The PlaceToBe.Net:

Forced Delivery of a Community ‘Health’ Information Initiative

Elizabeth Jayne Cardno

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School of Computing, Mathematical and Information Science University of Brighton

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DEDICATION

I wish to dedicate the completed dissertation to those who in their daily lives make the extra effort. Who know what it is like to fall through the gaps created by well intended but outdated or misguided policy and practices that can have significant personal consequences so often ignored in an entrenched system.

Life may not be fair, but those who attempt to make it more so are those that this dissertation was completed to honor.

Elizabeth Jayne Cardno
In pursuing a PhD, my intention has always been to draw from my experience across varied employment settings in order to undertake research relevant to practice. The last four years of study have yielded myriad lessons, not all of which came from reading or research.

The opportunity to this research was made possible by the vision of Flis Henwood and Peter Day whose efforts secured the support of the School of Computing, Mathematical and Information Sciences. Their initial supervision was invaluable. This research would not have been possible without the support of a studentship and my sincere thanks are extended to CMIS and the University of Brighton for that support. The important and generous support of those who go above and beyond the norm was critical to completion. In this regard I am extremely grateful to my lead supervisor Tara Brabazon for her generous support and necessary advocacy. Instrumental, at a particularly difficult time was the support of David Arnold. The considerate support of Vy Rajapillai, Peter Day, Lynn Pemberton, Gail Louw, Peter Jones, Micah Rosenkind, Yasmin Ibrahim, Desmon Bokson-Cullen, Julia Winkler, Angela Bah, and Jon Dron will always be valued as will that of my extended Canadian and UK family.
I declare that the research contained in this thesis, unless otherwise formally indicated within the text, is the original work of the author. The thesis has not been previously submitted to this or any other university for a degree, and does not incorporate any material already submitted for a degree.

Elizabeth Jayne Cardno
August 18, 2008
Abstract

This doctoral research is propelled by a single question: when partners from public and private sectors unify with the aim of increasing access to quality community ‘health’ information, what factors shape the selection of technological platforms? In monitoring the processes of planning and decision making, the choice of platform reveals the interests, ideologies and values of groups given labels such as ‘stakeholders.’

Complex and dynamic processes activate differing and at times contested bodies of knowledge and definitions of information, health and community / communities. Common definitions, shared knowledge and collaborative learning are revealed throughout this research as fundamental to exercising agency and power. In this doctoral study, I investigate the history and frameworks that configure PlaceToBe.Net. My original contribution to knowledge is the gathering of new primary data with the aim of evaluating the sociotechnical processes required to formulate a community platform, with attention to the challenges of constructing ‘health’-related information.

Other original contributions to knowledge flow from this distinctive and specific tracking of the formulation of PlaceToBe.Net. The comparative application of Structuration Theory and Actor Network Theory exposes how aspects of agency and power mediate varied ideologies and values. A greater understanding of the variables framing health information access and quality result from Structuration’s conceptualization of how conscious and unconscious understandings of social norms, rules, relations and practices, relative to perceived structures, configure ideologies and discourses, agitating and transforming the exercising of agency and power.

A more holistic view configures health information as a social determinant of health. It recognizes an intricate sociotechnical environment where
citizens - as users, health-aware consumers, careers or patients - are central to outcomes and benefits. Online information providers have a role, but are recognized as empowered experts and therefore strong mediators of access and quality. Uniquely revealed in this doctorate is a matrix of relationships that recognizes health information providers are likely to be users, and users are likely to provide content. The matrix requires research, exploring relationships to (and between) access and quality, which hold the potential to enhance not only validity and credibility but usefulness.

When a health information/informatics initiative expands beyond traditional settings into the broad and diverse realm of a community, different - even new - principles and practices are needed to serve varied needs. This is particularly acute in a public and private partnership. While active participation indicates common interests, specific interests constrain or enable public and private dissemination of information and collaborative planning and decision-making. My original analysis of this process contributes to knowledge of how relationships are arbitrated by shared learning, ultimately shaping access to - and the quality of - online health information.

Conceptualisation of social and technological determinism reveals a sociotechnical environment where power and agency, in systemic relations, constrains or enables interests, values and choices that mediate decision-making and resources. An increased knowledge of multiple and inter-related access issues identified gaps that expand notions of the digital divide and offered considered discussion of social and technological inclusion or exclusion, along with impacts on access, use and quality. Relationships between age, socioeconomic status, education, internet use and related literacy are variables mediating and inflecting access and in this study are configured as more important than the availability of the actual technological platform.
If access to **knowledge content** is considered a basic human right, then policy and practice must address those issues that mediate access and quality of online health information. The roles of search tools/engines - as technological determinants - are important but so too are social interests and values that enable or constrain solutions. Actions enhancing the literacy of users will promote a more democratic and enabling environment. The research findings from this doctoral research are made meaningful through the development of a framework to guide future practice. The transfer of knowledge into practice is thereby enabled.
# Table of Contents

## 1. Introduction

1. The Research Study Context
   - 2.1 Theoretical Contributions
     - 2.1.1 Social and Technological Determinism
     - 2.1.2 Social Shaping
     - 2.1.3 Structuration Theory
     - 2.1.4 Actor Network Theory
   - 2.2 Technology and Information
     - 2.2.1 Access A Broader Understanding Narrowing the Divides
     - 2.2.2 Content - information for public consumption on the Internet;
     - 2.2.3 Participation – providers and users of online information
     - 2.2.4 Information Politics; Issues of Risk and Trust
     - 2.2.5 Information Provision, Use and Quality
   - 2.3 Community, Health, Information and Technology
     - 2.3.1 The Internet; Increasing the Democratic Flow of Information
     - 2.3.2 Health Information (Hln)
     - 2.3.3 Health Informatics
     - 2.3.4 Community Informatics
     - 2.3.5 Issues of Provision & Use of Online Health Information
     - 2.3.6 Health Information Quality and Access
     - 2.3.7 Search Engines & Search for Online Health Information
     - 2.3.8 Mediating the Search for Online Health Information
     - 2.3.9 Policy, Practice, Research
   - 2.4 Conclusion

## 2. The Research Study Context

1. Theoretical Contributions
   - Social and Technological Determinism
   - Social Shaping
   - Structuration Theory
   - Actor Network Theory

2. Technology and Information
   - Access A Broader Understanding Narrowing the Divides
   - Content - information for public consumption on the Internet;
   - Participation – providers and users of online information
   - Information Politics; Issues of Risk and Trust
   - Information Provision, Use and Quality

3. Community, Health, Information and Technology
   - The Internet; Increasing the Democratic Flow of Information
   - Health Information (Hln)
   - Health Informatics
   - Community Informatics
   - Issues of Provision & Use of Online Health Information
   - Health Information Quality and Access
   - Search Engines & Search for Online Health Information
   - Mediating the Search for Online Health Information
   - Policy, Practice, Research
3.0 Research Design

3.1 Methods and tools
3.2 The Research Question
3.3 Case Study Methodology

3.4 Methods of Data Collection
3.4.1 Observations of PlaceToBe.Net (P2B) Meetings
3.4.2 Document Analyses
3.4.3 Interviews
3.4.4 Ethics Review

3.5 Data Analysis
3.6 Relationship between data and theoretical framework
3.7 The Researchers Role
3.8 Limitations of the Research

4.0 PlaceToBe.Net

4.1 The PlaceToBe.Net, a complicated origin
4.2 The Role of Health Information in the origin of the PlaceToBe.Net
4.3 A Proposal and Project in Transition
4.4 Structure and Action for the PlaceToBe.Net
4.5 Moving ahead; PlaceToBe.Net Aims and Objectives
4.6 A Change of Direction in 2004
4.6.1 Timeline of the PlaceToBe.Net
5.0 The Context and Shaping a Community ‘Health’ Information/Informatics Initiative

5.1 Contribution of Theory, Research and Practice
5.1.1 Duality of Structure as Analysis
5.1.2 Contextual Formation of a Community ‘Health’ Information/Informatics Initiative; the Vision, Goals and Objectives Aiding Engagement
5.1.3 The Context of a Community Partnership; Common Experience Yet A Public, Private Dichotomy
5.1.4 Engagement and Interests
5.1.5 Individual Organizational Partners as Actors as Structures/Networks, Exercising Agency
5.1.6 Engagement, Participation, Commitment and Support
5.1.7 The Role of Champions and Leaders
5.1.8 Inclusion/Exclusion (public/private, lay/expert)

5.2 Agency of Actors, Structures and Networks, Enabling and Constraining the PlaceToBe.Net
5.2.1 Processes of Mediation Shaping the PlaceToBe.Net
5.2.2 The Partnership as Actor, Agency, Structure and Network; Enabling and Constraining Outcomes
5.2.3 Social and Organizational Rules and Norms
5.2.4 Agency of the Project Executive and SCIP
5.2.5 Mediating the Flow of Information & Communication
5.2.6 Aims and Principles Guiding the PlaceToBe.Net
5.2.7 Duality in the Nature of Agency Determining Participation
5.2.8 Socio-technological Dynamics
5.2.9 Links between Information Providers, and Information Users
5.2.10 Shared Interests, Experience, Learning, Understanding, Knowledge and Action
5.2.11 Processes Mediating the Shape of the PlaceToBe.Net; the Role of Definitions
List of Figures

1 Modalities of Structuration Theory 43
2 Chronological Timeline of the PlaceToBe.Net. 152
3 PlaceToBe.Net 184
4 PlaceToBe.Net Action Steps 207
5 Structuration Revealing Interpretive Schemes 216
6 Internal, External, Private and Public Duality of Issues 219
7 Relationships among PlaceToBe.Net Partner Organizations 221
8 Structuration Process of Engagement, Partnership, Maintenance and Transition 244
9 Duality in the Nature of Agency – Determining Participation 263
10 Constitutive Outcomes, Deliverables, Sustainability Understood through the Structuration process 281
11 Key Actions Enabling Quality of Information 282
12 Formative Stages 311
13 Context 313
14 Context 313
15 Context 319
16 Mediating Processes 320
17 Mediating Processes, 326
18 Constitutive Outcomes 328
19 Cross-Sectional ST Diagram Showing, Three Layers of Agency Mediated by Actors, Structures Modalities 336
20 Context Enabling Agency 341
21 Mediating Agency 350
22 Constitutive Outcomes 357

Formatted: French (Canada)
Appendices 405

1 Illustrative Relations Informing and Guiding Practice 405
2 Interview Schedule 409
3 Invitation to Participate in Interviews 412
1 Introduction

Increasing access to quality online community information was the primary aim of a newly formed partnership in the south of England. Known as the PlaceToBe.Net, it became the focus for my doctoral research in the spring of 2003. Organizations from the public and private sectors aligned with a common recognition that there was an opportunity to address concerns about online information sharing and distribution. Common interests lead to the possible shared opportunity to discover challenges, gaps, errors, opportunities and weaknesses involved in processes working with analogue information migrated to a digital environment, where it can be stored and managed. Increasing online access required enabling practices involving digital searching literacies and well constructed databases related to the interests and needs of users that are often analogue, complex and variable. Early in the partnership, health information became a means of focusing on a particular information sector, one related to and overlapping with other specialized sectors in the targeted community. This diversity was also recognized in the audience that was meant to access content. These users were central to an analogue environment of interrelated social and technological actors and forces. The issue is how the configuration of this grouping transforms through digitization and the use of ICTs.

What factors help shape a health information/informatics initiative? Interests and values are revealed within planning and decision-making processes that ultimately determine the choice of technology and its implementation. Processes are complex and dynamic, involving variables that include differing, vague and at times contested understandings of information, health and community. There are also varied interpretations of the function and role of information and communication technologies and what constitutes health information. Common definitions, shared knowledge and learning are fundamental to the exercise of agency and intrinsic to shaping processes.
This thesis yields a number of original contributions to knowledge. The alignment of the theoretical and comparative application of Structuration Theory, Actor Network Theory and emerging fields of health and community informatics exposes how aspects of agency and power reveal and mediate varied interests and values contributing to shaping processes which constitute knowledge. My attention concentrates on their impact, addressing health information access and quality in relation to structuration’s conceptualization of how conscious and unconscious understandings of social norms, rules, relations and practices help frame interests and values to impact the exercise of agency and power. The result is a unique understanding of factors shaping a community ‘health’ information/informatics initiative.

Research addressing quality online community health information was minimal in the mid-1990s. In the succeeding decade, studies adopting traditional perceptions of health associated with medicine rapidly expanded. This study has adopted a more holistic view of health, expanding the boundaries created by the pervasive bio-medical model. In doing so, it is unusual in placing the citizen - as online information users and likely consumers, care givers and patients - as central to the outcomes and benefits of increased access to quality health information. A comparatively central role was given to online information providers, who were recognized as mediators of access as well as quality. Through such a focus, a complex and evolving matrix of relations was revealed among online information providers and users. This close consideration of access and quality provides an original contribution to knowledge that can bridge the arbitrary and unhelpful divisions between theory and practice. In relation to community health information patterns and needs for example, the potential exists for health information providers to be users. Similarly, users may provide online content. It is a uniquely identified relationship, worthy of future research to assess its potential impact upon access to and quality of online health related content.

