dangers derived from adherence to the more positivistic interpretations of these canons. Table 4.3 illustrates Henning's comparison of evaluative measures between quantitative and qualitative research.

Quantitative	Qualitative	
Objectivity	Confirmability	
Internal Validity	Credibility	
External Validity	Transferability	
Reliability	Dependability	

Table 4.3 Comparison between quantitative and qualitative evaluation characteristics (Henning, 2004).

#### 4.7.4 Confirmability

Confirmability is used by qualitative researchers to discuss characteristics like reliability and validity in their research. Ritchie and Lewis (2003) comment that in its broadest conception, reliability means 'sustainable' and validity means 'well grounded', both of which confirm the strength of the research. However, some researchers believe that there is no single reality to be captured from research and that replication is an elusive goal. Bannister (2005) defines two types of reality: firstly, an external reality that defines what actually happens in the social world; secondly, an internal reality that is subjective to the minds of the social actors.

Ritchie and Lewis argue that when qualitative researchers try to establish reliability and validity for their work, what they are actually striving to achieve is confirmability, which is actually better assessed through the lenses of credibility, transferability and dependability.

## 4.7.5 Credibility

According to Babbie and Mouton (2001), credibility refers to the compatibility between the constructed realities that exist in the minds of respondents and those that are attributed to them. There are many ways to provide credibility in qualitative research, one of which is triangulation as described in section 4.8.3. Ritchie and Lewis (2003) comment in qualitative research, triangulation implies the use of multiple methods and sources to ensure the integrity of the data and its analysis. Denzin (1994) argues that in qualitative research, triangulation investigates the convergence of the data and the conclusions derived from it. Indeed, Ritchie and Lewis point out that triangulation broadens the process of data acquisition and adds breadth and depth to data analysis. The adoption of triangulation adds expansiveness to the research and provides a more comprehensive understanding of the phenomena under investigation.

## 4.7.6 Transferability

Ritchie and Lewis (2003) posit that transferability, rather than generalizability, is more appropriate for qualitative research. Babbie and Mouton (2001) point out that transferability refers to the extent to which the research findings can be applied in other contexts with other participants. They propose that the transferability of research can be improved if the researcher collects evidence and reports it in detail, which may be subsequently interpreted by the reader to improve the level of transferability. Also, purposive selection of informants maximizes the diversity of data and adds richness to it, an action that makes the findings more transferable.

# 4.7.7 Dependability

Remenyi (2008) argues that the positivist construct of reality which assumes unchanging conditions that enable replication of the study, does not hold for qualitative research. He points out that the dependability of qualitative research as opposed to reliability should be the basis of evaluation, as circumstances and situations change for each study. Babbie and Mouton (2001) propose that the use of an audit trail is a suitable strategy to ensure the dependability of research. Pather (2006) describes two ways to achieve a suitable audit trail. Firstly, keeping the evidence in an easy to retrieve and access format enables others to investigate it, should any doubts arise about the research data. Secondly, keeping a log that catalogues how the research was conducted provides a level of transparency that makes the findings dependable. Table 4.4 illustrates a framework for ensuring quality in the research.

Research Quality Imperatives	Strategies
Credibility	Triangulation: Use of multiple data sources
	Referential adequacy: Recording evidence
	Checks: Confirming evidence with participants and academic community
Transferability	Comparable situations
	Report findings with detailed descriptions
	Selection of informants purposively
Dependability	Audit trail: Make evidence accessible to evaluators and maintain a research log.

Table 4.4 Framework for enhancing the quality of qualitative research (Adopted from Pather (2006)).

The credibility (internal validity) of the research findings will be ensured through the triangulation of sources that operate at different levels in Irish LVOs. Also, attention will be paid to ensure a diverse set of LVOs are investigated. Referential adequacy will be applied during data elicitation by electronically recording all evidence. Members will be presented with their answers to ensure consistency and the findings will be presented at conferences to obtain peer reviews and comments.

The transferability (external validity) of the research findings will be aided by the development of a higher order narrative with 'thick descriptions' complemented with quotes from informants. The purposive selection of informants from LVOs representing each of the three sectors: firstly sporting, secondly community and finally rural and agricultural will add to the richness of the data and make the findings more transferable.

The dependability of the research findings will be ensured through the development of physical and theoretical research audit trails. The research audit trails describe the set of stages traversed during the investigation; their purpose is to help the researcher reflect on his journey and ensure that the work makes sense and contributes to the body of knowledge. Shenton (2004) points out that the physical audit trail shows the decisions made during the research, with a particular emphasis on data. Whilst the theoretical audit trail can be applied to demonstrate the reflective practice adopted and to illustrate how the researcher's thinking evolved during the research.

#### 4.8 Research Ethics

Mauthner et al (2002) argue that research is a moral and ethical endeavour that ensures that the interests of participants are not harmed as a result of the investigation. Typically, universities provide guidelines for conducting research in an ethically appropriate manner and require the researchers to obtain approval from ethics committees before the research commences. These guidelines usually address issues such as informed and voluntary consent, confidentiality of information and anonymity of participants. Researchers are expected to accumulate evidence to demonstrate that ethical behaviour has been adhered to, throughout the research process. Usually, the ethical standards adopted for the research will be available in a number of documents, specifically, the ethical approval form, participant's information sheet and participant's consent form. These documents can be viewed in appendices B and C.

#### 4.9 Research Methods

Qualitative researchers may use different approaches to collect data: these include interviews, focus groups, participant observations, various texts, pictures and other relevant materials. Also, valid claims can be made for the inclusion of methods that are traditionally associated with quantitative research, such as surveys and questionnaires. Although, these quantitative methods have limitations in terms of the depth and richness of responses and the lack of interaction with respondents, all of which limits their usefulness for this research. Irrespective of the method(s) chosen, the purpose is the same: to elicit useful data from knowledgeable informants in an attempt to answer the research question(s). The choice of methods often depends on the researcher's chosen philosophy, its suitability to the research and the personal preference of the researcher. Qualitative research is inherently a multi-method approach. The use of multiple methods reflects and attempts to acquire an in-depth understanding of the phenomenon in question. Denzin and Lincoln (1998) argue that applying multiple methods adds rigour, breadth and depth to any investigation. This research will use interviews with knowledgeable informants as its primary data acquisition technique. Subsequently, a number of focus groups will be conducted with members from LVOs to validate findings and provide further direction for the research.

#### 4.9.1 Interviews

According to Remenyi (2008), an academic interview is a technique for the acquisition of spoken evidence from a knowledgeable informant that assists in answering a research question. The questions asked by the interviewer need to be carefully planned and the answers supplied by the informant need to be meticulously recorded and directly relate to the research question(s). He argues that the informants need to be knowledgeable about the research area and be made aware that their answers are not meant to be conclusive; rather they should further the agenda for discussion. It is a fundamental premise of research that ill informed sources are not used, as this skews the results and affects the overall findings.

Patton (1987) points out that an interview is the most appropriate method for enabling the researcher to enter the knowledgeable informant's perspective. He argues that interviewing probes beneath the surface, solicits detail and provides a holistic understanding of the informant's point of view. Kvale (1996) argues that the interview is a specific conversational technique that obtains knowledge of the subject's lived world and its purpose is the elicitation of qualitative descriptions that may be interpreted at a later stage. The primary objective of interviews is to gather evidence about opinions, meanings, expectations and explanations of why and how, culminating with a depth of knowledge. Myers and Avison (2002) cautions that interviewing may be problematic; they argue that although a clear distinction between data gathering and data analysis is commonly made in quantitative research; such a distinction is problematic for qualitative researchers. For example, from a hermeneutic perspective, it is assumed that the researcher's presuppositions affect how the data is gathered and the questions posed largely determine what the researcher finds out. In other words, the analysis affects the data and the data affects the analysis in significant ways. Therefore, it is perhaps more accurate to speak of 'modes of analysis' rather than 'data analysis' in qualitative research. These modes of analysis are different modes for how qualitative data is gathered, analysed and interpreted. The common thread is that all qualitative modes of analysis are concerned primarily with textual analysis, whether written or verbal.

According to Kvale (1996), an interviewer may be seen as a 'miner' or a 'traveller', where the miner represents the traditional ideas of knowledge formation and the traveller corresponds to a more post modern approach. As a miner, the interviewer is looking for raw material, which has to be processed through some analytical technique. As a traveller, the interviewer develops an evolving level of understanding, which is acquired through the conversations between the interviewer and the informants and the traveller writes up the findings directly.

#### 4.9.2 Operation of semi-structured interviews

Kvale and Brinkmann (2009) suggest that in a semi structured interview, the researcher has a list of questions or topics to be covered with the informant. With this format, questions may not follow in the same order as outlined on the interview schedule. Also, questions that are not included in the schedule may be asked as the informant's answers provoke them. But, by and large, all of the questions of the schedule will be asked and a similar wording will be used for each interview. He comments that with semi structured interviews, emphasis must be placed on how the interviewee frames and understands the questions, that is, what the informant views as important in explaining and understanding events, patterns and forms of behaviour.

Kvale (1996) proposes a useful list of criteria for a successful interview. He claims that an interviewer needs to be knowledgeable, in that they must be thoroughly familiar with the focus of the interview; structured, so that s/he provides a purpose for the interview, rounds it off and asks whether the interviewee has questions; clear, in that the interviewer needs to ask simple, easy and short questions and avoid use of jargon. Kvale claims that it is important that the interviewer is gentle, lets informants finish their answers and gives them time to reflect. Also the interviewer needs to be sensitive and listen attentively to responses in an empathetic way. Interviewers need to be open and flexible about answers and steer the interview in order to extract the maximum amount of information from the informant. Finally, Kvale argues that the interviewer needs to be critical about what is said, checking for inconsistencies, yet at the same time interpreting statements without imposing meaning on them.

According to Gordon (2002), electronic recording of the data gathering process is imperative for the success of interviews. He argues that one of the primary reasons for recording interviews is that the interviewer is supposed to be highly alert to what is being said during the interview, following up on interesting points, prompting and probing where necessary, drawing attention to any inconsistencies in the interviewee's answers. Therefore, it is best if he or she is not distracted by having to concentrate on writing notes, except for a few field notes to complement the informant's answers.

Heritage (1984) suggests that the procedure of recording and transcribing interviews has many advantages. Firstly, it helps to correct the natural limitations of our memories and the intuitive glosses that are placed on what informants say during interviews. Secondly, it allows a more thorough examination of informants' responses. Thirdly, it opens up the data to public scrutiny by other researchers. Fourthly, it helps to counter accusations that the analysis might have been influenced by the researcher's values or biases. There is also an alternative to unstructured individual interviews for data elicitation. People can be interviewed together, as part of a group. Questions are asked in an interactive group setting where participants are free to talk with other group members. These group interviews are commonly known as focus groups.

## 4.9.3 Focus Groups

The origin of focus groups in research can be traced back to the early part of the 20<sup>th</sup> century. Bogardus's (1926) research is one of the first published examples of focus groups. However, it is only in recent times that focus groups have gained prominence in IS research and has come to be seen as a valid research instrument. According to Vaughn et al (1996), a focus group interview is a qualitative method that can be used alone or with other qualitative or quantitative methods, to bring an improved depth of understanding to the needs, requirements and views of stakeholders. A focus group is an informal group of knowledgeable informants and interested parties, whose opinion on an area is required. The goal of focus groups is to elicit group perceptions, feelings, attitudes and ideas from informants.

According to Patton (1987), the primary objective of a focus group is to get high quality data in a social context, where people consider their own views in the context of others. He states that the primary strength of focus groups is that participants get to hear each other's responses and are allowed to make additional contributions, which adds to the richness of the data. Morgan (1997) claims that focus group research tends to acquire knowledge that has been normalized through group discussion; this facilitates the elimination of extreme and false views and aids the researcher in the validation of findings. He comments that focus groups arguably make informants feel more at ease with the researcher, which facilitates a more comprehensive and richer dataset to be acquired.

Lederman (1990) argues that in focus groups certain assumptions may be made. Firstly, participants are valuable sources of information. Secondly, participants are capable of reporting about themselves and articulating their feelings and perceptions. Thirdly, the best procedure for obtaining participant's opinions is through group discussion. Fourthly, the effects of group dynamics enhance the likelihood of people speaking frankly about a subject, as long as some predefined rules are followed.

The benefit of using focus groups for data acquisition is that it allows the interviewer to quickly obtain a wide variety of views from a range of informants with sometimes widely differing, but relevant perspectives. Focus groups are useful for validating earlier findings or providing a path for other research techniques to pursue. However, focus groups do have some limitations such as: sometimes the responses of the respondents are not independent; they require a skilled moderator; and social factors such as peer pressure may lead to inaccurate comments and data. But, techniques such as Delphi groups can be used to compensate for this limitation. Another common problem of focus groups is that it may be easy for more experienced and senior informants to influence others unduly, hence limiting the contribution of those who are inexperienced and less vocal. Therefore, it is incumbent on the researcher to take care that no one person monopolises the focus group, while still maintaining their role as an observer. Every participant in the focus group should have an equal say.

# 4.9.4 Operation of focus groups

Morgan (1997) outlines the following process for managing focus groups. Firstly, the moderator (interviewer) needs to identify a range of questions to be addressed during the focus group. Usually a group of around six to eight knowledgeable informants are invited to attend the focus group, whose duration should last no longer than an hour. Secondly, the moderator should introduce the questions to be discussed and clarify his or her role as an independent observer and facilitator of free discussion between the participants. The moderator may attempt to 'draw out' informants who say little or to suggest that users move to another topic. However, the moderator should not intervene directly in the discussion, should not attempt to 'explain' issues which have arisen and should certainly not be seen in an evaluative role. The moderator's primary role is to 'listen' and to safely record the responses obtained from the group. Thirdly, the researcher should be aware that the focus group may bring to light concerns that have been missed by the literature review or during interviews, if they have preceded the focus group. If a new area relevant to the research is identified during the focus group, it should be acknowledged and explored.

Morgan claims that focus groups and interviews are complementary techniques, specifically either of them can be used in either a preliminary or follow up capacity with the other. He argues that combining research methods strengthens the research regardless of which method is the primary means of data collection. Remenyi and Bannister (2012) state that after identifying the type of data required to answer the research question and specifying how it will be collected, it is reasonably easy to identify appropriate data analysis methods.

# 4.10 Data Analysis

Qualitative data analysis is the range of processes and procedures that may be used to explain, understand and interpret data collected from the knowledgeable informants. This form of data analysis is usually based on an interpretative philosophy. The idea is to interpret the meaningful and symbolic content of the data in an attempt to answer the research questions. Seidel (1998) developed a useful model to explain the basic process of qualitative data analysis. The model consists of three parts: 'Noticing', 'Collecting', and 'Thinking' about data. These parts are interlinked and cyclical. For example while thinking about things you notice further things and collect them. Seidel likens the process to solving a jigsaw puzzle. Noticing interesting things in the data and assigning 'codes' to them, based on a topic or theme, potentially breaks the data into parts of the overall problem as figure 4.5 illustrates.

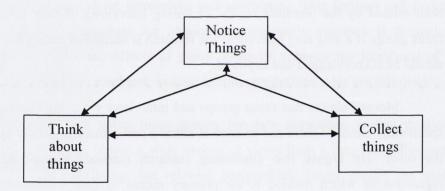


Figure 4.5 The Data Analysis Process (Seidel, 1998)

It is important that the qualitative researcher adopts a suitable interpretive technique to analyse his or her data. There are many alternatives, such as content analysis and recursive abstraction, neither of which offer a comprehensive analysis technique, owing to the dependency of the former on statistics and the latter on summarization. Nevertheless, there are other qualitative techniques that are suitable for this research, one of which is hermeneutics.

#### 4.10.1 Hermeneutics

Bleicher (1980) states that hermeneutics is based on the hermeneutic circle, which intends to communicate multiple meanings about data. Broadly speaking, the hermeneutic circle refers to the inter-relationship between the part and the whole of the evidence. The research is seen as parts depending on a larger whole, and an understanding of the parts relies on preconceptions about the whole. Bernstein (1986) argues that the hermeneutic circle is a reference to the dialogical encounter between enabling prejudices and preconceptions and the phenomenon being investigated. Indeed, Fry (2009) claims that the hermeneutic circle is the relationship between a reader and a piece of text, which represents the author's intention. According to Fry, the text is a mediating document that helps the reader form an opinion about a 'part' in the context of the 'whole'. Fry points out that as parts of the text are read, it provides a sense of what is to come, influenced by the reader's preconceptions. Eventually, the reader's perception of the content changes, as more parts are read, ultimately arriving at an understanding, which intimates a mental process of comprehension.

Bontekoe (1996) comments that the basis of understanding the hermeneutic circle is that it is a process that explains 'how what is understood forms the basis for grasping that which still remains to be understood' (p. 2). As a result, Fry posits that hermeneutic analysis is about 'merging the horizons' of the reader and the informant to develop an evolving understanding of both of their worlds. Schostak and Barbour's (2005) illustration of the hermeneutic circle has been adapted for this research in figure 4.6.

Chapter 4: Research Philosophy and Methodology

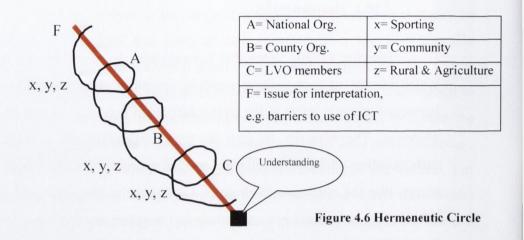


Figure 4.6 illustrates the hermeneutic circle adopted for this research. Labels A, B and C describe the three specific levels of voluntary organisations identified by the research, specifically national, county and local organisations. Knowledgeable informants from each level will be interviewed during the data capture phase. Labels x, y and z identify the three types of voluntary organisation identified within Ireland; these are sporting, community, rural and agricultural. The line labelled F is the issue that is being analysed and interpreted through the hermeneutic process. For example, line F might be the uses of ICT by various levels of voluntary organisation or barriers to their use of technology.

In a more specific sense, Thompson et al (1989) argue that the circular description of hermeneutic analysis is analogous to the actual process of data analysis. In hermeneutic analysis, the text representing the views of an informant, irrespective of their role or level in the organisation is read to gain an understanding of the data in its entirety. This global understanding is then used as the basis for a closer examination of the separate parts. In turn, Kvale (1983) states that on closer inspection, the meaning of the separate parts may come to change the originally anticipated meaning of the totality, and again this influences the meaning of the separate parts.

As the circular process implies, hermeneutic researchers do not wait until all of the data is collected to begin analysis. Instead, hermeneutic data analysis begins with the first pieces of data, to identify emerging themes and guide the direction of further research, eventually arriving at a holistic understanding of a phenomenon. Sometimes the load of qualitative data analysis using traditional methods is so great, that researchers need to look to other complementary approaches to aid the analysis process.

# 4.10.2 Computer Aided Quality Data Analysis Software (CAQDAS)

Since the 1990s, researchers have begun to use other tools to ease the burden of qualitative data analysis (Kelle 1997, 2004; Fielding and Warnes 2009; Seale 2010). Richards (2002) comments that computer assisted analysis began with simple text searching tools in the form of word processors, which allowed categories to be searched and text to be marked or edited. However, it was not until computer analysis packages were able to decontextualise and recontextualise data that they were of any real value to qualitative researchers.

The academic research community is sharply divided as to the benefits of Computer Aided Qualitative Data Analysis Software (CAQDAS) in what is fundamentally a human exercise (Basit, 2003; Crowley, Harré and Tagg, 2002). Opponents of CAQDAS, such as Flick (2010) caution that no matter how the transcription is produced, errors may still arise, most notably, where the researcher hears one thing when the respondent may have said something very different. Consequently, Flick (pg.18) states 'hearing exactly what is said involves understanding and interpretation'. Flick also expresses concern about the detail of transcription that takes place, often the informant's hesitations, pauses, stressing of words and changes of volume are not captured during transcription, which reduces the emphasis on specific areas of interest and subsequently reduces their impact on the findings. It could be argued that electronically recording interviews will avoid these problems and adequately address Flick's concerns.

Crowley et al. (2002) cite other problems associated with CAQDAS such as, they are excellent tools for counting and producing numbers, but users often fall into the trap of turning qualitative accounts into quantitative arrays of analysis by enumerating the facts rather than interpreting them. But the seduction of numbers can be evaded if the researcher adopts sound qualitative data analysis techniques and principles. Welsh (2002) argues that although CAQDAS often provides useful numerical facilities, it is not the primary strength of the software and often detracts from other more valuable uses. Finally, Bourdon (2002) expresses concern that CAQDAS distances the researcher from the research by providing a buffer between the person and the data, adding a superfluous layer of interaction. Bourdon's assertion is only valid if the CAQDAS is the sole interpretation technique and is used inappropriately. Concerned researchers may also use a complementary data analysis technique, such as hermeneutics, which helps overcome the buffer problem, as the data will be well understood prior to the use of CAQDAS.

Cannon (1998) expresses other misgivings about the use of CAQDAS. He claims that researchers risk taking a narrow approach to data analysis, if they focus too much on the software when interpreting data. In this way, researchers become alienated from the content. Furthermore, Seale (2010) cautions that the time invested in learning and using CAQDAS may not provide an adequate return of investment, which is a valid point, especially if it is not the primary data analysis technique. Fielding and Lee (1996) state that the use of CAQDAS should be primarily confined to coding, identifying key words and phrases, retrieving text segments; reducing the computer to no more than an electronic filing cabinet, prompting Seale to argue that theory building is better done in the mind or with the aid of paper, rather than through a computer interface.

Nevertheless, proponents of CAQDAS perceive it as a new dawn in the analysis of qualitative data. Welsh (2002) points out that CAQDAS assists researchers by providing them with better ways to manage their data and providing them greater flexibility in its analysis. CAQDAS supporters claim it provides greater data accuracy, improves transparency, creates faster and more comprehensive methods of data inquiry and offers more versatile and efficient ways off collecting, storing and reporting data (Basit, 2003; DeNardo and Levers, 2002).

Indeed, Flick (2010, p. 106) states 'the requisite for really effective qualitative analysis is efficient, consistent and systematic data management, such a requirement is an ideal job for a computer'. Furthermore, Welsh (2002) claims that CAQDAS opponents have a common misconception that the programme does the analysis for the researcher, which is erroneous. It is generally agreed that the researcher must still collect the data, code and name the segments, develop the tree nodes, create memos, develop queries and elicit models. It is obvious that CAQDAS just makes the repetitive and mechanical tasks of data analysis easier, but it will not do the thinking or theory building; this task remains solely the responsibility of the researcher.

Jones (2007) posits that where 'paper and pen' activities once thwarted the qualitative researcher's work, CAQDAS removes many of the less pleasant and time consuming tasks of data analysis. Basit (2003, p. 145) claims that 'researchers who use the packages are often amazed that this kind of work, with its thousands of pages of data, could ever have been conducted by hand'. Welsh presents the following analogy of how CAQDAS enhances the task of qualitative data analysis:

'It is useful to think of the qualitative research project as a rich tapestry. The software is the loom that facilitates the knitting together of the tapestry, but the loom cannot determine the final picture on the tapestry. It can though, through its advanced technology, speed up the process of producing the tapestry and it may also limit the weaver's errors, but for the weaver to succeed in making the tapestry, she or he needs to have an overview of what she or he is trying to produce. It is very possible, and quite legitimate, that different researchers would weave different tapestries from the same available material depending on the questions asked of the data. However, they would have to agree on the material they have to begin with. Software programs can be used to explore systematically this basic material, creating broad agreement amongst researchers about what is being dealt with. Hence, the quality, rigour and trustworthiness of the research is enhanced.' (p. 5).

Despite these continuing debates, CAQDAS are being increasingly employed for qualitative data analysis (DeNardo and Levers, 2002; Basit, 2003; Flick, 2010). As a matter of fact, a number of notable qualitative theorists have encouraged the use of CAQDAS within their research areas (Tesch, 1990; Miles and Huberman, 1994; Denzin and Lincoln, 1998; Krueger, 1994; and Patton, 2002). To sum up, Basit offers a further tribute to the advantages of CAQDAS by claiming that its use makes the life of the researcher less difficult. To demonstrate his point, Basit compares two approaches to data analysis. In the first project he completes his analysis using the 'paper and pen' method only and in the second project he uses the 'software method'.

He states:

'Data analyses were tedious and frustrating in the first project. In the second, electronic coding made the process relatively smooth, though considerable time had to be spent initially to get acquainted with the package. The computer also facilitated the analyses to be carried out in more depth and the reports generated were invaluable. Nevertheless, coding was an intellectual exercise in both the cases. The package did not eliminate the need to think and deliberate, generate codes, and reject and replace them with others that were more illuminating and which seemed to explain each phenomenon better.'(p.151)

# 4.10.3 Data Analysis methods: Hermemeutics and CAQDAS

Goble et al (2012) suggest that a valid and rich data analysis approach is to initially use a traditional qualitative analysis method of 'pen and paper', such as hermeneutics. Subsequently, they argue that a CAQDAS like NVivo should be used to validate earlier results and to elicit new findings to further understand the phenomenon under investigation. Although they caution that this combination of analysis approaches needs to be carefully planned and carried out.

Nevertheless, this complementary approach to data analysis is not without its merits, as it adheres to the qualitative 'purist' view on appropriate and suitable research methods, specifically in regards to validity and reliability. Yet this dual approach to analysis still enables the researcher to be innovative and creative with CAQDAS to get more value from the data and subsequently add to the richness of the findings. Where traditionally mixed methods were considered exclusively for data capture in qualitative research. Similarly, mixed methods are now a valid approach for data analysis as the following discussion demonstrates.

#### 4.11 The Research Process

As stated earlier in the chapter in section 4.5.3, one of the most important aspects of research is to decide on an appropriate starting point for it and on the strategy that frames how it will be conducted. Once these decisions are made, Remenyi and Williams (1995) claim that carrying out the actual research should be a fairly routine process provided well established methods are used. However, after the data is collected, not only does the researcher have to evaluate, adopt and use analytical methods such as hermeneutics and CAQDAS as discussed in sections 4.9.1 and 4.9.2, but also consider how the emerging evidence can be crafted into a sound and convincing narrative to answer the research questions.

# Barthes (1977, p.79) posits that

'The narratives of the world are numberless. Narrative is first and foremost a prodigious variety of genres, themselves distributed amongst different substances — as though any material were fit to receive man's stories. Able to be carried by articulated language, spoken or written, fixed or moving images, gestures, and the ordered mixture of all these substances; narrative is present in myth, legend, fable, tale, novella, epic, history, tragedy, drama, comedy, mime, painting . . . stained glass windows, cinema, comics, news item, conversation. Moreover, under this almost infinite diversity of forms, narrative is present in every age, in every place, in every society; it begins with the very history of mankind and there nowhere is nor has been a people without narrative. All classes, all human groups, have their narratives . . . Caring nothing for the division between good and bad literature, narrative is international, transhistorical, transcultural: it is simply there, like life itself.'

Czarniawska (2000) argues that Barthes's statement has had a profound effect on researchers who notice that narrative knowledge, all modernist claims notwithstanding, is the main bearer of knowledge in society (Bruner 1980, 1986). Although she claims that its main competitor, the logico-scientific kind of knowledge has a higher legitimacy status in modern science, the everyday use of the narrative form is all pervasive. Czarniawska points out narratives are a common mode of communication. People tell stories to entertain, to teach and to learn, to ask for an interpretation and to give one. Therefore, she argues that a student of social life, no matter of which domain, needs to become interested in narrative development as a form of knowledge, a form of social life, and a form of communication.

According to Bruner (1986, 1990), narrative knowledge tells the story of human intentions and deeds and situates them in time and space. Narratives mix the objective and the subjective aspects of data, relating it to the world as people see it. Remenyi et al (1998) point out that narrative thinking involves the construction of a consistent and convincing description of the subject matter under investigation. They further comment that the development of a narrative will largely depend on the qualitative data available. They conclude that the actual creation of a narrative is an art not a science, which explains why sometimes qualitative researchers can find themselves drawing on quantitative evidence for the development of a narrative.

#### 4.11.1 Primary Narrative to Paradigm/Model

Remenyi et al (1998) suggest that the end product for a narrative is usually a paradigm. They comment that the concept of a paradigm is usually linked, but not exclusively to quantitative research, where paradigmatic thinking involves the construction of laws, rules and conjectures from which deductions can be made. Indeed, researchers such as Kuhn (1962) points out that paradigmatic thinking and narrative developing are closely related.

# According to Czarniawska (1997):

'Any attempt to trace the dividing line between a narrative and scientific knowledge in texts regarded as representing one of two kinds of knowledge, soon reveals that 'science' is closer to narrative than one might think. There is an abundance of stories and metaphors in scientific texts, where folk tales and fiction are built on facts and sometimes even play with formal logic. Thus many works in the humanities and social sciences suggest a rapprochement between the two kinds of knowledge and consequently between the two types of text.'

Therefore, it is possible to consider both narrative and paradigmatic ways of thought as two poles on a continuum, along which ideas are refined from descriptive generalizations to specific statements of relationships as figure 4.7 illustrates.

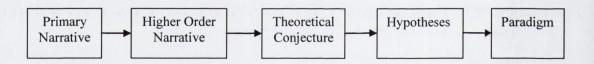


Figure 4.7 Progression from narrative to a paradigm

Popper (2002) suggests that narrative thinking is a way of developing scientific theories. He states that one of the novelties of the human language is that it encourages storytelling and thus creativity through imagination. He suggests that scientific discovery is akin to explanatory story telling. In fact, Remenyi et al (1998) claim that attempts to develop a model often start as narrative description from which the imagination is allowed to range freely over possibilities.

However, this research is not a quantitative study and the stages shown in figure 4.7 are not suitable for it. Therefore the stages identified by Remenyi et al in figure 4.7 needs to be modified to reflect the qualitative nature of this research, specifically, replacing the theoretical conjecture with concepts and the hypotheses with research questions. The newly adapted model is illustrated in figure 4.8.



Figure 4.8 Progression from narrative to a model (adapted from Remenyi et al (1998))

The process illustrated in figure 4.8 captures the flow of development for this research. A primary narrative is developed from the interviews and focus groups that will be summarised into a higher order narrative, consisting of important issues and concerns pertinent to the questions, essentially the themes emerging from the data. Subsequently, valid concepts will be identified and used to answer the research questions, all of which culminates in the development of a model.

#### 4.12 Conclusion

This chapter discussed various philosophical perspectives, before an interpretivist approach was selected as the most appropriate philosophy. Subsequently, Qualitative and Quantitative methodologies were compared and contrasted before a qualitative approach was selected as the most appropriate methodology. A range of qualitative data acquisition techniques were reviewed before interviews and focus groups were chosen as the most appropriate methods. Also, the importance of research rigour was explored in terms of credibility, transferability and dependability.

The chapter continued with the examination of data analysis techniques. Hermeneutics and a Computer Aided Qualitative Data Analysis Software (CAQDAS) were selected as the most appropriate analytical techniques for this research. Finally the development of a narrative was discussed. Narratives provide researchers with the ability to mix objective and subjective aspects of data, which enables the development of a paradigm or model. The next chapter describes how the data acquisition and analytical techniques were used to collect and analyse the data gathered from the knowledgeable informants.

# CHAPTER FIVE STRATEGIES FOR COLLECTION AND ANALYSIS OF DATA

#### Overview

This chapter outlines how informants from various LVOs were selected to participate in the data acquisition process. After this, the interview schedule is defined, as well as a description of how the interviews and focus groups were conducted. Following this, how the data was handled after the interview is documented, specifically the transcription and storage of data. In the next section the analysis of the data is explored through the development of primary and higher order narratives, which were supported by hermeneutics and cognitive maps to assist the visualisation and contextualization process. Finally, the use of a CAQDAS to support the manipulation and interpretation of the data is outlined and justified.

#### 5.1 Introduction

The aim of this chapter is to describe the process of selecting the informants for interview and participation in the focus groups to ensure that a thorough and transparent procedure is followed for data acquisition. The operation of the interviews and the focus groups is discussed to provide an in-depth insight into the rigour applied during the data collection phase. Subsequently, the development of a framework for data analysis through a series of narratives is described, before the role of hermeneutics and a CAQDAS for analysis is discussed and explained.

# 5.2 Selection of knowledgeable informants

As specified in chapter four, interviews and focus groups were the chosen techniques for data collection. The selection of knowledgeable informants to participate in the interviews and the focus groups is a critical part of research. The first step in the selection process is to create a list of potential knowledgeable informants, from which participants can be contacted to enquire about their willingness to participate in the research. The second step is to ensure that informants who volunteer to participate are knowledgeable about the use of ICT in their respective organisations and are able to make valid and meaningful contributions to the research. The third step is to ensure that participants operate at different 'levels' in the community and voluntary sector to ensure a broader understanding of how each level supports other levels for exclusive and mutual technical benefit. Although it should be noted that the focus of this research is on LVOs, so data gathered from informants operating at higher levels (county or national) in the LVO structure will only be used to aid the development of an understanding of ICT usage at the local level. Cognizant of these steps, interviews were conducted as follows.

Firstly, informants who operated at a local level in communities were interviewed in an attempt to ascertain how ICT was used by LVOs to support their operation and enable their members. Secondly, people who operated at a county or regional level of LVOs were interviewed to establish their perceptions of ICT use among local organisations and to evaluate how they were aiding the diffusion of technology locally. Thirdly, interviews were conducted with participants who worked at national levels of LVOs or for support organisations. These national informants provided data on how LVOs were using ICT locally and outlined their views on organisational enablers and barriers to the adoption of ICT, specifically examining how the higher levels of organisations were, or in some cases were not, providing top down support to LVOs, as well as detailing the difficulties in providing such help.

<sup>&</sup>lt;sup>23</sup> The term 'levels' indicates the various areas of Irish LVOs, specifically local, county, regional and national.

The informants' organisations were categorised into three sectors for the research: firstly, sporting; secondly, community and finally rural and agricultural. Sporting organisations predominantly consisted of football, hurling, soccer, athletics and golf clubs. Community organisations comprised parochial committees, parents' councils, active retirement groups, historical societies, community workshops, tidy towns and development associations. The rural and agricultural organisations included the Irish Farmers Association (IFA), Macra Na Feirme, agricultural show societies and the Irish Countrywomen's Association (ICA). In total there were 47 informants interviewed over a period of 13 months. The interviews started in May 2010 and concluded in June 2011. Table 5.1 illustrates the breakdown of interviews by LVO sector and interviewee level.