When a health information/informatic initiative expands beyond traditional settings such as clinics and hospitals and into the broad and often diverse
realm of the community, different and new principles and practices are required. This is particularly true in a partnership of varied public and private community organizations. While active participation was indicative of shared interests, each partner had specific, internally mitigated, interests and values regarding public and private online dissemination and use of their information. Contributing to this unique analysis of public and private, as variably constraining or enabling, was the analytical development of a matrix of relationships. These relations were arbitrated by shared learning within the partnership and - as a result - influenced interests, values and ultimately access to and the quality of online information. Recognition of policy, shaped by private and public philosophies, to influence internal (private) or external (public) goals and agendas constitutes a unique contribution to knowledge bridging spaces between theory, policy and practice.

Questions regarding the users of health information were assessed, identified and applied, providing evidence of the forces shaping the initiative. Social and technological relations were involved, requiring an engagement with theoretical debates of social and technological determinism. My study recognizes and appraises a sociotechnical environment, expanding our knowledge of varied forms of determinism. Social forces, for example, were found to hold agency in systemic relations, constraining and enabling interests, values, the identification of choices and related decision-making. A lack of awareness and understanding of key deterministic forces constrained the ability of decision-makers, reducing shared learning and the development of good practices that aid participants to consciously balance such forces. My study expands theoretical concepts and our knowledge of the dynamic environment of practice involved in a cross sector partnership shaping online information.

Access issues have been deployed in discussions of technological platforms in restricted and limited ways. New questions and issues in my doctoral research confirm the intricate applications of ‘access’ in relation to online health information and attributes of quality. An increased
knowledge of the multiple and inter-related issues of access reveal gaps that expand notions of the digital divide, explored aspects of social (analogue) and technological (digital) inclusion or exclusion that impact use. Relationships between age, socioeconomic status, education and internet use were part of the issues of access and more important than physical contact with enabling technology. While the technology was valued for enabling speed and quantity and thus greater online content, social determinants recognized in skilled use were equally necessary to improve access to quality information. Also demonstrated and of concern when surveying such prescriptive, deterministic processes was the importance of identifying and acting upon varied needs of diverse groups and communities. Answers were seldom discrete and not binary. This doctoral thesis circulates in liminal, ambiguous, digitized terrain, imbued with the tension of complex, social and variable analogue contexts.

Illustrating the complexity of these dynamic relationships and working through implicated knowledge gaps confirms an original contribution to knowledge. For example, few studies reflect upon or acknowledge how the design of information and content along disease and illness criteria creates dualistic pathways requiring a ‘yes’ or ‘no.’ Without a more flexible and liminal environment with links to varied and optional information, design becomes prescriptive, shaping categories that become a determinant of searches, limiting information to be found.

Fundamentally, if freedom of access to knowledge content is seen as a basic human right (Lau, 2007), then policy and practice related to online content - particularly health information and the role of search tools/engines - have much to accomplish to reduce gaps in access. Action that enhances the literacy of online health information users may be a significant means of promoting a more democratic environment, enabling interactive access, use, learning and the exercise of critical evaluation and reflexive skills. Not satisfied in leaving new knowledge in isolation and untested, this study recognizes value in the transfer of knowledge, informing and potentially enhancing policy and practice, particularly important at the community level. This informed approach to research
established an early aim to develop a conceptual framework, informed by practice with the potential to enhance related practice as a knowledge transfer tool.

The research was enriched by my own experience and the acknowledgement of a long-established interest in shared decision making in the context of medical and health issues with recognition of e-information as potentially an enabling process. The research opportunity emerged after completing a Masters focused on the ‘fit’ of ICT in the delivery of community health services. The research focused on and was completed in Ontario. ‘Fit’ came to signify the enabling of value to all users, promoting multiple, beneficial outcomes which help guard against resistance, mistrust and what are now seen as deterministic forces. As information and communication tools, technologies have the potential to increase these flows, supporting choice and decision making for professionals as well as service users. An enduring interest addressed service delivery and decision-making related to the citizen/patient/client. A case study focused that research, involved assessing the potential role of ICTs in the delivery of in-home, health care services involving government and non-governmental service providers. Research outcomes included recognition of participatory and consultative planning methodologies and iterative adaptive strategies relative to a social context contributing to the shaping of the technology. Extra value was identified in technology implemented to deliver multiple benefits while addressing varied users.

Succeeding experiences with a Canadian health strategy, addressing the role of ICTs in cancer prevention, offered a further opportunity to explore these insights on a personal level. The challenge of moving such research into practice became obvious. While extensive consultation revealed social complexities enabling as well as constraining need and potential utility, a focus on existing technology and its R&D trajectory determined ultimate recommendations. Additional experience - gained in an information role within a provincial, publicly mandated, health service agency - confirmed the determining role ICT was given, consciously or unconsciously. Skeptical attitudes towards ICTs that constrained any
consideration of their innovative potential in such a workplace were an indomitable constraint inclusive of the recognition that there was little funding or support for innovation within publicly mandated organizations. Such R&D was predominately situated in medical institutions that were also public sector organizations but traditionally holding a more powerful presence and increasingly so through private business partnerships.

The challenge of managing and exchanging quality information, critical to operations across multiple, distant and varied community level health centers was made obvious in my role. It was exemplified in a simple piece of research that illustrated the constraining and enabling role of websites individually designed and operated by diverse community health centres, sharing common purpose and functions under an umbrella association (OPHA conference, 2001).

The provision of quality health information for multiple users is a common problem across such health service environments. However, questions and concerns around what was valued as health information, particularly for public online use, were growing nearly at the pace of related online content. Corresponding research addressing quality online community health information was minimal in the mid 1990s, but studies adopting traditional perceptions of health associated with medicine would rapidly expand in the next decade, particularly those looking at quality issues. The work of Eysenbach, (2000); Flatley Brennan, (2000); Eysenbach, & Kohler, (2002); Flatley Brennan & Friede, (2001) and Nettleton & Burrows, (2003) capture this research trajectory.

Similar R&D initiatives in nonmedical, ‘public health’ settings were not found. While fascinating research was taking place at Memorial University, Newfoundland,
Canada, addressing telehealth and international, public health contexts, there was a growing trend, developing software and hardware that could be modified and transferred for lucrative international applications often in nations seeking development. Increasingly, I found a disconnection of citizen, user, client, patient and carer needs from the R&D of ICTs related to health and medicine in developed countries.

Practice-based knowledge was brought to this doctoral research, with experience-based understandings disclosed in order to not only identify prior assumptions but also to guard against inappropriate – or unacknowledged - subjectivity. The intention is to enhance transparency of the research context as well as recognizing the value of practical experience informing the study. The work has been substantially shaped by practice-based insights into the needs, opportunities and potential that allows for meaningful questions and debate. Examples of these insights are illustrated in boxes – as shown above - as textual interjections that relate to and contextually expand particular subjects. This additional contextualisation contributes to the value seen in the research, informing and potentially enhancing policy and practice.

It was this informed research approach that established the aim to develop a conceptual framework informed by practice, with the potential to enhance related practice as a knowledge transfer tool. Research design distinguishes this doctorate. Greater value is returned in this integrated approach that situates and contextualizes the study and emerging knowledge. The proposed conceptual framework captures complex variables and new knowledge related to macro and micro forms of determinism. The last form is more difficult to capture as it relates to less conscious attributes tied to understandings of social rules, roles, relations and practices that produces social determinism. The framework does not intend to be fully comprehensive and finite but contribute a tool that can be refined and adapted to bespoke initiatives and environments, maximizing the principles and practices presented.
The research focuses on the PlaceToBe.Net. The partnership consists of public and private sector organizations which had a remit broader than a focus on health information/informatics. Because that remit addressed the construction and dissemination of community information, an investigation in this field was undertaken to identify significant contextual issues, particularly those relevant to health information/informatics. The review found a wide variety of studies related to business, economics, education, libraries and health functions. The intention was to establish an overview of traditional and current practices with patterns that relate to the role of technology as an inter-mediator of community health information. Organization and other modes of change relating to the use of information and communication technologies in this role, was a significant theme. The research and evaluation also outlined an increasingly complex environment with both social and technological determining forces that mediate rapidly evolving technology and e-content.

Recognition of socially and technologically deterministic forces was the basis for exploring related fields and paradigms of literature. Particular aspects included theoretical concepts and information technology studies related to social shaping, technological determinism and science, technology studies. Theoretical bodies of literature were explored relative to Actor Network and Structuration theories as well as the fields of Community and Health Informatics. Preference was given to examples closely related to community health information. The goal was to identify contextual issues and conceptual patterns informing the research. The purpose was a tracking of patterns and shapes rather than an exhaustive review. The investigation assisted in forming a strong, experiential, understanding of the research context which helped establish study boundaries, narrowing the focus while balancing and maintaining a focus on important links between micro and macro concerns.

The result was the development of insightful research questions, with the goal of contributing to practice. What key factors shape the development of a community health information initiative when it has the goal to
improve access to quality community ‘health’ information? To respond to this key question, values and interests of key stakeholders - as represented in the design and development of a community health information/informatics initiative - were evaluated. Factors shaping the choice and design of technology were also identified. The research context was a complex one, made more so by various tensions including contested theories and the limitations of conventional definitions. The research questions and related goals were instrumental in pursuing difficult theoretical perspectives and the original linkage of emergent fields and concepts. Maintained was the research goal of responsible action and to practice a philosophy based on doing ‘no harm’¹, of fundamental value to a health environment. In a socio-technical environment where a variety of determinants can alter a balanced approach, constraining or enabling options and decisions in the design, implementation and eventual use of online health information, the principle can promote attention to critical objectives and ethical reflection during formative decision-making.

The combination of Actor Network Theory (ANT) and Structuration Theory (ST) linked micro and macro factors but brought balance to ontological and epistemological concerns. Key concepts were tested, often resulting in a more complete, at times integrated, understanding. ANT radically shifted the term actor to be inclusive of heterogeneous human and non-human actors whose actions result in patterns or networks of relations (Law, 1992). The meaning of ‘social’ is more than simply relations between humans, but includes non-humans as actor/agents exercising varied degrees of equity and expertise in their participation. Revealed is the fundamental sociotechnical context of the case study, one that is enhanced by understandings provided by the related fields of Health Informatics (HI) and Community Informatics (CI). The last, for example, addresses how the situated knowledge of agents and networks or structures operate through agency and actions.

¹ The principle was identified in my MSc research (Cardno, 2000) and is one identified in Goodman (2001, 2003)
The lens of Structuration Theory (ST) shifts attention beyond varied actors and their relations to networks inclusive of broader structural factors. The juxtaposition of networks and structures illuminates the novel duality of formal and informal systemic patterns containing social rules and norms, practices and relations that are interpreted by varied actors and mediated by ST’s modalities of power. Equitable attention through the precise and rigorous version of ST advocated by Stones (2005), attends to gaps in knowing. Earlier research traced such gaps to the dominance of technological determinism. Such a dualistic, reductionist approach to what are essentially social processes within a broad context is a limited interpretation, of minimal value to practice. A more comprehensive understanding of the role of agency within such a context begins to redress the gaps and reduce a dependency linked to technological determinism.

Social shaping forces have vital agency in systemic relations, constraining and enabling interests, values, the identification of choices and related decision-making. This is particularly true of a multi-partner initiative when each involved organization and their representative bring particular interests and values to the partnership. It is a socio-technical environment that has too often been overlooked in the formation and management of projects with an IT focus yet it is increasingly common for diverse organizations to partner around an IT initiative. Less common are cross sector, community-focused initiatives. More unusual is an early focus on the particular area of health information, a domain traditionally associated with - and left to - the professionalized disciplines of medicine and health. The introduction of technology to health information management and provision creates tensions due to priorities of two distinct fields of expertise. Weighing the relations between what is socially or technologically determined is the inevitable movement of agency, power and related resources in what is seen as an inseparable sociotechnical environment. In relation to action on community ‘health’ information, it is an environment that has significant implications as to how interests, choices and the final solution are shaped.
The two key issues of access and quality of health information emerge from this sociotechnical environment. Related analysis and discussion focuses on what is seen as dynamic relations between factors that operate at both micro and macro levels. The functioning of technology often concerns the micro while its social interaction and thus shaping is seen at the macro level but the boundaries are not distinct and there is movement back and forth with their relationship creating a middle ground worthy of examination. That dynamic is seen in the role of definitions. How community, access, quality, health information and informatics are defined represents interests and values that influence agency within a partnership. Their early form influences aims and goals leading to mediating processes that determine choices and decisions that shape or construct outcomes.

Based on the research questions, specific themes were identified and literature searched. These included literature pertaining to:

- **partnerships**, particularly those involving public and private organizational partners at the community level. Interest extended to issues of engagement, partner interests and values that may be shared or not, communities of interest or practice as well as social capital and learning.
- **electronic health information**, particularly that related to community and broad definitions of health. Interest included material related to needs and use and understanding the user.
- **access to health information** and quality health information
- **health informatics** (especially that concerned with public and patient-oriented e-health services)

In probing how technical as well as social determinism shape an online community ‘health’ information initiative, the research recognized a broad definition of health inclusive of the determinants of health. The two categories of determinism are separated theoretically as well as by discipline yet there is a perceptual overlap, in this research, that fundamentally challenges the notion of one discrete form of determinism.
as constantly dominating a process. Value in this research may well have a great deal to do with the bringing together of such concepts as a reminder that discrete notions and reductionist approaches have consequences that often constrain decision-making and choices involved in shaping solutions and outcomes.

In initiating the study, I anticipated concepts of organizational change would be relevant and relate to concepts of learning, particularly in a partnership environment. For example, short-term outcomes might lead to shared learning, impacting interests and values with longer term results allowing something new or different to evolve from a multi-partner information / informatics initiative. In contrast, a technology-focused initiative might simply provide a new way of enacting an older process or goal. Either outcome is related to how the initiative and its technology solution is shaped by multiple factors and process explored in this work.

A number of definitions and terms deployed within the research have contested meaning. I submit the following clarifications. The term ‘agents’ within this doctoral study describes human and nonhuman agents or actors. Agency too frequently implies the actions of both. The phrase ‘community health information / informatics project’ captures underlying assumptions and tensions in meanings relative to each term. How community is seen and defined is critical to the user audience and pivotal to this study. Within the PlaceToBe.Net, the determinations of ‘community’ varied from the local of Brighton and Hove to a wider geography while at the same time fluctuating in the recognition or inclusion of particular groups with common interests. ‘Health’ had variable understandings, transforming with PlaceToBe.Net developments. The study adopted a broad definition inclusive of wellness, prevention and determinants of health. This definition is critical to the perception of related information. Together, the two define data and content significant to the study and work of the PlaceToBe.Net. Health as a focus of the PlaceToBe.Net varied throughout the research project and so the term appears in single quotes indicating an uncertain link. Informatics is a new term with contested use but commonly linking technology and information
activity within a particular effort to gain relevant benefits. Tension within
the term pertains to an emphasis on the importance of technology and
therefore is a concept that those sensitive to technological determinism
find problematic to use. It is used in this study with the intent to
demonstrate social and technological deterministic forces and how they
are best balanced. The final term ‘project’ is used with caution. Initiative is
preferred in order to recognize the difference between the first, which is
often short-term, and conducted with little expectation of longer-term
sustainability.

Uncertainty related to terms was matched in the research context and
made more complex by various tensions involving contested theories,
new and emerging fields, limited definitions and interests and values
differentiated by business versus public, and social interests and aims.
Debates and issues are outlined in chapter two with their theoretical and
methodological relevance clarified in the third chapter.

Succeeding experiences with a Canadian health strategy, addressing the
role of ICTs in cancer prevention, offered a further opportunity to explore
these insights on a personal level. The challenge of moving such research
into practice became obvious. While extensive consultation revealed
social complexities enabling as well as constraining need and potential
utility, a focus on existing technology and its R&D trajectory determined
ultimate recommendations. Additional experience, gained in an
information role within a provincial, publicly mandated, health service
agency confirmed the determining role ICT was given, consciously or
unconsciously. Skeptical attitudes towards ICTs that constrained any
consideration of their innovative potential in such a workplace were an
indomitable constraint inclusive of the recognition that there was little
funding or support for innovation within publicly mandated organizations.
Such R&D was predominately situated in medical institutions that were
also public sector organizations but traditionally hold a more powerful
presence one increased with private business partnerships.
The result is a study that respects and values different levels of complexity, acknowledging it as the grey analogue of practice. The intent in this dissertation is not to reduce complexity but value its inevitability. Attention is not placed on the identification of discrete dualities and paradoxes that configures best practice. My work generates new knowledge with a sensitivity that informs and guides complicated initiatives in uniquely complex environments. The community health information environment involves multiple constituencies crossing public and private domains of governance and services and information providers as well as users. Multiple partners bring a wealth of expertise creating the opportunity to learn more about potential audiences, providers and users as well as what information is of value to whom. There are unique needs and opportunities and the chance to do something new or different. The possibility is to evaluate the role of health information relative to community and recognize it as a determinant of health and wellness. It then becomes instrumental in illness prevention, reducing demands on valuable medical institutions and services.
The research environment was composed of complex participants in the shape of varied organizations, crossing public and private sectors and processes of a partnership. They were unified by an imperative to increase access to community ‘health’ information. The environment was also impacted by social and technological change involving shifts in government policy and practice. No established body of literature was available that would provide a solid scholarly foundation upon which to focus the research. Interdisciplinarity and considered intellectual outreach and translation were required. As a result, this review brings together distinct bodies of knowledge that cross traditional disciplines, including two emerging informatics fields. Issues and concepts pertinent to the research aims, objectives and questions were identified. A review of literature on varied health information initiatives related to community and the public citizenry, as consumers, demonstrated complex and ubiquitous processes that potentially shape a community health information project. These actors and actions are discussed throughout this document. As a result, strong analytical tools were required and were invaluable to capture inter-linking micro and macro issues. Social and technological determinism were dichotomous forces influencing the shape of such an initiative. The concepts were evident in the literature and became key sensitizing concepts (Charmaz, 2002, Gomm, 2004) recognized as a primary pattern aiding analysis and thematic interpretation. The relationship of the two forms of determinism to processes and factors shaping the technology and health information content of a multi-partner community project begins a unique discussion in section 2.1 which ends with a sociotechnical summary. Understanding the role of social and technical structures, which include organizations, networks partnerships and information systems as well as human agents and agency became a

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2 The sensitizing concept is explained in chapter three, referring to a touchstone in the literature relevant to the research. See the work of Charmaz, 2002, Gomm, 2004.
multi-factoral context that shaped the community health information initiative. Relevant literature was reviewed on these topics to inform initial sensitizing concepts, methodology and analysis. Significant literature was reviewed relative to access and quality of health information. The identification of key factors involved in these processes demonstrated the requirement for complex analysis sensitive to obvious and at times subtle or less tangible factors. Rich analysis is aided by Structuration theory. That illustrative discussion begins in section 2.1.3 and is followed in 2.1.4 by the relevance of actor-network theory which helps balance the more abstract, macro concepts of structuration theory (ST).

Technology and information bring into focus the key terms of content, participation, access and use. Beginning with the multiple and inter-related issues of access - the digital divide - aspects of inclusion or exclusion and use are discussed in 2.2.1. Addressing interrelationships as well as opportunities to fill conceptual gaps became significant and original contributions to knowledge. While access issues are commonly applied to technology, new questions and issues that will be illustrated through this doctorate recognize their intricate relation to online health information. The last becomes an original contribution to knowledge as a topic for concentrated exploration as issues related to online content are addressed in section 2.2.2. Access can result in minimal reward without strong participation by not only the providers of health information but also the users. This discussion recognizes a paucity of directly-related literature in section 2.2.5. Moderating access, participation and use implicate the political nature of technology and information along with the processes that shape them in relation to broader social issues, including those of risk and trust. Section 2.3 discusses literature from both a technology and a health focus. The topic enlarged in 2.3.8, integrates a review of information provision, use and quality with previously discussed issues of access, participation and use.

A review aids an understanding of the individual terms of Community, Health, Information and Technology which come together to describe the
nature of the case study addressed in this research. How health information is defined and shaped is central to this research. Discussed in 5.2.11 are definitions and concepts relative to broad social trends, issues and needs in relation to online information. The literature demonstrates that the majority of health information projects have taken place in traditional medical and health situations related to health informatics and that emerging field. Related contributions to this research are outlined. A comparison is made in section 2.3.4 with the similarly emerging field of community informatics. The field offers a growing body of knowledge that bridges research, policy and practice related to methodologies, balancing technology as a facilitating mechanism with community needs and action.

While this research concentrates on a single case study, it is best understood in relation to varied health information initiatives outlined in section 2.3.3. Ambiguities in understandings of who provides what information, where, when, how and why are covered in section 2.3.5, based on a review of relevant literature including PlaceToBe.Net documents and related studies. The last section confirms patterns and helps situate meanings in relation to the partnership. The users of particular health information are illustrated in section 2.3.5 while 2.3.6 discusses issues of quality and access specific to online health content. Technical issues specific to the search for online health information are covered in section 2.3.7, while factors that mediate that process are outlined in 2.3.8.

The last two sections bring the chapter to a close with a summary in section 2.3.9 of how policy, practice and research bridge a number of gaps in understanding better practices that might aid a cross-sectoral partnership to increase access to quality community health information. The section also addresses aspects of sustainability in relation to the future of such initiatives.
2.1 Theoretical Contributions

The divergent theories of technological determinism and social shaping help establish the broad context of this interdisciplinary research in sections 2.1.1 and 2.1.2. Anthony Giddens’ ‘grand’ Structuration theory (in 2.1.3) facilitates the examination of abstract concepts activated in complex environments. It is balanced by the detailed analysis of actor network theory (in section 2.1.4) and concepts from two emerging informatics fields dealing with health and community in sections 2.3.3 and 2.3.4. The contribution of these theories and concepts brings a greater understanding of the process shaping a community health information initiative.

2.1.1 Social and Technological Determinism

The influence, or not, of technological determinism (TD) and social shaping theory (SST) is a long standing dichotomy mediating the configuration of technologies. TD acts on the “typical assumption that technological change is an independent factor, impacting on society from outside a society” (MacKenzie & Wajcman, 1999:5). In contrast, SST recognizes multiple social forces that interact with technology and ultimately impacts their design, how they are used, and the context in which they are used (Williams & Edge, 1996).

Technological determinism (TD) frameworks and theorists view technology in a rational and linear way, with an emphasis on scientific origins (Bijker et al, 1999; Woolgar, 1991). Seen as a one way, cause and effect relationship, technology becomes highly deterministic in what is perceived as a singular, progressive course that requires society, organizations and people to adapt to the technology but also the change it
is responsible for (Russell and Williams, 2002). Those resistant to such change, including non-users, are viewed as anti-technology and such naïve attitudes are to be overcome (Russell and Williams, 2002; Woolgar, 1991) often by required learning and training. Little or no consideration is given to social aspects that might impact on technology.

In economics and development studies, the technology-led theory of social change (Chandler 2000) is known as a ‘technology-push’ theory in contrast to ‘demand-pull’ theory.” Other interdisciplinary researchers such as Winston (1998) link the limitations of the historic record to the transcendence of TD attitudes and actions (Winston, 1998; Green, 2002; Chandler, 2002). They argue that the typical historical view is a retrospective perspective that perpetuates the distorted idea of a linear model. An ‘inherently progressive’ view (Green, 2002) of technology continues to be reinforced when there is little documented review of less than successful technologies. The result is an inadequate account of technology that both portrays and assumes that the best technologies result from a seemingly scientific, evolutionary process (Winston, 1998; MacKenzie & Wajcman, 1999; Chandler, 2000).

The TD approach is intentionally or unintentionally reinforced through various policy documents guiding their introduction (Day & Schuler, 2004; Day & Harris, 1997). The use of narrow definitions of access, community, the user as well as content or information and its use (Keeble & Loader, 2001; Day & Schuler, 2004) can limit adoption and innovation within projects and are related to social inclusion and exclusion (Labonte, 2004) and thereby access and use. Such policies, Day & Harris (1997) suggest, reinforce the dominance of economic concerns over other social or communal issues. Contributing to the technological imperative is also a failure to recognize the political nature of technologies which “can be designed consciously or unconsciously, to open certain social options and close others,” (MacKenzie & Wajcman, 1999). Winner’s example of the New Jersey bridge, whose dimensions restricted access by public buses to desirable beaches (MacKenzie & Wajcman, 1999), is not substantially different from Internet search technologies that restrict access to certain
information or strategically ensure some information is always found early (Sherman & Price, 2001).

The contention that technology is neutral (Chandler, 2002) is an example of the simple characterization of technology in terms of contrasting dualities or paradoxes which act to limit options and choices (Sassen, 2002; Massey, 1996). Judgments as a result follow an either/or, cause/effect rational. Reduction to such simple formulas creates polarized, often politicized factors (MacKenzie & Wajcman, 1999) that intentionally or unintentionally support decisions based on limited information and knowledge. In practice this contributes to forming assumptions, either conscious or unconscious, which can limit choice and opportunities associated with technology (MacKenzie & Wajcman, 1999; Oudshoorn & Pinch, 2003). Postman’s example that “everything looks like a list”, “to a man with a pencil” or “with a computer, everything looks like data” (1993:14) recognizes how assumptions occur at both lay or consumer and expert levels.