Sector	Total	Local	County	National	<u>%</u>
	<u>Informants</u>				
Sporting	20	14	2	4	43
Community	21	13	3	5	45
Rural & Agricultural	6	3	1	2	12
Total	47	30	6	11	100

Table 5.1 Breakdown of informants across LVO sectors and organisational levels

#### 5.2.1 Order of Interviews

Initially, informants were selected from the sporting sector as this was the area that had the largest membership in most communities. Subsequently informants from community and rural and agricultural LVOs were interviewed, as they were identified and agreed to participate in the research. The selection of participants followed a snowballing approach, where informants were selected primarily on the suggestion of others. Polkinghorne (2005) suggests that snowballing, also known as chain referral sampling, is considered a type of purposive sampling. With this method, participants with whom contact has already been made use their social and work networks to identify other people who could potentially contribute to the research. Snowball sampling is often

used to find and recruit 'hidden populations', that is, groups that are not easily accessible through other sampling strategies. One important consideration is to ensure that informants are not too similar in terms of background and experience, expressing similar views and opinions. A degree of heterogeneity between informants is important to ensure a rich and diverse dataset is acquired.

Although care was taken to ensure that no sector was overly represented in the data gathering process, as table 5.1 illustrates, equal representation of voluntary sectors was not achieved. The informants were primarily from sporting and community LVOs, largely because they are the largest voluntary sectors in Ireland, in terms of number of organisations and membership. Also, these sectors were found to have the most willing participants. However, data saturation was attained in all voluntary sectors, with the small amount of interviews conducted with rural and agricultural representatives particularly enlightening. Also, to further compensate for the imbalance in sector representation among informants, the first focus group conducted consisted exclusively of informants from the rural and agricultural sector, which ensured a balanced and solid representation of each sector. (See section 5.7)

### 5.2.2 Making initial contact

Initial contact was made with informants through email or telephone, depending on what was considered the most appropriate form of communication. If it was possible, the preferred medium of contact was the phone. This form of communication was deemed the most appropriate as it had a personal touch and immediately established a connection with the potential informant. Fontana and Frey (1994) suggest that it is important to establish a rapport with informants to ensure the success of an interview. Indeed, where contact was made with informants by phone, the likelihood of getting an interview was very high, whereas where contact was initiated through email the positive reply rate was relatively poor. Also, where contact had been initiated through the phone, arguably these interviews were the more productive and thought provoking, as the informants seemed to open up more during the interview and respond with more

insightful answers. These more productive interviews may be explained by the earlier phone call establishing a rapport with the informant, which made them feel at ease during the interview.

Unfortunately, in a couple of interviews where initial contact was made through an email, there were some awkward situations and less informative interactions with participants. Often during these interviews, it was hard to develop a rapport with informants, resulting in poorer responses to questions and less elaboration on their answers. Whether this poor set of responses was exclusively attributable to the initial form of contact is questionable. It could be that the personality of the informant was not conducive to questioning. Regardless of the cause, it certainly contributed to the sparse answers received from these few participants. Fortunately, most interviews originated from making phone contact with informants and were fulfilling, informative and enjoyable. An example of the email sent to informants is provided in Appendix D.

# 5.3 The Interview Schedule

The interviews were semi-structured in format. The development of interview questions was largely guided by the research questions as outlined in chapter one. Informants were posed questions and encouraged to go into detail with their answers, especially where the data was rich and useful. In some situations the interview did deviate from the schedule of questions, when the informant raised an interesting point of view or unusual opinion. Sometimes the interviewer followed a hunch as a result of a pause of silence or spate of laughter from the informant, to explore an issue further. Seidman (2005) points out that it is not unusual for the interview to deviate from the schedule of questions, when the informant responds to a question in a way that raises another area of interest for the research. He states that interview schedules are useful, but should be followed with caution. See appendix A for the interview schedule.

### 5.4 Conducting the interviews

The operation of interviews was conducted as follows. The researcher usually arrived early for the interview to gather any valuable pieces of information available to the public such as newsletters and reports. Usually, prior to the interview taking place, information would be gathered about the participant and their LVO. This information would be used to initiate some 'small talk' with the informant, a strategy that proved to be very successful for developing a rapport with him or her.

After the introductions had taken place, the objectives of the research were stated and the expectations of the interviewer explained. Subsequently, the ethical approval forms would be explained and presented for signature. Finally, the informant was asked if he or she were happy to be digitally recorded, a request that all bar one agreed to. Most interviews were held privately, without any interference from other people or noise. However at times, the informant chose to ask others to join the interview to comment; in such situations all ethical protocols were followed. All interviews bar one were conducted face to face.

Each interview commenced with the following statement.

'I would like to get your opinions on how your organisation is using ICT. Specifically, I would like to identify what forms of ICT your LVO uses? What are the barriers and enablers to the adoption and diffusion of technology in your organisation? Finally I would like you to tell me the important concepts that facilitate the use of technology in your organisation.'

As each interview proceeded with questions from the interview schedule, field notes were taken to complement the digital recordings and to aid the transcription of interviews. Babbie and Mouton (2001) comment that field notes are an important part of the interview process; they capture aspects of the interview that are not recorded digitally such as mannerisms and expressions, all of which contribute to the findings.

Also, reviewing the field notes and the transcripts together provides an in-depth and accurate understanding of each interview, which adds credibility to the findings. The majority of interviews were approximately one hour in duration, with the shortest being 45 minutes and the longest exceeding two hours.

Table 5.2 provides a list of informants that participated in interviews. It identifies their LVO of allegiance, their level in their organisation of affiliation, the sector to which it belongs and their position in it. The informants are a good broad representative mix of Irish LVOs and the roles that exist within them. The informants represent six chairpersons, seven secretaries, three PROs, eight managers, eight IT people, eight CEOs and other roles like board or committee member.

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<u>id</u>	Group Type	Entity	Level	Club	Position
1	Sporting	Soccer	Local	St Leonards	PRO
2	Sporting	Soccer	Local	Adamstown	Treasurer
3	Sporting	GAA	Local	Glynn/ Barntown	PRO
4	Community	Youth groups	National	Foroige	CEO
5	Sporting	GAA	Local	Horeswood	IT person
6	Sporting	GAA	Local	Horeswood	Secretary
7	Community	County Development	County	Wexford Community Forum	coo
8	Community	County Development	County	Wexford Community Forum	Secretary
9	Sporting	GAA	County	Wexford Co. Board	Co. Secretary
10	Sporting	GAA	Local	St Martins	PRO
11	Community	Disadvantaged	Local	New Ross Community Workshop	IT person
12	Community	Disadvantaged	Local	New Ross Community Workshop	Manager
13	Rural	Farming	County	Irish Farmers Association	IT officer
14	Sporting	Rugby	Local	Waterpark RFC	IT person
15	Sporting	Athletics	Local	Waterford Athletics	Committee
16	Sporting	GAA	National	GAA HQ	IT Officer
17	Community	Literacy and Advocacy	National	The Wheel	CEO
18	Community	IT Training	National	Enclude	CEO
19	Rural	Women	National	Irish Country Women's Association	IT Officer
20	Rural	Women	Local	ICA	Secretary
21	Community	Musicals	Local	Wexford Light Opera Society	IT person
22	Community	IT Delivery	Local	Interactive FX	Manager
23	Community	Parish	Local	Adamstown parish Committee	Chairman
24	Sporting	Soccer	County	Wexford Soccer	Secretary
25	Rural	Women	National	ICA	CEO
26	Rural	Farming	National	Irish Farmers Association	Treasurer
27	Community	Local Development	Local	Raheen Family Resource Centre	Manager
28	Community	Theatre	Local	Bui Bolg	Manager
29	Sporting	GAA	County	Wexford Co. Board	Co. Secretary
30	Community	Local Development	Local	Taghmon Action Group	Manager
31	Sporting	Soccer	Local	New Ross Celtic	Secretary
32	Sporting	Soccer	Local	North End Utd	Manager
33	Sporting	Golf	Local	Ross Golf Club	Member
34	Community	History	Local	Adamstown Historical Society	Chairman

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id	Group Type	<u>Entity</u>	<u>Level</u>	Club	<u>Position</u>
35	Sporting	GAA	Local	Rapparees	PRO
36	Sporting	GAA	Local	Adamstown	Chairman
37	Sporting	Soccer	National	FAI	Board member
38	Community	Retired	National	Active Retirement	CIO
39	Community	Local Development	Local	Rosslare Development Association	Manager
40	Community	Rural Development	National	Irish Rural Link	CEO
41	Sporting	GAA	Local	Black water	Chairman
42	Rural	Rural Life	Local	Adamstown Show Society	Chairman
43	Community	County Development	County	Wexford Development	Manager
44	Community	Poverty	National	Saint Vincent De Paul	IT Officer
45	Community	Youth groups	Local	Adamstown Parents Association	Secretary
46	Community	IT support	National	My Club Finances	CEO
47	Sporting	Soccer	Local	Duncannon	Chairman

Table 5.2 Characteristics of Informants and LVOs

# 5.5 Transcription of Interviews

Each interview was transcribed within a few days of being completed. After the transcription had taken place, the digital recording would be replayed and the interview content reviewed to ensure consistency between both, a tedious yet important act. Subsequently, the digital recordings were listened to again, to begin to understand the data captured during the interview. Listening to the content proved to be an invaluable way to understand the data, but perhaps more importantly led to an evolution of some questions and emergence of new ones. Also, listening to the interviews enabled the conceptualisation of the important aspects of each interview. Indeed, it was during the relistening of interviews that the proposed model for this research began to emerge and take shape.

#### 5.6 Order of interviews

As documented in section 5.2, the initial set of interviews was predominantly with informants from sporting LVOs. Subsequently, the interviews continued with informants from both community and rural and agricultural LVOs, with sporting participants interspersed on an as needed basis. The overriding aim of the data gathering stage was to attain valuable and useful responses to questions until data saturation had been reached. There was also a strategy in place to ensure that informants were not only from different sectors, but volunteered or worked at different levels in the organisation. For example, some participants worked at county or provincial level, whilst others operated at national levels. Interspersed between interviews were two focus groups, the first of which took place after interview 24, whilst the second took place after the interviews had been completed.

#### 5.7 Focus groups

The first focus group took place in October 2010. It was organised by the county board of one of the main rural and agricultural organisations in Ireland. Eight female representatives from different clubs affiliated to the organisation attended the focus group. The participants were homogeneous in terms of sex, age profile and background as table 5.3 illustrates.

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			0= very poor, 3 = average, 5= excellent	
<u>ID</u>	Group	Age profile	Level of ICT experience <sup>24</sup>	
1	Camross	40-50	4, Good, capable and confident with ICT	
2	Camross	50-60	2,Limited in ICT knowledgeable, but interested	
3	Kilmore	50-60	3, Average, can do the basics with technology	
4	Enniscorthy	60-70	3, Average, can do the basics with technology	
5	Cushinstown	60-70	3, Average, recognises much more to learn	
6	Clonroche	40-50	4, Good, capable and confident with ICT	
7	Oulart	30-40	5, Very Good, technically proficient	
8	Bree	40-50	4, Good, capable and confident with internet	

Table 5.3 First focus group participants

Carey (1994) recommends that focus groups should be homogeneous in terms of age, status, class, occupation and other characteristics, as this homogeneity will influence how participants interact with each other. Indeed, Fern (1982) advises that there are only slight differences when comparing homogeneous and heterogeneous focus groups and these do not suggest that the maintenance of heterogeneity is necessary.

The focus group began with some brief introductions. The objectives of the focus group were outlined and the role of the moderator defined. The participants were asked to sign ethical approval forms and promised anonymity in return for their participation. After a few brief questions from participants, the focus group began. Basch's (1987) vision of a moderator was adopted for the operation of the focus group. He claims that the moderator needs to provide a non-threatening supportive climate that encourages all participants to share views. He further comments that the moderator should facilitate interaction among members, interject probing comments when appropriate, ask transitional questions and provide summaries without interfering too brusquely with the dialogue, while relying on their own judgement to abandon certain lines of questioning.

<sup>&</sup>lt;sup>24</sup> Level of ICT proficiency as described by informants

The participants were presented with a series of questions and allowed time to discuss answers. The questions presented were similar to those used for the interviews with some modifications to suit the participants' backgrounds. Very few interruptions were needed during the focus group. In fact, there were only two interruptions, the first to clarify a point made by a participant and the second to move the discussion forward as the group had begun to discuss non relevant issues and had lost focus of the research question. The focus group lasted 90 minutes and was a great success with a rich set of data acquired, a fact that was primarily attributable to participants being enthusiastic and interested in the topic.

The second focus group took place in June 2011, it was organised with participants who had been suggested by informants during the interview process. Six people attended the focus group, which took place at a local community centre and lasted 75 minutes. The profile of the informants is illustrated in table 5.4.

-	or appropriate at the	deportunid s	St. Garage	(0= very poor, 3 = Average,5 = excellent)	
<u>ID</u>	Group	Sex	Age	Level of ICT experience	
1	Adamstown Athletics	Female	40-50	4, Knowledgeable about ICT	
2	Combined Lotto	Male	40-50	3, Adequate level of experience with ICT	
3	Adamstown GAA	Male	30-40	4, Knowledgeable about ICT	
4	Parish Council	Male	50-60	2, Limited knowledge of ICT	
5	Wexford Golf Club	Male	40-50	3, Adequate knowledge of ICT	
6	Community Alert	Female	60-70	2, Limited knowledge about ICT	

Table 5.4 Second Focus group participant characteristics

This focus group consisted of heterogeneous participants, with each representing a different LVO in the local community. The modus operandi of this focus group was exactly the same as the first, with the same preparation taking place and similar arrangements in place for recording the group. Once again the focus group was successful, perhaps even more so than the first. The participants were enthusiastic and generous with their opinions, suggestions and experiences. They clearly understood the value of ICT to their respective LVOs and more importantly how it could be used to enable their operations and empower their members.

An important issue of note was that although the second focus group revealed little information that had not already been gathered from interviews, it proved useful for validation of findings and confirmed that data saturation had been attained. Also, it was interesting to see the impact that those who belonged to a technically advanced LVO had on those that were not as ICT enabled. Peer pressure is obviously important in community development as no LVO wants to be seen as technically inadequate or not up to date with ICT. At the end of the focus group, the participants were presented with a version of the proposed model and they provided some interesting perspectives on its suitability and appropriateness to their LVO, which were subsequently adopted into the model. The broad nature of interviews and focus groups and the diversity of informants produced a rich data set, a richness that made the analysis of the data complex and challenging.

Table 5.5 illustrates the phased approach used to elicit data from the knowledgeable informants. The data acquisition process began with a comprehensive literature review (see chapters two and three) of the CI area, which led to the development of research questions. Subsequently, a series of interviews and focus groups took place to elicit primary data from informants.

Chapter 5: Strategies for Collection and Analysis of Data

Phase	Knowledge	Sources	Data Collection method	Dates
1	Uses of ICT by LVOs, barriers and enablers to adoption of technology and CI models	Literature review	Documents, papers and journals	October 2007 – August 2009 inclusive
2	Attitudes and perceptions towards ICT, uses of technology, barriers and enablers to technology, best practice	Selected knowledgeable informants from various LVOs	Interviews	March 2010 – June 2011 inclusive
3	Attitudes and perceptions towards ICT, uses of technology, barriers and enablers to technology, best practice, comments on emerging model	Selected knowledgeable informants (homogeneous and heterogeneous)	Focus Groups	September 2010 and June 2011

Table 5.5 Data collection phases

# 5.8 Data Sources and Analysis Process

The next step of the research was amalgamating the evidence collected during the data gathering phase. This data consisted of responses gathered from interviews and focus groups, as well as other forms of support material such as brochures, reports and documentation. Sometimes the support material was attained from the informant after the interview had taken place; other times relevant information was gathered from websites, which was particularly the case when dealing with provincial and national levels of LVOs. Figure 5.1 illustrates the different sources of evidence gathered during the data capture phase.

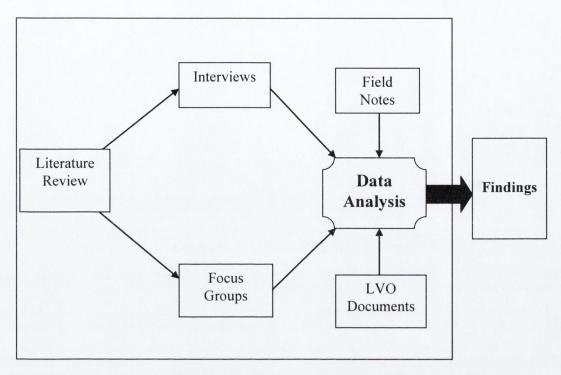


Figure 5.1 Overview of data collection and analysis process. Adapted from Pather (2006)

# 5.9 Data Analysis: A framework for model development

The transition from data gathering to analysis is a difficult step. Remenyi et al (1998) claim that it is a phase that often requires the most creativity and therefore should not be limited by the strict adherence to any given method, but should be open to a high degree of flexibility and imagination. Figure 5.2 has been adapted from Remenyi et al to illustrate the analysis process adopted for this research from the development of a primary narrative to the emergence of a new model.

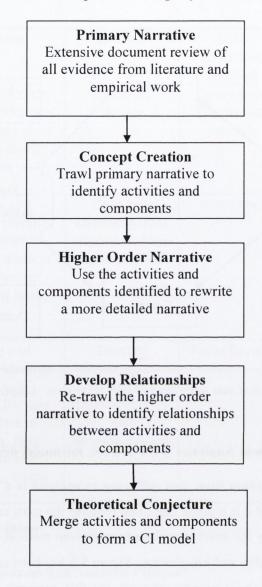


Figure 5.2 A framework for the development of a CI model (Adapted from Remenyi et al (1998))

Originally Remenyi et al posited that the primary narrative should be trawled for concepts, which were defined as an idea or notion derived from one or more specific instances in the transcripts. In figure 5.2, this trawling process has been expanded to cater for activities and components. After the initial set of activities and components have been identified, a higher order narrative is developed, which is essentially a detailed description of the more important activities and components and their implications on the research findings.

Remenyi et al comment that the higher order narrative captures the essential aspects of the information represented in the primary narrative, but provides a more parsimonious conceptual framework in which the ideas are defined. Subsequently, these ideas are evaluated and relationships formed between them; it is important to understand these, as they form a critical part of the emerging model.

Finally, the development of theoretical conjecture is considered, an action that is of critical importance to the research and therefore should not be rushed (Remenyi et al, 1998). The theoretical conjecture should provide the basis for the development of the model, but Remenyi et al caution that this process is by no means definitive. Indeed, they argue that the formulation of theoretical conjecture should always be regarded as provisional and should not prevent the researcher from changing or further developing his or her ideas.

### 5.9.1 Application of framework

As outlined in figure 5.2, a phased approach was adopted for the analysis of the data. In the first phase reflection began with the primary narrative which consisted of the digital recordings, interview and focus group transcriptions, support material and field notes. Each document was repeatedly read and recording listened in order to gain an understanding of it. As this reflective practice continued, it was decided to tabulate the initial findings into a series of datasets to reflect the views of the informants. Initially, it was important to understand the differences between informants in terms of their individual backgrounds, their level of technical proficiency and to appreciate the backgrounds and profile of their LVOs and its role in the community. See appendix E.

Subsequently, the informants' views on the use of ICT were measured in areas like the availability of a website and its associated services, use of word processors, spreadsheets and databases, mobile phone calls and texting, social networking, sophisticated systems like payroll and registration systems and finally adoption of cloud services. Consequently, all measurements were combined to provide an ICT index to indicate the level of technical adoption and diffusion in each LVO.

The information gathered on ICT usage, not only helped understand the level of technology diffusion in each LVO, but also in each of the three voluntary sectors. This information provided the first insight into the differences between each sector's uses of ICT. Subsequently, this understanding led to a differentiation emerging between the levels of technology adoption in LVOs into basic and sophisticated levels of usage. See appendix F.

The barriers to the adoption and diffusion of ICT by LVO members were evaluated in appendix G. Some of the barriers identified by informants were access to broadband, lack of technical expertise, funding, internal member resistance as a result of their poor perception of technology. All of these and other barriers were evaluated and rated in an attempt to identify the primary barriers that obstruct the use of ICT in LVOs and consequently across each of the three sectors. Identifying and understanding the barriers to technology adoption in LVOs is a critical step in the analysis of how these organisations use ICT, as it facilitated the identification of measures that would reduce the impact of the barriers on them. See appendix G.

The enablers that promote the use of ICT in LVOs were detailed in appendix H. Some of the enablers identified from the data were technical expertise from members, identification of an ICT champion, supportive management committee and the inclusion of members in all facets of technical development. Once again, these characteristics were measured and aggregated to identify differences between LVOs individually and collectively as a sector. These enablers helped identify best practice among LVOs and provided important concepts and activities for inclusion in the model. See appendix H.

The problems and concerns of LVOs are identified in appendix I. Specifically participants identified areas in their LVO where ICT could make a telling contribution. Some areas captured from the data were supporting administration of organisation, enhancing communication between members, improving information and services, developing education and training opportunities, promoting collaboration and retaining skills and culture. The impact of each of these problems and concerns was rated in order of importance, which provided an insight as to where LVOs needed the most assistance to facilitate them use ICT efficiently. See appendix I.

The concepts and activities identified by participants for inclusion in the proposed model were specified in appendices J and K. Appendix J concentrates on the organisational and members considerations for the diffusion of ICT into their LVO. Some of the concepts identified were addressing members' needs and including them in the development of technical solutions and providing members with training and education opportunities in a supportive environment. The development of user friendly, easy to use systems was also deemed as important by participants, but its occurrence was surprisingly not as regular in responses as IS developers would expect.

Appendix K focuses on the technical considerations for the model. Specifically, this appendix contains requirements for identifying an internal ICT champion, who needs to be technically competent and able to gain members' support for the rollout of technology in the LVO. Other considerations expressed by informants were focusing on creating basic systems using simple technologies before 'ramping up' applications in terms of functionality and complexity, a strategy also identified from the findings of appendix F.

Some participants stated that the development of a technical strategy with a detailed plan and schedule for delivery of services was imperative to enable LVOs to create a technical vision. Some responses mentioned the need to focus on the development of additional services such as improvement of social capital, creation of economic opportunities and retention of culture. The bottom up development of technical

initiatives was also identified by participants as the most appropriate, as well as sourcing external ICT support in certain situations, especially where national levels of the organisation were providing little or no technical assistance.

Finally, notes were annotated to each of the appendices to explain how the measurements were developed and to provide assistance with further analysis of the data. At this stage, a hermeneutic approach to analysis was adopted to reflect on the concepts in order to develop a higher order narrative and to identify relationships and to subsequently conceptualise the key findings to form the proposed model.

### 5.10 Linking appendices' findings with literature review.

It is important to link the findings in appendices E to K to the concepts and activities identified in the literature review to establish some level of consistency between the initial findings and the work conducted by other scholars. The findings in appendix E provides an understanding of the informant and his/her LVO, which other researchers like Gurstein (2000), O'Donnell (2001) and Erwin and Taylor (2004) claim are an important first step for CI initiatives. Appendix E also contains data on the internal assets that exists within LVOs, which as Kretzmann and Mc Knight (1993) points out in section 3.3 are important aspects of LVOs that need to be identified and mobilised to develop sustainable voluntary organisations.

The findings in appendix F link directly to section 3.5 in the literature review. Specifically, the research conducted by O'Donnell (2001) and Gilligan (2005) influence these findings. Both scholars found that the use of technology by LVOs was influenced by comparable factors, however with the passage of time not only has the sophistication of technical solutions improved, but also the expectations of communities have broadened. The expansiveness of this technical diffusion is captured in section 3.7, section 3.8 and section 3.9 in the literature review, where concepts like social and cultural capital are evaluated and activities like economic development opportunities investigated. The findings in appendix F provide an understanding that will be useful for further investigation into the barriers and enablers that affect ICT adoption in LVOs.

The findings in Appendix G identify the barriers that obstruct the adoption and use of ICT in LVOs. One of the primary barriers is the exclusion of members from initiatives, which can be overcome by the adoption of a participatory design approach as described in section 3.6 in the literature review. Denison (2007) also points out in section 3.5 that acknowledging and addressing the barriers to technology adoption is a critical step for the diffusion of ICT into LVOs.

Appendix H identifies the enablers that influence positively the adoption of ICT in LVOs; some of these are identified in section 3.5 by O'Donnell (2001) and Denison and Johanson (2007) as important factors that need to be embraced and adopted by LVOs in order to promote the development of successful and sustainable technical solutions.

Appendix I provides an insight into the problems facing Irish LVOs and the concerns of their members. Identifying LVOs' problems has been acknowledged by Gurstein (2000), O'Donnell (2001), Gilligan (2005), Stillman (2007) and Denison (2007) in sections 3.4 and 3.5 as an important first step in providing technical solutions. The problems facing LVOs need to be understood before the use of ICT can be considered as a potential solution to them.

Appendices J and K establish what informants consider to be important for the deployment and usage of ICT in their LVOs. These findings link directly to section 3.6, section 3.7, section 3.8, section 3.9 and section 3.11. Also, these findings also allude to the importance of considering technology adoption and diffusion in LVOs (section 3.12). Finally the evaluation of solutions (section 3.13) is identified in the appendices as important.

# 5.11 Use of hermeneutics to analyse the data

As outlined in chapter four, hermeneutics was used to understand the different perspectives offered by knowledgeable informants, to make sense of the higher order narrative and to aid the development of the model. The research acknowledged that people are self-interpreting and engaged in a process to understand what is important and real for them, in order to create their own construction of reality, specific to their LVO. In order to make the hermeneutic analysis of the dataset rigorous and trustworthy, a strategy was needed that clearly explained the process adopted for analysis. To ensure rigour and trustworthiness was applied during analysis, two approaches were adopted.

The first approach advocated by Fry (2009) was adapted from work carried out by Paterson (2003). This approach is consistent with the hermeneutic circle of understanding, where new information was integrated with previous knowledge as the research progressed to create an enlightened view of the integration and use of ICT by Irish LVOs. The analysis of the data collected at various stages was combined with the identified concepts and followed the hermeneutic approach as advocated by Fry (2009). This method integrated the constructs of dialogue, the hermeneutic circle, and the fusion of horizons to define a process for data interpretation, as figure 5.3 illustrates.

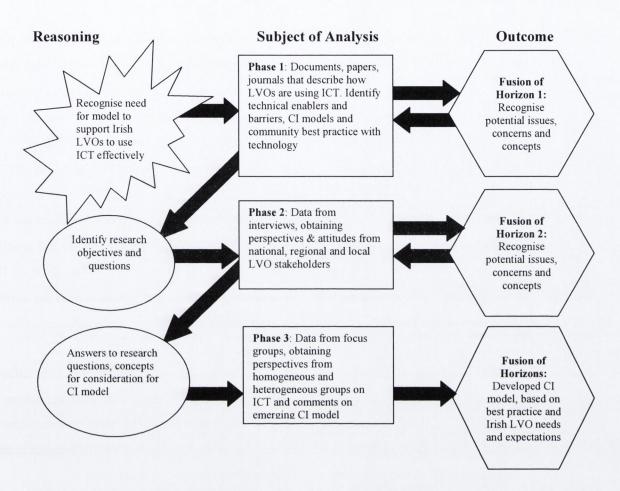


Figure 5.3 Hermeneutic data analysis (adapted from Paterson (2003))

Figure 5.3 illustrates the reasoning process for analysis of the data, as it evolves through each respective phase of hermeneutic analysis. An initial recognition of the need for additional knowledge on ICT usage by Irish LVOs results in the identification of the research objectives and questions at the end of the first phase of the study. Data is subsequently sought from knowledgeable informants operating at various levels in the Irish voluntary landscape to answer the research questions. By revolving through the hermeneutic circle at each level of the spiral, analysis alternates between seeking the meaning of individual parts of the data with holistically contextualizing this information within the overall interpretation of specific research questions. Fry's approach to hermeneutic analysis although sound, proved to be not detailed enough, especially in relation to personal prejudices and identification of themes, resulting in the search for a more detailed alternative approach to hermeneutics analysis.

The second approach adopted for hermeneutic analysis was developed by Cole and Avison (2007). They propose a six stage framework that facilitates researchers adopt hermeneutics as their analysis method, with an emphasis on understanding, explaining and interpreting data. Cole and Avison's framework is based on a constructivist approach to hermeneutics. Constructivist hermeneutics acknowledges the embedded beliefs of the researcher as the starting point in the process of coming to understand and interpret the phenomena under study. Packer & Addison (1989) argue that the focus of constructivist hermeneutics is to illuminate and articulate what generally goes unnoticed because it is ubiquitous and common-place. Cole and Avison's framework is based on the premise that every research action is an act of interpretation. The framework is based on an 'inorder-to' approach, where the future behaviour of a phenomenon is based on the current understanding of the past, a concept known as 'Dasein'.

Dasein is a hermeneutic circle of unconscious understanding and situated behaviour, where spirals of understanding arise from interpretations of an action or comment. The aim is to reflectively accept or reject interpretations; until the researcher is confident they have isolated their own prejudices and arrived at an understanding that makes a contribution to theoretical development, as figure 5.4 illustrates.

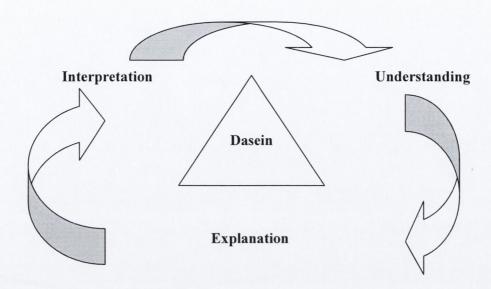


Figure 5.4 The structure of understanding

Cole and Avison claim that understanding the component aspects of a phenomena can only begin when the relationships between the 'parts' and the 'whole' have been established. They comment that from a holistic perspective, each part will be interpreted and its meaning and relationship to the whole consolidated into an emergent understanding of the phenomenon. This process results in a 'fusion of horizons' between the researcher and the participants. Cole and Avison claim that the ultimate aim is 'Verstehen' which represents the fusions of horizons regarding the totality of parts. Cole and Avison operationalise their framework into the following structure as depicted in figure 5.5.

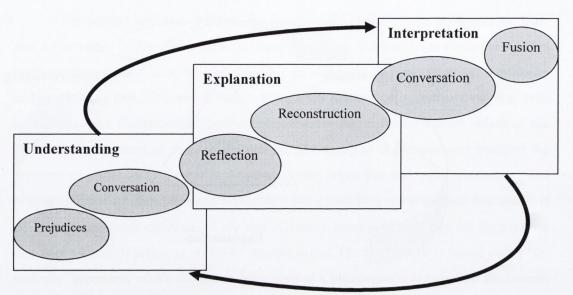


Figure 5.5 A hermeneutic framework for research

## 5.12 Cole and Avison's stages of hermeneutic analysis

### Stage One: The explication of prejudices

This stage clarified the researcher's presuppositions, which involved the explication of their prejudices. The aim of this process was to allow the researcher to understand their interpretive lens better, prior to data collection and analysis. This stage has two phases. The first phase requires the researcher to clarify their position in regards to the phenomenon; specifically, identifying their attitudes and values to aid a practice of self reflection. The second stage of explication involves the creation of a level of critical self-awareness about the researcher's interpretive horizons. This awareness is achieved by entering into dialectic with the CI literature, to ensure consistency between the researcher's views and other scholarship.

As the primary aim of this research was to understand the use of ICT by Irish LVOs, it was important that all personal prejudices and views were identified to minimise their impact on the findings. To ensure unbiased analysis, a series of comparisons were conducted between personal views of ICT use in LVOs and the contents of the literature review (chapters two and three), which not only uncovered valid

contributions, but also exposed prejudices. An example of a personal prejudice was that all sporting LVOs were fearful of using ICT.

### Stage Two: Formulating Lines of Enquiry

In stage two, the parts determined from the literature review to be key elements of the whole were used as themes for discussion for the interviews and focus groups. This stage imposed a structure on the line of questioning that drove the research process forward, as each interaction led to a richer appreciation of the phenomenon under investigation. The parts identified in the previous stage defined the themes for discussion in the next and facilitated movement between the different analytical stages of the hermeneutic circle: from deconstruction (as understanding) to analysis (as explanation) to interpretation (as understanding differently) and so on.

This stage involved the development of the interview schedule based on the themes and the evolution of questions after some interviews were conducted. The evolved questions better reflected not only the uses of ICT by Irish LVOs, but also addressed other areas of concern such as the individual barriers that limited their use of technology and the specific enablers that acted as technical catalysts.

#### Stage Three: Conducting the active interview

The interview process followed a line of questioning that was based on the themes identified in stage one and refined in stage two. The aim of stage three was to delve beneath the surface of superficial responses to obtain the true meanings of events and to try to understand informants' behaviours and experiences. This understanding was achieved by getting the informants to reconstruct their experiences within the theme under investigation. This stage required a focus on nuanced descriptions that offered something different from other observations.

For this stage of the hermeneutic process, the research adopted a stance of focusing on abnormal situations or different views. The aim of both the interviews and the focus groups was to uncover uses, barriers, enablers and situations that were not the norm in terms of ICT diffusion in Irish LVOs. This stance did not reduce the importance of the normal responses in regards to ICT use in Irish LVOs; rather it embraced and coupled them with the subtle nuances to ensure a broader and richer understanding was achieved. An example of a nuanced response was an informant referring to another member having concerns with ICT changing things for the worse, not the better.

### Stage Four: Analysing a Priori codes

This stage focused on reflection and reconstruction of the data gathered previously. The aim of this stage was to categorise the data, identify emerging themes and define connections between them as a means of explanation. Cole and Aviston claim where understanding is characterised by empathy and discernment, explanation refers to the act of making something intelligible through a rich description of the relevant structure, operation or context. Furthermore, they comment that interpretation is structured systematically through the themes identified for organizing data collection.

These themes are re-used as codes for data analysis. For example, the barriers that block some LVOs from engaging with ICT were identified as a theme earlier in the process. Subsequently, codes were developed to facilitate each barrier to be individually identified, understood, explained and interpreted in relation to the overall problem of technical diffusion in LVOs (see figure 5.12). These themes resulted in the development of a thick description of the phenomena and its constituent parts rather than just an explanation of how those parts are connected. Hence, data interpretation continued to further develop an evolving understanding of the themes, with an emphasis on identifying data variance rather than saturation.

## Stage Five: Breakdown in prejudices

Cole and Aviston claim that achieving a shared meaning of the data requires exposure to alternative worlds' on the part of the researcher and their participants. At this stage of reflection, breakdown requires the researcher to re-assess their particular understanding of each theme and its relationship with the overall phenomenon. Cole and Aviston comment that instead of moving towards interpretation, the researcher is left trying to make sense of the new information before them. This process involves a reductionist approach, where phenomena are refined into a finite set of occurrences or issues that can be explained and subsequently understood.

To this end, the research focused on identifying the uses of ICT expressed by participants. It evaluated the enablers that made some LVOs better than others at using technology and the barriers that inhibited the digitally disadvantaged organisations from making any substantial progress with ICT. Each participant's thick description broke down the theoretical anomalies emerging from the analysis and forced a reassessment of what had been learned, a reflective practice that was truly enlightening. All of which facilitated the new information to be appreciated in the context of what was already known and ultimately develop a new understanding for further evaluation.