Assumptions and related values and interests enter into planning processes shaping choices involving the participation of both experts and lay people in technology related decision-making processes (Woolgar, 1999; Akrich, 1995; Oudshoorn & Pinch, 2003). While assumptions can limit meaningful participation by reducing critical questions and the recognition of options, consideration of the user point-of-view can also be constrained by the TD view of technology which views users as passive (Fitzgerald et al, 2002) or as naïve (Woolgar, 1999). I address this constitutive process further in relation to findings in Chapter five and relative to a framework in the final chapter.

At the same time, the continued evolution and diversification of technologies and varied environments of use ensures a growing number and diversity of users who will be affected. It is a complicated dynamic where good intentions, project limitations or constraints and political agendas meet. It is a dynamic discussed in greater depth in Chapter five and the concluding chapter. In a multi-partner, community health
information project, involving new and evolving technologies, the challenges of good decision-making become even greater and a less common subject that these chapters also cover.

Limited assessment and inquiry or monitoring of technology’s ‘social impacts’ is linked according to Williams & Edge (1996) to the TD view that social adjustments are required by ‘technological progress’. In addition, the concentration on variance rather than process in studies has limited the comprehensive analysis of relationships (Butler & Fitzgerald, 2002). A scan of the literature revealed a number of varied factors that reinforce the TD perspective supportive of generic, linear models, characterized by Fitzgerald et al (2002), as typical of early technology diffusion models. While efforts have resulted in varied and innovative models promoting change through increased user participation, there continue to be significant gaps in planning, design and implementation processes that bring less than successful results (Butler & Fitzgerald, 2002).

‘First generation’ adoptions of ICTs were commonly limited to a specific workplace and targeted to a specific function. In medical or health informatics for example, early ICTs were limited to physician practices and focused on the patient record and eventually referral processes (Hovenga et al, 1996; Berg, 2001). A multitude of factors have expanded the boundaries of such limited application and use. Second and third generation ICTs are addressing multiple and dispersed workplaces and organizational settings along with the corresponding integration of system technology and later recognition of the value of integrating health system functions. At the same time, research is constantly challenged, by not only the rapidity of technological change, but the ability for timely investigations. Lessons learned in regard to successful as well as unsuccessful technology initiatives advance knowledge, understanding and ultimately practice, useful in new implementations.

According to Fitzgerald et al (2002), the process of implementing technology takes place in varied social settings, involving organizations with differing bureaucratic structures and levels of management.
Presumptions about what the author classifies as “uni-linear paths of technological change, as being inevitable” (Fitzgerald et al, 2002), become erroneous. Technology pathways and corresponding choices multiply and have become varied.

A history of ICT implementation tied to rational, economic measures, to achieve greater efficiencies, based on best practices and the management of finite resources, in health systems (Webb, 2003; Hardy, 2003), reinforces a limited, TD view and approach to ICT use. While a common pattern, it presumes “that particular paths of technological change were both inevitable (perhaps reflecting an inner technical logic or economic rationality) and required particular kinds of 'social' change” (Williams & Edge, 1996:1439). Training, accreditation and certification become a popular step in the linear progress to successful technology.

Increasingly complex project environments with tight timeframes and funding criteria (Day & Schuler, 2004) require streamlined decision-making. The danger is a narrowing of focus, reducing complex factors, allowing technology and experts to determine many factors and, as a result, potential outcomes. An overemphasis on economic concerns (MacKenzie & Wajcman, 1999; Winston, 1998) continues to support rational decision-making processes where actuarial practice and risk management dominate (Webb, 2003; Nettleton & Burrows, 2003; Day & Schuler, 2004) and limit choice or options.

Decision making involves some degree of assessing current but also future needs and roles. Capacity - what the technology can do - too often dominates the discussion, determining, limiting and labelling use. Forecasting optimal choices while predicting the future of technology and its consequences (MacKenzie & Wajcman, 1999; Green, 2002) is incredibly difficult. Decisions are often based on what worked in the past (Webb, 2003) and lessons learned from case studies which have predominately evaluated successful projects (Goodman, 2003). The potential exists for choice to follow ‘path dependency’ seen when a popular technology is promoted regardless of how well it may suit purpose.
and context (Oudshoorn & Pinch, 2003). MacKenzie & Wajcman (1999) warn that what may be successful in the short-term, may prove poor in the longer term. Similarly Schuler (1996) also warns that all decisions made early have long-term implications.

The deterministic influence of tight project timeframes and related resources as well as support that requires rapid, tangible and positive results is just becoming visible in relevant literature (Day & Schuler, 2004; Ramirez et al, 2002). While such factors accelerate technology it often constrains planning strategies and decision-making when limited options are considered and the context of use along with the user are not fully considered.

2.1.2 Social Shaping Theory (SST)

In reaction to the limited, deterministic, view and understanding of technologies and their role, research is increasingly exploring social features interacting with technologies, that ultimately help shape them (Williams & Edge, 1996). Social shaping theorists (SST), across a range of disciplines, have demonstrated that technology is a social product shaped by a multitude of factors related to need, use and context (MacKenzie & Wajcman, 1999; Silverstone & Hirsch, 1992; Russell & Williams, 2002). They include diverse scholars with varied concerns and intellectual traditions, including industrial and organizational sociology, evolutionary economics and economic and technology history and the sociology of science (Williams & Edge, 1996; Bijker et al, 1999). An integrated approach to the social study of science and technology with a focus on facts and artifacts was promoted by Pinch and Bijker (Bijker et al, 1999). As a result society and technology is addressed as a “seamless web” involving, but not privileging, aspects of history, sociology, economics and politics (Russell & Williams, 2002; Akrich, 1995; Woolgar, 1991). Doing so requires knowledge within a broader context. By
providing a more balanced, even holistic, view of technology, SST offers potential for a greater understanding of the dynamic development and use of technology.

Williams and Edge note that the social shaping of technology studies configure technology as a “social product, patterned by the conditions of its creation and use” (1996). Such patterns contribute to the domestication of technology and sometimes unintended consequences (Silverstone & Hirsch, 1992). The reciprocal impacts of technology and society continue to be documented in the developing social shaping literature (Russell and Williams, 2002). How community health information content on the Internet is shaped by its creation and use will be highlighted in this research relative to deterministic and social shaping forces.

The many social factors: political, economic, psychological and cultural, among others (MacKenzie & Wajcman 1999) highlight the complex technical and social environment that SST and science and technology studies find particularly useful in understanding mediating factors related to health technologies assessment for example (Webster, A., 2004). Here such factors assist our understanding of access to online information and its quality.

Key concepts recognize the complex environment or context in which technology develops and is made use of along with iterative and interactive processes tied to technology and user variation. Technology is viewed as non-neutral (see TD section) with ongoing contradictions, dualities and paradoxes seen in the attributes configuring both the user and the technology. It allows interpretative flexibility but also what Green describes as social determinism (2002).

Key processes relevant to this research include: the relationship between user and machine (Williams, 1997; Woolgar, 1999) as mentioned, participation in decision-making, assessment and evaluation, system impacts and related change, high expectations and the unanticipated or unexpected outcomes and use of technologies, stability of an innovation
as well as social learning and literacy, (MacKenzie & Wajcman, 1999; Bijker et al, 1999; Green, 2002). All address the variable social or human factors that frequently mediate the use of technologies (Bijker et al, 1999; Russell and Williams, 2002; Silverstone, & Hirsch, 1992). Technology choices may not always be conscious and perceived barriers or constraints can act to artificially narrow them. “The attributions and relationships of differing physical artifacts, including humans, machines and institutions, along with their environment,” (Hughes in Pinch & Bijker, 1989: 4) are increasingly considered from a systems viewpoint by researchers applying social shaping theories (Woolgar, 1991; Akrich, 1995; Williams & Edge, 1996; Chandler, 2000). A variety of methodologies and theoretical approaches can include analysis at both micro and macro levels.

To ask how characteristics are assigned to particular entities - whether user and agent or technology and agency - is to challenge implicit assumptions and recognize cultural ties that vary across differing societies (Woolgar, 1991). It is a social process with both agent and agency bounded by the views of other entities and relations between them. It is a mutually constitutive process demonstrating ‘interpretive flexibility’ with the ‘embedding of values and interests’, where external as well as internal factors and context ‘mutually elaborate each other’ (Woolgar, 1991:63; Akrich, 1995). These concepts, expanded upon in relation to Actor Network Theory, are fundamental to developing an understanding of social processes shaping or mediating the Internet and e-health information.

In contrast to the linear, directive and seemingly intrinsically progressive\(^3\) model offered by technological determinism, a social shaping model tends to be cyclical. It is necessarily complex and multi-dimensional, demonstrating interactive and iterative patterns of decision-making as well as considering environmental factors, exerting internal or external

\(^3\) The lack of comparative technology created a pathway that Winston (1998) argued created a view of existing technology as intrinsically appropriate, confirmed in its continued evolution giving it a presence perceived as progressive.
influence on the process (Russell and Williams, 2002). Such a model allows varied results, adaptability, differing pathways and responsive benefits (Williams & Edge, 1996; Cardno, 2001). Because of the considerable variation possible in ICT projects, a model based on SST promotes a flexible approach, rather than one that is quite prescriptive and distant from the realities of the complex environment in which the technology is used, as seen in the TD approach.

Williams (1997:6) identifies two concepts fundamental to the social shaping of technologies. First the author perceives complex technologies as “configurations of heterogeneous technical and social components rather than finished systemic solutions”. Williams second, “concerns the increasing importance of standards as a feature of certain current innovation processes characterized by rapid technological dynamism amongst a wide variety of players” (1997:6). Consideration of these sociotechnical aspects is a substantial move away from the limited, reductionist, dualistic, cause and effect approach of TD. In practice it creates the challenge of how to, not only consider, but also support action related to the broad range of factors shaping technology.

The brief comparison of TD and SST principles, distinguishes linear, well bounded, versus more flexible and inclusive, cyclical models for technology design, adoption and implementation. The first model typically yields success in simple adoptions involving well defined, limited outcomes, and benefits. With the increased complexity of adoptions tied to multiple and long-term benefits and outcomes as portrayed in CI studies and increasingly in HI literature, there is an increasing need for principles and guidelines to foster a more comprehensive framework to guide such work. Such a framework can assist in balancing technical standards alluded to above. Simultaneously it can act to weigh and balance the more social needs of users. The mechanism would assist in directing attention to access and quality issues that offer significant potential to enhance value and use ensuring they can be given appropriate attention.
2.1.3 Structuration Theory

Social theory, states Jeremy Rose (1998), is essential to “understand and interact with the societal, organizational and personal contexts without which the technology is meaningless.” For this reason, Rose argues that structuration theory (ST) provides a valuable tool of analysis for information systems and their environments (1998:1). Although Giddens (1984) did not originally apply the theory to technology researchers such as Hanseth, & Monteiro (1998), Flynn & Hussain (2001), Kououbali (2002), Stillman & Stoecker (2005) increasingly are deploying this framework. Therefore, the next stage of this review is to outline the theory and its relevance through a number of these researchers and related case studies employing ST.

Essentially structuration theory, explores the interaction between human agency and varied structures (Giddens, 1984; Baert, 1998; Rose, 1998; Hanseth & Monteiro, 1998). Structure and agent are seen as dynamic, interrelated constructs that are mutually produced, reproduced and transformed through the production of agency (Giddens, 1984; Baert, 1998; Rose, 1998). In recognizing this reciprocal duality and not giving preference to one over the other, ST offers a critical lens to help monitor both social and technological determinism (Hanseth, & Monteiro, 1998). Researchers including Stones (2005) and Kououbali (2002) saw this strong theoretical lens as the value of ST. Actors and structures are recognized as mutually interacting instead of independent and conflicting. In studies of business environments Kououbali acknowledges the value added with ST recognizing that “human agents produce, reproduce or modify social structures through their actions and in turn social structures enable or disable human actions” (2002:2). Thus the fundamental duality of structure and the core of ST (Giddens, 1989, Stones, 2005) becomes a valued analytical tool.
Structure is acknowledged as an abstract notion which requires no material basis - according to Hanseth & Monteiro (1998) - allowing the analysis of varied environments. Individual organizations, partnerships and communities all have varied structures but seldom are the structural attributes understood, particularly in relation to change brought about by significant adoptions of ICTs. In common, the Internet is increasingly bound by formal and informal social rules, norms and relations that influence practices, by the way they define structures (Giddens, 1989; Rose, 1998; Kouroubali, 2002). The same applies to online information content although such evidence is emergent, which this study recognizes as important to pursue, for future research. In this study how these four structural elements are understood and interpreted in the agency of the PlaceToBe.Net are central to understanding shaping processes. Conscious and unconscious interpretations of these elements are now discussed.