### **Stage Six: Fusion of Horizons**

Cole and Aviston suggest that Verstehen is achieved when a consensus of shared meanings is distilled into an interpretation that is more informed and sophisticated, than any previous meanings, including those of the researcher's initial assumptions. Once Verstehen has been achieved, the researcher begins to combine elements of the research process into a narrative.

Weaving the narrative involved large amounts of intuitive decision making in regards to the concepts and activities and the associations between them. In developing the narrative, continuous refinement of the concepts and activities continues, iterating between the parts and the whole, until a coherent and useful description is developed. The meaning of each concept and activity captured from the higher order narrative and its subsequent interpretation was used to develop an emerging understanding of the issues that affect the adoption and diffusion of ICT by Irish LVOs. To aid the conceptualisation process, it was decided to use cognitive maps, as a way to visualize the data and clarify the linkages and associations between the concepts and activities.

### 5.13 Cognitive maps

Brinkman (2003) points out that Cognitive maps and other forms of conceptualisation tools like mind maps usually have a hierarchical structure and are developed using conventions, which makes them particularly useful for visualisation. The principle of these maps is that ideas should move from the abstract to the concrete as illustrated in figure 5.6.

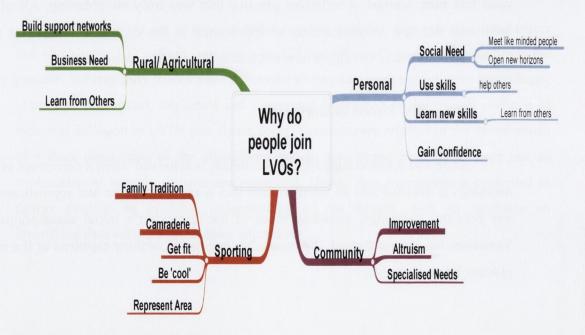


Figure 5.6 Cognitive map example

Eden et al (1983) argue that cognitive maps are an adaptation of mindmaps used to portray ideas, attitudes about concepts and the relationships between them. Ackermann et al (1998) argue that cognitive maps are a useful tool for ensuring the broad range of views and perspectives of informants are represented, with the aim of reaching a common understanding or consensus. Trochim and Jackson (1994) suggest that although the use of cognitive maps in qualitative data analysis is relatively uncommon, it is certainly useful. Northcott (1996) advocates the use of mapping as a tool for analyzing open-ended interview responses. He recommends cognitive maps as an expeditious method for handling the large volumes of data from interviews. In qualitative research, the raw data is broken down into themes and subsequently findings are derived. Patton (2002) claims that there is no formula for the analysis of qualitative data, only guidance, with the findings being unique to the investigator, yet remaining valid if methodologically sound techniques are used.

Mays and Pope (2000) also advocate the use of cognitive maps for qualitative data analysis. They claim that researchers should familiarise themselves with the content, immersing themselves in the raw data before they begin to create cognitive maps<sup>25</sup>. Subsequently they argue that researchers should identify key issues, concepts and themes from the raw data and label them into manageable chunks, linking themes or concepts and rearranging the data into 'charts' containing the relevant data. Finally the researcher should map the chart to define the phenomena, find associations and provide explanations relating to the original research aims or questions.

The creation of cognitive maps supported by a hermeneutic approach to analysis resulted in a deeper and richer understanding of the data gathered from informants. Specifically, the combined analysis approach illustrated the factors that influence the use of ICT, barriers that obstruct it and technical enablers that promote its diffusion in Irish LVOs. Knowledge was created from each cognitive map as a result of a fusion of horizons between the researcher and the informant's data. The researcher's pre-existing understandings of ICT issues were 'fused' with new information as it was gathered,

<sup>&</sup>lt;sup>25</sup> This research adopted this stance by creating appendices F, G, H, I, J and K.

interpreted and illustrated. A fusion of the past and present horizons in this interpretation phase resulted in an enlightened understanding of the potential uses, enablers and barriers to the integration of ICT into Irish LVOs, across national, regional and local perspectives, ultimately culminating in the identification of activities and components for inclusion in the proposed CI model. However, before the model could be developed, a further layer of analysis was needed to ensure that the findings were correct and consistent.

# 5.14 Use of NVivo to analyse data.

After the hermeneutic analysis was completed, the use of a suitable CAQDAS was considered to further the analysis and interpretation of the data. NVivo 9.2 was the chosen CAQDAS and it proved to be a useful tool for analysis of the research data. In excess of 50 hours of interviews that had been transcribed were easily imported into NVivo. Figure 5.7 illustrates the informants' transcripts stored in NVivo as internal sources of data.

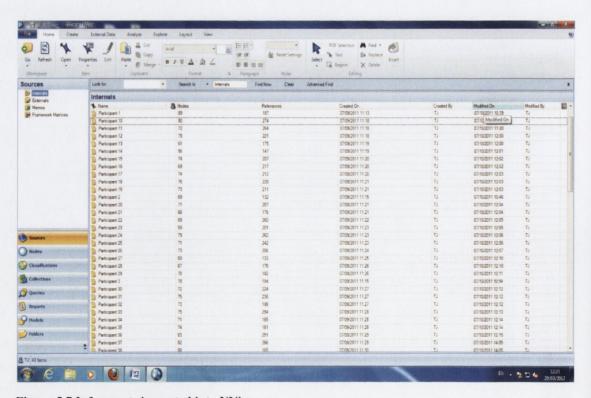


Figure 5.7 Informants imported into NVivo.

Data was initially coded based on the codes identified through the hermeneutic approach, which was a culmination of effort between the initial analysis of the data and the cognitive maps. The identification of nodes in NVivo is a relatively simple activity in terms of labelling, yet a difficult task in terms of identification. To this end, it was decided to adopt a multifaceted strategy for NVivo coding to ensure a concise and accurate method of node allocation for the research.

Firstly, Flick's (2010) use of 'intensive reading' was adopted, which is similar to 'intensive seeing' a common visual arts technique, where close attention and equal weighting is paid to all things, even the common or ordinary in the transcripts. Intensive reading ensures completeness in analysing the transcripts and more importantly ensures that all content is considered equal. Secondly, Flick's views on the coding of text was adopted, where he claims that it should be primarily analytical not descriptive, if it is to be useful to the analysis process. For example, 'creating a website' is a better and more useful code than 'using a computer', as it addresses a specific task, rather than a generic act.

Having previously identified most of the codes during hermeneutic analysis with cognitive maps, coding was a relatively straight forward exercise, one of the advantages of using a multi method data analysis approach. Thirdly, Charmaz's (2003) suggestions on questioning the content was followed, where the researcher constantly asks questions about the data to competently analyse it such as: what is going on? what are people doing? what is the person saying? what do these actions take for granted? how do structure and context serve to support, maintain, impede or change these actions or statements? An example of the data from informants used to identify the nodes is illustrated in figure 5.8.

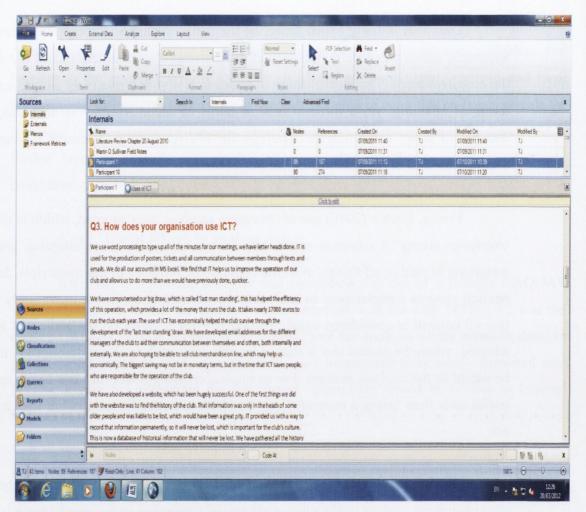


Figure 5.8 Illustration of first Participant's answer to question three

The selected pieces of evidence relevant to the codes are identified and highlighted, before they are finally named as illustrated by figure 5.9.

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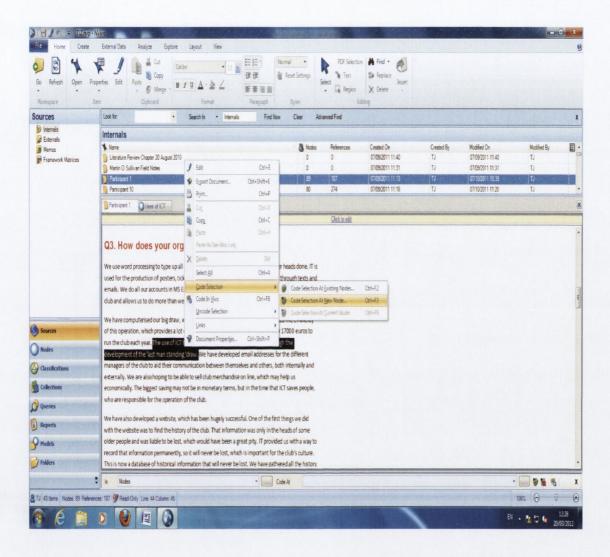


Figure 5.9 Coding of a piece of text

Subsequently more codes emerged that actually led to over-coding, a common CAQDAS problem (Blismas and Dainty, 2003). When the superfluous codes were eliminated through a thorough process of comparison between them and their relevance to the research questions, the initial set of codes for analysis were finalised, as figure 5.10 illustrates.

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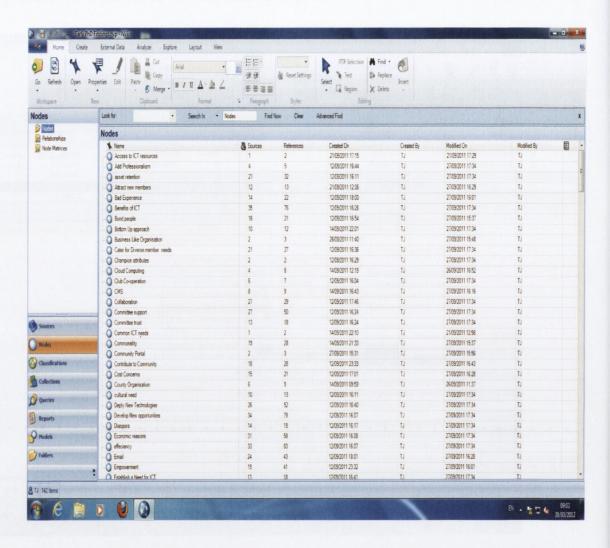


Figure 5.10 Initial set of NVivo nodes

Once the initial identification of nodes had been completed, a structure needed to be created that established a set of relationships between nodes. Subsequently, a higher order of coding was conducted that created tree codes, where common codes were grouped together into a second order of codes; for example, codes that relate to barriers to using ICT were grouped into technical and personal. Typical technical barriers were 'poor broadband' or 'lack of access to IT facilities'; while the personal barriers were 'lack of ICT knowledge' or 'inadequate training courses'. Figure 5.11 illustrates the second order nodes as captured by NVivo.

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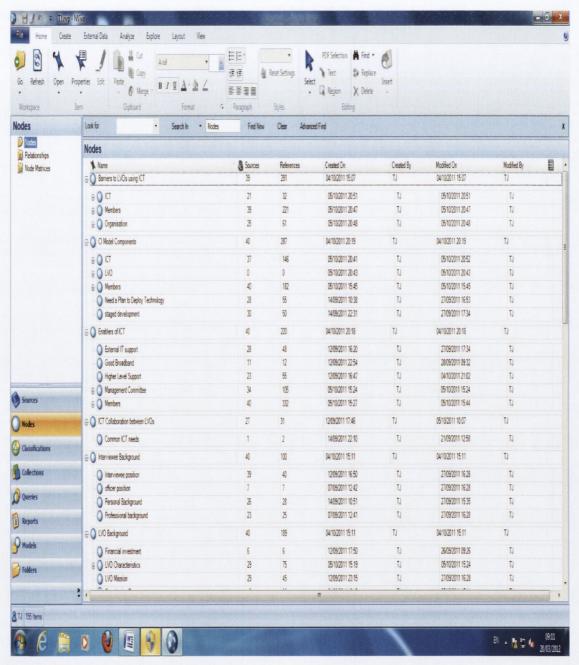


Figure 5.11 Second Order coding of nodes

Finally, these second order tree nodes were further grouped to create a third order of coding to more appropriately reflect the research questions outlined in chapter one as figure 5.12 illustrates; for example, uses of ICT, types of technology, technical enablers and barriers.

Chapter 5: Strategies for Collection and Analysis of Data

Go Refrish Open Properties Esit Paste Office Open Properties Esit Paste Office Open Properties Esit Open Properties Esit Open Properties Open Properties Open Open Open Open Open Open Open Open									
des	Look for • Search In • N	codes Find Now	Clear Adva	rced Find					
Nodes Relationships	Nodes								
Node Matrices	<b>★</b> Name	& Sources	References	Created On	Created By	Modified On	Modified By		
	⊕ ○ Barriers to LVOs using ICT	39	291	04/10/2011 15:07	TJ	04/10/2011 15:07	TJ		
	⊕ <b>0</b> KI	21	32	05/10/2011 20:51	TJ.	05/10/2011 20:51	11		
	Outdated Technology	8	9	05/10/2011 20:51	TJ	05/10/2011 20:51	TJ		
	O Poor Broadband	18	23	12/09/2011 16:21	TJ	27/09/2011 17:34	ŢĮ		
	Members	39	221	05/10/2011 20:47	TJ	05/10/2011 20:47	T.J		
	Fear of ICT by members	15	25	04/10/2011 20:55	TJ	04/10/2011 20:55	T.J		
	O Free time	10	14	12(9/2011 16/20	TJ	27/09/2011 17:34	TJ .		
	Lack of ICT expertise among members	32	55	04/10/2011 20:48	IJ	04/10/2011 20:48	T.J		
	Lack of training opportunities	9	20	12/09/2011 22:52	TJ	27/09/2011 16:28	TJ.		
	Poor Perception of ICT among members	19	30	05/10/2011 09:47	TJ	05/10/2011 09:47	TJ.		
	Resistance to ICT by members	28	68	04/10/2011 20:42	TJ	04/10/2011 20:42	TJ		
	Security concerns	8	9	12(5)(2011 16:22	IJ	27/09/2011 17:34	ŢJ		
	⊕ O Organisation	25	61	05/10/2011 20:48	TJ	05/10/2011 20:48	TJ		
r mm	Access to ICT resources	1	2	21/09/2011 17:15	TJ	21/09/2011 17:29	TJ		
Sources	Bad Experience with ICT	14	22	04/10/2011 15:09	T.J	04/10/2011 15:09	TJ		
	O Cost Concerns	15	21	04/10/2011 20:42	TJ	04/10/2011 20:42	ŢJ		
Nodes	No Planning	10	14	12/09/2011 23:44	TJ.	27/09/2011 16:28	II		
	No Trust of ICT Vendors	2	2	05/10/2011 20:49	IJ	05/10/2011 20:49	TJ		
Classifications		40	287	04/10/2011 20:19	TJ	04/10/2011 20:19	T.J		
Collections	<b>⊕ 0 </b> □	37	146	05/10/2011 20:41	TJ	05/10/2011 20:52	TJ		
	Deply New Technologies	26	52	12/09/2011 16:40	TJ	27/09/2011 17:34	TJ		
Queries	O Develop a suitable ICT Infrastructure	16	25	05/10/2011 20:44	TJ	05/10/2011 20:44	TJ.		
Reports	Establish a need for ICT	13	18	05/10/2011 20:41	T.J	05/10/2011 20:41	TJ		
ксуиго	Make ICT Central to LVO	26	4	05/10/2011 20:42	TJ	05/10/2011 20:42	T)		
1odels	O Promotion of ICT Use	5	7	05/10/2011 10:12	IJ	05/10/2011 10:12	TJ.		
	⊕ O t∧o	0	0	05/10/2011 20:43	TJ	05/10/2011 20:43	TJ		
Folders	Fit Organisational culture	17	25	12/09/2011 16:44	TJ	27/09/2011 17:34	TJ.		
	Focus on organisation needs	30	56	12/09/2011 17:42	TJ	27/09/2011 17:34	TJ		

Figure 5.12 Third Order Coding

A complete description of the coding process with links back to the concepts and activities specified in the literature review is available in Appendix L. This table illustrates the evolution of codes. Firstly, it shows the characteristics of the LVOs and the participants. Secondly, it shows the drivers that lead Irish LVOs to initiate a technological journey. Thirdly, it captures the enablers that make this journey achievable and also the barriers that may cause it problems. Finally, it specifies the activities and concepts that are deemed relevant to Irish LVOs and therefore worthy of consideration for inclusion in the proposed model.

When the coding process had been completed, the next step was the creation of memos that contained information about the nodes and the relationships between them. NVivo facilitated the identification of emerging ideas from data analysis through the creation of memos, which are a way of theorizing and commentating as the researcher codes the data. Flick (2010, p. 30) states that memos are 'essentially notes to yourself about the dataset'. Memos provide clarity and direction for coding and form a bridge between analysis, interpretation and reporting, thus proving a useful tool for expressing views on data. Gibbs (2002) points out that memos are suitable for capturing new ideas, documenting hunches, beginning discussions, questioning data, hypothesizing and identifying themes. Memos enable the analyst to express his or her CAQDAS findings in the context of what has been already been found through hermeneutic analysis, thus establishing a link between both data analysis approaches. This is important if they are to complement each other in a meaningful way. Figure 5.13 depicts the creation of a memo.

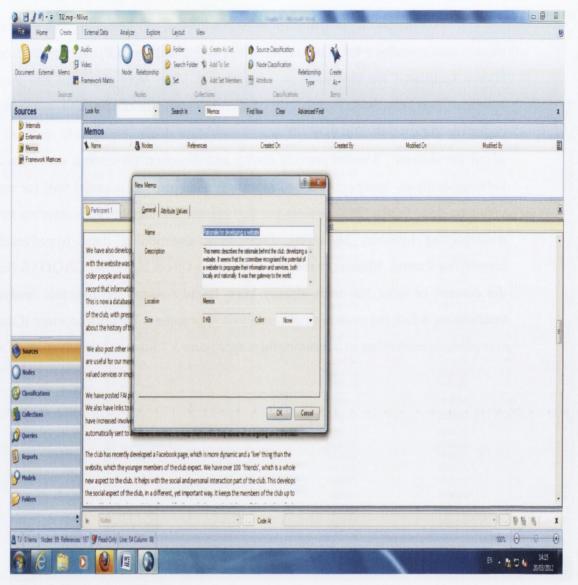


Figure 5.13 Creating a Memo

Finally, queries were developed to extract the data in different, yet useful formats to support the findings. There was a vast array of query options available, ranging from the quantitative, for measuring number of occurrences of certain codes, to the qualitative graphical models illustrating differences and subtleties between interviewees and their respective views. Regardless of how the queries are deployed, they are arguably the most valuable function of NVivo, as they facilitate the creation of graphical models that in the majority of times reveal already known facts. However, in some cases queries catch subtleties in the data that were previously considered irrelevant or differences that had

slipped through the hermeneutic approach, once again demonstrating the benefits offered by merging two dissimilar data analysis techniques. Figure 5.14 illustrates some of the queries developed to extract numerical and graphical information from the data.

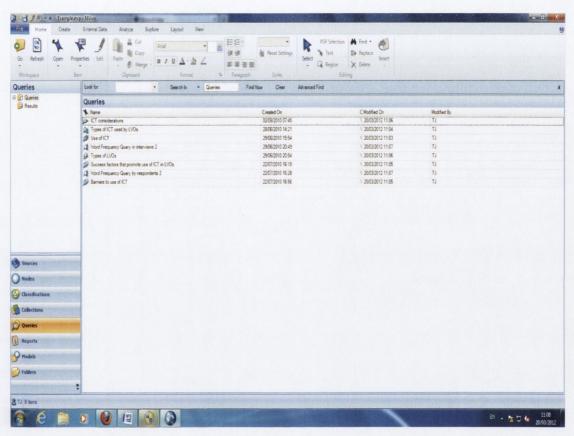


Figure 5.14 NVivo Queries

#### 5.15 Conclusion

This chapter described the operation of the interviews and the focus groups; it discussed the transcription and storage of the data gathered from the knowledgeable informants. Analysis of the data was described with cognitive maps initially, then with hermeneutics where Cole and Avison's staged approach was adopted, before finally NVivo was deployed to add a rich new layer of analysis to the data. The next chapter identifies the findings gathered from analysis of the data.

## CHAPTER SIX FINDINGS

#### Overview

This chapter begins with the set of findings from the data analysis, which are graphically illustrated using NVivo diagrams and cognitive maps and supported by informants' quotes. Each of the findings represents the evolving understanding of the data and contributes to the body of knowledge. Through further reflection, activities and concepts were identified that were suitable for inclusion in the model. Subsequently an order was developed to allow each concept and activity to contribute to the higher order narrative, all of which culminates in the development of the ENCITE model, which facilitates Irish LVOs' use of ICT to support their operation and enable their members to perform tasks more efficiently and access new services.

#### 6.1 Introduction

This chapter moves the development of a CI model to its next logical step. Six findings are presented and discussed with the aid of NVivo diagrams and cognitive maps. Each finding contributes to the development of a higher order narrative that will subsequently be used to create the proposed CI model. The narrative describes the contribution of each finding and provides an in-depth overview of ICT use in LVOs. The first finding identifies the impact that LVO problems are having on their operation and role in society and also addresses its members' concerns. The second finding establishes that some LVOs are better than others at using ICT to solve their problems and address their concerns. The third finding uncovers how the majority of Irish LVOs need support to facilitate their development and usage of technical services; specifically it identifies areas where this help is most needed. These areas will help shape the proposed model. The fourth finding identifies the barriers that inhibit some LVOs from using ICT productively, so that the model can encapsulate measures to facilitate organisations to overcome them. The fifth finding establishes the enablers that are catalysts for ICT adoption in LVOs; these help identify best practice for technical initiatives and will be embraced by the model.

6.2 Finding One: LVOs have problems that threaten their existence and their members have concerns that affect their participation in the organisation.

Figure 6.1 illustrates the problems faced by Irish LVOs and the concerns expressed by their members across their respective sectors.

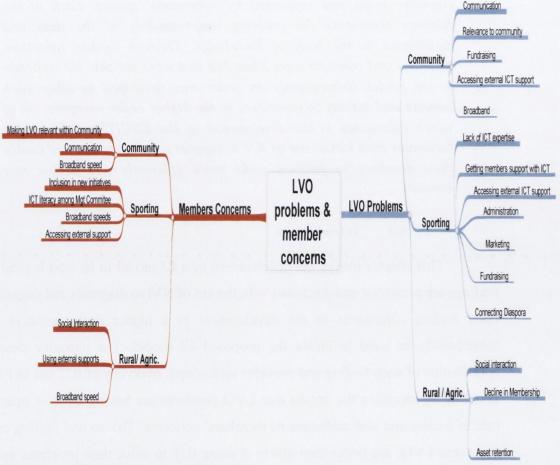


Figure 6.1 LVO problems and member concerns

The majority of LVOs cite problems that threaten their existence, specifically fundraising, relevance to community, declining membership and a lack of technical expertise. Members express concerns in regard to communication, inclusion in initiatives and a lack of abilities, one of which is technical. Also there are problems and concerns that are relatively unique to the various LVO sectors, as the following sections demonstrate.

### 6.2.1 Community LVO problems

Community organisations struggle with maintaining membership, recruiting new members and establishing their identity within an area, especially those that are diverse in nature or in a particular niche such as historical or vintage societies. One informant commented that his organisation had always struggled to attract new members.

'as it is seen by people as a niche organisation, who only cares about the past, which is not the case. In fact we want to use the past to help the community's future, but this is an ethos hard to communicate to people.' (MJB, 2011)

Some community organisations experience difficulty in communicating and interacting with their membership, as they often are geographically dispersed, owing to the small number of people that are in these organisations. One interviewee explained:

'Our membership is geographically dispersed throughout the country owing to the diversity of our organisation, which places a burden on how we communicate and interact as a group, only for mobile phones and texts, we would be lost.' (TMD, 2011)

Other community organisations are not traditional in terms of their dependency on volunteerism to exist. These LVOs tend to depend on external financial assistance to support their operation, as they usually have some paid employees who are assisted by volunteers. LVOs' dependency on finance to exist often leads them to experience a different set of problems to their volunteer based counterparts. Typically, these employee driven organisations tend to focus on community improvement and service provision. Examples of these LVOs are the numerous Action and Development Groups found throughout Ireland. The primary concern of these funded community groups is obtaining and sustaining their financial income, which is imperative for their survival. These LVOs have identified the services needed by their communities and are aware of the important contribution they make to their members' lives. However, these LVOs struggle on a

daily basis to do their work and sometimes even to maintain their existence, owing to monetary concerns. As outlined in section 3.9, the development of economic opportunities is a concern for LVOs (Loader and Keeble, 1996, 2007; Toland and Yoong, 2009). One informant expressed the following economic concern for his LVO:

'Cash is always a problem for our organisation; it is the primary barrier for expanding our services and lack of it would threaten our very existence as a development association.' (RF, 2010)

These 'business like' community organisations use ICT extensively to support their operation and extend their services, but largely depend on external technological support to install and maintain their systems, which places an onus on them to develop a strong working relationship with an ICT vendor, which often proves difficult. One informant asserted:

'We have gone through many different iterations with our website, as each external IT vendor we work with tends to deliver something completely different from what we wanted. To use a car analogy, we defined a Rolls Royce and got a Morris Minor.' (CM, 2010)

The lack of good quality broadband is still a major problem in Ireland, despite the many attempts that have been made to improve it. LVOs are struggling with internet connectivity, especially in rural areas, where improvements in broadband delivery and internet speeds have been at a glacial pace. The digital divide still exists in different areas of Ireland. This causes problems for those groups that are connectivity challenged, as it inhibits their adoption of ICT and ultimately impacts on their technological services.

One informant offered the following anecdote:

'The broadband sector has been slow to address the needs of rural Ireland, which is inhibiting the growth of these disadvantaged areas. I know one organisation, where they have to send someone a few miles down the road to a café to get internet access to receive orders for their services. It is funny, but unfortunately tragic. Access to broadband is a basic human right, as it has been decreed in Finland.' (SB, 2010)

Although, obviously improving the standard of broadband is outside the remit or scope of this research, accessing good quality broadband is unfortunately still a prevalent Irish problem.

## **6.2.2** Sporting LVO problems

As alluded to in section 3.3, one of the primary concerns for sporting LVOs is accessing internal ICT advice and support from their members (Kretzmann and Mc Knight, 1993). LVOs that have an 'ICT champion' tend to use technology well, while those not as fortunate are usually technologically disadvantaged. One informant stated:

'The primary reason our club is so technologically poor is that we have no one to drive anything to do with technology. We need a member to take responsibility for ICT, but sadly we have no such person and this has stopped us from using technology.' (PD, 2010)

The identification of an ICT champion unburdens the management committee of the need to seek and pay for external technical advice, which as documented in section 6.2.1 has often proved problematic and not provided value for money in the past.

<sup>&</sup>lt;sup>26</sup> See section 6.5.3 for an in-depth discussion on the contribution of an ICT champion to LVOs

One interviewee stated the following on their experience with an ICT vendor:

'We never felt like the IT Company got what we did as a group, or what we wanted our website to look like and do. It looks like they wanted the quick and easy money.' (GR, 2010)

Other informants cite problems with external IT vendors in areas of project scoping, delivery overrun and over charging. Member support is needed for LVOs in many ways, one of which is to assist with the roll out of ICT in their organisation. Clubs have found that getting support from members for an ICT initiative is difficult, but maintaining that commitment even more so. One interviewee stated:

'We need our members to buy into the concept of using technology to support the operation of the club, I don't think that they fully appreciate what we are missing by not using ICT.' (MM, 2010)

Sporting organisations provide extensive facilities and services to all age groups of society, which place a marketing and administrative burden on the chairperson, the public relations (PR) officer, the secretary and the treasurer. These officers constitute the management committee, who are largely responsible for the operation of the LVO, supporting the needs of current members and marketing the organisation to prospective members. As described in section 3.7, in recent times many communities have experienced a great deal of emigration, an action that can have disastrous effects on those left behind (Gurstein, 2007). In Ireland, practically all sporting LVOs have experienced emigration and they want to maintain connections with their recently emigrated members. This diaspora consists of valuable members who because of the recent economic downturn in Ireland find themselves living abroad, yet yearning to maintain a connection with their roots and their LVOs of affiliation.

#### One interviewee stated:

'We have lost 19 members to emigration in the last year; we find technologies like the website and our Facebook page invaluable to keep them in contact with their club and community. It allows them to feel involved and connected with us, even though they are on the other side of the world.' (JF, 2010)

Sporting organisations are aware that these emigrated members have valuable skills, expertise and connections that they want to retain and foster for their own development. Even if these lost members choose to stay abroad, it may prove useful to remain in contact with them, for purposes of employment and sponsorship.

Access to monies is a constant concern for sporting LVOs, with the majority requiring tens of thousands of euro to exist each year. This financial burden can only be eased by fundraising, which is difficult in the current economic climate. However, a small group of sporting organisations have become very innovative in fundraising, largely through effective use of ICT which has alleviated the problem somewhat, but they are constantly looking for new ways to create new funding opportunities. One informant asserted:

'We make most of the money used to run our club, through a draw called 'last man standing', all of the tickets are bought online and the draw itself is computerized to handle all of the match results and the predictions made by the entrants.' (AB, 2010)

Initiatives like 'Last man standing' demonstrate the potential of ICT to help LVOs create innovative funding opportunities, whilst at the same time encouraging their members to interact and collaborate together.

### 6.2.3 Rural and Agricultural LVO problems

Agricultural and rural based LVOs have a number of problems that threaten their existence. Firstly, these LVOs acknowledge that there is a social problem in and between their local groups. The lack of group communication is further compounded by the deterioration of interaction between members over the years, largely because of losing focus on their organisation's ideals. This social problem was discussed in section 3.7, where research by scholars like Bishop et al (1999), Putnam, (2000) and Carroll and Rosson (2007) demonstrated how poor social interaction and collaboration negatively impacted on LVOs and their communities. Many informants noted that changes in Irish smoking and drinking laws had reduced the level of social interaction among LVO members, particularly in rural Ireland. These social changes have reduced the impact that these agricultural and rural based LVOs have on their communities and diminished their relevance to members. One informant stated:

'Socially our organisation has changed dramatically, with the rise of the Celtic Tiger, people lost their focus on just being farmers, especially the younger ones and the older ones also had less interaction by day or night owing to the clampdown on drink driving. Less interaction promotes isolation, which isolates people from their group, which is not good for your business or yourself.' (KOS, 2011)

Secondly, some rural and agricultural organisations have experienced a decline in their membership, as their relevance to Irish society has dissipated in recent times. Some of the fall in membership is attributable to the diminishing relevance of the LVO to their members' daily lives, whilst the growth of the so called 'Celtic Tiger' was also perceived as a catalyst for the deterioration of membership.

<sup>&</sup>lt;sup>27</sup> The Celtic Tiger is the name given to a period in Irish history of expansive growth and development, which lasted from early 2000 to 2007.

This problem was neatly captured by one informant.

'We experienced a drop in membership as people moved away from their traditional values, which meant that our organisation had to reinvent itself to make it relevant to current members and to attract new ones.' (EW, 2011)

This statement typifies the challenge facing the majority of Irish LVOs, as they strive to maintain their relevance to their members and place in communities. LVOs need to reinvent themselves, become more relevant to people, identify and address their members' problems and concerns. LVOs need to get back to their core values, which some have unfortunately moved away from, yet still move with the times in all facets of their operation to remain relevant to people in modern Ireland.

Thirdly, in a bid to bring the organisation into the 21<sup>st</sup> century, some LVOs have lost sight of their founding ideals and in an effort to reposition themselves in Irish society found themselves somewhat irrelevant to their communities. The important assets possessed by their members like skills, experiences and expertise that these rural based LVOs have assembled over the decades, and in some cases become famous for, have been lost in the race to secure their future. A good example was cited by a participant:

'We are an organisation that needs to get back to doing what we do best. We need to go back to our original role in communities, but still mobilise our vast assets to ensure we have a future.' (JOC, 2011)

These LVOs now acknowledge that they need to get back to their founding ideals, yet still try to make their organisation relevant to society and perhaps more importantly sustainable for the future.

#### One informant stated:

'We lost a lot of expertise over the years through the loss of members, which would be useful to have now. Perhaps we changed our focus too much to move with the times and by doing this neglected our rich heritage. I suppose the big question is how can we get some of what we have lost back??' (JD, 2011)

Managements of LVOs need to reflect on what they have become in recent times and carry out an in-depth investigation on their members' needs and concerns, because without this knowledge they will find themselves increasingly isolated. Acknowledging and addressing members' concerns is imperative for their survival as an organisation.

# 6.2.4 Summary of LVO Problems

The following table summarises the problems expressed by management of LVOs.

LVO Problems	Community	Sporting	Rural & Agricultural
Maintaining membership & attracting new members	<b>✓</b>	1	
Communication between members	1	1	
Attracting financial support	1	1	
Becoming more businesslike in operation	<b>√</b>		
Accessing Quality Broadband	<b>√</b>		✓
Identifying an ICT champion		1	
Identifying suitable external ICT supports		✓	
Getting members to support technical initiatives		✓	✓
Loss of organisational focus and ideals			✓
Mobilising members' expertise			✓

Table 6.1 Summary of LVO problems

### 6.2.5 Community LVO members concerns

Community organisation members believe that they are good at communication, but acknowledge that improvements could be made, both internally and externally. Common problems are managing and supporting their communication facilities and using ICT to improve interaction. This problem was neatly encapsulated by one interviewee.

'Community organisations communicate with their members primarily through texting, there is little email use, especially with the volunteer led ones. Over half the emails we send are not replied to. Communication is always problems, particularly externally.' (MR, 2011)

This statement can be explained by the fact that the level of ICT literacy among LVO members is poor and there is also reluctance in some LVOs to change their *modus* operandi to incorporate the integration of technology.

Attracting and maintaining external support is another concern for members of community organisations. This fear could be the loss of financial assistance, withdrawal of grant applications, acquisition of new members or just development of new training methods. Once again, members believe that the use of appropriate forms of ICT will enable them to expand their LVO's horizon from a largely local perspective to a wider global view. One informant stated:

'We use the web to look for new ways to educate our members, we look at other organisations and see what they are doing, we find that YouTube is particularly good for accessing training materials, it opens up a whole new world that previously was unimaginable.' (JF, 2010)

Some community affiliated informants are of the opinion that there is a wide array of external technical support available, so why not access it and use what is relevant to their needs? They believe that their LVOs need to evolve and move with the times and using appropriate forms of ICT facilitates the beginning of this change. This belief is similar to the views expressed by O'Donnell (2001) in section 3.5.

#### 6.2.6 Sporting LVO members' concerns

Members of Sporting LVOs are primarily concerned with the roll out of ICT services in their organisation, specifically the inclusion of their views in new technical initiatives. As section 3.6 outlined, members need to feel involved in initiatives in order to adopt and use them productively (Mc Iver, 2002; Pinkett, 2003; Erwin and Taylor, 2004; Stoecker, 2005; Stillman and French, 2009). Members of sporting LVOs feel that the management committee regularly makes decisions that affect them without considering their views or needs. Also, members claim that officers have been in place for years or decades in some cases and their vision for the LVO does not meet their current needs. A good example was cited by one of the informants.

'Our club had the same management structure in place for years and none of them were [sic]what you would call technical, so they do not see the importance or relevance for developing ICT services or applications, if it ain't broken, why fix it is their attitude, but the problem is, it is broken and has to be fixed!' (DD, 2010)

New ways are needed to ensure that members' vision for the future are incorporated into the LVO's strategic plans. The majority of members recognise that ICT provides a mechanism that improves communication, but often some of those less technically competent need proof, before the use of technology gets their approval.

#### One informant stated:

'When our management committee saw that ICT in the form of message boards and websites could help us attract Kiwis and Maoris to play rugby with us, they were not long about changing their attitudes towards technology and in fact started asking questions like what else can technology do for us?' (DD, 2011)

Sporting LVOs need to be cognizant of the fact that some members regardless of age profile are still wary about deploying ICT; these need to be shown how technology can help them and their organisation at all levels. The majority of sporting organisations tend to have very little technological support from those at higher levels in their organisation. And even the support from national or regional levels is not considered adequate by LVO members, owing to its inflexibilities and inadequacies. This problem was neatly encapsulated by one interviewee.

'We found the technological support from our national body inadequate and unsuitable for our needs; their ICT offerings and supports were too limited in scope and functionality.' (FOH, 2011)

Some informants believe that national bodies of sporting organisations need help themselves to develop appropriate policies, procedures, plans and supports to enable their local clubs to use ICT effectively. Local members think that national bodies of sporting organisations have conducted their businesses in a technical vacuum to date, with little or no interaction with their local clubs, which is a trend that needs to change.

### 6.2.7 Rural and Agricultural LVO members' concerns

Rural and Agricultural LVO members acknowledge that they all 'try to reinvent the wheel'; there is little or no interaction between groups who share affiliation. These LVOs may be only a few miles apart or even worse, exist in the same community. Some of this isolation may be attributable to natural competition between LVOs, but it is illadvised as it hurts LVOs individually and collectively and threatens their existence. One informant commented:

'There is little communication or interaction between us and our fellow clubs and none between our club and other sporting organisations, we never considered that we needed it, but when I think of it, maybe we have been wrong.' (SW, 2010)

Members acknowledge that they also need greater external support from their national organisations. Although members recognise that their national bodies have a huge task in managing such a sizeable membership, they believe improvements can be made in communication and co-operation, both vertically and horizontally in LVOs for the betterment for all. A good example was cited by one informant.

'We try to develop as much links with similar clubs as we can, but it is difficult with such a vast and widespread membership. However, we do acknowledge that it has to improve and computers are one of the ways to do this.' (DF, 2010)

Finally, rural and agricultural LVO members recognise that ICT has a role to play in their future. However, they acknowledge that the majority of them are technologically deficient and need support to help them acquire a basic level of technological competency that will allow them to engage with appropriate electronic services. This finding was in line with Carroll and Rosson's (2007) research on the Civic Nexus project and the work of Pinkett (2003) in Camfields estate. Both researchers acknowledge the importance of ICT training in developing sustainable ICT solutions.

One interviewee in this research asserted:

'We need to make our members comfortable with technology, educate them about its potential, get them interested in using it and make it part of the club's culture, which currently it is not.' (BP, 2011)

However, to achieve this aspiration, it is evidently clear that members need education about the potential of ICT and training to enable them to adopt and use technical solutions.

# 6.2.8 Summary of LVO members' concerns

The following table is the concerns expressed by members from each LVO sector.

Members' concerns	Community	Sporting	Rural and Agricultural
Poor use of communications technology	1	✓	1
Fear of withdrawal of financial assistance	1		
Poor use of ICT	1	✓	
Inclusion of views in new initiatives	1	✓	
Poor perception of ICT by management		1	
Lack of technical support from higher		✓	1
levels of the organisation			
Poor intra organisation communication and			1
Collaboration			
Limited development of new opportunities			1
Becoming proficient with ICT		✓	1

**Table 6.2 Summary of Members Concerns** 

### 6.2.9 Key Points of Finding One

LVOs cite many common problems such as attracting and keeping members, improving internal communication, enhancing external links with stakeholders, encouraging members' involvement in peripheral organisational activities, getting greater support from higher levels of their organisation and fund raising. Some of the problems most prevalent in community groups are: establishing an identity, accessing

external financial aid and obtaining external ICT support. Sporting clubs see improving their operation and identifying an ICT champion as their most prominent issue; whilst rural and agricultural LVOs worry about arresting the decline in their membership, refocusing their organisation's vision and improving social interaction among their members.

Members of LVOs have expressed some common concerns such as the dearth of new initiatives and their inclusion in the few that have been created, and the paucity of opportunities to educate and train themselves in areas pertinent to their organisation, one of which is their use of ICT. Across the various sectors, relatively unique concerns are identifiable. Community group members displayed anxiety about their relevance to society and their continued existence. Sporting groups are primarily concerned with the poor perception of management towards ICT and being able to leverage technology to improve the organisation as a whole, whilst rural and agricultural groups predominantly want greater support from higher levels of their respective organisations.

### 6.2.10 What is new or original about Finding One?

The majority of the problems expressed by LVOs and the concerns gathered from their members can be solved using various forms of ICT. However, before these technical solutions can be developed and deployed, the LVO needs to evaluate itself through a SWOT analysis to identify the strengths that they can mobilise for the good of the organisation, the weaknesses they need to improve, the opportunities they have to grasp and the threats that need to be tackled.

Only immediate action by LVOs can help them address the threats that manifest themselves through their problems and their members' concerns. However the next logical step for the research is to establish how LVOs in various voluntary sectors are using ICT to help solve their problems and address their concerns.

# 6.3 Finding Two: Some LVOs are more effective than others at using ICT to support their operation and empower their members.

# 6.3.1 Introduction to Finding Two

This finding uncovers the different uses of ICT by the Irish voluntary sector. This finding initially identifies common forms of ICT that are pervasively used at some level across all LVOs. The finding continues to elicit other types of technologies that are specifically used by the community, sporting and rural and agriculture sectors respectively. To provide the reader with a picture of the diffusion of ICT in the LVO sector, a number of diagrams have been developed. Firstly, figure 6.2 was developed from a NVivo query. It illustrates the various types of technologies deployed by Irish LVOs across each sector.

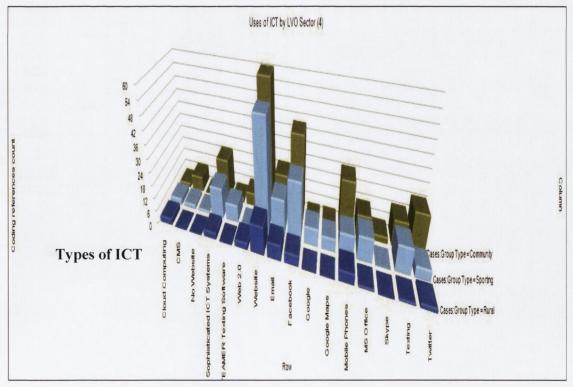


Figure 6.2 Use of ICT across each LVO sector from NVivo

Secondly, figure 6.3 was developed. It is a cognitive map that provides a more detailed picture of the uses of ICT across the Irish voluntary sector.

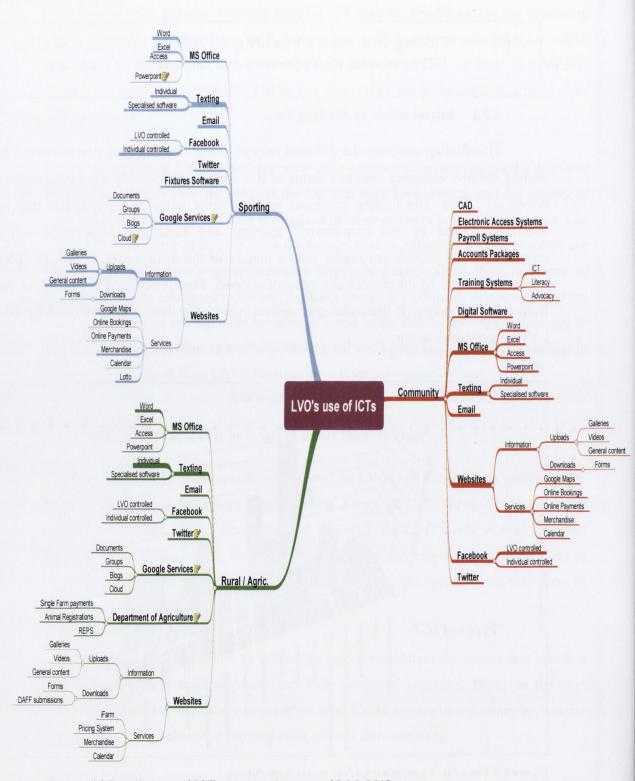


Figure 6.3 Detailed use of ICT across each sector of Irish LVOs

#### 6.3.2 Common forms of ICT pervasive across LVOs

Figures 6.2 and 6.3 illustrate the common forms of ICT used by Irish LVOs; these show that regardless of the voluntary sector to which they belong, the majority of LVOs that are effectively using ICT utilise a common set of technologies to fulfil their needs. Firstly, texting and telephone calls are the primary tools for inter LVO communication. Secondly, email is the most popular form of communication medium for intra LVO interaction.

## 6.3.3 Texting and Telephone

Texts and phone calls on mobile phones are the favoured communication medium of Irish LVO members. This finding is similar to the findings of Stoecker (2005) in section 3.8. In Irish LVOs, most texts and mobile phone calls between members are carried out on their own personal phones, although some larger LVOs do have their own mobile phones that are used by officers. One informant stated the following:

'I use my mobile phone for all communications with fellow members, I use it to tell them about dates and agendas of meetings, reminders of events and even to promote parent services.' (UMD, 2010)

Texting is used to such an extent in some LVOs, particularly in the sporting sector, that they have begun to use specialized texting systems, such as TEAMER<sup>28</sup> to send and track messages between members. These texting management systems capture results in real-time and use its internal logic to enhance the communications process between members; for example it will inform members of another member's availability for a match or meeting and facilitates interaction on blogs.

<sup>&</sup>lt;sup>28</sup> TEAMER is a dedicated texting application available to LVOs, free of charge

The following statement is a good example cited by one of the informants.

'We have begun to use TEAMER texting software in recent times and found it very cost effective and efficient. It is a typical example of how something so simple (technology) can make things a whole lot better (communication).' (AB, 2010).

#### 6.3.4 Email

For external communication, email is the preferred mode of interaction between LVOs and their members, although for some organisations, its use is still relatively limited. Often in sporting LVOs, the email address used is a personal one, which poses problems if that person leaves the club, as their private email address is often the only contact that other organisations have with them; fortunately there is a trend to rectify this acknowledged problem by developing dedicated email addresses for the LVO itself. One informant offered the following anecdote.

'We had a secretary, who used their own email address for all of the club's communication, which we thought was fine, until they left the club acrimoniously without passing on emails. Then we had lots of trouble getting a new email address and more importantly communicating it to all of the people we communicated with.' (BP, 2010)

Community and Rural and Agricultural LVOs tend to use dedicated email addresses for their officers. This nullifies the impact of a person who controls email leaving the organisation. There is, however, much resistance in some LVOs to using email, especially with groups that contain older people. Some people at local level in organisations such as retirement groups, Irish Countrywomen's Association and the Irish Farmers Association, tend to avoid communicating with email, owing to their lack of technical expertise and fear of technology. The lack of email penetration at all levels of Irish LVOs is a worrying trend, which needs to be addressed to improve communication and enhance the operation of the organisation.

This problem was encapsulated by one informant.

'Less than 10% of our membership would engage with us through email, yet the vast majority are willing to use email to book their Ryanair flights, so what is the problem. Members not engaging with email is costing us thousands of euros each year and wasting people's valuable time??' (JOC, 2011)

#### 6.3.5 Websites and Web Enabled Services

As depicted in figures 6.2 and 6.3, most LVOs have a website and some deploy associated services such as Facebook and Twitter with varying degrees of success. Nationally, most sporting organisations have a relatively sophisticated level of technological systems, ranging from the national website with a Content Management System (CMS) to online membership, registration and payment systems. Some, such as the GAA, are using services like Google Calendar, Forms and even Cloud computing to expand their services and improve their efficiency. A good example was cited by an informant.

'Nationally, community organisations have embraced the use of ICT and recognised the benefits that it offers them, the problem is now to migrate [sic] this technological trend to its local members.' (WH, 2011)

However, at local level, there is minimal use of ICT among sporting organisations, with a few rare exceptions. Primarily, LVOs from the sporting sector only use technology for texting, emailing, website development, word processing and sometimes accounts provision; some have began to experiment with Facebook, Twitter and Google maps with different degrees of success, but once again, it is very much administered in an ad-hoc manner, with little or no input or control from the management committee, which can be divisive.

#### One informant commented:

'Originally our club, let one fella do all the work with the website [sic], Facebook and even a bit of twittering, but in the long run, it caused us problems. He thought that as he created them, he owned all of the services and there was also very little input from other members, which alienated them as well. We changed that, now we have a technology committee who oversee all we do with technology and it has worked out brilliantly.' (SL, 2010)

LVOs that use sophisticated forms of ICT such as web services tend to have a number of common factors. Firstly, they all have an ICT champion, a member who is interested and knowledgeable about the use of ICT. This member is willing to take on a technical role in the LVO as s/he recognises the potential benefits that technology offers the organisation. Secondly, the majority of LVOs have a management structure that recognises the important role that technology can potentially play in developing their LVO. Thirdly, these technologically advanced LVOs have a membership that supports innovation through the diffusion of technology.

As figure 6.2 illustrates, websites are deployed in most sporting LVOs; however there is a huge difference between the functionality provided on them. The majority of sports based LVOs use websites primarily as a 'brochure' of activities for their members and the world; these organisations tend to use so little ICT, that there is usually only one phase of development, with a few rare exceptions. A good example of this approach to ICT development was cited by one of the interviewees.

'We used the template offered by our national headquarters to develop a basic website, its functionality is a bit limited mainly just communicating information about the club to its members, but it is better than nothing.' (BR, 2010)

A few sporting LVOs have added real-time interaction to their websites, in terms of dynamic updates, member registrations, internet banking, payment systems, online lotto's and merchandise selling, with development carried out in a phased approach under the guidance of an internal or external ICT expert. One interviewee stated:

'Our club uses technology as much as it can; financially we use online banking, we do all player registrations and payments online, we allow all bookings of pitches and facilities to be done online and purchasing club merchandise. You can even do [sic] the local lotto through the club's website.' (AOC, 2010)

Local community focused organisations tend to utilize a website better than their sporting counterparts; they recognise the important role that it plays in their operation. Community LVOs are willing to pay to get better, more functional systems developed; as described in section 6.2.5, they strive to develop relationships with an external ICT vendor and use that partnership for technical guidance, know-how and developments, usually at some level of discount on price. This technical partnership was neatly captured by an interviewee.

'We have developed a relationship with an external IT person over the past few years, who understands our needs and expectations for a website, knows our membership's wishes and is relatively cheap, in fact the person proved so useful, he has come onto our management board as a technical consultant, which is great.' (LM, 2010)

Rural and Agricultural LVOs are largely dependent on external support to satisfy their needs. These organisations tend to operate in technological isolation, with occasional ICT interaction required from their headquarters, if the management committee deems it necessary.

A good example was provided by one informant, who asserted:

'We don't really need anything like a website, because our membership is self contained and even if we did need one, the national office would help us get one done.' (KOS, 2011).

## **6.3.6** Social Networking Software

As discussed in section 3.11 and 3.11.1, the development of virtual communities and the use of Social Networking Software (SNS) like Facebook and Twitter by LVOs have emerged in recent times (Preece, 2001; Gurstein, 2007 and Toyama, 2009). In Ireland, in some cases SNS has become a critical part of the organisation's operation (see figure 6.2). The use of Facebook by sporting LVOs tends to be individually driven by a member, who is an advocate of social networking. This individual approach to administering Facebook can prove problematic, with content management and ownership issues arising. One interviewee stated:

'One of our members started a Facebook page himself for the club and we let him work away with it, as we saw no real harm, but then some of the content got a bit too close to the bone for some members and we had to have it taken down.' (PH, 2010)

The issue of content control is a major barrier for some LVOs, who choose to set up a Facebook page; they believe that the content may actually prove to be more damaging than helpful to their organisation and its members.

As figure 6.2 illustrates, community organisations are more positive about using Facebook than any voluntary sectors; they usually develop and control their own pages. Community organisations use Facebook as part of their strategic plans; they have recognised that it is more than a social medium, it can be used to develop a profile and awareness about their work and to recruit new members.

Several informants expressed their support for the integration of Facebook into their technical architecture; one commented:

'We are constantly looking for new technologies like Facebook that can help the organisation proclaim its mission, integrate current members and perhaps attract a few new ones.' (AOD, 2010)

Rural and Agricultural LVOs largely depend on their national bodies for developing and controlling their Facebook pages, with a few exceptions. Facebook at local level is not seen as relevant by Rural and Agricultural LVO members, as they feel that they do not fully understand its objective and that its use would be superfluous to their basic needs, which is unfortunate considering the earlier documented problem of isolation and social exclusion. Although there are some examples of rural people using Facebook to enhance their social life, this seems to be the exception rather than the rule. The reluctance of some LVOs to use Facebook is neatly encapsulated by the following statement.

'Our organisation does not really need anything like Facebook, that's for the young people. I don't really see any of our members logging on to it each evening, although I could be wrong.' (KOS, 2011)

Twitter is used only at national levels for the majority of LVOs; this is where this social medium is seen to make the greatest impact on the goals and ideals of the organisation. However, there are some LVOs, predominantly sporting based, that are beginning to explore uses of Twitter to complement their current ways of social interaction, specifically with a focus on seeking external partnerships and strategic alliances.

#### 6.3.7 Microsoft Office or similar

Practically all LVOs to varying extents use Microsoft's (MS) office suite of software or similar for word processing activities; these include creating posters, documenting minutes from meetings or writing letters. Spreadsheets are created for the development of rosters or time sheets and accounts purposes. Databases are used in a relatively limited way to capture membership details, financial payments and record attendances. Presentation software like MS PowerPoint is also sometimes used to present findings, proposals or instructions to other members.

One interviewee commented:

'We use as much of MS office as we can to help run the club, Word is used on a daily basis, Excel periodically, a limited amount of Access and maybe a little bit of PowerPoint, if the need arises. All of these make my job as secretary, a lot easier.' (PH, 2011)

In general, the use of MS office or some similar pieces of software are by individuals, who have personally acquired this software; this is particularly the case in sporting and rural based LVOs. Community LVOs, owing to their more 'business like' approach to operation, often purchase their own licensed pieces of software at reduced rates through organisations like ENCLUDE<sup>29</sup>.

#### 6.3.8 ICT use across LVO sectors

An examination of figures 6.2 and 6.3 on a sector basis provides some interesting perspectives on their uses of ICT.

<sup>&</sup>lt;sup>29</sup> ENCLUDE is an independent non-profit IT consultancy service to the Irish Nonprofit Sector.

## 6.3.9 Use of ICT in Sporting LVOs

Most sporting LVOs tend to develop relatively limited ICT systems and applications. But, there is a small minority of sporting LVOs that have developed quite sophisticated systems to aid their operation; they have created on-line services that enable members to make bookings and secured payments for facilities, purchase merchandise, play the local lotto, view calendar of events and access locations via Google Maps. This entire range of services developed on a phased basis usually follows a plan. A good example was cited by one informant:

'We have developed a 3 phase plan for the rollout of technology services in the club. Phase 1 is the web site and the content management system, Phase 2 is the development of Facebook presence and online shop and bookings. Phase 3 will focus on the development of a dedicated members section and possibly a mobile app for the club.' (FOH, 2010)

At national and county levels, sporting LVOs have adopted fixture software to generate random schedules of matches for a season and began to explore the use of Google services such as blogs, documents and groups. Some sporting organisations at national level are even beginning to deploy Google's Cloud computing as their technical infrastructure of choice; they believe that it will offer them efficiencies in cost savings and productivity in the long term and enable them to better serve their stakeholders.

#### 6.3.10 Use of ICT in Community LVOs

Community LVOs tend to use a diverse range of technologies to support their operation; this is attributable to the wide array of organisations in this sector. Typical uses of technology in the community sector range from Computer Aided Design (CAD) systems used to develop characters for dance and drama organisations to electronic access systems used for groups that offer childcare facilities and digital software for historical societies to facilitate the creation of visual artefacts. Also, some community

LVOs that employ people have payroll and accounting systems to support their operation and training systems that help disadvantaged people with literacy, ICT upskilling and seeking employment. This comprehensive use of ICT provoked one informant to state:

'We use a rich set of technologies to support our needs as an organisation, ranging from MS Word to accounting and payroll packages, all of which are vital for our operation.' (LS, 2011)

In regard to their websites, community organisations tend to develop specialized bespoke systems to meet their specific needs, usually with support from external ICT vendors. These systems often focus on areas such as member registrations, payments, subscriptions and booking of facilities. In general, local community organisations get little or no technical support from their national bodies, that is, if one even exists. One informant stated:

'A National IT support infrastructure is needed to support local organisations who [sic] cannot access external support, to help them adopt and use appropriate technologies. The 34 community forums dotted around Ireland may have a role to play in the provision of such a service.' (DG, 2010)

Most community organisations exist in technical isolation, with little or no interaction with similar LVOs or their national bodies. This technical isolation promotes a culture of ICT independence, which results in many LVOs reinventing the wheel, as they are doing work that had previously been done elsewhere, when they could and should be learning from each other.

## 6.3.11 Use of ICT in Rural and Agricultural LVOs

Rural and agricultural organisations tend to use very little technology at local level. A few LVOs use websites, to a limited extent, through functionality provided by their national bodies, while a small minority has initiated their own technological developments with varying degrees of success. This problem was captured by the following statement:

'Our organisation really only uses the IT services that are needed for our business (farming), like the departments applications [sic].' (KOS, 2011)

Overall, rural and agricultural organisations tend to follow the lead of their national bodies and seek technical advice, guidance and support from them on an as needed basis. At national level, however, the primary focus of rural and agricultural LVOs is on developments that support the organisation nationally, while satisfying the needs of their local members seems to be a secondary concern; these organisations believe that technologically they need to develop themselves nationally, before the 'grass roots' can be developed. One informant stated:

'We need to understand the potential role of ICT in our organisation at the higher levels, before we can assist our local members appreciate and use technology.' (EW, 2011)

Some national bodies of LVOs are developing systems that will directly impact on their local members. These services will facilitate access to real time prices for commodities and ICT literacy programmes, all of which will make technology pervasive.

#### 6.3.12 Other ICT Observations

When the use of ICT by Irish LVOs is examined at a micro level, other subtle differences can be found between them. Firstly, ICT development offers a distinguishable difference between each voluntary sector. Sporting organisations tend to develop technical applications or services with a 'big bang approach'; they tend to identify a need or problem and deploy in an ad hoc manner, in an attempt to fix it, with a few rare exceptions. This quick fix approach to ICT was captured by the following statement.

'If we have some problem in the club, that we think technology can help us solve, we give it a try and see how it works out.' (JF, 2010)

Secondly, sporting organisations seem interested in experimenting with new technologies, before they have fully analysed the ramifications of using it and more importantly, consulting their members to ascertain their views on its usefulness. This would categorise this sector of voluntary organisation as an early adopter of ICT (Rogers, 2003). However, this innovative approach to ICT development often leads to half developed systems that are unusable or fully usable systems that are not needed by members. This problem was neatly encapsulated by one interviewee, who stated:

'We have got into trouble in the past with our IT guy developing a website and registering it in the Czech republic, which made it unusable in Ireland, little knowledge in the wrong hands is a dangerous thing.' (FOH, 2010)

Thirdly, little or no technical planning is commonplace in sporting LVOs, where a reactionary approach to technology is dominant. Community organisations tend to develop their technological solutions or services in phases, which allow them to create and roll out services in an iterative approach, which is better in terms of delivery, usefulness and sustainability. This planned approach may be attributable to their use of an external ICT expert for application development and service delivery. Also, as

community organisations generally have more of a business focus to their operation, they tend to have a better grasp of the potential uses of ICT, all of which are driven towards achieving immediate returns. A good example was cited by one of the informants, who commented:

'Some community organisations are very professional in everything that they do, one of those [sic] things that they do well is technology. The good ones tend to make ICT part of their strategic plan and then seek professional help to make that a reality, they roll out their services in a planned manner that supports their needs.' (TL, 2010)

Community organisations tend to be better able to develop systems with greater functionality and usability than other voluntary sectors. This proficiency with ICT may not only be attributable to this sector being better resourced, but also because they have recognised that the provision of technology empowers their members and enables them to be more productive.

Rural and agricultural organisations tend to follow the lead of their national bodies for all technical developments, with a few rare exceptions. A few LVOs in this sector have developed their own websites and Facebook pages. This technological dependency makes LVOs reliant on their national bodies, which in the initial phases of ICT delivery is arguably productive, but as the LVO evolves, can be restrictive and controlling. This problem was neatly encapsulated by one informant.

'As there is no one in our group, who has any technological knowhow, we are entirely dependent on higher levels of the organisation supporting us for all our technology needs, which is fine, until we want to do something different, then our lack of technological autonomy becomes a problem.' (JD, 2011)

Finally, funded community organisations tend both to use more technologies than their volunteer led counterparts and subsequently use them more productively. Funded community groups use a wide myriad of ICT systems such as payroll, accounts and electronic access systems and extensively depend on their website to provide ancillary services for bookings, payments and the sale of merchandise. The differentiation between community groups offers contrasting perspectives on their views and uses of ICT. Perhaps all community groups need to become more 'business like' with their use of ICT, rather than just use it to exist.

# 6.3.13 Summary of Findings Two

Table 6.3 illustrates the uses of ICT across the various LVO sectors.

Types of ICT	Community	Sporting	Rural and Agricultural
Mobile phone calls and texting	1	1	1
Email	✓	1	✓
Websites and web services	1	1	1
Social Networking Software	✓	1	<b>√</b> *
Microsoft Office or similar	1	✓	1
Payroll and Accounting Systems	1		
On-line purchasing	1	✓	C2853018
Google Maps	✓	✓	
Cloud Computing		<b>√</b> *	<b>√</b> *
Electronic Access Systems	✓		
Digital Software	✓		
Approaches to ICT			
Planned approach to ICT development	1		
Willing to experiment with ICT	✓	✓	
Inclusive approach to ICT	1		

<sup>\*</sup> Indicates at national level only

Table 6.3 Summary of ICT use across LVO sectors.

## 6.3.14 Key points of Finding Two

National bodies of LVOs acknowledge the need to develop appropriate policies, procedures, plans and supports to sustain and promote the use of ICT by their local clubs. These national organisations recognise that they have largely conducted their businesses in technological isolation to date, to the detriment of their local members. National levels of voluntary organisations have a relatively sophisticated level of ICT use, ranging from websites with an integrated Content Management System (CMS) to online membership, registration and payment systems. Some national levels of LVOs are expanding their technological horizons by using a wide range of Google services and even experimenting with Cloud computing.

However, at local level, there is a dearth of successful ICT stories, with a few rare exceptions. Primarily, LVOs only use basic forms of technologies for texting, emailing, website development, word processing and accounts and even those arguably are not well developed or used. Some LVOs have began to experiment with Facebook and Twitter and Google maps, but once again, it is very much administered in an ad-hoc manner, with no control of content or direction from management.

# 6.3.15 What is new or original about Finding Two

Top down ICT support is acknowledged as vital by the majority of LVOs, but in reality this approach to technological support is practically non-existent in Ireland, with a few exceptions. The LVOs that have successfully deployed technical solutions tend to have an ICT literate membership and someone internally or externally, who is willing to lead the development of IS. This differentiation implies that technologically disadvantaged LVOs need ICT training and education programmes to allow their members to catch up and keep pace with their more technologically advanced counterparts.

LVOs also need to identify and mobilize their members' assets to improve themselves in the future, but often they are not even aware of the skills and expertise of their members. The previously mentioned SWOT analysis enables LVOs to focus on themselves, a reflective practice that will facilitate their development as an organisation. LVOs that are successfully using ICT tend to have an inclusive approach with their membership for technical developments, which ensures that members' needs are captured and subsequently adopted into organisational initiatives. Local members need to be involved with the development of prototypes and their feedback sought and applied to all technological developments. Improved member interaction and synchronization of activities needs to be established and supported through appropriate forms of ICT.

Some LVOs that are efficiently using ICT have created a new position of IT officer or a sub-committee to look after their adoption and diffusion of ICT. The IT officer will manage internal ICT developments or liaise with external technology vendors. Also, LVOs that are proficiently using ICT seem to be better able to focus on specific areas of their organisation that can benefit from technological support, prioritising activities that will provide the greatest return on investment in terms of time and money. Finally, LVOs that develop technological autonomy from their national bodies tend to be better able to develop and sustainably use ICT. Top down dependency is only viable for a short time, usually at the start of the LVO's technical journey. Therefore, LVOs need a model to enable them to evaluate opportunities that ICT can solve and subsequently develop solutions as documented in the following finding.

# 6.4 Finding Three: LVOs need a CI model to facilitate their use of ICT

#### 6.4.1 The need for a CI model

The first finding (section 6.2) identified the problems faced by Irish LVOs and the concerns of their members. The second finding (section 6.3) uncovered the uses of ICT by Irish LVOs to solve their problems and address their concerns. Finding three specifies the areas that informants felt needed to be addressed by the proposed model in order to make it useful. Predominantly, interviewees claimed that a CI model would assist them understand and use ICT more productively. However, there were a few, who questioned the potential role and format of the proposed model. One informant commented:

'I am very sceptical about the use of ICT in voluntary organisations, for me it should be about the people. The world is littered with failed IT solutions. In theory the answer may be yes, but in practice it may not work.' (DG, 2010)

However, in general the informants were in support of the proposed model, with some suggesting different areas and activities that they felt were important for the adoption and use of ICT into their organisations and therefore should be considered for inclusion in the model.

## 6.4.2 Problem Solving

As described in section 3.1, LVOs have many problems, some of which ICT can help them solve. The following statement demonstrates the need expressed by informants for the model to focus on problem solving from an organisational and membership view.

'Anything that makes people look at their needs and problems and help them see how technology can help them solve these would be great, as the role of technology has to become a fundamental part of operating and managing clubs.' (DOB, 2010)

LVOs want solutions to their many problems. LVOs need to look at their problems and develop technical solutions that will have the largest impact with the smallest outlay of resources.

## 6.4.3 Acknowledge LVO culture

As described in section 3.8, the inclusion of a LVO's culture and its unique local identity ideals are fundamental to the success of a CI initiative (Loader and Keeble, 2007). The following statement is an example of many that alluded to the importance of acknowledging and addressing the culture of the LVO in all technical initiatives.

'It is important to not only promote a culture of technology in the organisation, but to acknowledge the internal culture that exists in the organisation. Embracing the culture of the organisation will help members see that technology is there to improve things, rather than just change for change sake.' (JJK, 2011)

The statement above outlines the importance of the model addressing the problems of the LVO, with a focus on improving its operation, whilst at the same time acknowledging the culture of the organisation and the level of cultural capital among its membership.

# 6.4.4 Provide LVOs with a technical template to follow

As suggested in section 3.5, Irish LVOs need a plan to follow when they are beginning their ICT journey. The statements below describe the importance of a template that will support LVOs to develop and use technical applications and services.

'It (model) should provide a common template and set of technical instructions, which is a great starting point for clubs. It is a template that will allow clubs take their first steps towards the development of worthwhile technological developments.' (AB, 2010)

'It (model) will facilitate the development of a technological plan, which we never had before and allow us specify goals that ICT can make become a reality and makes technology a central part of our operation.' (CM, 2010)

'Clubs need a technical project plan to follow that encapsulates all the important areas of technical development in a phased approach.' (FOH, 2010)

'The model needs to provide a plan of how technology can help develop the organisation and integrate the needs of all users, with an agreed set of prioritised activities.' (DD, 2010)

The proposed model will act as a technical template for LVOs that will enable them to develop a strategy for the use of ICT, which is agreed with all relevant stakeholders. This agreement between stakeholders will stimulate their support for initiatives and help them develop enthusiasm for their services. The strategy should have a number of activities, some of which are actionable in the short term, whilst others may be more long term strategic ambitions.

#### 6.4.5 Inclusion of members' views in technical initiatives

As discussed in section 3.6, it is imperative that a participatory approach is adopted for all ICT developments (Carroll and Rosson, 2007; Gurstein, 2008; Stillman and French, 2009). The quotes below indicate the importance that members' views and needs are captured and addressed in all technical initiatives.

'It (model) should facilitate users to be involved in ICT developments which are important for their success and address culture, which is an integral part of our organisation.' (MD, 2010)

It (model) would be a very positive step forward, but needs to look at getting members involved, look at the provision of efficiencies for the organisation and be useful at helping clubs to do things like make money.' (PW, 2010)

The success of the proposed model may well rest on its ability to help LVOs to gather support from members and include their views in ICT developments. In particular, an inclusive approach will help LVOs develop better systems that will support their members in their roles and alleviate problems in areas like communication and fundraising, both of which are critical to the operation and sustainability of the organisation.

# 6.4.6 Asset management

As detailed in section 3.3, it is important that LVOs identify and use the intellectual assets of their members (Kretzmann and McKnight, 1993; Morse, 2004). The statement below describes the importance of mobilising the valuable assets and skills of members to assist with technical developments.

'The model is needed to help address how ICT can be used to capture and use the many skills of our members, which is particularly useful for the development of our organisation.' (PK, 2010)

LVOs need to mobilise their membership. Specifically, LVOs need to look at the valuable assets and skills of their members. The proposed model will enable LVOs to identify their strengths and look at using them to address weaknesses and take the many opportunities that arise on a yearly basis. For example, applying for funding may be a speciality of a member. If that member is encouraged to help the LVO apply for funding and the application is successful, it would not only bring in much needed monies to the organisation, but make it easier for them to make further use of emerging opportunities.

## 6.4.7 Incremental technological development

As Kehoe (2012) suggested in section 3.13, it is better if ICT developments are developed incrementally in LVOs, as their members need to understand the basics of technology before they can appreciate the more sophisticated uses of it. The statements below express the views of informants in regard to ICT development; they believe that it should be based on stages of incremental and iterative growth.