Structures are not seen in Actor Network Theory as being of equal importance. ANT attends to the dynamic balancing of networks seen in the role of agency attached to varied actors, human or non human. While systemic relations are recognized, ANT engages in a singular, linear duality placing greater attention on actors and related agency in constitutive and inscription processes. In contrast, ST perceives not only an equivalence of influence among structures and actors/agents but one that is iterative. They are relationships mediated by multiple interactive dualities central to ST. Thus researchers of technology found value in the lens ST offers for complex analysis of interrelated factors and particularly a balanced understanding of relations among varied actors and structures and their interactions.

The conception of structures and their role, relative to social practices, is portrayed below in a model first produced by Anthony Giddens in his work ‘Central Problems in Social Theory’, (1979 :82) and adopted by Stones (2005). It is a useful visual aid to summarize discussion, analysing events and dimensions of the PlaceToBe.Net. Stones notes, for example, that in Giddens’ focus on the duality of structure he is also alluding to
subjective or objective understandings, dimensions that correspond to conscious and unconscious understandings of structures and knowledge which the analytical tool helps reveal. These individual-based processes were referred to by Giddens as ‘memory traces’ which he characterises as the residual knowledge of structural contexts which agents always and inevitably draw upon (1979).

Modalities are the means by which actors exercise power, drawing upon memory traces aiding their comprehension of environmental circumstances through their knowledge, conscious and unconscious, of social rules, norms, relations and practices, to employ capacity and resources. The last, according to Stones, requires actor/agent perceptions and understandings of available and inherent potentials divided, for analytical purposes, into three structural dimensions (2005). Domination relates to power and resources while signification relates to meaning and legitimation refers to norms. Knowledge of the rules and practices that govern the distribution and configurations of power and resources involve meaning and norms within action/agency. These are represented in the actions of organizational partners as actors, influenced by interests and values.

**Modalities of Structuration Theory**

<table>
<thead>
<tr>
<th>INTERACTION</th>
<th>communication</th>
<th>power</th>
<th>sanction</th>
</tr>
</thead>
<tbody>
<tr>
<td>MODALITY</td>
<td>interpretive scheme</td>
<td>facility</td>
<td>norm</td>
</tr>
<tr>
<td>STRUCTURE</td>
<td>signification (meaning, rules)</td>
<td>domination (power, resources)</td>
<td>legitimation (norms, rules)</td>
</tr>
</tbody>
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Figure 1. (Based on Giddens, 1979; Stones, 2005)

While micro issues relative to individual actors are recognized, this research and ST highlight the role of structures, ANT and networks relative to actors and agency at varied levels. Together ANT and ST offer
insight into networks and structures revealing overlapping characteristics but also distinctions related to formality of function. Networks usually have greater informality in their functioning with the result that they more variably influence and are influenced than structures are by perceptions and understandings of social rules, norms, relations and practices.

Differential structural influences are based on Giddons' notion of the underlying role of social codes of practice and social relations or rules and norms and their transformative relations. The focus has been useful for the analysis of organizations and their relationship to technology as seen in the work of Orlikowski & Baroudi (2001) and Poole & DeSanctis (2004) for example. The revelation of such underlying, cross-cutting factors (what Giddens' 'duality of structure') is seen when actors, structures are recursively influenced (1984), impacting their exercise of agency. Thus structures can constrain or enable actions but are also produced or reproduced and transformed through human action (Hanseth, & Monteiro, 1998).

Linking structure, actor/agent and mediating agency are three modalities adding analytical understanding of 'below the surface' relationships (Hanseth, & Monteiro, 1998:3). All provide an interpretative scheme, with the first looking at how agency is understand in relation to shared knowledge, meaning and communication. The authors note that communication may be inhibited by conditioned social practices and when embedded meanings are reinforced. Thus an example of a constraining or enabling force within structure and agency. The second modality is facility which looks at the mobilisation of resources of domination. According to the authors it "comprises the media through which power is exercised" (1998) and in this study attention is on the role of the partnership, ICTs and information content. The third modality - norms - guides action through mobilisation of sanctions defining the legitimacy of interactions. In their study, Hanseth & Monteiro, see IT and the way they work as forms of codes that convey norms (1998).

Power and resources are a duality constitutive in modalities as they relate
to structure, actor/agent and agency. Power is allocative or authoritative and is witnessed in social relations, tied to function (Giddens, 1984; Rose, 1998). Resources provide significance and legitimation and are tied to social practices as recursive activities with agency. The co-presence of social relations and social practices, then, involves action related to power and resources, resulting in transformation and change (Baert, 1998; Stones, 2005). The knowledgeable actions of human agents, discursively and recursively form social rules, practices and routines (Rose, 1998). Actions can also be influenced by less conscious internal psychological cues mediating interpretative and reflexive processes providing a similar influence (Stones, 2005).

ST attempts to bridge and even balance a number of related conceptual gaps or dichotomies (Ritzer & Steprinsky, 2004). Criticized for being too 'grand a theory' because of its overly abstract macro level conceptualizations (Rose, 1998; Stones, 2005) combined with the lack of an obvious methodology (Baert, 1998; Poole & DeSanctis, 2004), the theory can be difficult to apply. The difficulty is in achieving the appropriate 'granularity' of analysis particularly in relation to technology where the value is often in capturing the nuances of action, relationships and technical differences according to Hanseth, & Monteiro, (1998). The difficulty is also one of bridging the ontological and epistemological with attention to practice supporting learning and the application of knowledge to practice (Baert, 1998). Stones in his detailed examination of Structuration theory and practice argues for in-situ, micro analysis, complimentary to macro analysis (2005) as benefiting rigorous, less reductionist research. It is for these reasons that ST is often used in combination with more micro-focused theories including actor network theory and is a combination which aids the transfer of research into practice. The last will be discussed in 2.3.9.

The complex and challenging issues involved in implementing health information systems (primarily institutional systems referenced) along with a history of failures attributed to social and organizational factors confirms the need to investigate the way such systems affect human actions,
organizational structures and vice versa (Kouroubali, 2000). The author values the capacity ST offers to comprehend interdependencies between varying dualities, including cause and effect as played out in implementation decisions which illustrate factors unique to specific situations. For example, in understanding the role of knowledge in health information systems, the author values two types, distinguished by Giddens. Discursive knowledge is articulated by agents while practical or tacit knowledge is used in action, but not explicitly expressed. The concept aligns with reflexivity which whether fully conscious or not, enables understanding by members of society of social codes, rules, norms and practices. The interplay of these social factors adds to, but also mediates their knowledge and understanding as members but also as individuals (Stones, 2005) and facilitates action. Kouroubali found that the “regular actions of knowledgeable and reflexive agents establish patterns of interaction that become standardized practices in organizations” (2002). ‘Habitual’ use creates “standardized practices (that) become institutionalized forming the structural properties of organizations”, (2002). The author further recognizes the impact the general environment has on organizations, and human agents operating within it. Similarly Walt Taylor recognizes the value of ST in addressing the “dialectical nature of diffusion/ adoption within a system that includes a community” (2004:5)

Under the lens of ST, in Kouroubalis’s study, health care providers are seen as knowledgeable actors who are more likely to be valued and listened to more equitably with other experts, in implementation and decision-making processes. Similarly how expert and lay knowledge is recognized and valued in this research is implicated in decisions related to access and quality issues of online community health information. The mediating process involves knowledge shaped by values and interests and is facilitated by power and resources expressed in social rules, norms and practices in relationships.

ST is used here to facilitate analytical links between broad and abstract concepts at the macro and epistemological level and micro factors such
as social codes underlying human and machine interactions at the ontological level (Rose, 1998; Stones, 2005). The application moves analysis beyond an either, or, cause and effect analysis. Reconciling dichotomies and closing the gap between, for example, the autonomous or dependent attributes of human agency and structure, the subjective and objective - while highlighting the need to address dualities and interconnectedness of such features - is a strength of ST. ST reveals complexity without the common reduction of refined applications of some theories, a criticism of ANT (Law, 1999).

Narrowing the gap between research and practice is a concern witnessed by the rise of knowledge management and transfer endeavours. This is true for health (WHO, 2004) with implications that involve public good and ‘health for all’, recognizing that knowledge and information are critical to equity in resources that promote and are preventative in health. Key to addressing the gap is a common understanding that “researchers, policy-makers, and practitioners need to recognize and draw on their shared knowledge base” (Davies et al, 2002). Lessons in narrowing the gap point to processes of translation and facilitation (Lucas, 2005) and dynamic social processes that can make difficult evidence more tangible through practices beyond the usual measures of research impact (Walter et al, 2004). Evidence-based practices (EBP) are linked to effective health interventions yet there are growing concerns around research access that ensure comprehensive reviews. Traditionally transfer has been a top-down process yet “users of research also generate knowledge, albeit in different ways, and they should be closely involved in the research process” (WHO, 2004). These complex and interrelated factors inform the study at the macro level of abstract knowledge with implications for transfer. Practice can improve relative to social and technological determinants, impacting the central issues of health information quality and access.

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4 Rooted in the 1977 WHO strategy it has grown to be an international extra-governmental movement seeking equity by broadening policy and access to resources (Milewa, 1996).
Less attention has been given to the research, policy and practice gap in relation to technology. The void becomes obvious when health related applications yield low success rates producing frustration and a sense of urgency when substantial resources have been consumed without significant benefits. In such a context, this research investigates the applicability of ST, as an adaptive framework in the context of a community informatics initiative that focuses on the shaping of a technology solution. The interaction of structure, process and agent with a concentration on human agency and organizational influences will be important.

‘Conjecturally specific’ knowledge is situated within internal structures, involving an actor/agents’ knowledge of the specific context of action. Giddens noted this knowledge was based on interpretive schemes, power capacities, normative expectations and principles on the part of actors/agents, in a given context which provide more formal understandings. In attending to external structures, less formal ‘general dispositional’ knowledge or understandings that are more transposable, according to Stones’ (2005:90) result. Such structural aspects are vital to a study focused on ontology-in-situ and dealing with questions concerning the values and interests of actors/agents and structures and asking who, what, where, when and how, according to Stones (2005).

A resurgence of interest in Structuration Theory has been the result of value found by researchers in Community Informatics (Schauder, 2005; Stillman & Stoecker, 2005) and related ICT work (Hanseth & Monteiro, 1998; Poole & DeSanctis, 2004). Examples of use were also seen in health services research (Flynn & Hussain, 2001). Cognisant of criticisms related to the theory’s abstract, ontologically focused approach, methods and related epistemology has expanded, enriching research capacity. Here it is informed by ANT augmenting understandings of micro concepts including in-situ analysis of actor/agent, network/structural, inter-constitutive dynamics related to the modalities and factors mediating action and agency. A more formal exploration of the contribution ANT makes to this study continues in the next section.
2.1.4 Actor Network Theory (ANT)

Actor network theory (ANT) has been employed to address technological and organizational aspects of innovation. In doing so, ANT attends to the role of actors as not just people but also as non-human, material objects of similar importance through their influence in planning, implementation, decision-making and outcomes. Similarity in the treatment of actors is referred to as the principle of ‘generalized symmetry’ (Hanseth, & Monteiro, 1998) and forms a heterogeneous network of both social and non-social (technology) elements that act together to create outcomes. The sum of all actors and their participation creates a network which according to ANT theories (Hanseth, & Monteiro, 1998; Law, & Hassard, 1999) explains most social phenomena.

Increasingly ANT has been employed to help explain network attributes involving technology. According to Hanseth, & Monteiro, ANT offers “a language for describing the many small, concrete technical and non-technical mechanisms which go into the building and use of information infrastructures”. As a result ANT helps illustrate how actions are enabled and constrained (1998:2). Elements of a network can be observed at quite a micro level leading to systemic understandings. For example in a health information system it could be the design of categories or search terms that as actors work with and for the network. In such a relationship corresponding rules and norms regulate practice and relations. In sharing these characteristics with structures, well illustrated by ST, networks become a particular type of structure. In his review of a sociotechnical approach to patient care information systems Berg (1999) notes the complex and codependent interrelationships in health care where any network change can upset and reverberate throughout the system. Thus every element has a critical role in established and well tested networked
systems. Other networks, not so intrinsically linked or interdependent
have a tendency to greater informality related to temporary and less
formal functions. This character is expressed in agency enabled by
greater flexibility related to their influence. They lack the entrenched, co-
constructed rules, norms, practices and relations that more formal, long
standing network structures have. They become more flexible networks
which can operate in gaps or spaces where more formal structures do
not, for example, among staff from varied organizations who actively
share common interests and goals in action associated with a partnership.
Such networks were a contextual influence in the formation of the
PlaceToBe.Net, a process described in chapter four. Search engines are
recognized as technically dominated networks formed and bounded by
practices and relations of design rules and norms, a relationship
described in chapter five. The rules, norms, relations and practices in the
new partnership were dependent on historic patterns and roles played by
partner organizations as perceived in the new context of the
PlaceToBe.Net aims and goals.