'It (model) should address how ICT can help with our operational needs and then allow us to look at the provision of extra services that further support the needs of our members, making it better for them to be a member of our club.' (MM, 2010)

'It (model) needs to engage with end users, especially with management and help achieve member buy in and provide a stepped approach to ICT deployment, which we have found works best.' (ES, 2011)

The proposed model will help LVOs to evaluate their technological needs. Subsequently, the model will enable the organisation to specify how ICT should be used on a phased basis, which is based on incremental technical growth by the LVO.

#### 6.4.8 Best practice

As discussed in chapter three, communities and their LVOs need to adopt best practice from successful CI initiatives. Projects like those in Cape Breton (Gurstein, 1999), Civic Nexus (Carroll and Rosson, 2007) and Camfields estate (Pinkett, 2003) demonstrate the importance of LVOs adopting what works with ICT, rather than trying to work it out for themselves. The focus of LVOs needs to be on adoption or adaptation of best technical practice.

The quote below describes how the proposed model should identify and provide best practice for technical developments in Irish LVOs.

'It should develop a vision and policies for the role of ICT in the organisation, which makes technology a cornerstone of the organisation.' (JOC, 2011)

The model should provide a vision for best practice for the use of ICT in Irish LVOs. The model should be easy to understand and use, helping LVOs to begin or continue their technological journey. The model needs to contain a clear set of steps that are easy to understand and follow, where each one assists the LVO on the technical journey in a positive manner.

## 6.4.9 Summary of Finding Three

Table 6.4 illustrates a summary of the primary areas for consideration for the development of the proposed model. The figures include not only the views of the 47 informants, but also the views of the 14 participants who provided their views during the focus groups.

Area or Activity for consideration	Community (Max = 23)	Sporting (Max = 23)	Rural & Agricultural (Max = 15)
Solve problems and provide			
efficiencies	20	17	13
Acknowledge LVO culture	12	11	13
Provide a technical template	13	16	12
Include members' views	18	19	12
Mobilise assets	9	13	11
Incremental technological			
development	16	15	12
Adopt best practice	9	7	8

**Table 6.4 Summary of Finding Three** 

Figure 6.4 provides a graphical illustration of the contents of table 6.4.

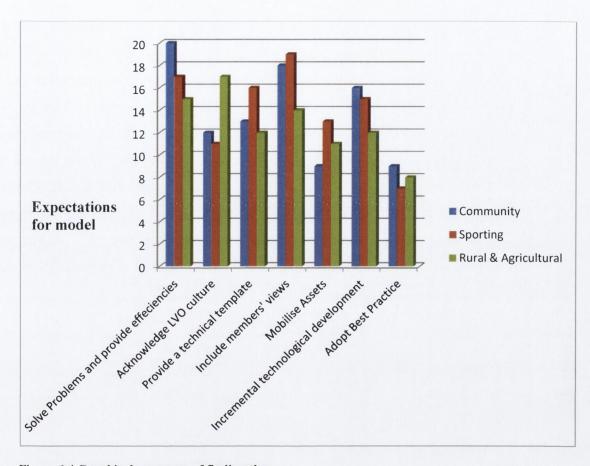


Figure 6.4 Graphical summary of finding three

## 6.4.10 Key points of Finding Three

The statements gathered from informants indicate their expectations for a CI model, outlining how it will support the operation of their organisation and empower them. The informants identified a diverse set of areas for inclusion in the model. Some informants expressed the view that the model would help them interact socially; others claimed it would help them solve their financial problems, while others felt that it would simply allow them to begin to use ICT effectively. Regardless of the views expressed by informants, almost all were of the opinion that a model was needed by Irish LVOs in order to begin or continue their technological journey.

A CI model will provide LVO management and their members with a useful technical plan of action that will make ICT a core part of their organisation, in whatever guise they deem to be appropriate. Some may be quite happy to develop and deploy simple technical solutions like a database or Facebook page, whilst others may want to develop sophisticated forms of technical services like online registrations and purchasing of merchandise. Irrespective of their ICT needs, the model will support the operation of LVOs and enable it to grow in an inclusive manner on a phased basis, all of which will empower their members. However, before the model can be developed, it is important to understand the barriers that are preventing some LVOs from using ICT, so that measures can be incorporated into it to mitigate their impact or preferably eliminate them entirely.

# 6.5 Finding Four: Common barriers are obstructing LVOs from using ICT efficiently.

#### 6.5.1 Introduction to barriers

Due to the complexity of the data gathered from informants, this finding is structured as follows. Firstly the common barriers specified by interviewees are described in section 6.5.2. Secondly, the individual barriers that affect each specific LVO sector are itemised and discussed in subsequent sections. Figure 6.5 illustrates the barriers identified from NVivo that are obstructing LVOs and their members from using ICT efficiently.

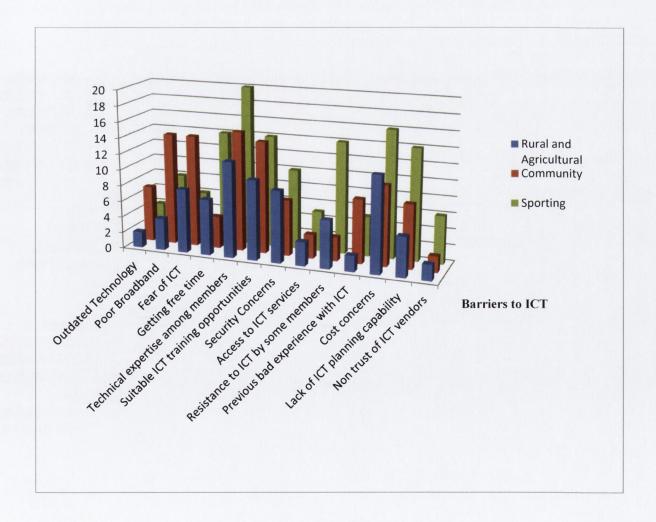


Figure 6.5 Graphical illustration of barriers to LVOs using ICT from NVivo

Figure 6.6 is a more in-depth graphic on the barriers that impede LVOs from adopting and using ICT. It classifies the barriers into each voluntary sector: community, sporting and rural and agricultural. Figure 6.6 breaks down the barriers into those that affect LVOs' delivery of technical applications and those that obstruct members' adoption and use of ICT.

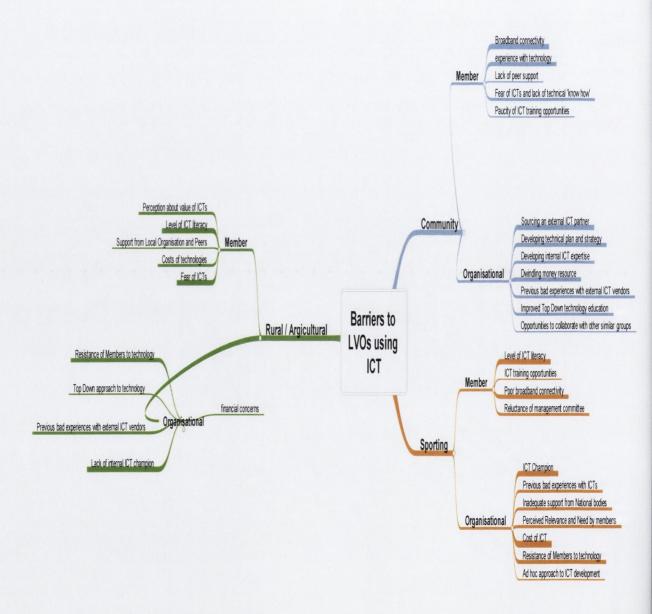


Figure 6.6 Barriers to LVOs using ICT

#### 6.5.2 Common barriers that inhibit the use of ICT by LVOs

As figures 6.5 and 6.6 illustrate, there are a number of common barriers that obstruct LVOs and their members from using ICT productively. Firstly, as mentioned in section 6.2.1 inadequate broadband connection quality is a barrier for members who wish to engage with technical services offered by their LVOs. There is little point in developing services, if a suitable infrastructure is not in place to deliver them.

This problem was encapsulated by one interviewee:

'Broadband is still a big problem in Ireland, especially in rural areas. People will not use technological applications if the connection is slow or prone to failure. Poor broadband negatively taints their opinion on technology and affects their use of it.' (DDF, 2010)

Members become disillusioned very quickly with applications or services, if they are slow to load and access. Disillusionment with internet connectivity undermines members' confidence in ICT, which can take time to remedy even when the connection speed has been improved.

Secondly, the cost of technologies is a barrier for both LVOs and their members. ICT services cost LVOs monies to develop and maintain and require members to have equipment that will allow them access to its functionality, usually in the form of a Personal Computer (PC), laptop or smart phone. One interviewee stated:

'Money is always a problem for organisations like ours, even more so in the current environment. We are becoming more careful and accountable about how we spend our money. ICT needs to make a significant positive impact on the organisation, if its costs are to be justified.' (TL. 2011)

As described in section 3.9, in the current economic climate, access to finance is an obstacle that obstructs LVOs from developing technical services and subsequently members from adopting them.

Thirdly, there is a paucity of ICT skills, experience and technical 'know how' among members of most Irish LVOs. This technical restriction impacts on how LVOs use ICT, as the majority of organisations are not aware of what technologies are available to them and how they can help improve the operation of their organisation.

One informant asserted:

'As our members are not very technically literate and we have no one to support us with technology, we don't really know what technologies would suit our needs and definitely have no clue about how to use them.' (PD, 2010)

Also, LVOs lack the technical skills to either develop internal ICT services or alternatively to interact with an external vendor who can service their technical requirements. All of these deficiencies lead LVOs to be reticent towards technology and try to continue their operation with as little ICT intervention as possible.

Similar to what was discussed in section 3.10, the problem of technical 'know how' among LVO members is further compounded by the limited ICT education or training programmes that are suitable to educate, upskill or retrain them. One informant found:

'There are very few education programmes that are suitable for developing the technological skills of our members, which is a problem that affects our current and future use of technology.' (CK, 2011)

Programmes like the European Computer Driving License (ECDL) are sometimes not suitable for education of LVO members, owing to their focus on technical issues considered unsuitable and not useful by members. Occasionally programmes like the ECDL makes LVO members even more disillusioned about ICT than they were before they took the course. A good example was cited by a participant.

'I did the ECDL a few years ago. Whilst I could not complain about the teacher or the content, I found that it did not address what I wanted to know about computers. It taught me about Word and Excel, when I wanted to know about connecting a printer and surfing the internet.'

Finally, a common technical barrier across most LVOs is the resistance of their older members towards adopting and using ICT. Predominantly, these members have a poor understanding of the capabilities of technologies and often fear what they don't understand. Once again, this is a barrier relatively easy to overcome through education about the potential offered by ICT and subsequent demonstrations of its appropriateness and usefulness. One informant stated:

'Not being ageist, but the older people in voluntary organisations tend to be harder to convince about the potential of IT to support them and their organisation. They still fear IT, because they don't understand it.' (SB, 2010)

However, the findings demonstrate that with appropriate support and guidance, older people are willing to adopt and engage with ICT, once its relevance has been established and a suitable training path provided.

A good example was cited by one of the informants.

'Although some of our members see technology as something that is complex and difficult, those that get over the initial engagement barrier with computers finds that it won't take a bite out of them ,they are not easy to break and if you are prepared to work with them, you can become proficient in using them.' (PK, 2011)

As discussed in section 3.7 (Haddon, 2000), older people in particular need to be convinced that ICT will enhance their experience of being a member of a LVO and shown that it will empower them both individually and collectively, before they will engage with and adopt ICT services.

# 6.5.3 Barriers to Sporting LVOs using ICT

In regard to barriers that are identifiable in each sector as depicted in figures 6.5 and 6.6, sporting organisations seem to be at the forefront. Sporting LVO members cite how bad experiences with technology providers negatively impact on their current perception and use of ICT. This disillusionment with external ICT vendors has manifested itself through overcharging for services and development of unsuitable systems. One interviewee stated:

'We had some very bad experiences over the years, we paid for a website to be developed, which we were so embarrassed with, we did not put online. It was just brutal. The web developer saw the club coming.' (GR, 2010)

Sporting LVOs also claim that they have insufficient support from higher levels of their organisation and any guidance offered is often inadequate.

This problem was neatly captured by one informant:

'The level of technical support we get from our county board is insufficient. Those at the top of an organisation need to drive it, not only on the sporting field, but also in areas like computers.' (BP, 2010)

As described in section 3.7, top down support from higher levels of the organisation is imperative for successful technical developments, in particular when LVOs are beginning to engage with ICT (Erwin and Taylor, 2004). However, the paucity of support from their national bodies places an onus on Irish sporting LVOs to go it alone, with bottom up initiatives, either with an internal 'expert' like an ICT champion or external vendor, often leading to disastrous consequences, as previously documented. Ad hoc ICT development is often a consequence of this technical isolation, where LVOs develop applications on an as needed basis, with little or no consideration of strategic plans.

# One participant stated:

'We developed a website and other applications, but there was never any real plan about how they would gel together, which has now caused us problems.' (MOS, 2011)

As IS are developed, poor technical planning leads to problems with integration of services, usability and suitability. As a voluntary sector, sporting LVO members cite that the poor attitude of their management committee towards technology inhibits the growth of their organisation and restricts the contribution it makes to them and the wider community.

One informant stated:

'Clubs with older members in charge tend to be techno-phobic, which affects their use of technology. I have found that older members need to be convinced about the merits of using technology before they will support its use.' (PW, 2010)

This statement typifies the sentiment of the majority of informants: if they do not get the full support of their management committee<sup>30</sup>, technical initiatives will fail. However, this support is conditional on management understanding the potential of ICT and supporting its diffusion throughout the LVO, a situation not always attainable.

## 6.5.4 Barriers to Community LVOs using ICT

As figures 6.5 and 6.6 illustrate, community organisations are often less reliant on technological expertise from members than their sporting and agricultural and rural counterparts. However, this places an even greater onus on them to hire an IT person or to form sustainable partnerships with reputable external technical vendors, who understand their needs and are willing to engage with them in a strategic and mutually beneficial collaboration.

This partnership was well captured in the following statement.

'Clubs that choose us to fulfil their ICT needs do so, because they feel that we understand their needs and expectations. We know how to develop applications that will solve their problems and we will do this in a consultative, phased and planned manner, which is not prohibitively expensive on them.' (WH, 2011)

<sup>&</sup>lt;sup>30</sup> See section 6.6.4 for a discussion on the important role played by the management committee in supporting LVOs adopt and use ICT.

Some community organisations have found that accessing suitable external technical support and guidance is problematic, particularly for those that are not fortunate to have internal ICT guidance. Community organisations would like to get technical support from suitable bodies and agencies that are trustworthy and knowledgeable about their needs.

A good example of this need for external support was offered by an informant.

'In the community and voluntary sector, we need to prioritise training programmes to open the eyes of organisations to the potential of technology. Particularly in areas like joint ventures and collaboration [sic].' (DG, 2010)

Perhaps, overcoming the problem of technical isolation would help similar and likeminded community organisations to collaborate together technically for their mutual benefit. Individually, members of community organisations would like more peer support; they feel isolated from technical knowledge, which results in the creation of an 'internal digital divide' in their respective organisations.

## 6.5.5 Barriers to Rural and Agricultural LVOs using ICT

As figures 6.5 and 6.6 illustrate, the primary barrier to rural and agricultural organisations using ICT is their top down dependency on their county or national bodies to advise, guide, help and support their technical developments. This dependency is unsustainable, as national bodies are becoming overwhelmed with exponentially increasing technical requests from their local organisations.

#### One informant asserted:

'There is a disconnect between the organisation nationally and at the grass roots, which inhibits the use of technology at local level. We need more manpower to service the increasing request from members to help them move forward with IT.' (EW, 2011)

These local organisations need to develop some level of technical autonomy to support their own ICT needs. ICT autonomy will also help LVOs overcome another barrier, which is 'selling' the use of technology to some of their members, who need to be educated and informed about the potential of ICT, in order to appreciate what it can do for them and their organisation. One interviewee commented:

'Our organisation is very traditional in many ways, technology being one of them. Our members really need to see benefits from using it before they will agree to it, it is more than just someone saying it is a good idea, it needs to be demonstrably proved to be one. Ideally we like to follow similar organisations in regards to technology.' (TMD, 2011)

Individually, members of rural and agricultural organisations need enhanced peer support from their more technologically advanced members. This need was alluded to in section 3.6, where scholars like Carroll and Rosson (1996, 2007) intimated the importance of mass member support for technical initiatives to ensure their success. A participative approach will help members feel more involved with initiatives, reduce their sense of technical isolation and encourage them to adopt and use ICT services.

## 6.5.6 Key Points of Finding Four

From this research a number of common barriers emerge that obstruct Irish LVOs and their members from adopting and using ICT, some of which the proposed model can solve, whilst others it cannot. Those that are outside the scope of the model include the standard of broadband available in the area. Lobbying local politicians may help alleviate the broadband problem that still exists in rural Ireland, but there is little else that can be done. The barriers that the model can help overcome through the appropriation of suitable forms of ICT are: providing efficiencies, supporting fundraising initiatives, developing members' technical skills through education and training programmes and reducing the resistance of members towards technology through demonstrations of ICT uses.

Examining the findings by sector reveals the following situation. Sporting organisations are still reluctant to engage with ICT owing to a number of factors. Firstly, their primary obstacle is the lack of a member to drive technical initiatives and to garner support from others. LVOs need a member who is technically enabled, yet still understands the organisation's problems and needs. Secondly, some sporting LVOs are still affected by bad experiences with external ICT vendors, as described in section 6.5.3, technically inhibited by a lack of higher level support nationally and restricted by a management structure that does not appreciate the capabilities of technology. These barriers can be alleviated through the development of partnerships with either higher levels of their own organisation or external IT consultants. Also, the development of a technical plan would help LVOs develop a strategy for using ICT efficiently and facilitate the beginning of their journey with technology.

Community organisations find it difficult to make ICT a strategic part of their organisation, even though they willingly acknowledge that they need technology to exist; some also suffer from an inability to hire a capable person at a reasonable rate or form a good relationship with an external ICT provider, which hampers their technical progress and hence the development of their organisation. Appropriate education and training

programmes would help LVO members understand the potential of ICT and subsequently enable them to begin using it as part of their lives.

Rural and agricultural organisations suffer from their technical dependency on higher levels of their organisation for providing ICT guidance, direction and support, on a near exclusivity basis. This reliance prohibits the development of local technical autonomy and creates a dependency culture in the LVO, which is unsustainable. Rural and agricultural organisations also experience trouble convincing their members to use technology for their own personal means and for the good of their organisation.

# 6.5.7 Summary of Finding Four

Table 6.5 identifies the barriers that affect the diffusion of ICT in each LVO sector.

Barriers to ICT	Community	Sporting	Rural and Agricultural	
Poor internet connectivity speeds	1	<b>✓</b>		
Cost of ICT tools and technologies	<b>✓</b>	<b>✓</b>	<b>√</b>	
Lack of ICT skills among members	<b>✓</b>	1	1	
Resistance to ICT from older members	1	1	1	
Previous bad experience with ICT	1	1		
Lack of support from higher levels of LVO		1	1	
Management committee's poor attitude towards ICT		1		
Inability to form partnership with external ICT vendor	1			
Getting members to support technical initiatives			1	

Table 6.5 Summary of barriers to ICT

# 6.5.8 What is new or original about Finding Four

The barriers that have been identified in the findings offer ICT an even greater role in LVOs than may have been previously envisaged, provided the appropriation of technology is suitable and introduced in a timely manner to a suitably technically enabled membership. Many of the identified barriers to the use of ICT can be overcome by the proposed model, as it provides management with a clear and concise way to use technology in their organisation and make it a strategic part of how they operate as a LVO.

However, the model must contain measures that will help LVOs overcome these barriers. These measures include: training and education to overcome the lack of technical literacy among LVO members; developing a plan to assist LVOs to think strategically about ICT; providing opportunities for collaboration between LVOs, so that they can learn from each other and not replicate their mistakes; helping LVOs to look at technical developments as a phased process, where they begin their technical adventure with basic forms of ICT, before they roll out more sophisticated and functional applications.

Finally, LVOs need to adopt best technical practice from each other. Therefore, LVOs need to identify and adopt the enablers that facilitate some LVOs to use ICT better than others, as the following finding illustrates.

6.6 Finding Five: LVOs that are using ICT effectively have several common enablers that facilitate this process.

### 6.6.1 Introduction to ICT enablers

This finding identifies the enablers that promote the use of ICT in Irish LVOs. Figure 6.7 illustrates the initial set of enablers gathered from the informants across the three sectors: rural and agriculture, community and sporting.

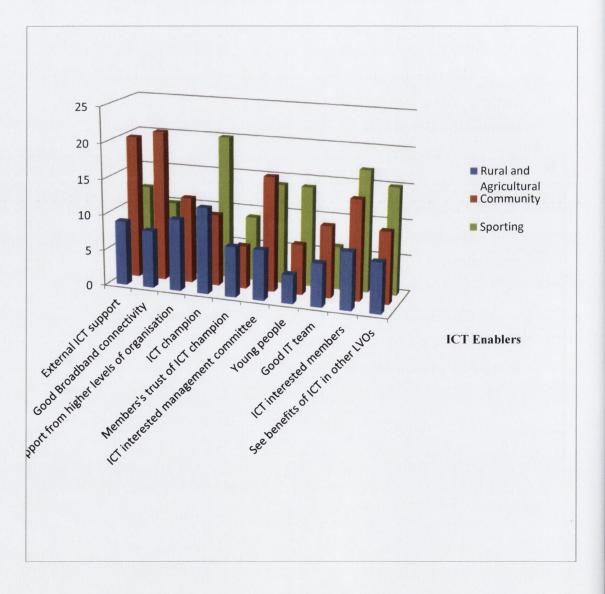


Figure 6.7 ICT enablers captured from NVivo

Figure 6.8 is a cognitive map that provides a more in-depth understanding of the ICT enablers across each of the voluntary sectors.

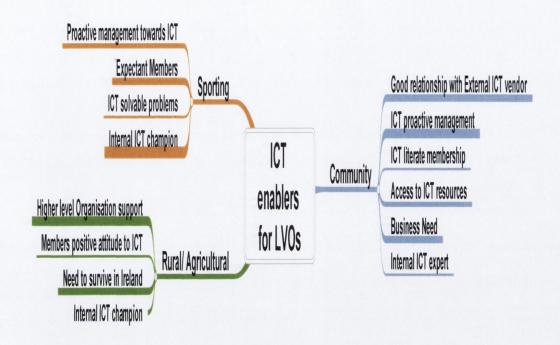


Figure 6.8 Enablers for LVOs using ICT

## 6.6.2 Detailed description of ICT Enablers

Figures 6.7 and 6.8 illustrate that there are a number of different enablers that promote and enable the use of ICT in Irish LVOs. Some of these enablers are provided by members, like technical ability, whilst others such as access to ICT resources are dependent on the identification of members' needs and access to monies. Regardless of the enabler, each one contributes in some way to the provision of technical services in LVOs as the following sections demonstrate.

## 6.6.3 ICT champion

O'Donnell (2001) pointed out in section 3.5 that a lack of members with technical expertise was hindering the technical development of Irish LVOs. As figure 6.7 clearly illustrates, the primary technology enabler for many LVOs is an internal ICT champion; this usually is a member who has some technical experience, expertise and aptitude. Often this 'champion' is a person who recognises how the deployment of appropriate forms of ICT can help improve the LVO at a number of different levels such as increased efficiencies, improved communication, greater interaction and better services. A good example of the importance of an ICT champion was cited by an informant.

'I have a degree in computing and work with computers as part of my job. When I was a player with the club, I recognised areas of the club's operation that could benefit from using ICT. When I retired, I took it upon myself to drive the club forward technologically, with a fair deal of success.' (MOS, 2010)

The ICT champion would eventually need the support of other members, as the use of technology proliferated in the organisation. There are many different roles that members can fulfil with ICT to support the work of the champion, ranging from technology assistance to information gathering and dissemination. The success of any technological initiative in a LVO depends on a collaborative effort between many members, with all stakeholders having an involvement at some level. One club has even gone as far as forming an ICT sub-committee to direct their technological efforts. A participant commented:

'We have recently formed a technology subcommittee, which comprises of people from different parts of the club, who are interested in using technology. We feel this will become an important part of the club's future.' (SL, 2010)

Regardless of the positive role of the ICT champion in the LVO, unless s/he gets support from their peers and in particular the management committee, the technical initiatives are doomed to failure.

# 6.6.4 Management Committee

Gaved (2011) commented in section 3.8 that the most important segment of membership that needs to support the deployment of technology is the management committee of the LVO. The management committee needs to be able to recognise the important role that ICT can play in the organisation and support the adoption and use of technology as it is rolled out across its membership. The importance of management support was provided by an interviewee.

'In fairness to our committee, they were willing to fund and support our use of technology, which was relatively substantial, but was vital to the success of our initiatives [sic].' (PH, 2010)

The management committee of most LVOs usually consists of people from different, often diverse backgrounds, where each individual plays a specific role in the organisation. LVO management need to use ICT to make their job easier and ultimately the organisation more productive. Often, ICT initiatives start simply by management identifying a problem that needs to be solved or areas that need improving, as one informant described.

'We began to look at using technology, when we recognised that we had a lot of facilities and services that only people in our immediate area knew about, we wanted to advertise what we offered to a wider audience. Various forms of technology helped us to do that.' (MM, 2010)

Solving problems like communication, data collection, financial accountability is often done through using basic forms of ICT such as texting, databases and spreadsheets. Once members of a LVO see how basic technologies can help them solve their problems and make a substantial positive impact on the organisation, it helps them to begin and continue their technological journey. However, different LVO sectors have unique technical catalysts, as the following sections outline.

## 6.6.5 Community LVOs ICT enablers

The majority of organisations in the community sector have not had the poor experiences with external IT people as described in section 6.5.3. These LVOs have been fortunate enough to form a successful relationship with an external technology vendor, who is willing to take responsibility for the majority of technological developments in these organisations. In chapter three, Kretzmann and McKnight (1993) advocated the formation of partnerships between external ICT partners and LVOs, particularly for those that were just beginning the technical journey. A good example of the fruitful return from such a partnership was expressed by an interviewee.

'We struggled to find someone, who understood our needs as an organisation, who got exactly what we needed and he wasn't wanting an arm and a leg for it [sic]. He seems to know what we want and need and so far it has worked out great.' (LM, 2010)

Community organisations often have more of a 'business' approach to using ICT than their sporting or agricultural counterparts; their better use of ICT is often attributable to their dependency on developing sustainable and useful ICT applications to support their operation and hence ensure their existence.

#### One interviewee commented:

'Nearly everything we do involves technology at some level, whether it is texting someone about something to be done, advertising an event or service on our website or Facebook page or recording expenditures on our accounts system... As an organisation, we are very dependent on technology.' (CM, 2010)

The main technological goal of community organisations is to support their operation and improve the services they offer their members. Community organisations may also have a technically literate employee who recognises how using various forms of ICT can make them more 'businesslike'. A good example was cited by a participant.

'Even though I am manager, if I died in the morning, the association would still survive, but if something happened to Tom, our IT person, I seriously would question our existence.' (RF, 2010)

Community organisations also acknowledge that their existence depends on using appropriate technologies to advance their cause such as websites and Facebook pages to promote their work, databases to record and analyse data, financial packages to track monies and other specialised services. In general, community organisations tend to have a relatively ICT literate membership, which helps the adoption and diffusion of technology by their members; they are also quick to look for external support, if it is needed, which is another difference between them and the other LVO sectors. One interviewee found:

'Although, many of us (management committee) are technically competent and understand technology, we are far from able to develop anything technological, even a basic website. ... We depend on external support for the majority of our ICT needs, which is fine, as long as they deliver what we want, when we want it, as cheap as possible.' (MC, 2010)

Finally, as community organisations are likely to receive external funding to sustain their operation, they tend to have greater access to technical resources and supports than their sporting and agricultural counterparts, which helps them to be more productive and more creative with ICT.

## 6.6.6 Rural and Agricultural LVOs ICT enablers

As figures 6.7 and 6.8 illustrate, rural and agricultural LVOs tend to be dependent on technological support from higher levels of their respective organisations to enable them to develop or deploy ICT applications. One interviewee provided a good example of this dependency.

'Our involvement with technology is very much determined by what we are told nationally. We follow our national body and are led by what our leaders tell us. They know what we need and who are we to challenge that.' (KOS, 2011)

LVOs that are fortunate enough to have an internal ICT champion are not as reliant on advice or support from higher levels of their organisation, but these are in the minority. Although the existence of a champion is advantageous for LVOs, they need to liaise with other groups and associations to avoid 'reinventing the wheel' and making the same mistakes as others. Even these technological competent LVOs tend to stay with the tried and trusted ICT applications offered nationally, like website templates if they are available. Rural and agricultural LVOs tend to be slow to engage with ICT in a meaningful manner, although the higher levels of the organisation are trying to change this situation.

One informant who works at the national level of his organisation commented:

'We recognise that as an organisation, we need to do more to bring ICT to our local members, to help them help themselves. But this will be slow and tedious process, owing to a number of factors, like the level of technological literacy among our members and their perceptions about technology.' (JD, 2010)

The national bodies of rural and agricultural organisations have begun to embrace technology, not only as a way to support its membership, but to ensure their survival. The very existence of some rural and agricultural based organisations is threatened by staying in the past for too long, specifically in regard to technology adoption. Fortunately, the management of some of the LVOs in this sector have recognised that ICT is one of the ways they can bring their organisation into the 21<sup>st</sup> century and ensure its survival. A situation very similar to what Gurstein (1999) found in Cape Breton.

## An example was provided by an informant:

'Our very existence as an organisation has been threatened in the past decade, as people moved away from their old values, new members were very difficult to attract. We took our membership and their work for granted. .... Using technology is one of the ways we can reinvent ourselves and make our organisation relevant again to Irish communities.' (JOC, 2011)

The majority of rural and agricultural organisation members are not ICT literate and have a fear of using technology. However, there are a few who have a subset of members that are competent with technology and more importantly willing to use it and help others master it for the betterment of the LVO. These people will have a pivotal role in the roll out of technology in the LVO, but they will need support from others if this movement is to be sustainable.

### 6.6.7 Summary of ICT enablers

Table 6.6 illustrates the ICT enablers across each voluntary sector respectively.

ICT Enablers	Community	Sporting	Rural and Agricultural	
ICT Champion	✓	1	1	
Management committee support	✓	1	1	
Businesslike approach to ICT	✓			
Technically literate members	✓			
External partnerships	1	1		
Support from higher levels of organisation		1	1	
Education programmes			1	

Table 6.6 Summary of ICT enablers

## 6.6.8 Key Points of Finding Five

The research identified a number of factors that help and encourage LVOs to adopt and use ICT. The LVOs that successfully deploy a sophisticated level of technical services tend to have a number of common enablers which need to be considered for inclusion in the model. Firstly, they all have an ICT champion who is usually a member that is interested and knowledgeable about the use of ICT and perhaps more importantly recognises how it can help their LVO. Secondly, the majority of LVOs have a management structure that recognises and embraces the important role that technology has to play in developing their organisation and improving its contribution to the wider community. Thirdly, the most technically successful LVOs tend to develop their solutions or services in phases, which allow them to develop and roll out services in an iterative approach, which is better in terms of inclusiveness, usefulness and sustainability. Those that choose a 'big bang' approach to their technical developments often meet problems, in terms of system specification and suitability, functionality and user acceptance. Finally, LVOs that have more of a 'business' focus to their operation and a better grasp of the potential uses of ICT tend to develop better applications that support the operation of their organisation and empower their members.

In sporting LVOs, the expectancy of 'younger' members that using technology is imperative is seen as a direct driver of ICT. Young people tend to see problems in the organisation and know that ICT can help solve them. In community LVOs, a business need for ICT is the primary enabler of technology; often this requirement results in the development of a relationship with an external ICT developer. In rural and agricultural organisations, technology is seen as vital for their continued existence, even though this assumption has only come to light in recent times; they recognise that their dependency on higher level support is not working and even if it were, it is unsustainable owing to the vastness and diversity of their membership.

## 6.6.9 What is new or original about Finding Five

The enablers which were identified from the interviews and focus groups need to be integrated into the proposed model, as they are the concepts and activities that are currently supporting the LVOs who are successfully developing and deploying ICT. LVO management need to support technical initiatives, if they are able to do so; failing that, the onus falls on the emergence of an ICT champion, who will take responsibility for the purchase or development of suitable systems. Predominantly, ICT champions use a self developed plan to manage their technical initiatives; however, they freely admit it is ad hoc, unfocused and largely unsustainable in the long term. Improved technological support is needed from national and regional levels of LVOs; failing that technical support structures need to be created in the voluntary sector to educate, train and support members to appreciate and use ICT. LVOs need a structured technological plan to follow, regardless of how the organisation is using or planning to use ICT. LVOs need to attract new members, especially those from a younger generation. ICT offers the younger generation a medium, which they recognise, use frequently and are comfortable to use. LVOs need to develop more ICT systems to support their operation, become more businesslike and empower their members to become more involved and committed to their organisation.

#### 6.7 Conclusion

This chapter discussed the first five findings from the analysis of the data. The first finding captured the problems faced by LVOs and the concerns of their members, which established a potential role for ICT in these organisations. The second finding identified specific uses of ICT by LVOs. This finding established that the level of ICT usage in many LVOs was very basic, with a few exceptions. This led to the emergence of the third finding, which was that LVOs need support in the form of a model to help them plan and use ICT productively. The fourth finding identified the barriers that inhibited LVOs from using ICT. The proposed model needs to build in activities that will help LVOs overcome these barriers. Finally, the enablers that promoted and stimulated the use of ICT in LVOs were acknowledged. These enablers need to be embraced by the proposed model to ensure best practice is adopted by it.

### **CHAPTER SEVEN**

### THE ENCITE MODEL

### Overview

This chapter introduces the final research outcome from analysis of the data. This outcome describes the areas that informants considered to be important for ICT diffusion and usage in LVOs and therefore worthy for inclusion in the proposed model. The chapter continues with an illustration and description of the ENCITE model, which has been developed from the findings in chapter six and the final research outcome in this chapter. The operation of the ENCITE model is explained and its lenses are described, before the concepts and activities in each are explained.

#### 7.1 Introduction

This chapter completes the findings of the research. The final outcome is presented and discussed with the aid of an NVivo diagram and a cognitive map. This outcome identifies the concepts and activities that informants believe represents best technical practice in their LVO and is worthy for inclusion in the ENCITE model. The ENCITE model is the primary contribution from the research findings. The ENCITE model is a plan that will facilitate LVOs to take control of their technical activity, enable them to use ICT efficiently and aid the creation of new services for their members.

# 7.2 Finding Six: Potential concepts / activities for inclusion in the proposed model

# 7.2.1 Concepts and Activities

Figure 7.1 depicts the potential concepts and activities that were identified from analysis of the data with NVivo. The diagram illustrates the areas deemed by informants to be important for the proposed model and indicates their order of importance. Figure 7.1 illustrates that identifying members' needs should be one the primary tasks of the proposed model. This activity should be closely followed by elicitation of the management committee's requirements, all of which will be combined into a plan. Subsequently, other activities will be needed to evaluate, design and deploy various forms of ICT, which may also need members to be educated and trained about the potential offered by technology.

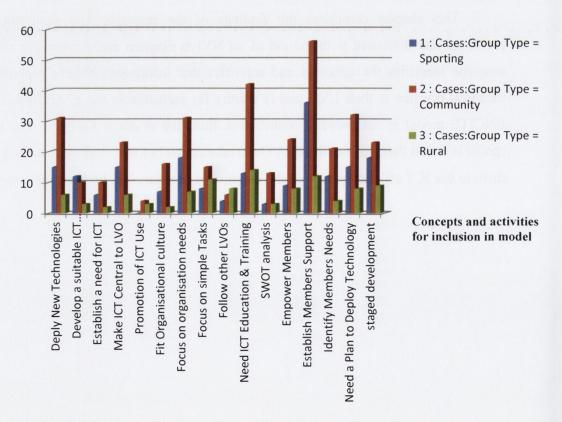


Figure 7.1 Concepts and activities for inclusion in proposed model captured from NVivo.

Figure 7.2 provides a more in-depth understanding of the activities and concepts gathered from analysis of the data. These are segregated into specific sections: 'organisation', 'member', 'basic technology' and 'sophisticated ICT developments' to reflect the views expressed by informants in finding two (see section 6.3), with each providing a specific lens to look at the diffusion of ICT in a LVO. The organisation section specifies the activities that need to be addressed to support the LVO at an operational level. The member section identifies the activities specific to LVO members; in particular it illustrates ways to include them in initiatives. The ICT section contains the basic forms of technology that enable LVOs to initiate their technical journey, with an emphasis on education and training and HCI; whilst the specialised technology section outlines the concepts that will allow LVOs to complete their technical journey. This section looks at the development of social capital, retention of culture and creation of economic opportunities through the deployment of a range of technologies.

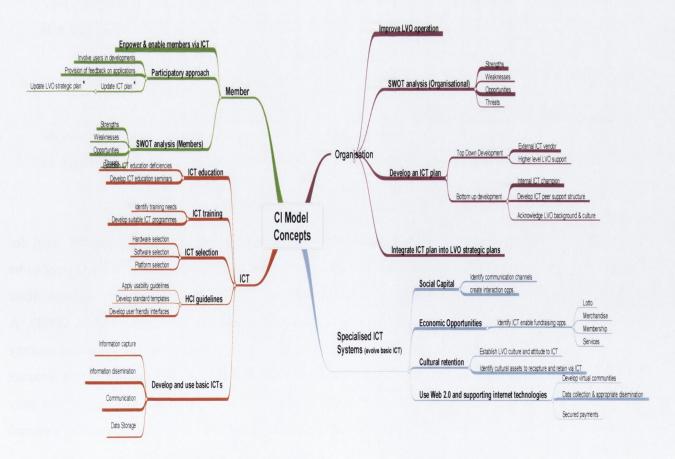


Figure 7.2 Potential model concepts and activiti

## 7.2.2 Concepts and Activities for inclusion in model

Figure 7.2 illustrates the concepts and activities specified by informants for inclusion in the proposed model. Each concept and activity contributes in some way to the diffusion of ICT in Irish LVOs. The contribution of each concept and activity needs to be understood, before combining them together to develop a coherent and useful model.

## 7.2.3 Strengths, Weaknesses, Opportunities and Threats (SWOT) analysis

Figure 7.2 specifies that the initial focus of LVOs for using ICT needs to be on conducting a SWOT analysis on themselves. Many informants subscribed to the validity of using a SWOT analysis, with one person stating:

'You need to know the strengths, weaknesses and needs of your organisation and its members, before you begin to engage with ICT, if it is to be successful.' (TL, 2010)

#### Another commented:

'We have began to recognise that there is a lot more that technology can do for us as an organisation, but before that can be done we need to understand ourselves (organisation) better.' (MC, 2010)

Although a SWOT analysis is a relatively dated technique primarily used for strategic planning, several CI practitioners believe that the strengths of a LVO need to be mobilised in order to allow them to develop as an organisation and achieve their objectives (Kretzmann and Mc Knight, 1993; Anderson, 2000 and Morse, 2004). A SWOT analysis identifies the strengths, which are the assets that the organisation may use to achieve its objectives; weaknesses, which identify the internal factors that obstruct organisations achieving their objectives; opportunities, which are the factors that may help the organisation achieve its objectives; and threats, which are the external conditions that are harmful to an organisation achieving its aims.

## 7.2.4 Application Development Plan

Informants comment that a plan is needed to guide the integration of ICT into LVOs. Primarily, the plan will be based on the findings of the SWOT analysis, which should identify a prioritised set of technological objectives that will support and improve the operation of the LVO.

A good example was cited by an informant.

'A stepped and planned approach works best for the deployment of ICT into community organisations...... You need a roadmap (plan) to follow, which is clear, concise and realistic.' (ES, 2010)

In chapter three, several researchers espoused the importance of developing a plan for the diffusion of ICT into LVOs (O'Donnell, 2001; Carroll and Rosson, 2007 and Toyama, 2009). In particular, Carroll and Rosson (1996, 2007) demonstrated through the Blacksburg Electronic Village (BEV) initiative and the Civic Nexus project the importance of developing an agreed plan with stakeholders. The plan should document how ICT will be rolled out across the LVO and be integrated with the strategic plan of the organisation, if one exists. If no strategic plan exists, which the research found to be the case in the majority of sporting and rural and agriculture organisations, one should be created. A strategic plan is an invaluable asset for a LVO, commonly used by community groups; it defines the direction and goals of the organisation and outlines a strategy for achieving this vision. One informant asserted:

'Our strategic plan is a vital document for our organisation, ours is a 5 year plan and we measure ourselves every year to monitor our progress and make appropriate changes, where needed.' (MC, 2010)

In many organisations, the strategic plan determines the direction that the LVO will take over the next three to five years. The strategic plan (usually supported by a SWOT analysis) enables LVOs to know exactly where they stand as an organisation, determine where they want to go in the future, and define how they will get there. Once the ICT plan has been integrated into the strategic plan, the LVO can move forward, supported by appropriate technologies that will be deployed in a phased and inclusive manner.

## 7.2.5 Participatory Action

Members' requirements and expectations need to be included in technical initiatives in many different ways to improve the likelihood of a successful outcome. The members' section of figure 7.2 identifies the concepts and activities that are relevant to LVO stakeholders. The focus of ICT initiatives should be on enabling and empowering members to do something that they were previously unable to do, or providing them with efficiencies with their current workload. Inclusion of members' views is paramount for the success of technological initiatives; they need to be able to contribute their expectations and feelings about new technical developments. A good example was provided by an informant.

'Consultation with members is vital to ascertain their needs and expectations from technical developments. The involvement of end users is critical to the success on any technical development.' (AOD, 2010)

As documented in section 3.6, participatory action decrees that the needs of endusers should be considered at all stages of a CI initiative to ensure their adoption and use of ICT services. Many CI practitioners like Kretzmann and Mc Knight (1993), Carroll and Rosson (1996, 2007), Gurstein (2008) and Stillman and French (2009) believe that stakeholder participation is an important aspect of application development. However, practitioners need to be cognizant of some of the potential difficulties that may arise using this inclusive approach as often the limited technological knowledge of stakeholders' leads to time delays and unrealistic expectations about ICT.

This problem was captured by an informant:

'Some LVOs tend to not understand what is possible with technology. These unrealistic expectations cause a lot of problems; people tend to look negatively at ICT, when what they expected was not delivered, regardless of how achievable it was in the first place. So, user involvement is useful, but only if the user has some understanding about ICT.' (DD, 2010)

User engagement should arguably only be applied to a CI model at certain stages, for example at the requirements identification and prototyping stages of the systems lifecycle. Other times, a selected few ICT literate members may be the most appropriate cohort to lead technical initiatives.

## 7.2.6 Member Education and Training

As depicted in figure 7.2, ICT education and training of members is important. It will have a pivotal role to play in facilitating LVOs to identify ways to use technology, especially in organisations where members are apprehensive about using it.

One interviewee asserted:

'IT education, literacy and training is important [sic], people need to be trained about the potential of technology. If they can be made see what technology can do for them, they may develop an interest in using it, which may lead to their technological involvement with the club.' (MM, 2010)

This statement conveys the views of many informants, who believe that until the membership of their LVO is ICT literate, technical applications will not be adopted in any significant manner. The views of informants was previously captured in sections 3.7

and 3.8, where scholars like Bourdieu (1996) and Smith (2007) expressed concerns about how the lack of education and training opportunities was stymieing the development of social and cultural capital in LVOs. O'Donnell (2001) argued in section 3.5 for the development of education and training programmes for members of LVOs.

## 7.2.7 ICT Developments

The ICT section of figure 7.2 has been divided into basic and sophisticated ICT services for clarity and to convey the phased approach to technology development that will be portrayed in the model. Many informants expressed views that a phased and iterative approach to ICT deployment was the most suitable for Irish LVOs; one commented:

'All technical development in LVOs should use a methodology like the WebE approach, which is spiral method proposed for software development, that promotes the development of applications in a series of phases, consisting of similar activities, where each builds on the work previously done.' (FOH, 2010)

This approach to ICT development was supported in the literature by Denison (2006) and Carroll and Rosson (2007).

### 7.2.8 Basic ICT Applications

The basic ICT section of figure 7.2 examines how information is captured by the organisation and disseminated to its members through technology. The findings from the research have shown that capturing appropriate information is difficult and an even more challenging activity to sustain.

This difficulty was captured with the following statement.

'I often find myself ploughing a lone furrow in regards to technical developments, sometimes it is even hard to get people to get me details on fixtures, match reports and scorers for to put up on the website.' (AOR, 2010)

Information capture and storage is a basic technical requirement for LVOs; however, the majority are reluctant to embrace this technological necessity. LVOs need to begin using database technologies to ensure that important organisational data is stored and available for use, especially as the organisation evolves and grows. This need was expressed in the following way by an informant.

'One of our longest serving members died suddenly last year, the amount of knowledge and information, she had in her head about our organisation was staggering, sadly now it is lost forever.' (JOC, 2011)

This statement suggests the urgent need of LVOs to capture important pieces of information that up to now has largely been in people's minds and safely store it in a database for access and dissemination at a later stage. This form of knowledge management would assist LVOs to capture expertise and experiences for dissemination across their membership.

## 7.2.9 Sophisticated Technologies

As figure 7.2 depicts, once LVOs have mastered the use of basic ICT, they may need to move to a more sophisticated level of technology use. These more complex technological developments usually involve the deployment of Web 2.0 and its associated technologies to provide services in areas like social capital development, economic opportunity creation and cultural retention, all of which have been identified by informants as important concerns for Irish LVOs. These sophisticated IS usually involve the development of web enabled services and forums that are accessible through the LVO's website or a hand held device. One informant asserted:

'We found that expectations rise as technology is deployed, people expect new content and services, which is right. We found that a stepped approach to technology works best, increase it on an incremental basis [sic].' (ES, 2010)

The development of social capital is achieved through the creation of chat rooms, message boards, Facebook pages or Twitter. All of these technologies promote member interaction, collaboration and co-operation. This emerging situation was neatly captured by an informant.

'Facebook has really improved the social interaction of the club, especially for those that have had to emigrate, it keeps them in contact with their friends and their community.' (FOH, 2010)

Economic opportunities for raising finance are also available through mobilisation of appropriate forms of ICT; examples are on-line payment of membership, merchandise sales and retail of local lotto tickets. However, some organisations have been using ICT more creatively to raise money.

An informant cited the following example.

'We used ICT to auction a house that had been bequeathed to the association from a benefactor. We let people register online for the auction for  $\epsilon$ 100, then they could make 10 bids for the house under  $\epsilon$ 1000 euro. The highest unique winning bid gets to buy the house for that bid value.' (RF, 2010)

Another interviewee cited a fundraising initiative he was involved in called 'A Sportsman's Dream', where people could buy tickets online to enter for a draw, where the winner got two tickets to the top sporting events in the coming year. He stated:

'ICT can facilitate organisations to fundraise more creatively, which is important in the current economic climate.' (WH, 2011)

The development of cultural capital in the LVO was also an area identified by informants, where ICT could make a contribution to the LVO. LVOs have developed a history and an asset base over the decades, which influence how they currently operate and how they are moving forward into the future. ICT offers the potential to recapture the historical assets that made the LVO what it is today and use these invaluable skills, experiences and knowledge base to move it towards a better and brighter future.

# 7.2.10 Key Points from Findings Six

The interviews and focus groups captured a myriad of concepts and activities for inclusion in the proposed model. Common offerings from informants were to focus on organisation and its members' needs, development of ICT plans to be integrated into a strategic plan and making technology a cornerstone of the LVO. Other areas identified by informants for consideration were member involvement in technical developments to ensure the inclusion of their needs and to encourage their use of the applications, and the use of basic forms of ICT to support LVO operationally, evolving to more sophisticated

technologies to provide social, economic and cultural development opportunities for members.

LVOs need to walk with technology, before they run with it. In order to begin or continue their technological journey, the majority of organisations need to educate and train their members about the potential uses of ICT. Just as members of LVOs are required to do first aid or child protection courses, they need to be encouraged to participate in suitable ICT programmes. Appreciation and use of technology by LVO members will only come from appropriate knowledge acquisition about ICT.

## 7.2.11 What is new or original about Finding Six

The findings are a rich mix of concepts and activities that are pertinent to how Irish LVOs use ICT. The concepts range from human factors such as level of technical literacy among members to organisational needs like improved communication. All of these concepts and activities address the provision of ICT in Irish LVOs, dividing them into a basic and sophisticated set, before finally developing four lenses through which the appropriation of ICT can be viewed by Irish LVOs. The four lenses will be the cornerstones of the proposed model, each containing unique and sometimes shared concepts and activities of relevance, which will provide LVOs with a plan to develop, deploy and manage their technological initiatives.

## 7.3 Summary of Findings

Table 7.1 illustrates the activities and concepts of importance identified from each of the six findings. It is quite apparent that table 7.1 contains a diverse set of activities and concepts for inclusion in the model, which will make the development of it an interesting task.

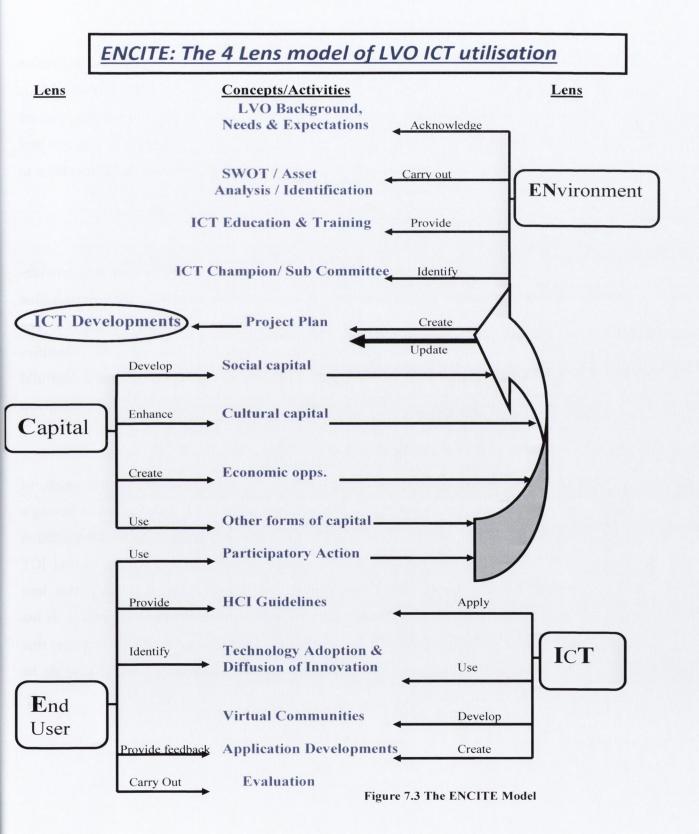
1.	2.	3.	4.	5.	6.	
LVO	Differences	LVOs need	Barriers	Enablers	LVOs	CI
problems &	in use of	a model to	that	promote	technical	concepts
members	ICT by	help them	negatively	and help	areas of	for
concerns	various	use ICT	affect the	sustain the	interest	inclusion
	LVOs and		use of ICT	use of ICT		in model
	their sectors					
<b>√</b>						1
<b>√</b>	<b>√</b>					1
	<b>√</b>					1
	1	1	1			1
			•			<b>Y</b>
		1	1	1		1
		•	•	ľ		
			1	<b>✓</b>		1
				1	1	1
					1	1
	LVO problems & members	LVO Differences problems & in use of members ICT by concerns various LVOs and	LVO Differences LVOs need a model to help them concerns various LVOs and	LVO Differences LVOs need problems & in use of a model to that negatively concerns various LVOs and Use ICT use of ICT	LVO Differences LVOs need problems & in use of a model to that promote members ICT by help them negatively and help concerns various use ICT affect the sustain the LVOs and LVOs and legal various use of ICT use of ICT	LVO Differences LVOs need problems & in use of a model to that promote technical members ICT by help them negatively and help areas of concerns various use ICT affect the use of ICT use of ICT to the technical and help areas of use of ICT use of ICT to the technical and help areas of the technical areas of the technical and help areas of the technical areas of the technical and help areas of the technical areas

LEGEND: = inclusion of concept is critical to delivery of activity or concept.

Table 7.1 Identification of concepts and activities from findings (Shaded cells indicate primary concept(s) of each finding)

## 7.4 The ENCITE Model

Figure 7.3 depicts the ENCITE model. It illustrates ENCITE's four lenses: Environment, Capital, ICT and End user and shows the concepts and activities that are viewable through each one.



## 7.5 Description of the ENCITE Model

Figure 7.3 illustrates the proposed ENCITE model, which shows the interaction of the four lenses and their associated concepts and activities. Each lens provides LVOs with a unique way to look at their use of ICT and contains concepts and activities that are visible during their technical journey and useful for its completion. The concepts and activities in each lens interact together to enable LVOs perform tasks that allows them to make progress on technical developments in an iterative and inclusive manner.

#### 7.5.1 Environment lens

The first lens describes the LVO's environment. The Environment lens provides an operational view of the LVO, where stakeholders outline how their organisation operates and conducts a SWOT analysis to establish an in-depth understanding of it. The outcome from the SWOT analysis is a starting point for the CI initiative, as it identifies the strengths that the LVO may use to achieve its objectives; weaknesses that are harmful to the organisation in achieving its objectives; opportunities that may help the group achieve its goals and threats that are harmful to a LVO reaching its aims.

The Environment lens also examines the training and education needs of members and recognises that the success of initiatives in LVOs is dependent on having a technically literate membership. Often, this evaluation process leads to the identification of a CI champion, who is a technically capable member who is willing to lead ICT initiatives with support from other members of the organisation. Finally, this lens specifies that a project plan of necessary activities is needed, which will evolve as the LVO traverses the other lenses of the model. The plan should specify the activities that the LVO needs to complete to address their technical requirements and if possible be aligned with their strategic plan.

## 7.5.2 Capital lens

The second lens identifies the capital requirements of the organisation. The capital lens focuses on specifying the social, cultural and economic requirements of the LVO. This lens encourages LVOs to identify and evaluate opportunities that improve the social capital among its members, preserves and utilises their cultural heritage and ideals and facilitates the development of economic capital opportunities for them. These concepts are the value added services that will improve and enhance the operation of the organisation and further empower their members. Organisations may also evaluate the use of socio-cultural constructionism through this lens, if education and training of members had been identified previously as a need of the LVO. The capital lens usually builds on the work carried out during the operational lens, although it is not a prerequisite. The capital lens assumes that the LVO has already identified and attained their basic operational needs, understands the potential uses of ICT and has started to identify tasks to be supported with technology, all of which have been specified in the project plan.

#### **7.5.3** ICT lens

The third lens specifies the ICT focus of the model, which addresses how technology can facilitate the delivery of information and services to fulfil the needs and expectations of the LVO. The ICT lens forces LVOs to evaluate appropriate technologies that may be used by them to support their function and empower their members. Initially, the ICT lens encourages applications to be developed that are easily adopted by members and actively diffused by them. The services that offer a quick return on investment and are most useful should be developed initially, before more sophisticated applications are introduced later. The ICT lens also ensures that consideration is given to appropriate HCI principles; these should focus on ease of use and usability, especially where LVOs contain a relatively technically poor membership. The provision of a checklist of required system functionality and the subsequent inclusion of the end user's needs and expectations into the application will assist the development of a functionally complete and useful system.

#### 7.5.4 End user lens

The fourth lens outlines the end user or members' view of the model. The end user lens advocates a participatory approach to ICT development by LVOs, which includes members in all stages of application development. The end user lens evaluates the characteristics and individual nuances of LVO members and uses these findings to develop appropriate ICT initiatives, which they will find easy to adopt and use and perhaps more importantly sustain. To help LVO members adopt ICT applications, the end user lens ensures a focus is placed on the adoption of appropriate HCI principles as specified in section 7.5.3 to build on the work carried out in the ICT lens and to ensure the development of better and easier to use systems. The end user lens supports the continued evaluation of ICT developments by LVO members; it acknowledges that their contributions and feedback are important for the success of the initiative. The involvement of end users ensures that they feel involved in the applications' creation and this helps with ICT development and enhances the likelihood of its adoption and usage.

## 7.6 Concepts and activities in each lens of the ENCITE model

#### 7.6.1 First Lens: Environment

a) The LVO must define its environment, how it operates as an organisation, and outline the new operations and services required by its members. This organisational input will provide a baseline of requirements and needs for ICT developments. However, it is important to note that only a subset of these activities may be suitable for ICT support; others may not need or suit technological intervention. For example, LVO members may specify they would like new meeting times or alternative arrangements for training, neither of which can be fulfilled through ICT. But, requests like improved communication between members and greater collaboration with other LVOs are examples of where ICT can make a positive contribution to a voluntary organisation.

- b) A SWOT analysis provides LVOs with a starting point for a CI initiative. It facilitates members to identify their strengths, which may be used to overcome their weaknesses; to recognise opportunities to address the threats that threaten their development and perhaps existence as an organisational entity. LVOs also need to find members, who have assets, which may be mobilised to fulfil an organisational objective or to assist others to develop and make a greater contribution to the organisation. Alternatively, an investigation may be required to identify people, who are not members of the LVO, but whose assets can fill the knowledge and skill deficit identified after the internal skills audit has taken place.
- c) An education and training programme may be required to provide LVO members with information about the potential of ICT. These education and training programmes will assist members to develop their awareness and understanding about the potential offered by ICT and subsequently help them to identify potential ideas for technical initiatives. Different types of training may be required to ensure that the diverse technological deficits of all stakeholders are catered for during the initiative.
- d) Ideally, ICT support should be provided by a member (CI champion) who has an adequate level of technological knowledge, but perhaps more importantly, has an interest and understanding of the organisation and is trusted by his/her fellow members. The selection of an appropriate ICT champion is an important consideration for LVOs. The success of their technological initiative often depends on selecting the right person, with the appropriate skillset, who understands the organisation and is able to gather support from other members.

e) A project plan provides LVOs with a schedule of activities, resources and durations for the development of ICT applications. The project plan enables members to monitor progress and perhaps more importantly, to ensure that their needs and expectations are included in all activities. The project plan should be presented and agreed with all relevant stakeholders and is subject to change as circumstances and needs evolve and services are rolled out across the organisation.

### 7.6.2 Second Lens: Capital

- a) The capital lens focuses LVOs' attention on identifying their non-operational needs. This lens allows these organisations to develop a layer of interaction and technical sophistication between members, to assist them to further develop their ICT applications after the initial tranche of solutions have been developed by the organisation and accepted by its membership.
- b) Social interaction among members is an important aspect of LVOs. The model places an emphasis on the development of non traditional forms of communication that are ICT enabled, in order to stimulate interaction and collaboration between members affiliated to the same LVO and perhaps others as well. As stated in chapter six, LVOs need to improve their communication, both internally and externally to overcome their isolation from others. Social capital provision through ICT systems is especially important for LVOs, whose membership is geographically dispersed.
- c) Culture is a multi-faceted concept in LVOs and because of this complexity needs to be evaluated at both an organisational and member level. Typical organisational level cultural concerns were the retention of local heritage and ideals, adoption of regional attitudes and customs, mobilization of local knowledge and preservation of historical moments. At a member level, the cultural attitudes of members need to be understood and acknowledged, as they

will significantly impact on the success of any technical initiatives. To this end, members must be included in initiatives and their ideals, needs and expectations acknowledged in ICT solutions.

- d) The provision of economic benefit from the development of appropriate ICT solutions needs to be investigated and integrated into the operation of the LVO. The ENCITE model explicitly indicates the importance of this step. LVOs need to identify areas where the deployment of ICT can bring monetary gain to them, which is especially important in the current economic climate<sup>31</sup> where the voluntary sector is struggling to survive and maintain its position in society. As stated in chapter six, creativity and imagination are needed in the development of ICT solutions to gain members' support and to increase the likelihood of the initiative being successful.
- e) The provision of education and training opportunities for members of LVOs identified in the environment lens of the model may be facilitated through appropriate socio-cultural constructionisms. A socio-cultural construction could be any physical, virtual or cognitive artefact that is meaningful in both a social or cultural sense to the LVO and its members. A constructionist-learning approach provides members with the freedom to explore their natural interests in an environment that they find comfortable, which provides a deeper understanding of the subject matter and facilitates interaction with others. A recent example of this form of education was an ICA led ICT training initiative in Wexford, where the members identified what they wanted to learn, how they would like it taught, when it suited them to attend classes and where it most suited them to attend. This is an example of a LVO taking responsibility for educating their own members with material they deemed to be relevant and useful, in an environment they found comfortable and accessible.

<sup>&</sup>lt;sup>31</sup> At the time of writing 2012, Ireland and the majority of Europe were in recession and the viability of many economies was being questioned. Indeed, the viability of the euro as a currency was even in doubt.

#### 7.6.3 Third Lens: ICT

- a) The provision of web technologies adds a new rich layer of interaction to CI initiatives. The deployment of suitable forms of ICT to address the social, cultural, educational and financial needs of LVO members is an important aspect of a CI model. Some LVOs were productively and creatively using technology to solve their problems. The ICT lens deepens the commitment of LVOs to technology and assists them to integrate it into their current operation and future plans.
- b) This lens focuses LVOs' attention on technology adoption and diffusion; it helps management of LVOs to identify what is technologically useful to them and examines ways to make systems easy to understand and use. Findings from chapter six indicate the importance of a SWOT analysis to LVOs. These findings also describe the importance of education and training programmes for upskilling members and enabling them to appreciate and use technical solutions in a productive manner. ICT needs to make a positive contribution to LVOs and their members. This contribution will largely depend on the appropriateness of the solution to the problem, its usability and accessibility.
- c) HCI is another area of technology development, which is addressed in the model to assist LVO members adopt and use ICT. Appropriate HCI methods need to be adopted by CI developers to ensure that technical solutions are not only easy to use, but to facilitate their measurement, which is important for their continued evolution and usage by members. CI developers need to be cognizant of their end users' technical profile, needs, and expectations and apply HCI principles accordingly. Systems that are not easy to learn and use will not be used by LVO members.

d) Application development will see the outcomes of the previous lenses develop technological applications using appropriate software development methodologies, tools and techniques. Initially, the selection of an appropriate methodology is important; as described in section 7.2.5 and 7.2.8 an iterative methodology like WebE should be adopted by LVOs for application development. Subsequently, the hardware and software required to develop the solutions need to be identified, selected and tested for suitability and compatibility. It is imperative that the selection of the architecture is consistent, functional, extendable and sustainable, to ensure that the technical needs of the LVO are addressed, both for now and into the future.

#### 7.6.4 Fourth Lens: End User

- a) As described in the previous lenses, LVO members need to be involved at many different levels for technical developments, from specification to testing; their role is crucial to the success of CI initiatives. Participatory action is an approach for application development that attempts to involve stakeholders actively in the design process to ensure that the end product meets their needs, is usable and sustainable. Inclusion develops ownership, if members feel that they are a part of an initiative they are more likely to adopt and use ICT solutions.
- b) The diffusion of technology within LVOs is largely dependent upon their members' expectations and needs. Understanding members' backgrounds, experiences, needs, culture and expectations helps the development of suitable and perhaps more importantly, sustainable organisational applications. Traditionally, the vast majority of Irish LVOs are laggards in terms of ICT usage. The ENCITE model will be a catalyst for technically impoverished LVOs; it will enable them to begin using ICT in a productive and sustainable manner. ENCITE will stimulate LVOs' interest in ICT and empower them to begin a sustainable with it.

- c) As previously stated in chapter six, the requirements and needs of LVO members have to be captured to ensure that applications and systems meet their expectations in terms of usability, usefulness and sustainability. Inclusion of members' views at various stages of development ensures that the technical expansion is inclusive. This concept addresses the non-technical needs of members; it helps LVOs identify where members are in the most need of support and enables them to evaluate opportunities to provide it. Examples are further training or education, support from other members or assistance with non-LVO activities.
- d) Evaluation of CI initiatives by all stakeholders is vital for its continued success. The constant refinement and evolution of a CI application is required to ensure that ICT continues to meet the changing demands and evolving needs of LVO members. Once again, evaluation needs to focus on end users' expectations and views. It is likely that as ICT becomes more pivotal in the operation of the LVO that the expectations and needs of members will grow. It is important that these expectations are handled in a controlled manner; they should not be ignored, yet still it is highly unlikely that all requests will be satisfied. Nevertheless, evaluation of activities is an aspect of LVOs operation, where unfortunately most are found to be negligent. This model explicitly enables LVOs to evaluate and learn from the past, to help them build a better future.

#### 7.7 Conclusion

This chapter described the final finding, which documented the concepts and activities that informants felt were important to consider for inclusion in the proposed model. The concepts and activities were combined with the five findings from chapter six to form the basis of the proposed ENCITE model. The ENCITE model was illustrated and its operation explained, before the role of each lens was discussed. Finally, the concepts and activities that are visible through each lens were described and their role in the model explained.

## CHAPTER EIGHT CONCLUSION and REFLECTION

#### Overview

This chapter reflects on the research journey. It discusses the research findings and describes their contribution to the CI body of knowledge. The advantages offered by the ENCITE model over the Access Rainbow, Liaise and ALLIANCE models are described. An evaluation is conducted on the rigour applied throughout the research. Several limitations of the research are explored, before possible opportunities for further investigations are identified. The chapter concludes with some final remarks about the contribution and usefulness of the research findings to Irish LVOs and the wider CI community.

#### 8.1 Contribution of the research to the CI body of knowledge

The findings from this research make an important contribution to the CI body of knowledge. The research acknowledges, adopts and builds on existing scholarship in CI as described and critiqued in chapters two and three. Specifically, it synthesises and extends the work of O'Donnell (2000) and Gilligan (2005) on the adoption of ICT by organisations in the Irish community and voluntary sector. This research addresses the theoretical gaps and practical problems identified by these scholars on the use of ICT by Irish LVOs.

As discussed in chapter three, O'Donnell and Gilligan proposed that Irish LVOs required support to facilitate their adoption and use of ICT. O'Donnell suggested that the most appropriate form of technical support was a framework that would assist LVOs to plan, design, develop and sustain technological applications. In a subsequent paper, O'Donnell et al (2009) returned to the topic of ICT supporting voluntary organisations, while working on the K-Net and Atlantic help desk projects in Canada. O'Donnell et al (2009, p. 116) stated that these projects demonstrate how the delivery of ICT into communities needs to be 'fostered by a community based technology development model' which provides a holistic approach to technical developments.

At the time of writing, there have been few models developed that assist communities or LVOs to adopt and use ICT, with some notable exceptions like the Access Rainbow architecture (Clement and Shade, 2000), LIAISE framework (Johanson et al, 2006) and ALLIANCE model (Denison, 2009). Each of these models is different in approach and outcome from the ENCITE model. Indeed the small number of CI models available was one of the criticisms identified by Walsham (2012) in his keynote address at the CI conference in Prato, Italy in 2011. Walsham stated that the long term viability of CI as a research area depended on the development of useful models.

There are several possible reasons for so few CI models. Firstly, CI is still a new field of study, barely two decades old. Secondly, CI is such a multi-faceted area of research that many opportunities exist for investigation, with a relatively small few academics and practitioners interested in it as a field of study. Thirdly, communities and LVOs in particular are commonly known as the third sector and research funding opportunities are limited and difficult to sustain (Gaved, 2011; Gurstein, 2012).

In order to develop a CI model, four preliminary steps were undertaken to gain an understanding of the use of ICT by Irish LVOs. Firstly, the problems and concerns that inhibit the development of LVOs were identified in approximate order of importance. These problems and concerns included:

- Mobilisation of members' support for initiatives.
- Management committees' resistance to technology.
- Adoption of new services by members.
- Access to technological expertise.
- Identification of areas suitable for ICT use.

These problems and concerns were exacerbated by LVOs selecting inappropriate technologies, management committees ignoring members' backgrounds, needs and expectations and a lack of technical knowhow among members (See figure 6.1). The primary contribution of these findings to the research was that once an insight

into LVOs' problems and concerns had been obtained, a deeper understanding of the potential role for ICT in voluntary organisations began to emerge.

Secondly, LVOs' use of ICT to solve their problems and address their concerns was investigated. This usage was important to understand as it provided an insight and appreciation of technological use among the selected voluntary sectors in terms of organisational needs, usability, and sustainability. From this insight it was possible to identify the technical disparity between each sector and the LVOs in them. This technical disparity provided evidence of a digital divide in the Irish voluntary landscape between the 'haves' and 'have nots', with some LVOs competently using ICT, with others struggling with it (See figures 6.2, 6.3 and appendix F).

Thirdly, the barriers and enablers that affect the adoption and diffusion of ICT in Irish LVOs were identified. In order to build a CI model for LVOs, it was important to understand the impact that these barriers and enablers had on the adoption and use of ICT in them. The theoretical contribution of understanding these barriers was that by acknowledging their existence, not only could they be used for further investigations, but also measures could be encapsulated into the ENCITE model that alleviated them, (See figures 6.5, 6.6 and appendix G). The findings also identified the enablers that facilitated the development and deployment of ICT solutions in technically competent LVOs. The contribution of understanding these enablers to the CI literature was that a deeper appreciation of their impact on the adoption and use of ICT by Irish LVOs was obtained and it also ensured that best practice was adopted into the proposed ENCITE model (See figure 6.7, 6.8 and appendix H).