Networks are not limited to human or social environments, a point
confirmed by John Law (1992) in his review of ANT. He notes that, “the
crucial analytical move made by actor-network writers: the suggestion that
the social is nothing other than patterned networks of heterogeneous
materials.” This results in the social being conceived as more than simply
human. It is a radical claim he suggests and is one that allows the
analysis of objects and people as equivalent participants in networks that
shape a variety of social structures, including: organizations, groups,
family, projects, businesses, computing systems and other technologies,
community sectors, academic disciplines and varied institutions. The
result is a variable definition of social, one that remains contested at a
number of levels from theory to practice.

Interaction is the basis of relationships between heterogeneous actors
that both stabilize and reproduce relations, essentially social, creating
functioning networks. The primary ANT question is how they enact this
process. Law refers to the fact that ANT is also known as ‘the sociology of
translation’ as it reveals the mechanics of power. Actors’ roles, whether
great or small, need to be appraised in a similar fashion, preferably one
that narrows the gap between macro and micro lenses (1992). In this
respect Law turns to the shape and role of knowledge, seen as a social
product and as a result of a ‘network of heterogeneous materials (1992).
Knowledge is embodied in the varied material forms of the actors, the bits
and pieces of a network and is the result of a lot of hard work bringing
disjointed elements into a network of patterns, producing meaning (1992).
At the theoretical level, resulting understanding represents a non-
reductionist approach to ANT theory, when actors and material elements
are given similar attention as participants in a functioning network. It is a
process of analysis that ST takes further with equity of attention to more
complex, constitutive relations among actors/agents, structures/networks
and mediating modalities.

The term ‘network’ implies a continuous interacting workability - which
means nothing without the concept of usability according to (Hanseth, &
Monteiro, 1998). Their study stresses the fact that a person understands
the artifact, when it is easy to use the artifact, when a person adjusts to
the design of the artifact, and when it is easy for a person to use or
interact with it. Revealed by ANT is the process of inscription or
embedded traits with use and usability determined by actors through
decision made on particular knowledge and information. Knowledge and
information of the user becomes integral to the pattern, design and
systemic replication of networks, basic design and implementation
choices that ultimately enables or constrains their sustainability.

ANTS’ contention of human and non-human actions in co-constructed
activity, involving networks of patterned relations, presents an expanded
definition of the social. The notion of social as human and material may
be contested but does draw attention to interlinked action, and in so doing
validates a socio-technical context. The notion of ‘social’ remains
problematic at a number of levels and like community, access and quality
often continue as vague descriptive verbs rather than involving a more
comprehensive, concrete understanding. The result perpetuates uncertainty and ambiguity in related practice.

ICT planning and implementation involving such diverse actors are readily understood through structures or models that guide the activity. In their review of innovative models in health care Fitzgerald and colleagues note the constraints of limited models and the link to technological determinism (2002). In doing so, they cite Wolfe, making the point that they lack empirical validity\(^5\) (2002). Such simplistic models may capture notions and practices that potentially reinforce technological determinism in the processes of innovation, adoption, diffusion and implementation. Choices, alternatives and decision making can remain constrained, limiting the potential for innovation. A more complex understanding aided by structuration and actor network theories in relation to community and health informatics can enhance the design and implementation of community health information initiatives. An investigation of the relationship of ST and ANT is also found in the Methodology Chapter. Theoretical understandings are tested and enhanced with key concepts explored and so this discussion moves to fundamental notions of access, frequently framed by ideas of the Digital Divide. These perceptual frames are tested in the discussion below as the research looks beyond bounded notions, considering overlapping relations that help define gaps or divides to online ‘health’ information access.

### 2.2 Technology and Information

In exploring the gaps or divisions that constrain access as well as quality,

\(^5\) The ambiguous, contested nature of new scientific knowledge, particularly the role of qualitative studies in IT was demonstrated in the authors’ work. The dominant acceptance of empirical research as devoid of any subjective, obscure force obscures the value in studies that capture the more complex and abstract. It is reinforced by preferences of the biomedical model (Hardey, 1998). Decisions about adoption is seen as a science that is socially mediated through the features of context and of actors. Their intersection influences diffusions (Fitzgerald et al. 2002).
the role of contentious definitions and theoretical concepts must be acknowledged. The role of the researcher in capturing such distinctions and situating them in a meaningful discussion is critical. Jeremy Rose summarizes the context well, stating that “I situate myself in this realm of responsible action, where there is neither a mindless acceptance nor a smashing of machines, but a sustained consideration of the discourses and practices that surround them – discourses and practices which may, as we will see, seriously impinge upon our ability as users to choose to act in ways which enlarge human rather than technological possibilities.” (1998:42) These principles and philosophies of practice guide this study, beginning with the sociotechnical frame addressing factors that constrain or enable access.

2.2.1 Access: A Broader Understanding, Reducing Divides.

Differential access came to attention in the late 1990s when the concept of the digital divide (DD) drew attention to gaps. It was seen as a social/political problem related to socio-economic differences between individuals, groups or communities in their access and ability to use ICTs and the Internet (Rice et al, 2001; Webb, 2003). Mediation of differential access and use is related to age, education, ethnic or cultural affiliations and they are inflected by motivation, need, and interest in information. Because access is not an end in itself but “enables further activities that can only partially be specified beforehand” (Clement & Schade, 2002:2), definitions are incomplete without some reference to that dynamic. As authors of the ‘Access Rainbow, a conceptual model of access,’ these authors argue that, “three main questions need to be addressed: 1/ Access for what purposes?; 2/ Access for whom?; and 3/ Access to what?” (2002:2). The first can involve potential transformative, if not revolutionary, possibilities of ICTs. Doing so involves users as members of society - as citizens and users - participating in what can be
interactive, in a democratic fashion. E-networks can allow user/participants to be creators as well as recipients and because innovative possibilities continue to expand purposes can never be concurrently defined if users have the opportunity to be interactive, creators (2002). While evidence suggests there is commonly little assessment or review of access for what purpose in design and implementation processes there is evidence of users’ actions as innovative, appropriating technology for unexpected purposes, or paradoxically resisting technology.

Moving beyond the physicality of the Digital Divide reveals a more purposeful, less exploratory use of the technology. It is a trend likely to continue with Internet maturation and demonstrable availability of valuable information. An understanding of what information is needed for what reasons and when, or where it is needed, exists when access for a specific purpose such as community health information is desired. At the same time if any person or group, as users, have the latitude to be either a creator or provider of information then questions of quality become significant, particularly when risks related to the specific use of health information are considered.

Broad policy statements purport ‘information’ or ‘access for all’ (NHS, 1997, 2002, 2004; UNESCO/ECOSOC, 2000) thus seeming to enable access. In response Clement & Schade (2002) are not alone in making the point that not all users are the same and that value exists in recognizing diversity rather than simplistic assumptions based on homogeneous portrayals of users and use (Woolgar1991; Alkrich, 1995). In relation to health information, users have been typed according to illness and disease, age, issues of dependency and other socio-economic factors, including their education and work status. Age becomes a key issue with those of advanced years viewed as having substantial health needs and therefore likely to benefit from access to related information. Health-related information is also likely to be of value to their significant others and their caregivers. However, the sixty plus age group have also been found to be the lowest users of online information (ONS,2007;
Brabazon, 2008). The dissonance between need and access is a significant barrier.

The limitations of digital and discovery divides have begun to be understood revealing greater complexity involving literacy as another form dividing user and non-user. Access and more specifically use requires literacy pertaining to computer, Internet and information search skills (McCray et al, 2000) but when access involves health information, access becomes interlinked with aspects of quality. The importance of critical evaluation of health content by the user (Rice et al, 2001; Nettleton & Burrow, 2003; Webb, 2003) and a knowledge of the gap in availability of quality and useful content would enhance search literacy. Knowledge and skill differentials are implicated in access gaps beyond the digital divide (DD) with the potential for perpetuating a literacy and knowledge divide. Continued evolution and change in computers, the internet and search tools perpetuates access issues that are also mediated by security software and spam or other unwanted content. Advertising can inhibit searches. It can even masquerade as health information content, co-opting search engine retrieval. In doing so, such pseudo-health information can exacerbate the challenge of judging credible and valid content. Ultimately the lack of distinction between what is seen as authentic health information and what is advertisement can undermine trust in a website and information providers or sponsors. The user and trust have largely been neglected in discussions of access. Perhaps it is because they fall between current understandings of access and quality. Divisions and exclusions are likely to increase unless some degree of equity is nurtured ensuring all have the opportunity to develop skills and ability, along with physical contact allowing access to e-information.

A simple notion of access does not consider the quality of the technology or its content. It fails to consider connection and auxiliary services as well as other capabilities of the computer and Internet (Rice et al, 2001; Clement & Schade, 2002). While public provision in the form of libraries, schools and cafes are seen as a viable option to individual, domestic ownership and use (Schuler, 1996; Rice et al, 2001; Nettleton & Burrow,
2003), the broader issues of access remain problematic in the variable provision of public access. Physical contact with the technology and a log-in account are a foundation, but real access requires a more complex, holistic understanding of what allows or facilitates practices that encourage users to have contact, knowledgeable interaction and valuable outcomes from use. Implicit in that dynamic are attributes that mediate access and use, and the quality of information content is one. Clement and Schade present a broader access model detailing multiple dimensions that need to be attended to in an ICT initiative (2002). The multi-factorial gap, identified here, in current understandings and practices are detailed throughout this study in order to build a greater understanding of how to increase the knowledge matrix in this study.

Reducing the social divide includes aspects that move action beyond the digital, discovery and literacy divides. Interest in the social technical dynamic has expanded with Science, Technology Studies and in relation to communities is an area of research attended to by Community Informatics researchers. In the last group Michael Gurstein (2003) drew on Clement and Schades’ work in his discussion of the relationship of access to meaningful use of information and along with other community informatics researchers such as Day (1999, 2004) and Keeble and Loader (2001) recognized the constraints of policy framed with weak definitions and related understandings of access, the digital divide, the needs of users and who users are as individuals and communities. Policy documents are a primary mechanism establishing concepts and definitions of access, the DD, health information, quality, community, the user and use. In many cases they are narrowly defined or neglected, as assumptions (Day & Harris, 1996; Lau, 2007) with the result that action is limited. Narrow definitions of the user (Labonte, 2004), access, the digital and information divides (Gurstein, 2004; Schuler, 1996; Day & Schuler, 2004) and quality information, particularly health related information (Eysenbach, 2002; Wyatt et al, 2005), are reinforced. Such social practice becomes common and uncritically embedded, ensuring limited change and as a result issues related to access can, intentionally or
unintentionally, constrain or enable online health information when definitions remain contested and incomplete.

The concentration on access as the physical provision of technology (Gurstein, 2003; Day & Schuler, 2004; Rice et al, 2001) fails to recognize the interrelationship of information literacy, use and content usability. While a detailed exploration of these factors is beyond the scope of this research their relevance must be acknowledged. Physical access is often a response by funders to limited policy (Day & Schuler, 2004) that, in practice, promotes a pragmatic approach, adopting common and acceptable rhetoric and activities (Day & Harris, 1996; Day & Schuler, 2004). Such limited actions become deterministic, reinforced when projects are judged successful on a limited criteria. Funding and policy is commonly top-down while bottom up processes mediate access through decisions made about numerous, varied, overlapping and interrelated factors (Rice et al, 2001). Balancing them will counter social or technological determinism from the top or bottom.

Balance can be enhanced by more comprehensive understandings of the problem and related factors, such as questions CI would ask regarding who needs what health information and when. It is a task accomplished through strong assessment. Evidence also points to the value of users’ participation in planning and decision-making processes providing valid knowledge as well as increasing commitment, even leadership, that is linked to capacity building and sustainability (Gurstein, 2001; Keeble & Loader, 2001; Day & Schuler, 2004). Users generally are referred to as those who are recipients of products. However, online, community health information is one where a bounded definition of the user is less clear. Assumptions that view users as passive recipients are challenged in the local, community context when users may be both searchers and information providers. The overlap provides the opportunity for mutual involvement in a developmental initiative. There is the potential for joint consultation or participation. Diverse involvement presents the opportunity to address who is included or excluded in planning and decision-making as well as intended participants and the user audience.
Assessment, choices and decisions however, remain heavily influenced by top down or bottom up forces. An understanding of the broad context of global, national and regional policy and practice further influences these processes. The result is a multifaceted environment, revealing interests and values related to participating public and private partner organizations. While this is one of a few research studies to analyse this relationship the growth of such partnerships in community/voluntary, health and social sectors increases the need for such work. The implications of such initiatives underlie this work and are referenced throughout this study with relevance to democratic, civil society and ethical and moral practices highlighted.

Internationally, 'an open and universal Information society for all' is the focus of the Economic and Social Council of the United Nations. At the centre of such a mission is the Universal Declaration of Human Rights relating to freedom of access to information. The committee noted that governments, industry and the civil society movement are seeking to apply these long accepted principles to the e-information environment but efforts are hampered by major difficulties and challenges related to issues beyond physical access. The last has received the greatest attention and as a result limits attention to more diverse issues. Access for all pertains much more to “universal access to knowledge content, which is at the root of building a ‘Knowledge Society’ based upon lifelong learning and basic human values and rights” (UNESCO (ESCOSOC), 2003:2). Education and knowledge according to the mission are “not simply advantages for personal and professional fulfillment, but also as social capital – ‘global public goods’ which are the natural concern of public authorities” (UNESCO (ESCOSOC), 2003:3). If freedom of access to knowledge content is seen as a basic human right, then policy and practice related to online content - particularly health information and the role of search tools/engines - have much to accomplish to reduce related access gaps.

Nationally and regionally, in the U.K., e-government has the goal to increase citizen access to information about their community and
governmental authorities. Initial benefits have increased access to a variety of information by detailing administrative structures and providing basic, generic contact information (UK Cabinet Office-CIO, 2005). Particular attention has been paid to facilitating payments regarding taxes and fines while employment opportunities and online application processes are the most frequently searched items. These patterns mirror those of medical settings where attention has focused on auditing tools, including bespoke medical record and referral software and demonstrated an emphasis an administrative and a service focus to information online (Hovenga et al, 1996; O’Carroll et al, 2003; Benedict Taylor, 2003).

Adding to this internal reflection is early evidence that online searches are framed by the design and automation of search terms built into websites and search engines – the technology. For example drop down menus can not only define terms but in doing so limit under what terms or classifications a search can be conducted. Websites can also be constructed to prioritize certain information such as the ability to make an appointment with the result that accessing anything beyond brief information provided requires a telephone inquiry to complete the information retrieval process.

A pertinent example is seen in the design and function of NHS Direct Online. The user experiences a highly constructed environment maximizing the delivery of an enormous amount of medical and health information. It is not long however, before the user realizes that the retrieval of illness related information is defined by specific pathways with yes or no questions that either provide an assuring self–help solution or advocate a call or appointment with a health care provider. The pathways provide basic, care information that is often obtainable in print form, from relevant brochures etc.

The example of egovernment also alludes to wide-ranging civil society goals that may or may not be translated into practice. Such goals can be
constrained by the limitations of practice, for example, what is made public and what is in the public good. Freedom of information legislation is clarifying rights of citizens to varied information. However, mechanisms of retrieval can remain challenging if not a barrier. The legislation has also raised critical attention increasing knowledge about who should have access to divergent forms and modes of information, with attention to risks and risk management. Uncertainty in practice and procedure has also constrained the sharing of critical information. An example, found in Canada and the UK, chosen for its obvious importance to public good and one widely reported in popular media, resulted when the audit of sex crime investigations found critical information had not been shared due to the interpretation of new freedom of access legislation (Department of Justice Canada, 2007; Information Commissioners Office UK, 2008). It is an example of why needs and purpose become critical to issues of what information is available and to whom. It is a situation with risk on both sides and the potential for significant consequences in relation to health as well as crime. In relation to health information and the increasing use of mediating ICT, Goodman argues for a practice guided by the ethical tenet of ‘do no harm’, a familiar one that guides the practice of medicine (2001; 2003). In that respect whether legislation will make more explicit what is and potentially should be public and what is and should be private remains to be seen. Information boundaries of private organizations working with publicly mandated organizations are likely to be challenged in such endeavors. The reverse may also be true and ethical practices will be a critical factor in ensuring a mandate oriented to the broader public good addressing public, private divides.

In recognizing narrow definitions of access and the confines of social policy, limiting action, researchers report that they can act to reinforce "opportunities to ‘consume’ Internet enabled services as well as Internet supplied goods and information to passive consumers" (Gurstein, 2003) which perpetuates a supply and service model for information provision (Day, 1999). In his Community Informatics research Gurstein suggests that levels of saturation for basic ICT consumption and public provision of access services are stabilizing which should reduce the ‘push’ of the
economic model (2003). However, continued evolution and change in related software and online services are likely to continue the economic push. Attention may be shifting to economic aspects of online information, which Poremsky notes is expanding as search technologies multiply, differentiating, becoming more competitive and seeking market share (2004). The new environment brings innovative issues related to the ‘push’ and ‘pull’ of forces driving development, implementation and use.

**While attention is primarily on health information at the community level, access and use is implicated with personal health needs and interests. This relationship is yet to receive substantial attention. Questions have been raised about the role and critically the ownership of personal health information especially when held as a medical record. Yet if it is as this research would claim a determinant of health its utility is crucial in combination with life-long access and use of online health information. Legislation and regional or national policy will be instrumental to practice as will be its interpretation.**

The economics of such a model is tested when information - as a valued commodity - expands. The integral value of information expands through interaction and reciprocity and potentially when value is added through active co-creation among information user and providers. Research on this inter-activity is relatively new and therefore limited but studies of online self-help groups and general discussion groups related to health have indicated growing value in information shared as well as generated. It is a content provider, creator and consumer divide that can be altered with interaction promoting mutual benefits including the validation of excellent information. To ensure the latter an ethical and evaluative point of view, purported by Goodman and Miller (2001:258) argues that “analysis not only of accuracy and performance but of acceptance by users, of consequences for social and professional interaction, and of the context of use” is necessary. It is an analysis of user and provider roles that constitutes another divide contributing to a broader understanding of
access and quality. Diversity of users and providers is typical of the social context and increasing found in relation to technology but seldom translated into the development and design of accessible online content.

Yet change and diversity are characteristic of evolving ICTs. Homogeneity commonly occurs with stabilization at a point when technology developers and users become mutually satisfied with form and function (Bijker et al, 1999). In an evolving and expanding technology environment heterogeneity related to forms of access and content is not surprising. Clement and Schade urge the delineation and use of “a model highlighting multiple dimensions of access” (2002:3), for the purpose of planning and implementation. Their argument recognizes a broad information and communication (IC) infrastructure with the interweaving of multiple IC networks in new and complex ways requiring an access model that addresses conventional and innovative media. Online information and communication is transforming value and utility, (Gurstein, 2004) aspects not addressed in such a model and not common to existing research but remain a significant and expanding phenomenon.

Online information content may or may not reflect, capture or be mobilized to address the needs of information users. As confirmed through the earlier stages of this doctoral thesis, research has seldom probed this relationship. Content commonly reflects the interests and objectives of the information providers as do related research studies. This is particularly obvious when the needs of information users have not been addressed in planning or development processes or have simply been assumed (see Woolgar, 1991; Oubshoorn et al, 2004 in 1.3.5), a pattern found in health-related IT and R&D. Literature on ICT development and implementation has provided multiple examples detailing limitations in identifying and understanding users and their needs or interactions as users (Woolgar, 1999; Alkrich, 1995; Orlikowski, 2004). Understanding involves individuals with private concerns as well as broader public interests found in groups and communities often acting on special interests. The more complex an ICT project the greater the difficulty in assessing needs and knowing users. There are sufficient challenges for any one organization, with
different approaches and constraints related to whether the context is private, profit oriented with significant R&D and market research and development resources or public with less opportunity for such user/audience research. An informal culture would seem to hold to the philosophy of ‘build it and they will come’ (Keeble & Loader, 2001).

Limited efforts to identify and understand user interests and needs result in a dependence upon the assumptions of ICT related experts according to studies by Woolgar (1991) and Williams (1997). As specialized designers, relatively new experts such as webmasters take on this capacity; it is a specialized role largely absent from such studies. Acceptance of such assumptions by experts would seem to be rationalized by the fact that we are all likely to be users of online ‘health’ information. Ideologies and constructs, to easily assume a homogenous user entity, while even the more astute theories of the socially constructed can neglect diversity in users particularly in relation to their real needs. It is a phenomenon made most clear in relation to health information when utility is recognized and valued as a determinant of health and wellness, an issue derived from the inter-disciplinary literature reviewed in this study. Consumers have little opportunity to influence the design and development of technologies, argues Cockburn, except in their resistance to adopt (1993). Failure of the user to deploy ICTs such as the Internet or a search tool/engine can be an informal veto, (Henwood et al, 2002) one that has yet to be explored.

Unquestioned acceptance and use of ICTs means the acceptance of certain prescribed rules which limit the ways technologies function and therefore their use, function and outcomes. It is an example of how ICTs can be constructed to be of limited benefit except – as suggested by Ellen Rose in her book *User Error* - to the digital elites. The technology, she states, creates a false sense of personal and individual actualization, giving users the impression that they are valued and doing something unique when in fact they are subject to generic processes and rules, not made obvious. This concept of the passive recipient builds on the work of Sorenson (1994), with meanings inscribed in the technological artifact.
The fact that diverse consumers develop their own understandings of, and use of technologies has been documented by Bijker et al (1999), Sorenson (1994); Berg (1992) and Alkrich, (1992). Generalizing this concept to include the user involves use beyond the computer as technological artifact to the intermediating activity of search tools/engines and online content. While the extension is useful it remains to be explored as it is beyond this studies’ remit. The contrary is portrayed by Rose who notes “the power of these programs, and of those who design and develop them, lies not simply in their ability to make digital devices perform certain functions, but also in their ability to shape computer users’ interactions with the programs and thus, by extension, to shape the identity of the User” (2005:60). The insidious nature of program structures is exemplified in the author’s experience of accommodating “practices and decision-making to the imbedded aptitudes of the system” (2005:60).

While this is the experience of the internal and private workings of the software, the pressures to go online are intense. Broad social and political pressures to keep up and be competitive (Rogers, 2005; Rose, 2005) minimize critical review by the user. While organizations are not detailed by these authors, the same pressures impact them. Economic mechanisms are likely to intensify these pressures, yielding similar results. Not only does the software structure the content, but also providers use as they interact with and experience its structures (Rose, 2005). This illustration will be added to in the context of access and quality later in this doctoral thesis. These distinct concepts align to explain the constraints resulting from the heavy influence of political and economic determinants and explain the popularity and pervasive growth of a search engine like Google. Attention is often placed on the ease of use combined with efficient search results that satisfy the user. While designed and marketed as a search engine, it has been appropriated as a gaming tool by differing communities of users.
Health information is emerging as one of many gaming targets. If not addressed, this phenomenon will have consequences for the current standard of tracking online health information access. It may also represent an unexpected outcome one that could be made useful. Exploiting such a gaming phenomenon relative to online health content could expand health promotion, prevention and wellness strategies fostering behaviour change in an online, audience directed innovation.

Online participants, whether information providers or users, ultimately have a role in determining access and the type of benefits that will result from the use of online health information. Access is a somewhat futile issue, however, if information content is poor, inappropriate, and simply replicates existing knowledge, not contributing something different or if it is out of date and if content is unable to be made use of. Answers to questions of ‘access for what purposes’, ‘access for whom’ and ‘access to what’, (Clement & Schade, 2002; Nettleton & Burrows, 2003) will enhance the design, implementation and use of ICTs and their content.

The discussion has predominately focused on the user as the less experienced, lay person, making use of online information. Rose’s work fills a gap, offering an understanding of the tensions and contests between user experts, seen in computer hackers whose interest is in technology form as well as function, compared to lay users’ greater focus on function to meet specific needs (2005). As a result, lay users are likely to be more interested in functional outcomes compared to technically oriented experts whose interest centres on efficiency and effectiveness of function, ensuring predetermined results.

Resistance by users can occur with the mismatch of user expectations and negative experiences when technology or online information proves disappointing. User studies by Akrich (1995) and Woolgar (1991) found a greater willingness to blame lay users of technology for errors than those with expertise. With online health information continuing to be one of the
most popular search topics, expectations in finding desired information
must be strong. Interest in or need for such information is compounded by
health concerns, or potentially, a crisis, increasing needs and
expectations. Concern over the potential for harm from poor information
or its misuse is currently a constraint to online provision, particularly for
publicly mandated and accountable organizations such as the NHS.
Questions concerning quality and credible provision enabling appropriate
use remain to be answered particularly in relation to broad community
initiatives directed to increased access to quality health information.

Also constraining online health information is a lack of knowledge
regarding the user. It is a pattern found in health informatics literature with
common assumptions about the user and their needs (Payton & Flatley
Brennan 1999; Eysenbach, G. & Kohler, 2002; Flatley Brennan, 2000;
Powell, 2005). Assumptions frequently follow the medical viewpoint with
the user qualified by categories of illness and disease intended to define
likely search topics. What questions are asked in regard to who needs
what health information reveals much about interests and values held by
those taking action. A dependence on particular expertise can lead to
assumptions which enable rapid assessment and research but constrain
broader viewpoints and new knowledge. Similar assumptions extend to
understandings of those who use technology, access online health
information and how skilled users are in reviewing content critically. No
studies were located that reviewed the combination of the three aspects.
Studies specific to health information quality and access are scarce with
publishing with minor reference to health information.