Fourthly, informants offered many ideas as to how ICT could contribute to their LVO; these included planning, education and training, new service delivery and strategic development. These ideas were analysed and synthesised into concepts and activities, before relationships were established between them. The concepts and activities that were suitable for inclusion in the ENCITE model were initially identified after the first few interviews had taken place to reflect the hermeneutic approach adopted by the

research. Further concepts and activities continued to be identified as data acquisition continued and their relevance to the ENCITE model evaluated and better understood until data saturation was achieved when all interviews and focus groups were completed. (See figures 7.1, 7.2 and appendices J&K)

The identified concepts and activities contribute to the CI body of knowledge by providing a valuable insight into the adoption, diffusion and usage of ICT by Irish LVOs. These concepts and activities will be useful for comparative and evaluation purposes not only to Irish CI researchers, but also to other academics and practitioners throughout the world. The concepts and activities were arranged to acknowledge the relationships between them and to reflect their most appropriate lens. This arrangement led to a draft model emerging, which illustrated each lens and the concepts and activities viewable through it, yet still left room for interpretation of how best to arrange them into the final version of the ENCITE model on completion of data analysis.

The ENCITE model (figure 7.3) is the primary contribution to the CI body of knowledge from this research. It provides CI researchers and academics with another way to think about the systematic use of ICT across communities and voluntary organisations. As the ENCITE model provides a holistic approach to technology adoption and diffusion, it is hoped it will invite comparisons with other models, stimulate debate among the CI community and provoke further interest in the development of supports that facilitate communities and LVOs to take responsibility for their own technical developments. The ENCITE model will hopefully further the academic debate on the ways ICT can support LVOs' operation, assist with the development of services and empower its members. At a practical level, the ENCITE model should help Irish LVOs address what is clearly a complex socio-technical problem.

## 8.2 Advantages of the ENCITE model over the Access Rainbow, LIAISE and Alliance models

The ENCITE model offers a number of advantages over the Access Rainbow, LIAISE and Alliance models, which make it a more comprehensive and useful model for LVOs who wish to adopt and use ICT effectively. These advantages are visible in a number of different ways.

Firstly, the ENCITE model adopts a holistic approach for ICT development that encapsulates the needs of not only the management of the LVO, but also its members, which is important if these new technical services are to be adopted and more importantly sustained. The Access Rainbow, Liaise and Alliance models make little distinction between the different groups of members in a LVO, an approach that often leads to the development of conflicting and ill fitting ICT applications, as one application may not suit all stakeholders.

Secondly, the ENCITE model is broader in its approach to ICT development than the Access Rainbow, Liaise or Alliance models. Specifically, the ENCITE model outlines a system lifecycle for the development of technical solutions to solve the problems experienced by LVOs. The lifecycle begins with interaction between members and the management of the LVO, it continues with the identification of common problems to solve and the creation of a technical plan, before it concludes with the development of ICT solutions and the integration of user feedback.

Thirdly, the ENCITE model provides a more user centred approach to ICT development in LVOs than other models. For example, the Access Rainbow model adopts a technocentric focus to ICT development, with no obvious layer for user interaction or feedback, an omission that could prove costly for LVOs. The Liaise model does facilitate interaction with users, but it is at a late stage, which is problematic and worrying, as it may result in members feeling left out of developments, with their needs and expectations seen as an afterthought. While, the Alliance model suffers from

focusing on improving user's technical deficiencies rather than building on their strengths.

Finally, the ENCITE model is explicitly aimed at supporting LVOs use ICT effectively in a step by step inclusive manner, which is understandable and useful; while the Access Rainbow model can claim a similar aim, its technocentric focus makes technical development difficult and cumbersome for LVOs. The Liaise model is not prescriptive enough to be of value to LVOs, especially for those who are beginning their technical journey, owing to its emphasis on capacity building. Whilst the Alliance model suffers from an over reliance on the delivery of an efficient broadband infrastructure, establishment of computing support and access to content and services; all of which are important, but outside of the scope of a useful CI model.

#### 8.3 Relevance of research findings to communities and LVOs

The development of CI initiatives has not only interested academia and practitioners, but also governments and local authorities in many countries. As noted in chapter one, the European Union has identified community development as important to society in areas like social capital development and regeneration. Governments have also begun to understand the potential that ICT offers local organisations and started to support technical initiatives that assist communities and LVOs to develop and become more self sustaining, albeit at a slow pace. However, governments need further support from academia with CI initiatives. The findings from this research may assist governments and local authorities to tackle the barriers that impede the use of ICT by communities and LVOs and assist in the creation of enablers that will promote the development of technical initiatives.

At a local level, the ENCITE model presents LVOs with opportunities for technical developments through its four lenses in areas acknowledged by them to be problematic such as getting members' support, improving communication and developing ICT enabled services. It is hoped that the findings from this research and specifically the ENCITE model will inform communities and LVOs and support them in

developing technical solutions to their problems and empowering their members. At the time of writing, one LVO had begun to use the ENCITE model as their technical blueprint for the future.

The ENCITE model is the most comprehensive CI model developed to date; it provides a holistic approach to ICT developments in LVOs. The ENCITE model provides LVOs with a technical plan that will enable them to take responsibility for their own ICT developments. Ownership will bring LVOs many benefits, one of which is that the inclusion of members in initiatives promotes a technical environment in the organisation and subsequently helps them adopt and use the newly created services. As stated earlier in chapter one, research by 'The Wheel '(2010) found that Irish LVOs find the adoption and use of ICT challenging and therefore need support to help them make technology an integral part of their organisation.

Indeed, it is important that the findings from the research and in particular the ENCITE model are of value not only to academia, but to LVOs in Ireland. With this in mind some of the informants have been presented with the ENCITE model for evaluation over the past few months, with the feedback in general being very positive and complimentary. Some of the comments from interviewees were:

'The model is understandable in terms of getting your organisational priorities right: first comes strategy, and then culture and then the technical tools that support those things.' (DG, 2012)

'The model will provide small voluntary organisations with a clear path to follow with technology and help us get management on board as well.' (BP, 2012)

'The model is clear and relatively easy to understand, it will help voluntary organisations like ours that have just begun to use technology move forward with purpose.' (JOC, 2012)

#### 8.4 Evaluation of the Research

This research has been conducted with an emphasis on ensuring rigour throughout the process. As outlined in chapter four, ensuring research rigour in terms of credibility, transferability and dependability requires compatibility between how the data were collected and analysed and the findings themselves.

The credibility of the research findings was ensured through triangulation of sources, referential adequacy and the presentation of findings at five research conferences throughout Europe (see Research Outputs). A higher order narrative with 'thick descriptions' complemented with quotes from informants was developed to improve the transferability of the research findings. The purposive selection of informants maximised the diversity of the data and added richness to it, an action that also made the findings more transferable.

A research audit trail was used to ensure dependability of the research findings. The research audit trail describes the set of stages traversed during the research; its purpose is to reflect on the research journey, ensure that it makes sense and contributes to the body of knowledge. Lincoln and Guba (1985) suggest that the research audit trail serves as a mechanism that stimulates reflection on the research and ensures that the findings are sound and useful. The research audit trail enables readers to trace through the researcher's logic and determine whether the research findings may be relied upon as a platform for further enquiry.

Shenton (2004) states that the research audit trail may be represented diagrammatically through two lenses. One lens adopts a 'data-oriented' approach showing the various stages traversed during the study, which is typically referred to as a physical audit trail. This audit trail shows the decisions made during the research, as depicted in appendix M. Shenton comments that another lens can be applied to demonstrate the reflective practice adopted and to illustrate how the researcher's thinking evolved during the research. This is commonly known as the 'theoretical' audit trail, as illustrated in appendix N.

#### 8.5 Research Limitations

All research has limitations that are dependent on the researcher and the context of the investigation. The limitations that are applicable to this research are discussed in this section. Firstly, time is a problem in all research, in particular when the work has to be conducted part time as was the case for this piece of work.

Secondly, as the interviewees and the focus group participants were all from the South East of Ireland, it is conceivable that the findings are relevant only to this section of the country. Perhaps, if further interviews or focus groups had been conducted with people from other parts of Ireland, the findings may have been different owing to variations in informants' background, culture and expectations.

Thirdly, the research only looked at Irish LVOs in the community, sporting and rural and agricultural voluntary sectors. It is possible that LVOs in other sectors like charity and advocacy could have enriched the findings. Further research will be required to establish if the findings of the research are applicable in other categories of LVO (see section 8.6).

Fourthly, as there have only been a small number of research projects and peerreviewed papers in the CI area published by Irish academics over the past 15 years, it limited this aspect of the material available for the literature review.

Finally, the questions posed to informants gathered a great amount of material for data analysis, some of which was superfluous, a problem noted with interviews and focus groups in chapter four. Possibly, the adoption of a quantitative stance for the research questions may have eased the burden of data analysis and elicited a more concise set of findings.

#### 8.6 Further research

The research could be further extended in a number of different ways. These opportunities emerged initially during data analysis. However some additional avenues for investigation have come to light from further reflection on the findings.

Firstly, the ENCITE model was developed to support the adoption and diffusion of ICT by LVOs based in the South East of Ireland. It would be valuable to conduct similar research elsewhere in Ireland or in other countries to test the suitability of the model and to compare the other findings with similar investigations.

Secondly, this research investigated ICT adoption and diffusion in three LVO sectors: sporting, community and rural and agricultural. During the data acquisition phase it emerged that there was sufficient scope to focus exclusively on one sector of LVO, as each contained sufficient barriers, enablers and requirements that were worthy of investigation on their own. In particular the rural and agricultural sector is rich in research opportunities in areas like improving the technical literacy among members, developing ICT training opportunities, identifying the factors that affect the adoption and diffusion of technology and investigating the impact of culture on the use of ICT by LVOs.

Thirdly, the research could be extended into an action research project where the impact of adopting and implementing the ENCITE model by a number of LVOs is investigated. Such a study would have the benefit of being able to explore the usefulness and impact of the model on the adoption and use of ICT by LVO members and perhaps more importantly identify areas where changes or improvements may be made to it. A national voluntary organisation has adopted the ENCITE model as their technical blueprint for the future, so its use by them will be closely monitored in the coming years.

Fourthly, the ENCITE model has the potential to be extended to provide opportunities for knowledge exchange between LVOs and for their ICT systems to be shared. The extended model could support the development of links between LVOs, either as informal technical collaborations, where they may just share registration or membership information or lead to a more formal partnership in terms of sharing funding opportunities or specific member services. Extending the ENCITE model to facilitate the creation of these collaborative efforts would provide members from different LVOs with opportunities to interact and work together, which may be the most appropriate way to create sustainable and resilient community initiatives. The development of a community intranet would complement this opportunity and therefore merit further investigation.

Finally, further research could be conducted on specific areas of LVO concern such as economic development, creation of social capital or cultural retention. These areas offer researchers opportunities to investigate their impact on the operation of Irish LVOs, looking at the development of new technical services and activities that will empower members and make their membership more fulfilling and rewarding. Focusing on a specific area of LVO concern may also help identify and develop best ICT practice, enabling these organisations to use technology more creatively and efficiently.

#### 8.7 Concluding remarks

LVOs play an important role in Irish communities; they provide people who share a common interest or background an opportunity to interact for mutual benefit. However, LVOs have many problems and concerns with some even struggling to exist and maintain their relevance to Irish society. ICT offers LVOs the potential to address some of these problems and concerns. But, many LVOs are not capable of embracing ICT and those that do, often do not realise the potential it offers. Irish LVOs need help to adopt and use ICT effectively.

This research has examined the issue of ICT adoption and diffusion by Irish LVOs. Specifically, this research investigated the use of ICT by Irish LVOs from three diverse sectors: sporting, community, rural and agricultural. The research explored the barriers that restrained LVOs from using ICT to support their operation and empower their members; it also identified the enablers that were making some LVOs proficient with technology. All of these findings were synthesised and integrated into the ENCITE model. This model provides Irish LVOs with a better understanding of how to identify their problems, evaluate their use of ICT, identify members' assets for mobilisation, create an ICT plan and align it with their strategic plan and roll out basic technologies before developing more sophisticated technical solutions.

The findings from this research and the ENCITE model in particular have not only made a theoretical contribution to the CI body of knowledge, but also a practical one, as the model will assist Irish LVOs to adopt and use ICT to support their operation and provide their members with new services. The ENCITE model presented is not the only viable solution to Irish LVOs problems. There are other alternative views of the findings that are arguably just as sound and useful as the ENCITE model presented in this dissertation.

Indeed, Feyerabend (1993) states

'We may start by pointing out that no single theory ever agrees with all of the known facts in its domain. And the trouble is not created by rumours or by the results of sloppy procedures. It is by experiment and measurement of the highest precision and reliability.'

However, the ENCITE model has been rigorously developed over a period of months and has gone through many iterations to arrive in its current form. Various versions of the model have been presented at conferences throughout Europe over the past couple of years, where contributions from participants have been adopted to refine it into its current state. Nevertheless, the model presented is only an approximation of the complete truth at this point in time (Bannister et al, 2006).

This research has identified many opportunities for further investigation. These opportunities need to be taken by other researchers to ensure that Irish LVOs continue to engage with and use ICT in a meaningful and sustainable manner, so that they continue to make a contribution to Irish society.

As Checkland (1996, p. xii) states:

'The work is not finished and can never be finished. There are no absolute positions to be reached in an attempt by men to understand the world in which they find themselves. New experience may in the future refute present conjectures. So the work itself must be regarded as an on-going system of a particular kind: a learning system which will continue to develop ideas, to test them out in practice, and to learn from the experiences gained.'

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**Appendices** 

Appendix A: Interview schedule

Q1. Can you please tell me some information about your background and role in

the LVO?

This question establishes the role of the informant in the LVO, which is important as it is vital that the data collection process gathers data from those who operate at different levels in LVOs and more importantly understands ICT. Also, this question establishes the credentials of the informant in terms of the past experiences, expertise and usefulness. Essentially, it is important to understand the informant's background and role to be able to appreciate the data gathered from them.

Q2. Can you tell me about the origin of your LVO and describe the role it plays in the community?

This question provides important information on the origin and background of the LVO, which is crucial to understand so that the informant's data can be considered within the context of the LVO's community.

Q3. Can you describe some of the challenges, problems or concerns that are facing your LVO?

This question sets the stage for the data elicitation process, as it allows the informant to identify their problems and concerns and more importantly explain their relevance to the LVO and its members. Gurstein (2000), O'Donnell (2001), Gilligan (2005), Stillman (2007) and Denison (2007) argue that it is important to understand LVOs before the use of ICT can be considered as a potential solution to their problems.

# Q4. Can you provide information on how your LVO is currently using various forms of ICT to support its operation and to address some the issues documented in the previous answer?

This question emerges from research carried out by O'Donnell (2001) and Gilligan (2005). Although O'Donnell and Gilligan evaluated ICT adoption and usage through different lenses, both obtained similar findings in areas that are relevant to this doctoral research. Specifically, both researchers found that ICT adoption and usage is limited in the Irish communities and their LVOs. This sector and is in need of support in areas such as system planning and design, technical training and education and IS development.

## Q5. What are the barriers that affect the adoption and use of ICT by your LVO?

This question relates to doctoral research carried out by Denison (2007). He investigated the barriers to technology adoption and use by LVOs in Australia and Italy. Denison identified the barriers to ICT adoption and use by LVOs in both countries. Typical barriers were: negative attitudes to ICT, limited access to ICT professionals, inadequate resources, lack of understanding of technology needs, limited internal technology skills and knowledge, insufficient project management skills and poor ICT training and support. Denison suggests that identifying the barriers to technology adoption in LVOs is the first step towards developing an understanding of how the diffusion of ICT is being inhibited in the third sector.

# Q6. What are the enablers that promote and assist the diffusion of technology throughout your LVO?

This question originates from research conducted by O'Donnell (2001) and Denison (2007). Essentially it is the corollary of the previous question, where the informant is questioned on the success factors that facilitate ICT adoption and usage in their organisation. The knowledge acquired from the informant's responses may be compared to Denison's findings to identify similarities and differences and to evaluate how the enablers contrast with the barriers gathered previously. Essentially, this question will provide an understanding of what is currently supporting LVOs to adopt and use ICT and therefore is worthy for consideration for inclusion in the model.

# Q7. What would you consider to be important (best practice) when developing a model to support Irish LVOs adopt and use ICT?

This question will allow the informants to state what they feel should be considered important for the deployment of ICT into their LVO. This question is primarily based on research conducted by O'Donnell (2001), Loader and Keeble(2004) Gilligan (2005), Stillman (2007), Denison (2007), Carroll and Rosson (2007), all of whom suggested that those working in communities or LVOs often know best what will work elsewhere in terms of ICT deployment and usage.

# Q8. Do you think that a model could facilitate technological collaboration and co-operation between LVOs? Why? Why not?

This question is primarily based on the research conducted by The Wheel (2003), who is a support and representative body connecting community and voluntary organisations and charities across Ireland. The Wheel identified that there was a lack of ICT collaboration and coordination between Irish LVOs, which has impeded their development. This question will investigate the potential of a CI model to improve the technological partnership and collaboration between LVOs, which should in turn improve their operation individually.

# **Appendix B: Ethical Approval Form**

# School of Computer Science and Statistics Research Ethical Approval Form

ProjectCommunity Informatics : A model for Local Voluntary Organisations in Ireland
Name of Lead Researcher (student in case of project work):TJ Mc Donald
TCD E-mail:mcdonatj@tcd Contact Tel No.: 087 6798376
Course Name and Code (if applicable):PhD in Information Systems
Estimated start date:September 2007 Estimated end date: June
2012
Office Use Only SCSS Ref No.: Date Received
I confirm that I will (where relevant):
<ul> <li>Familiarize myself with the Data Protection Act and guidelines http://www.tcd.ie/info_compliance/dp/legislation.php;</li> </ul>
<ul> <li>Tell participants that any recordings, e.g. audio/video/photographs, will not be identifiable unless prior written permission has been given. I will obtain permission for specific reuse (in papers, talks, etc.)</li> </ul>
<ul> <li>Provide participants with an information sheet (or web-page for web-based experiments) that describes the main procedures</li> </ul>
• (a copy of the information sheet must be included with this application)
<ul> <li>Obtain informed consent for participation (a copy of the informed consent form must be included with this application) Should the research be observational, ask participants for their consent to be observed</li> </ul>
Tell participants that their participation is voluntary
<ul> <li>Tell participants that they may withdraw at any time and for any reason without penalty</li> <li>Give participants the option of omitting questions they do not wish to answer if a questionnaire is</li> </ul>
<ul> <li>Tell participants that their data will be treated with full confidentiality and that, if published, it will not be identified as theirs</li> </ul>
<ul> <li>On request, debrief participants at the end of their participation (i.e. give them a brief explanation of the study) Verify that participants are 18 years or older and competent to supply consent.</li> </ul>
<ul> <li>If the study involves participants viewing video displays then I will verify that they understand that if they or anyone in their family has a history of epilepsy then the participant is proceeding at their own risk</li> </ul>
<ul> <li>Declare any potential conflict of interest to participants.</li> <li>Inform participants that in the extremely unlikely event that illicit activity is reported to me during the study I will be obliged to report it to appropriate authorities.</li> </ul>
Signed:

### Appendix C: Participants information sheet

### **Information Sheet for Participants**

**Project.**: Community Informatics : A model for Local Voluntary Organisations in Ireland.

Name of Lead Researcher: TJ Mc Donald.

TCD E-mail: mcdonatj@tcd...... Contact Tel No.:087 6798376

Course Name and Code (if applicable): PhD in Information Systems

Estimated start date: September 2007... Estimated end date: December 2012

I confirm that I will (where relevant):

- Familiarize myself with the Data Protection Act and guidelines <a href="http://www.tcd.ie/info">http://www.tcd.ie/info</a> compliance/dp/legislation.php;
- Tell participants that any recordings, e.g. audio/video/photographs, will not be identifiable unless prior written permission has been given. I will obtain permission for specific reuse (in papers, talks, etc.)
- Provide participants with an information sheet (or web-page for web-based experiments) that describes the main procedures
- (a copy of the information sheet must be included with this application)
- Obtain informed consent for participation (a copy of the informed consent form must be included with this application) Should the research be observational, ask participants for their consent to be observed
- Tell participants that their participation is voluntary
- Tell participants that they may withdraw at any time and for any reason without penalty
- Give participants the option of omitting questions they do not wish to answer if a questionnaire is used
- Tell participants that their data will be treated with full confidentiality and that, if published, it will not be identified as theirs
- On request, debrief participants at the end of their participation (i.e. give them a brief explanation of the study) Verify that participants are 18 years or older and competent to supply consent.
- If the study involves participants viewing video displays then I will verify that they understand that if they or anyone in their family has a history of epilepsy then the participant is proceeding at their own risk
- Declare any potential conflict of interest to participants.
- Inform participants that in the extremely unlikely event that illicit activity is reported to me during the study I will be obliged to report it to appropriate authorities.

Signed:	ΓJ	MC	DONALD	Date	31/5/	10			
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### Appendix D: Email to Informants

Hi,

My name is TJ Mc Donald. I am a lecturer of Computing at WIT.

I am currently doing a part time PhD at Trinity College Dublin. My area of interest is the use of ICT by voluntary organisations in Ireland. I am particularly interested in its use by local organisations.

I would like to ask you some questions about how your organisation uses ICT. Specifically, I would like to look at the different forms of ICT that your organisation uses, the barriers and enablers that obstruct and assist the adoption of technology and the lessons that you learned during your work.

The interview should only take about 1 hour minutes and all information gathered will be secured and remain confidential.

If you are interested in participating in the study, please contact me via email or on 087 6798376.

Kind Regards

TJ Mc Donald

**Appendix E: Informants characteristics** 

	INFORMANT	The Malescone		ORGANISA	TION
Interview <u>id</u>	Personal level of ICT training and experience (0 = None, 5 = Excellent)	Attitude towards ICT (0= Resistant, 5 = Enthusiastic)	Org.	Progressive organisation (0= Poor 5= Excellent)	Organisationa ICT strategy (0= None, 5= Strategic)
1	Yes	Adequate	80	Adequate	No
a Kabura	3	3		3	1
2	Very little	Poor	60	No	No
	2	2		1	1
3	Self taught	Adequate	140	Yes	No
	3	3		4	2
4	Yes	Positive	40000	Yes	Yes
bainanii il	5	4		4	4
5	Yes	Excellent	120	Yes	Yes
	5	5	120	5	4
6	Very little	Good	120	Yes	Yes
	2	4	120	5	4
7	Some	Adequate	10000	Yes	Poor
Toners of	3	3	10000	4	2
8	Some	Good	10000	Yes	Poor
	3	4	10000	4	2
9	Limited	Cautious	10000	Somewhat	Somewhat
	2	3	10000	3	3
10	Self taught	Adequate	140	Yes	No
	2	3	140	4	1
11	Yes	Good	40	Yes	Poor
	5	4	40	4	2
12	Yes	Good	40	Yes	Adequate
	4	4	-10	4	3
13	Yes	Good	87000	Yes	Yes
-15	5	5	07000	4	4
14	Yes	Adequate	100	Somewhat	Adequate
	5	3	100	3	3
15	Yes	Good	400	Somewhat	Adequate
-10	5	4	100	3	3
16	Yes	Positive	250000	Yes	Yes
10	5	5	250000	5	5

Interview id	Personal level of ICT training and experience (0 = None, 5 = Excellent)	Attitude towards ICT (0= Resistant, 5 = Enthusiastic)	Org. Size	Progressive organisation (0= Poor 5= Excellent)	Organisational ICT strategy (0= None, 5= Strategic)
17	Yes	Adequate	50000	Yes	Adequate
1/	5	3	30000	4	3
18	Yes	Positive	8	Yes	Yes
10			0		
	5	5		5	5
19	Yes	Positive	10000	Yes	No
	4	4		4	1
20	Some	Positive	10000	Yes	Some
	3	4		4	2
21	Yes	Good	160	Yes	Poor
	5	3		4	2
22	Yes	Good	150	Yes	Yes
	5	4		4	5
23	No	Poor	2000	No	No
	2	2		1	1
24	Very little	Poor	2500	Somewhat	No
	2	2		3	1
25	Yes	Positive	10000	Yes	Some
	4	4		4	2
26	Limited	Good	870000	Yes	Yes
	2	4		5	4
27	Adequate	Good	200	Yes	Somewhat
	3	4		5	3
28	Limited	Adequate	70	Yes	No
	2	3		4	2
29	Limited	Cautious	10000	Somewhat	Somewhat
	2	3		3	3
30	Very little	Positive	3000	Yes	Yes
	2	4		5	4
31	Yes	Good	120	Yes	Somewhat
	5	5		4	3
32	Very little	Good	140	Yes	No
	2	4		4	1
33	Limited	Adequate	500	Yes	Somewhat
	2	3		4	3
34	Adequate	Good	12	Yes	Somewhat
	3	3		4	3

Interview id	Personal level of ICT training and experience (0 = None, 5 = Excellent)	Attitude towards ICT (0= Resistant, 5 = Enthusiastic)	Org. Size	Progressive organisation (0= Poor 5= Excellent)	Organisational ICT strategy (0= None, 5= Strategic)
35	Self taught	Adequate	250	Yes	No
	3	3		5	1
36	Self taught	Poor	120	No	No
	3	1		1	1
37	Yes	Good	50000	Yes	Yes
	4	4	4 2 -	5	3
- 38	Yes	Positive	23000	Yes	Yes
	4	4		5	4
39	Some	Good	35	Yes	Yes
	3	4		4	5
40	Yes	Adequate	25000	Yes	Adequate
	3	3		4	3
41	Yes	Good	200	Yes	Yes
	4	4		5	4
42	None	Poor	50	Somewhat	No
	2	2		3	1
43	Yes	Positive	100	Yes	Yes
	4	4		4	4
44	Yes	Positive	10000	Yes	Yes
	5	4		5	5
45	very little	Poor	25	Somewhat	No
	2	2		3	1
46	Yes	Positive	5	Yes	Yes
	5	5	Sheri	5	5
47	Adequate	Good	100	Yes	Adequate
	3	4		4	3

<u>ID</u>	<u>Texting</u>							le use, 2= Used							
<u>ID</u>	<u>Texting</u>				YYE	bsite									
		Email	Information	Downloads	<u>Uploads</u>	Payment	Merchandise	Other Applications	Word Proc.	<b>Spreadsheets</b>	<u>Databases</u>	Facebook	Twitter	Cloud	ICT index
1	Yes	Yes	Yes	Yes	No	No	No	Yes	Yes	Yes	No	Yes	No	No	
	5	3	5	4	0	0	1	2	4	3	1	4	0	0	32
2	Yes	Very little	No	No	No	No	No	No	Yes	Yes	No	Yes	No	No	
	3	2	0	0	0	0	0	0	5	3	0	3	0	0	16
3	Yes	Yes	Yes	Yes	No	No	No	No	Yes	Yes	No	No	No	No	
	4	4	5	3	1	0	1	0	5	4	1	0	0	0	28
4	Yes	Yes	Yes	Yes	Yes	Yes	No	Some	Yes	Yes	Yes	No	No	no	
	5	5	5	5	3	5	0	2	5	5	3	1	0	0	44
5	Yes	Yes	Yes	Yes	Somewhat	No	No	Yes	Yes	Yes	Yes	Yes	no	no	
	5	4	4	4	2	1	1	3	5	4	3	5	1	1	43
6	Yes	Yes	Yes	Yes	Somewhat	No	No	Yes	Yes	Yes	Yes	Yes	No	No	
	5	4	4	4	2	0	1	4	5	4	3	5	0	0	41
7	Yes	Yes	Yes	Yes	Some	some	some	yes	yes	some	Some	Yes	Yes	no	
	5	3	5	3	3	3	3		4	3	2	5	2	0	41
8	Yes	Yes	Yes	Yes	Some	some	some	yes	yes	some	Some	Yes	Yes	no	
	5	3	5	3	3	3	3		4	3	1	4	1	0	38
9	Yes	Yes	Yes	Yes	Yes 3	Yes	No 1	Yes 3	Yes 5	Yes 5	Yes 4	No 0	No 0	Yes 3	
	3	5	5	4	3	3	1	3	5	5	4	U	U	3	44

<u>ID</u>	Texting	<u>Email</u>	<u>Information</u>	<u>Downloads</u>	<u>Uploads</u>	Payment	Merchandise	Other Applications	Word Proc.	Spreadsheets	Databases	Facebook	Twitter	Cloud	ICT index
10	Yes	Yes	Yes	Somewhat	No	No	No	No	No	No	No	Yes	No	no	
	5	4	4	3	0	1	1	0	1	1	0	4	0	0	24
11	Yes	Yes	Yes	Some	No	No	No	Yes	Yes	Yes	Yes	No	No	No	
	3	4	4	3	0	0	0	5	5	4	3	0	0	0	31
12	Yes	Yes	Yes	Some	No	No	No	Yes	Yes	Yes	Yes	No	No	No	
	3	4	4	3	0	0	0	5	5	4	3	0	0	0	31
13	Yes	Yes	Yes	Yes	Limited	No	No	Yes	Yes	Yes	Yes	Yes	No	Yes	
	4	1	4	3	1	1	0	4	4	3	2	2	1	2	32
14	Yes	Yes	Yes	Adequate	No	No	No	No	Yes	Yes	Adequate	Yes	No	no	
	3	4	4	3	0	0	1	0	5	5	2	3	0	0	30
15	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Some	Yes	Yes	Adequate	No	No	no	
	3	4	5	4	3	4	3	2	5	5	3	0	0	0	41
16	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	Yes	No	Yes	
	5	4	4	4	4	3	3	4	4	3	4	2	2	3	49
17	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	No	
	5	5	5	4	3	3	2	3	5	4	3	3	3	1	49
18	Yes	Yes	Yes	Yes	Some	some	some	Yes	Yes	Some	Some	Yes	Some	Some	47
10															
10	5	5	4	3	3	3	3	4	5	3	2 Very	Very	2	2	47
19	Yes	Limited	Some	Limited	No	No	No	No	Yes	Limited	Limited	Limited	No	No	
	4	2	3	2	0	0	0	0	4	1	1	1	1	0	19
20	Yes	Limited	Some	Limited	No	No	No	No	yes	Some	Limited	Very Limited	No	No	
	4	2	3	2	0	0	0	0	5	2	1	1	0	0	20

<u>ID</u>	Texting	<u>Email</u>	Information	<u>Downloads</u>	<u>Uploads</u>	<u>Payment</u>	Merchandise	Other Applications	Word Proc.	Spreadsheets	<u>Databases</u>	Facebook	Twitter	Cloud	ICT index
21	Yes	Yes	Yes	Somewhat	No	No	No	Some	Yes	Yes	Yes	Yes	No	no	
	5	4	5	3	0	1	0	3	5	5	4	5	1	0	41
22	Yes	Yes	Yes	Yes	Some	No	No	Yes	Yes	Yes	Yes	Yes	No	No	
	5	5	5	4	3	2	2	4	5	5	4	5	1	0	50
23	Limited	Limited	Yes	Limited	No	No	No	No	Yes	Limited	No	No	No	No	
	2	1	5	1	0	0	0	1	4	2	2	1	1	0	20
24	Yes	Yes	Yes	Yes	No	No	No	Very Little	Yes	Yes	Yes	Some	Limited	No	
	4	3	4	3	1	1	1	1	5	4	2	3	1	0	33
25	Yes	Limited	Yes	Yes	No	No	No	No	Yes	Limited	None	Yes	Yes	No	
	3	1	5	3	0	0	0	0	3	2	0	1	1	0	19
26	Yes	Limited	Yes	Yes	some	No	No	Limited	Yes	Yes	Limited	Yes	No	no	
	4	1	5	3	2	0	0	2	4	3	2	1	1	1	29
27	Yes	Yes	Yes	Some	No	No	No	No	Yes	Yes	Some	Yes	No	No	
	5	5	5	3	0	0	0	5	5	5	3	5	1	0	42
28	Yes	Yes	Yes	Yes	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	No	
	5	5	5	5	0	0	0	5	5	3	3	5	3	0	44
29	Yes	Yes	Yes	Yes	No	No	No	No	Yes	Yes	yes	Yes	No	no	
	5	4	5	4	0	0	0	0	5	5	3	2	0	1	34
30	Yes	Yes	Yes	Yes	No	No	No	Yes	Yes	Yes	Yes	Yes	No	No	34
30				4		0	0	5	5	5	3	4	1	0	43
21	5	5	5		1								No		43
31	Yes	Yes	Yes	Yes	No	No	No 1	No 1	Yes 5	Yes 4	Yes 3	Yes 4	0	No 1	36
	4	3	5	4	0	1	1	1	3	4	3	4	0	1	30

<u>ID</u>	Texting	<u>Email</u>	<u>Information</u>	<u>Downloads</u>	<u>Uploads</u>	Payment	Merchandise	Other Applications	Word Proc.	Spreadsheets	Databases	Facebook	Twitter	Cloud	ICT index
32	Yes	Yes	No	No	No	No	No	No	Yes	Yes	Yes	Yes	No	no	
	5	4	1	0	0	1	1	0	5	5	3	3	0	0	28
33	Yes	Yes	Yes	Yes	Some	No	No	No	Yes	Yes	Some	No	No	No	
	5	5	5	5	3	1	0	1	5	5	3	1	0	0	39
34	Yes	Some	Yes	Some	No	No	No	Yes	Some	Limited	No	No	No	No	
	4	3	5	3	1	0	0	3	3	3	1	1	0	0	27
35	Yes	Yes	Yes	Yes	No	No	No	No	Yes	Yes	Yes	Yes	Yes	no	
	5	4	4	4	1	1	1	0	5	4	2	4	2	1	38
36	Yes	Yes	No	No	No	No	No	No	Yes	Yes	No	No	No	No	
	5	3	1	0	0	0	0	0	5	4	1	0	0	0	19
37	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	no	
	5	5	5	5	4	5	5	4	5	5	5	0	0	1	54
38	Yes	Poor	Yes	Limited	No	No	No	No	Somewhat	Poor	Poor	Yes	Limited	No	
	3	1	2	2	1	1	0	1	3	1	1	3	1	0	20
39	Yes	Yes	Yes	Yes	Some	Some	Some	Yes	Yes	Yes	Some	Yes	No	no	
	5	5	5	3	3	3	3	4	5	4	3	5	0	0	48
40	Yes	Yes	Yes	Some	No	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	no	
	5	5	5	3	0	5	0	4	5	4	3	5	5	1	50
41	Yes	Yes	Yes	Yes	Yes	Yes	No	No	Yes	Yes	Yes	yes	No	No	
	5	4	5	4	4	4	2	1	5	4	3	5	1	1	48
42	Yes	Limited	Yes	Limited	No	No	No	No	Yes	Limited	No	Limited	No	No	
	5	2	5	3	0	0	0	0	5	2	0	1	0	0	23

<u>ID</u>	Texting	<u>Email</u>	<u>Information</u>	<u>Downloads</u>	<u>Uploads</u>	<u>Payment</u>	Merchandise	Other Applications	Word Proc.	Spreadsheets	<u>Databases</u>	Facebook	Twitter	Cloud	ICT index
43	Yes	Yes	Yes	Some	Limited	Limited	Limited	Limited	Yes	Yes	Limited	Some	Some	No	
	4	4	4	3	1	1	1	1	4	4	1	2	2	0	32
44	Yes	Yes	Yes	Yes	some	yes	no	yes	Yes	Yes	Yes	Yes	Yes	Yes	
	5	5	5	5	3	5	0	5	5	5	3	5	3	4	58
45	Yes	Limited	Yes	Limited	No	No	No	No	Yes	Poor	No	Yes	No	no	
	4	2	5	1	0	0	0	0	5	2	0	2	1	0	22
46	Yes	Yes	Yes	Some	Limited	Few	Yes	yes	Yes	Some	Some	Yes	Limited 2	No	
40	5	5	5	3	2	3	4	4	5	3	3	4	2	1	49
47				Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	47
47	Yes 5	Yes 3	Yes 5	4	0	3	4	1	5	4	3	5	0	0	42

# Appendix G: Barriers to LVOs using ICT

### Legend

1= No impact, 2= Negligible impact, 3= Impact, 4= Significant impact, 5= Catastrophic impact

al	Group Type	Entity	Level	Poor Broadband	Need for members to get ICT training	Someone to take responsibility for ICT	ICT support from other members	Members' resistance to ICT	Poor perception of members towards	Access to ICT facilities	Cost	Barrier index
1	Sporting	Soccer	Local	5	4	3	3	3	2	4	5	29
2	Sporting	Soccer	Local	5	5	5	4	3	4	4	4	34
3	Sporting	GAA	Local	1	4	3	4	2	2	4	4	24
4	Community	Youth groups	National	2	4	4	4	1	1	4	4	24
5	Sporting	GAA	Local	1	2	1	3	2	2	2	4	17
6	Sporting	GAA	Local	1	1	1	3	2	1	3	4	16
7	Community	County Development	County	4	5	4	4	3	3	4	5	32
8	Community	County Development	County	4	4	4	3	4	4	3	4	30
9	Sporting	GAA	County	2	3	3	2	4	4	3	3	24
10	Sporting	GAA	Local	1	4	3	4	4	3	4	4	27
11	Community	Disadvantaged	Local	2	3	1	3	1	2	4	5	21
11	Community	Disadvantaged	Local	2	1	1	2	1	1	4	5	17
13	Rural	Farming	County	4	4	2	4	2	3	3	4	26
14	Sporting	Rugby	Local	0	3	3	4	4	3	4	3	24
15	Sporting	Athletics	Local	0	2	2	3	2	2	4	4	19
16	Sporting	GAA	National	3	4	4	3	3	3	2	3	25
17	Community	Advocacy	National	3	4	4	4	3	2	3	4	27
18	Community	IT Training	National	3	4	4	4	1	2	3	3	24
19	Rural	Women	National	3	5	5	3	4	3	3	4	30
20	Rural	Women	Local	3	4	5	2	3	3	3	5	28
21	Community	Musicals	Local	1	3	3	4	1	2	4	4	22
22	Community	IT Delivery	Local	1	3	1	2	3	1	2	3	16
23	Community	Parochial	Local	4	4	4	4	2	3	4	4	25

Ī	Group <u>Type</u>	Entity	Level	Broadband <u>coverage</u>	members to get ICT training	take responsibilit y for <u>ICT</u>	ICT support from other members	resistance to	Poor perception of members towards ICI	Access to ICT <u>facilities</u>	Cost	Barrier index
24	Sporting	Soccer	County	3	4	5	3	4	3	2	4	28
25	Rural	Women	National	4	5	4	4	4	4	4	4	33
26	Rural	Farming	National	4	5	5	4	4	4	4	3	33
27	Community	Local Development	Local	3	3	2	3	1	2	4	5	23
28	Community	Theatre	Local	1	4	4	4	0	0	3	5	21
30	Community	Local Development	Local	2	4	4	4	3	2	4	5	28
31	Sporting	Soccer	Local	0	3	3	4	3	3	3	2	21
32	Sporting	Soccer	Local	0	4	4	4	3	2	4	5	26
33	Sporting	Golf	Local	1	3	4	4	3	3	3	2	21
34	Community	History	Local	4	4	5	4	2	1	4	5	29
35	Sporting	GAA	Local	0	4	4	3	4	3	3	3	24
36	Sporting	GAA	Local	5	5	5	5	4	4	4	4	36
37	Sporting	Soccer	National	4	4	3	4	3	2	4	5	29
38	Community	Retired	National	3	4	5	4	3	3	4	4	30
39	Community	Local Development	Local	2	2	1	3	2	1	3	4	18
40	Community	Rural Development	National	5	4	3	3	3	3	3	3	27
41	Sporting	GAA	Local	1	2	3	2	1	1	3	3	16
42	Rural	Rural Life	Local	5	4	5	4	4	4	4	5	35
43	Community	County Development		3	4	5	4	3	3	4	4	30
	Community		County									
44	Community	Poverty	National	4	3	4	2	3	3	0	1	20
45	Community	Youth groups	Local	4	4	4	5	1	2	4	4	28
46	Community	IT support	National	3	3	5	5	2	1	3	3	25
47	Sporting	Soccer	Local	2	3	4	4	2	2	3	3	23

# Appendix H: ICT Enablers

# Legend

1= Not useful, 2= somewhat useful , 3= useful, 4= very useful, 5= extremely useful

<u>ID</u>	Sector	Type	Level	Usefulness of ICT	Usability of ICTs by members	Sustainability of ICT initiatives	ICT Champion	ICT support from Committee	Member support	<u>Index</u>
1	Sporting	Soccer	Local	4	2	4	4	3	3	24
2	Sporting	Soccer	Local	4	2	2	5	5	4	25
3	Sporting	GAA	Local	4	2	4	5	4	4	26
4	Community	Youth groups	National	4	3	4	5	3	4	28
5	Sporting	GAA	Local	5	4	4	5	5	4	30
7	Sporting Community	GAA County	Local	4	2	2	4	3	4	28
8	Community	County Development	County	3	3	3	5	4	4	26
9	Sporting	GAA	County	4	2	3	4	4	3	23
10	Sporting	GAA	Local	4	2	3	4	3	2	20
										28
11	Community	Disadvantaged	Local	4	4	4	4	4	3	
12	Community	Disadvantaged	Local	4	4	4	4	4	3	28
13	Rural	Farming	County	4	4	3	4	3	4	25
14	Sporting	Rugby	Local	4	4	4	4	3	3	24
15	Sporting	Athletics	Local	5	3	3	4	4	4	26
16	Sporting	GAA Literacy and	National	4	3	4	4	3	3	25
17	Community	Advocacy	National	4	2	4	5	4	4	27
18	Community	IT Training	National	5	4	2	4	5	. 4	29
19	Rural	Women	National	4	4	3	5	4	4	27
20	Rural	Women	Local	3	3	3	5	3	4	24
21	Community	Musicals	Local	3	3	2	4	3	3	21
22	Community	IT Delivery	Local	5	4	4	5	4	4	30

<u>ID</u>	Sector	Type	<u>Level</u>	Usefulness of ICTs to LVO	Usability of ICTs by members	Sustainability of ICT initiatives	ICT Champion	ICT support from Committee	Member support for initiative	<u>Index</u>
23	Community	Parish	Local	3	2	2	5	2	3	19
24	Sporting	Soccer	County	3	3	2	4	3	3	21
25	Rural	Women	National	4	3	4	5	4	3	27
26	Rural	Farming	National	4	2	4	5	4	3	24
27	Community	Local Development	Local	3	3	3	4	3	3	21
28	Community	Theatre	Local	4	3	4	4	4	2	24
29	Sporting	Soccer	County	3	2	4	4	4	4	24
30	Community	Local Development	Local	4	3	4	3	3	3	22
31	Sporting	Soccer	Local	5	2	3	4	4	5	26
32	Sporting	Soccer	Local	5	3	3	5	5	4	28
33	Sporting	Golf	Local	4	3	4	4	4	3	26
34	Community	History	Local	3	2	2	5	4	4	23
35	Sporting	GAA	Local	4	3	3	4	3	3	23
36	Sporting	GAA	Local	3	2	3	3	2	2	16
37	Sporting	Soccer	National	4	4	3	5	4	4	28
38	Community	Retired	National	5	2	4	5	4	4	27
39	Community	Local Development	Local	5	4	4	5	4	5	30
40	Community	Rural Development	National	4	3	5	5	3	2	24
41	Sporting	GAA	Local	5	3	4	4	5	5	30
42	Rural	Rural Life	Local	2	2	4	5	5	4	27
43	Community	County Development	County	3	2	3	4	3	3	21
44	Community	Poverty	National	5	4	4	3	3	4	26
45	Community	Youth groups	Local	3	3	2	4	3	5	23
46	Community	IT support	National	5	4	4	4	4	5	29
47	Sporting	Soccer	Local	4	4	3	5	3	5	28

Appendix I: LVO problems
1= Not useful, 2= somewhat useful, 3 = useful, 4= very useful, 5 = extremely useful

ID	Group Type	<u>Entity</u>	Level	Improve communication with members	Getting members '	Admin. of <u>club</u>	Social interaction between members	Retention of org. history & culture	Marketing of organisation	<u>Fundraising</u>	Improving relevance of org. to community	Access to ICT opps.	Problem <u>index</u>
1	Sporting	Soccer	Local	2	2	4	3	5	4	3	2	4	29
2	Sporting	Soccer	Local	3	4	4	4	3	4	4	4	4	34
3	Sporting	GAA	Local	3	4	2	2	3	3	4	4	4	29
4	Community	Youth groups	National	4	4	4	3	2	4	2	4	4	31
5	Sporting	GAA	Local	2	3	1	2	4	3	3	3	1	22
6	Sporting	GAA	Local	1	4	1	2	4	3	4	3	1	23
7	Community	County Development	County	3	2	4	3	2	3	3	4	4	28
8	Community	County Development	County	3	2	3	3	3	3	4	4	4	25
9	Sporting	GAA	County	2	4	3	3	4	3	4	3	2	28
10	Sporting	GAA	Local	2	3	3	2	4	3	4	3	4	28
11	Community	Disadvantage d	Local	4	3	4	1	1	3	0	3	2	19
12	Community	Disadvantage d	Local	4	3	4	1	1	3	0	3	2	21
13	Rural	Farming	County	3	3	1	4	3	4	1	1	3	23
14	Sporting	Rugby	Local	2	3	2	3	3	4	3	4	2	26
15	Sporting	Athletics	Local	1	2	2	4	4	3	3	2	2	23
16	Sporting	GAA	National	3	3	3	4	3	3	2	2	2	25
17	Community	Literacy and Advocacy	National	2	4	2	3	2	3 .	4	3	4	27
18	Community	IT Training	National	3	3	4	2	1	1	1	2	4	21
19	Rural	Women	National	3	3	3	2	3	5	3	2	4	28
20	Rural	Women	Local	3	3	3	2	3	4	2	3	4	27
21	Community	Musicals	Local	2	3	4	3	4	4	2	3	1	26

<u>ID</u>	Group Type	<u>Entity</u>	Level	Improve communication with members	Getting members '	Admin. of <u>club</u>	Social interaction between members	Retention of org. history & culture	Marketing of organisation	Fundraising	Improving relevance of org. to community	Access to ICT opps.	Problem <u>index</u>
22	Community	IT Delivery	Local	2	2	1	3	2	3	3	1	0	17
23	Community	Parish Committee	Local	3	4	3	3	3	4	3	3	1	26
24	Sporting	Soccer	County	2	4	2	4	2	4	3	4	5	30
25	Rural	Women	National	5	3	3	1	4	5	3	2	5	31
26	Rural	Farming	National	2	2	1	4	3	4	1	2	4	23
27	Community	Local Development	Local	3	3	2	3	3	3	2	4	4	27
28	Community	Theatre	Local	1	2	3	2	4	1	4	1	1	19
29	Sporting	GAA	County	3	4	4	3	4	3	3	1	3	28
30	Community	Local Development	Local	2	4	3	2	4	4	4	2	5	30
31	Sporting	Soccer	Local	2	2	4	3	2	2	3	3	1	22
32	Sporting	Soccer	Local	3	4	3	4	4	4	4	2	5	33
33	Sporting	Golf	Local	3	3	2	2	2	4	3	1	4	20
34	Community	History	Local	2	1	2	3	4	3	4	2	4	25
35	Sporting	GAA	Local	2	3	4	4	3	2	3	3	4	28
36	Sporting	GAA	Local	3	4	4	4	4	4	5	3	5	36
37	Sporting	Soccer	National	3	4	4	3	4	4	4	3	4	33
38	Community	Retired	National	2	2	3	4	4	2	2	2	4	25
39	Community	Local Development	Local	1	1	2	1	2	3	3	2	4	19
40	Community	Rural Development	National	2	2	3	2	3	3	3	1	1	20
41	Sporting	GAA	Local	3	2	4	2	4	3	4	2	3	27
42	Rural	Rural Life	Local	2	2	3	4	4	4	4	3	3	29
43	Community	County Development	County	4	3	3	3	2	4	5	4	4	32
44	Community	Poverty	National	1	2	1	2	3	1	3	2	0	15
45	Community	Community	Local	1	3	3	2	0	4	5	3	4	25
46	Community	IT support	National	3	4	4	1	1	4	4	2	4	27

47	Sporting	Soccer	Local	2	2	2	2	,	4				20
	Sporting	Soccer	Local	2	3	2	3	2	4	4	4	4	28

Appendix J: Members concepts and activities

# Legend

1= Not useful, 2= somewhat useful, 3 = useful, 4= very useful, 5 = extremely useful

ID	Get Members support for ICT	Focus on org needs as specified by committee	Elicit on members needs and expectations	Develop Education and Training opportunities for members	Provide basic content and technical services initially	Identify a problem to solve.	Evolve and Create new services on an as needed basis	Ensure User Friendly developments	Use ICT to develop Social Capital	Use ICT to support economic opportunities	Use ICT to capture & retain cultural & historical capital
1	4	4	3	5	5	4	2	1	4	4	3
2	3	5	3	5	3	3	4	3	3	4	2
3	4	4	5	4	4	3	3	2	3	4	4
4	4	4	5	2	4	2	3	3	5	2	3
5	4	3	4	4	4	2	4	3	4	5	4
6	4	4	4	5	4	2	4	3	4	4	5
7	4	2	4	4	3	4	2	3	4	3	3
8	4	2	4	4	4	4	3	3	4	4	4
10	3	3	4	4	4	2	4	3	4	4	3
11	4	3	4	2	4	2	2	4	1	1	1
12	4	3	4	5	4	3	3	4	4	2	3
13	4	3	4	2	4	2	2	4	1	1	1
14	3	4	3	3	4	4	4	4	3	5	3
16	4	4	3	4	4	4	4	3	3	3	3
17	5	4	5	5	4	4	4	2	3	5	4
18	4	5	4	5	5	4	3	3	2	2	2
19	5	2	3	4	4	2	2	3	2	3	5
20	4	3	3	4	4	3	1	2	3	3	4
21	3	4	3	1	3	3	2	3	4	1	3
22	4	4	3	2	5	4	4	4	4	3	2
23	3	3	4	4	4	2	3	2	4	4	4
24	4	3	4	4	4	2	4	4	4	4	2

ID	Get Members support for ICT	Focus on org needs as specified by committee	Elicit on members needs and expectations	Develop Education and Training opportunities for members	Provide basic content and technical services initially	Identify a problem to solve.	Evolve and Create new services on an as needed basis	Ensure User Friendly developments	Use ICT to develop Social Capital	Use ICT to support economic opportunities	Use ICT to capture & retain cultural & historical capital
25	4	3	4	4	4	3	4	3	2	2	4
26	4	1	4	5	5	2	3	2	5	4	3
27	3	4	3	2	3	5	2	2	2	1	3
28	2	4	1	2	4	4	2	1	2	3	4
29	4	3	4	4	4	4	3	2	3	4	4
30	5	4	2	5	4	4	4	3	4	4	4
31	4	4	4	4	4	3	4	4	4	5	4
32	4	3	4	5	4	3	3	3	4	5	3
33	4	3	3	3	3	4	4	3	1	3	2
34	4	5	4	4	5	4	2	2	2	2	5
35	4	4	3	4	4	3	3	3	4	4	3
36	2	3	4	5	3	3	3	3	3	4	3
37	3	3	4	5	4	3	3	3	4	4	3
38	4	2	4	4	2	2	1	3	5	1	5
39	4	5	4	2	4	4	4	3	3	5	2
40	4	4	4	5	4	4	4	4	3	3	3
41	4	5	4	3	4	4	4	3	4	4	5
42	4	3	4	5	4	3	3	3	4	5	4
43	4	2	4	4	5	3	4	3	3	4	3
44	5	5	5	3	4	5	4	4	3	4	2
45	3	4	5	3	4	3	3	3	5	4	1
46	5	3	5	3	5	5	4	4	2	5	1
47	4	3	4	4	4	4	4	4	4	5	4

Appendix K: Technical concepts and activities

### Legend

1= Not useful, 2= somewhat useful , 3= useful, 4= very useful, 5= extremely useful

<u>ID</u>	Top down approach to ICT support	Bottom up approach to ICT use	Develop an ICT plan	Mobility of services	External ICT support	Internal ICT <u>Champion</u>	Use of Web 2.0 technologies
1	4	1	4	1	4	5	4
2	4	2	3	0	5	5	4
3	4	1	2	2	4	5	3
4	4	2	2	2	4	4	3
5	1	4	5	3	1	5	5
6	1	4	4	1	1	5	4
7	4	2	3	3	5	5	3
8	4	1	4	4	5	5	3
10	3	3	3	1	4	5	3
11	0	5	3	1	1	5	4
12	4	1	4	3	4	4	3
13	0	5	2	1	1	5	4
14	2	4	3	1	2	2	3
15	1	4	2	3	3	5	3
16	4	1	4	4	4	3	4
17	4	1	4	3	4	5	3
18	4	4	5	3	5	4	4
19	4	2	3	2	3	4	5
20	3	3	3	2	4	4	4
21	1	4	2	2	1	5	3
22	0	5	5	2	1	5	4
23	1	4	2	1	4	4	4
24	2	4	4	1	5	4	3
25	4	4	4	3	4	5	4
26	4	2	4	4	1	4	3
27	3	4	1	1	4	2	3
28	4	2	2	3	1	4	4
29	4	1	3	2	4	4	3
30	4	2	5	1	4	5	4
31	1	5	4	3	3	5	5
32	1	5	4	2	4	5	3
33	4	1	2	3	4	2	2
34	1	4	3	1	2	5	3
35	1	4	2	1	3	5	4

<u>ID</u>	Top down approach to ICT support	Bottom up approach to ICT use	Develop an ICT plan	Mobility of services	External ICT support	Internal ICT <u>Champion</u>	Use of Web 2.0 technologies
36	4	1	3	1	5	5	3
37	3	3	4	2	4	5	3
38	4	4	3	2	3	5	3
39	0	5	5	2	1	5	4
40	3	3	3	3	5	4	3
41	2	4	4	1	1	5	4
42	1	4	3	2	4	4	4
43	4	3	4	3	4	4	4
44	4	3	4	3	4	4	5
45	3	3	4	1	4	4	4
46	4	3	5	2	4	5	3
47	1	4	4	2	4	5	4

Appendix L: NVivo Coding Analysis

FIRST ORDER CODING	SECOND ORDER CODING	THIRD ORDER CODING	LIT. REVIEV	
Family Oriented	LVO background	LVO characteristics		
Local Club	LVO background	LVO characteristics		
ong established	LVO background	LVO characteristics		
Jnisex	LVO background	LVO characteristics		
Organisation Level	LVO background	LVO characteristics	<b>经</b> 经保险股份	
Young membership	LVO members	LVO characteristics		
Youth focused	LVO members	LVO characteristics		
Successful	LVO status	LVO characteristics		
Organisation Type	LVO Type	LVO characteristics		
socio economically disadvantaged	LVO type	LVO characteristics		
nterviewee position	Participant background	Participant background		
Officer position	Participant background	Participant background		
Personal Background	Participant background	Participant background		
Professional background	Participant background	Participant background		
Cultural need	LVO	ICT Drivers	Section 3.8	
Deploy New Technologies	LVO	ICT Drivers		
osing Members	LVO	ICT Drivers		
Support LVO Mission	LVO	ICT Drivers		
Make ICT core	LVO	ICT Drivers		
Develop New opportunities	Member	ICT Drivers	Section 3.6	
Member Request	Member	ICT Drivers	Section 3.5	
Social Need	Member	ICT Drivers	Section 3.7	
Cloud Computing	Advanced Systems	Usage of ICT		
CMS	Advanced Systems	Usage of ICT		
Community Portal	Advanced Systems	Usage of ICT		
Sell Merchandise	Advanced Systems	Usage of ICT		
Sophisticated systems	Advanced Systems	Usage of ICT		
Web 2:0	Advanced Systems	Usage of ICT		
Vebsite	Advanced Systems	Usage of ICT		
Email	Basic Complexity	Usage of ICT		
Facebook	Basic Complexity	Usage of ICT		
Google	Basic Complexity	Usage of ICT		
Google Maps	Basic Complexity	Usage of ICT		
	Basic Complexity  Basic Complexity	Usage of ICT Usage of ICT		
Mobile Phones				
Mobile Phones MS Office	Basic Complexity	Usage of ICT		
Mobile Phones MS Office Online Banking	Basic Complexity Basic Complexity	Usage of ICT Usage of ICT		
Mobile Phones MS Office Online Banking Skype	Basic Complexity Basic Complexity Basic Complexity	Usage of ICT Usage of ICT Usage of ICT		
Mobile Phones MS Office Online Banking Skype FEAMER	Basic Complexity Basic Complexity Basic Complexity Basic Complexity	Usage of ICT Usage of ICT Usage of ICT Usage of ICT		
Mobile Phones MS Office Online Banking Skype FEAMER Fexting	Basic Complexity Basic Complexity Basic Complexity Basic Complexity Basic Complexity	Usage of ICT		
Mobile Phones MS Office Online Banking Skype FEAMER Fexting Twitter	Basic Complexity Basic Complexity Basic Complexity Basic Complexity Basic Complexity Basic Complexity	Usage of ICT	Section 2.5	
Mobile Phones MS Office Online Banking Skype FEAMER Texting Twitter Add Professionalism	Basic Complexity	Usage of ICT		
Google Maps Mobile Phones MS Office Online Banking Skype TEAMER Texting Twitter Add Professionalism asset retention Attract new members	Basic Complexity  LVO benefit  LVO benefit	Usage of ICT Benefits of ICT Benefits of ICT	Section 2.5 Section 3.3	
Mobile Phones MS Office Online Banking Skype FEAMER Texting Twitter Add Professionalism	Basic Complexity  LVO benefit	Usage of ICT Benefits of ICT		

FIRST ORDER CODING	SECOND ORDER CODING	THIRD ORDER CODING	LITERATURE REVIEW
Business Like Organisation	LVO benefit	Benefits of ICT	Section 2.5
Contribute to Community	LVO benefit	Benefits of ICT	Section 2.5
Connect with Diaspora	LVO benefit	Benefits of ICT	
Economic reasons	LVO benefit	Benefits of ICT	Section 3.9
Integrate LVO into community	LVO benefit	Benefits of ICT	
Promotion of initiatives	LVO benefit	Benefits of ICT	
Sponsors repayment	LVO benefit	Benefits of ICT	
Support LVO Operation	LVO benefit	Benefits of ICT	Section 3.5
Time Savings	LVO benefit	Benefits of ICT	
Cater for Diverse member needs	Member benefit	Benefits of ICT	Section 2.5
Club Co-operation	Member benefit	Benefits of ICT	
Collaboration between LVOs	Member benefit	Benefits of ICT	
Provide efficiencies	Member benefit	Benefits of ICT	
Empowerment	Member benefit	Benefits of ICT	
Improved communication	Member benefit	Benefits of ICT	Section 3.7
Member Inclusiveness	Member benefit	Benefits of ICT	Section 3.6
Fear of ICT	Member barriers	Barriers to LVOs Using ICT	Section 3.9
Free time of members	Member barriers	Barriers to LVOs Using ICT	
Lack of ICT expertise	Member barriers	Barriers to LVOs Using ICT	
Lack of training opportunities	Member barriers	Barriers to LVOs Using ICT	Section 3.10
Little ICT use	Member barriers	Barriers to LVOs Using ICT	Section 3.4
Member Resistance	Member barriers	Barriers to LVOs Using ICT	Section 3.10
Poor Perception of ICT	Member barriers	Barriers to LVOs Using ICT	Section 3.10
Access to ICT resources	Organisational barriers	Barriers to LVOs Using ICT	Section 3.5
Bad Experience	Organisational barriers	Barriers to LVOs Using ICT	
Cost Concerns	Organisational barriers	Barriers to LVOs Using ICT	Section 3.9
Securing financial investment	Organisational barriers	Barriers to LVOs Using ICT	Section 3.9
No Planning	Organisational barriers	Barriers to LVOs Using ICT	
No Trust of ICT vendors	Organisational barriers	Barriers to LVOs Using ICT	Section 3.10
Security concerns	Organisational barriers	Barriers to LVOs Using ICT	
Old technology	Technical barrier	Barriers to LVOs Using ICT	Section 3.5
Poor Broadband	Technical barrier	Barriers to LVOs Using ICT	Section 3.5
ICT interested members	Management enabler	Enablers of ICT adoption in LVO	Section 3.4
ICT Literate member	Management enabler	Enablers of ICT adoption in LVO	Section 3.10
Identify ICT champion	Management enabler	Enablers of ICT adoption in LVO	
Establishing External IT support	Management enabler	Enablers of ICT adoption in LVO	Section 3.5
Follow other LVOs	Management enabler	Enablers of ICT adoption in LVO	
Good IT team	Management enabler	Enablers of ICT adoption in LVO	
ICT champion	Management enabler	Enablers of ICT adoption in LVO	
Champion attributes	Member enabler	Enablers of ICT adoption in LVO	
Committee support	Member enabler	Enablers of ICT adoption in LVO	Section 3.4
Committee trust	Member enabler	Enablers of ICT adoption in LVO	Section 3.4
ICT interested LVO	Member enabler	Enablers of ICT adoption in LVO	
Member feedback	Member enabler	Enablers of ICT adoption in LVO	Section 3.13
Member involvement	Member enabler	Enablers of ICT adoption in LVO	Section 3.6
Member support	Member enabler	Enablers of ICT adoption in LVO	Section 3.6
Member's expectations	Member enabler	Enablers of ICT adoption in LVO	Section 3.13
Was arranged by the second subsection of the s			

FIRST ORDER CODING	SECOND ORDER CODING	THIRD ORDER CODING	LITERATURE
Promote organisational identity	Member enabler	Enablers of ICT adoption in LVO	Section 3.8
Suitable ICT Infrastructure	Member enabler	Enablers of ICT adoption in LVO	Section 3.12
Good Broadband	Member enabler	Enablers of ICT adoption in LVO	
Common ICT needs	Collaboration between LVOs	ICT System Planning Requirements	
Commonality of needs	Management	ICT System Planning Requirements	
Establish a Need for ICT in LVO	Management	ICT System Planning Requirements	
Evolving Needs of Members	Member	ICT System Planning Requirements	
Good Content	Member	ICT System Planning Requirements	Section 3.11
Good interface	Member	ICT System Planning Requirements	Section 3.11
Provide New Information or Services	ICT	CI Model components / activities	Section 2.7.1
Stages of ICT growth	ICT	CI Model components / activities	Section 2.7.3
Need ICT Education & Training	ICT	CI Model components / activities	
Fit Organisational culture	LVO suggestion	CI Model components / activities	
Focus on organisation needs	LVO suggestion	CI Model components / activities	Section 2.7.2
strategic plan	LVO suggestion	CI Model components / activities	
SWOT analysis	LVO suggestion	CI Model components / activities	
Focus on simple Tasks	Members suggestion	CI Model components / activities	
Top Down support	Members suggestion	CI Model components / activities	
Meet members expectations	Members suggestion	CI Model components / activities	Section 2.7.2
Need a Plan to Deploy Technology	Need a plan	CI Model components / activities	
Staged development	Stages of development	CI Model components / activities	

### Appendix M: Physical Audit Trail

### **Physical Audit Trail**



**Identification of research problem**: As the researcher has been involved with many LVOs during his life, he saw the paucity of ICT use among them and was aware of their trepidation and lack of knowledge about technology. This predicament inspired the researcher to begin investigating the area of Community Informatics as a field of study.



The Research Proposal: An investigation into the adoption and diffusion of ICT in Irish LVOs found that it was limited, which posed questions like why some LVOs were able to master ICT, whilst others were not? And what were the barriers and enablers that obstructed or facilitated the use of technology in Irish LVOs. Subsequently further questions were developed on what forms of ICT Irish LVOs were using? Finally the proposal questioned how a model could support the adoption and use of technology in Irish LVOs?



**Literature Review**: An in-depth review of the CI literature was carried out to identify best practice across the globe. This review focused on defining a community, LVO and CI in an Irish context. Following this, various pieces of research that had been conducted in different communities was examined and critiqued with an emphasis on identifying concepts and activities of importance. The methods adopted by these CI projects were also evaluated to aid the selection of the most appropriate methodology for this research.



**Selection of Informants:** Purposive sampling was used to identify potential interviewees. Following this, interviewees were selected from county, regional and national levels of organisations. Two focus groups were conducted, the first whilst interviews were still being conducted and the second to conclude the data acquisition phase.



**Research Framework**: At this stage, a decision was taken on the philosophical stance of the research, which was interpretivism and the selection of the most appropriate methods for data acquisition that was compatible with the philosophical stance. The selected methods of data collection were interviews and focus groups, as the researcher felt to tell a story, he needed to be told one by the knowledgeable informants and it was also the most prevalent method identified during literature review.



**The Interview Schedule**: The questions used in the interview schedule were based on the research questions identified in the research proposal. These questions evolved during the data acquisition phase as respondents brought issues to light and as the hermeneutic analysis began to uncover further areas of interest.



**Evidence Collection**: 47 interviews were conducted with informants from sporting, community and rural and agricultural LVOs. In addition, 14 people attended both focus groups. All interviews and both focus groups were transcribed as soon as possible after they had taken place in order to ensure accuracy and consistency. Also where possible, other forms of documentation were acquired from informants based on their appropriateness to the research.



Analysing the Data: The data captured from informants was initially analysed through a hermeneutic process. This facilitated the development of an in-depth understanding between parts of the data and the whole. Subsequently, NVivo was used to code the data and validate the concepts identified hermeneutically and to identify others for consideration. Both analysis approaches complemented each other and facilitated a reflection on the evidence that developed a better understanding of the findings.



Identifying Concepts and Activities for Inclusion in the Model: After analysis had concluded, concepts and activities were identified from the data for inclusion in the model. A narrative approach was adopted to reflect on the findings and reduce them into a higher order narrative that would form the basis of the model.



**Development of the ENCITE Model**: The concepts and activities were assembled logically to create the ENCITE model, which consisted of four lenses that provide users with different perspectives of ICT adoption and use in Irish LVOs. The model demonstrates how the theoretical conjecture extracted from the findings can be practically implemented. These contributions added not only to the body of CI knowledge, but also the practical uses of ICT.

### Appendix N: Intellectual Audit Trail

#### Intellectual audit trail



**Philosophical Position**: Although the researcher's previous research and background had been primarily positivist, he was worried that this stance would not suit this type of research and could result in acquisition of limited set of data, which would impact on the findings and the proposed model.



Adopting an Interpretivist stance: After attending a number of research methodology courses and searching the CI literature for the most prevalent philosophical stance. It was decided to adopt an interpretivist stance, as it facilitated the acquisition of a rich dataset.



Evidence Collection and Data Analysis: As interpretivism had been adopted as the philosophical stance, the selection of data acquisition techniques was relatively straightforward. Semi-structured interviews were identified as the primary data collection technique and focus groups were selected as a suitable complementary method.



**Data Interpretation**: Hermeneutics was adopted as the primary analysis technique. It was a suitable technique as it facilitated analysis between parts of the data and whole and specified periods of iterative reflection that led to the extraction of a rich set of findings. Also, NVivo was used to further analyse the data, in an attempt to validate the findings and to identify new



**Model creation**: A narrative approach was adopted for reporting the evidence, which was compatible with the interpretivist approach and facilitated the development of a story from the evidence. This also facilitated identification of concepts and activities and relationships between them, which initially formed a primary narrative that was distilled in to a higher order narrative and finally combined to form the proposed ENCITE model.

### Appendix O: Voyage of Discovery

### **Voyage of Discovery**

When people describe undertaking a doctorate as a voyage of discovery, the novice researcher initially believes it is about the subject matter of the study, when in fact, it could just as easily refer to the personal journey embarked upon to complete the research. Undertaking this doctorate supported by the expert guidance of my supervisors has led me on an enlightening, yet humbling journey that has profoundly changed me in many ways.

Firstly, as an academic, this doctoral study has changed the way I fulfil my academic duties. In regards to teaching, I read better quality books and journals to get my class notes and subsequently deliver better lectures in terms of content and presentation. As a researcher, I am more reflective and better at critically analysing material, resulting in a deeper appreciation of good research, that is well structured and presented. Perhaps, the most obvious and positive change has been in my writing and expression of thought. Prior to undertaking this doctorate, I wrote as I thought; this often led to a series of disjointed, poorly structured sentences and paragraphs, effortlessly losing the reader. Now I think before I write; sentences are planned, read and re-written, with a goal of being concise and clear and making each word relevant.

Secondly, in terms of my personal development, this doctoral study has changed me as a person. I read books as a pastime, where previously this would have bored me. Good writing interests me and challenges me to be a better writer. Subsequently, my vocabulary has improved. I express myself better, with greater clarity, using appropriate words with less 'ums' and 'ahs' and fewer colloquialisms such as, 'you know what I mean', although I still have the odd slip. Old habits die hard! I try to engage my brain before my mouth, think before I speak and strive to overcome my blirtatiousness.

Thirdly, I question why and how things work. This voyage has made me more inquisitive, resulting in a new found hunger for knowledge in all facets of my life, be it personal, academic or recreational. More knowledge breeds confidence, not that it was a problem before the doctorate, but undertaking this study has instilled in me a renewed sense of purpose and to be studying at Trinity College certainly boosts self esteem.

This heightened level of self belief has also enhanced my personal interactions, resulting in a new found trust in my own abilities and direction in life. Now, I believe that most personal boundaries are self imposed, waiting to be broken down. I have greater expectations of myself and have re-evaluated my personal goals upwards. This doctoral journey has inspired me to continue my research career, as I enjoy interacting and learning from other academics and truly believe that my work can not only contribute to the body of knowledge, but make a meaningful contribution to society.

Finally, before I undertook this doctorate I mistakenly thought I was an academic, when in hindsight I was only a teacher. Now, I believe I am emerging as a creative, thorough and ambitious academic, albeit with some rough edges, who has truly began his voyage of discovery, a journey I hope will last for the rest of my life.