It is important to recognize and note the likelihood that information
providers may also be users and users are likely to provide content. It is a
relationship uniquely revealed, based on the interaction of community
partners, their health information resources and possible needs. In
observing partner discussions it was obvious that partners were learning
about each others resources and their mutual value but potential of a dual
role was not fully realized. It is a relationship likely to influence the product
as online information moves into a level of exchange that is more interactive and potentially valued for reciprocal value, reducing linear functioning as a unidirectional product or service. The last is a model that will dominate the design and use of online information as long as economics is a determining force, out of balance with other social mechanisms that value public health and civil society and empowers citizens, with meaningful information and the tools to access and make use of it.

Recognition of the co-constructed nature and use of technologies along with processes of inscription are likely to impact online information content in a manner representative of deterministic forces that constrain access and quality. It is a generalization requiring verifiable research but indications are sufficient to advise more responsible actions. The approach may well attend to Rose’s insistence that users have, “some responsibility for manifestations and repercussions” of technology on their lives (2005:6) and in doing so allow room for the inevitable exercise of user innovation and appropriation. An over dependence on the role of medicalized categories can create a prescriptive approach to how health information is organized and found. The result is restricted access when desired information does not fit specific categories and is excluded or not included as a search term.

To address access more broadly and, beyond narrow, deterministic responses and practices related to the digital divide (DD) is to consider complex factors and concepts involving aspects of literacy, need, purpose and use as well as inclusion. The literacy of critical and reflective skills and social learning (UNESCO, (ECOSOC), 2003) must also be considered along with the affordability and sustainability of ICTs. Common sense and a healthy amount of skepticism (Woolgar, 1991) to counter hype driving unrealistic expectations and adoptions are also important. The key now is to move from specific issues of access and the Digital Divide, to explore variables of online content provision and use, as they mediate online information.
2.2.2 Content - Information for Public Consumption on the Internet; understanding the influence of TD and SS Perspectives

A significant characteristic of online content, one likely to increase with continued growth in private, commercial interests providing Internet content, is the focus on products and services. Promotion and marketing are not exclusive characteristics to the profit oriented sector. Much online content, including that of the non-profit health and service sector, is found to be focused on the marketing of products and services including details of organizations that amount to promotion (Benedict-Taylor, 2003; Rogers, 2005). It is a phenomenon linked to factors that enable or constrain Internet participation and use. Private commercial agencies or organizations are likely to have more resources and authority for innovative experimentation, particularly with uncertain new ICTs. The participation of the non-profit health sector and those related service and volunteer/community sectors are constrained by a number of factors including bureaucratic and regulatory frameworks that allocate limited resources, establishing priority goals and objectives within tight mandates.

Kouroubali provides an overview of the private-public gap in relation to successful health care information systems implementation and their users (2002). She states that “private sector organizations tend to understand their customers in terms of what they tend to buy while public sector organizations are concerned with every aspect of people’s lives, including their location, health, education, finances, criminal record, children, business activities etc” (2002:4). A system developed for private sector needs is unlikely to match public sector realities states Kouroubali, particularly when the latter are larger and more complex (2002).

In the public domain, almost anyone with hardware, software and literacy or any organization, can post any content on the Internet, yet a number of factors mediate the ability to do so. An initial understanding involves those
factors that enable or constrain any Internet participation and use. Who, or what- in the case of content, is included or excluded is related to access and affiliated digital divide (DD) issues, already mentioned. Content is highly variable in the relatively unregulated domain of Internet information. While an exponential volume of health information from academic, government, public and private and volunteer/community agencies is made accessible by a variety of search tools, websites and portals, it can be difficult to know anything about the source and therefore quality of that content or how representative it is of the information base.

Recent years have seen exponential growth in commercial content, provided by private business and corporate sources and aided by support for e-business and e-commerce (Rice et al, 2001; Benedick-Taylor, 2003; Rogers, 2005). Mentioned was the fact that much of this information has a marketing and promotion agenda related to sales and services. Recognition of this value may well ensure a commitment of resources and participation that advantages independent, private business. It is an advantage allowing greater participation. Participation by the more constrained public sector is limited by resources tied to strict mandates, established by various regulatory bodies and multiple levels of bureaucracy similar to issues limiting their role as user. They are diverse groupings, sharing a common goal to provide information, in the public interest. They include academic, government, education, volunteer, health and social service organizations, all of whom receive public funding. Whether or not the goal of public interest balances other structural influences and is able to persevere is a question answered, negatively, by Oudshoorn & Pinch (2003).

When ambiguity surrounds the operation and role of a medium, such as the Internet, in relation to online information and when it is unclear whether use and outcomes are more related to the technology or to what extent complicated by other forces, then sociotechnological shaping, processes are at work. The contention is particularly true of information and communication technologies experiencing rapid change with evolving use and functions and increasingly complicated interactivity. Adding to the
debate, Levinson (1999:35) explains that “our use of any communications medium has an impact far greater than the given content of any communications, or what that medium may convey”. An example is referenced in the following box.

A call to a telephone help or triage line can potentially influence, on average, five of the caller's acquaintances. This was a comment made during a presentation at the First International Congress on Telehealth and Multimedia Technologies held in 2000 in Calgary, Alberta. The phenomena conform to social networking concepts but I have been unable to locate literature confirming it. Related literature is diverse bridging disciplines and subject matter.

While there is great potential and high expectations, historic predecessors, aiding the technological exchange of public health information, such as the telephone, mail, telegraph, T.V. and fax, offered opportunities which were never fully realized (Winston, 1998; MacKenzie & Wajcman, 1999). Researchers (Winston, 1998; MacKenzie & Wajcman, 1999) have been critical of deterministic constraints that limited the potential of these early ICTs. According to Woolgar, social practices were established by these early technologies into which the Internet, with great capacity, has come to operate (2002). Entrenched social practices continue and may be constraining the shape, function and use of the Internet and its content. Altering such entrenched, deterministic practices requires significant change, enabling something different. Such change is likely to be co-created by social and technology transformations when needs and technology align. An example is seen in the increased interest and consumption of health information generally and its expanding volume in electronic (e) form.

There are growing questions about whether e-health information is significantly different from more traditional modes, or whether outcomes from its access and use are different. High expectations that ICTs could
be a revolutionary force transforming health care systems (Street et al, 1997; Abbott, 1999; Kiley, 2000; Marietti, 2000) have grown along with increased concerns regarding the risk of using poor online health information (Eysenbach, 2000; Ferguson, 1997; Flatley Brennan, 2000; Goodman & Miller, 2001; Hardey, 2003). The result is a challenge to meet and manage both. A social shaping perspective considering multiple interactive factors in the design, development, implementation and use of ICTs may make the task more manageable. A better understanding, informing practice may increase positive outcomes, reducing the low success rates of well intentioned ICT projects.

Variables influencing online information content are many. Without a balanced knowledge of factors that enable or constrain such provision as well as its use, deterministic characteristics such as technical, social or economic presumptions can come to dominate. Recognizing and being attentive to those who will make use of the information can help ensure appropriate, quality information is made available when needed. While evident these are, in principle, good practices, the ability to take action can be mitigated by a multitude of issues including the politics of information provision and use, discussed below.

Recognizing the impact electronic information and communication technology (ICT) has on society (Kittler et al, 2004) will help ensure a better understanding of the socio-technical, or social shaping processes involved that contribute to future benefits and success. The expansion of the Internet from limited military and academic use has resulted in an unprecedented public environment for the exchange and storage of information but one that is increasingly commercial and economically driven (Abbott, 1999; Rogers, 2005; Day & Schuler, 2005). Benefits and good practices remain unclear, limiting value. This study intends to contribute to these understandings aiding good practices.
2.2.3 Participation – providers and users of online information

The Internet, once perceived as a democratizing force (Abbott, 1999; Keeble & Loader, 2001), allows almost anyone - with hardware, software and literacy- to post any materials in a fluid and digitized time or place. That strength is also a potential weakness. Concern with the potential for harm from poor health information has become a considerable force for action, one enabling better information but at the same time potentially constraining, even limiting development, for example, online health information (Rogers, 2005). Attempts to certify health content (Eysenbach, & Kohler, 2002; Hardey, 1999; Flatley Brennan & Friede, 2001) is a response, within the health informatics sector, that will be discussed in section five. Certification and branding takes place within a context where regulation of the Internet is sparse and as the CI literature portrays is dominated by the vested interests of more powerful centres of development and use - western nations and major corporate powers (Abbott, 1999; Rice et al, 2001; Rogers, 2004; Day & Schuler, 2004). At the same time, online users as well as providers are coming to terms with a new medium and differing information resources in an uncertain environment often with little expertise to guide them.

Those able to directly participate in the shaping process continue to be the privileged few who produce content and design, enabling technology such as search engines. The most comprehensive of the few existing studies addressing online users was the PEW Internet and Family Life Project, a United States based survey. It identified four types of online content providers through national surveys of online users. ‘Content Creators’ were young (average age of 25) and enthusiastic, older ‘Power Creators’ were most involved in blogging. ‘Older Creators’ were well educated, averaged 58 years of age and were experienced Internet users, often with their own websites. ‘Content Omnivores’ were the heaviest users, employed and over the age of 40. No comparable data was located for the UK. Broad trends are generalizable to the UK providing a basic understanding of population groups as online content providers. In that
respect the second last group, the ‘Older Creators’ matches the characteristics of the most common users of online health information (Payton & Flatley Brennan, 1999; Potts & Wyatt, 2002; Kittler et al, 2004). An understanding of this pattern and implications for a community health information initiative will be described in chapter Five.

Producers of content are actively populating the Internet according to Rogers, (2005), and like their information they are highly diverse, with anyone (those with hardware, software and literacy) potentially able to post anything. Yet surprisingly little research has documented who is providing and using what information, and for what purposes. While this is also true of health information on the Internet, growing attention to quality issues in conjunction with, system change, has spurred specialized areas of research activity. Research groups and quality studies have rapidly multiplied. Quality has commonly been reviewed as a discrete framework of attributes specific to provision. It is a practice traditional to the bounded dissemination of print materials, although health promotion has demonstrated the importance of access and use of that information. They are two attributes of online information linked to quality when, for example need motivates access and use while literacy acts as a mediator. All overlap resulting in particular challenges to a concise understanding of quality that is easy to act on. A rapidly evolving breadth of literature (Buckley et al, 2003; Flatley Brennan, 2000; Henwood, et al, 2002; Nettleton & Burrows, 2003; Pettigrew et al, 2002) provides the opportunity for a more comprehensive definition which may support broader action.

Content providers represent the diversity found in society we all share. They include varied private, commercial, profit-oriented businesses and organizations as well as diverse public, not-for-profit, government, community and volunteer organizations. At the community level, in particular, it would seem that these providers of information are just as likely to be users of the same or similar, online information but this has yet to be studied. If providers act on the bases of marketing and promotion only, there is a gap in their understanding and interest regarding the potential value of online health information. Similarly when users...
experience information as largely marketing and promotion they are likely to become accustomed to such and may fail to continue use for other, more complex purposes.

Providers of content as active participants, engage with the technical and economic aspects of the Internet. In line with the domination of economic rewards driving the Internet (Rogers, 2005; Poremsky, 2004; Day & Schuler, 2004) providers increasingly contribute to the expanding economic incentives for Internet development and use. Economic rewards from information users remain challenging and might well account for the limited attention users currently receive in the design and promotion of information content. Content ‘users’ continue to largely be seen as passive recipients, a view consistent with previously discussed deterministic perceptions of technology users (Woolgar, 1999; Fitzgerald et al., 2002). The growth in subscription models allowing access to specialized online information may address economic incentives but in practice support and perpetuate a passive model of the user.

The challenge of preventing any ‘unintentional’ efforts to limit access, suggest Rice, McCreadie and Chang, is to ensure “that both those with privileged access, and those without access be explicitly considered in design, development, implementation, purchase, or use of an information or a communication resource or system.” Such considerations must be central to “policy development and implementation” (2001:68). Tensions created by social and organizational change versus maintaining the well understood, same old, underlie much of the discussion which follows. Tensions involve individual and personal needs, values and interests as well as those of organizations and varied communities. These are active at both conscious and unconscious levels resulting in constantly shifting understandings that inform actions. Thus, there is a willingness to participate, to provide or use information. In doing so they can continue the same or similar practices which are seen as safe or to innovate and try something new and different but also involving some risk. The result is a complex but increasingly political environment.
2.2.4 Information Politics; Issues of Risk and Trust

Information is often narrowly defined as a resource but with the growth of a knowledge economy it has become a valuable commodity (Braman, 1989; Lash, 2002; Leadbeater, 2004). The role of information and knowledge in relation to innovation, ideas, decision-making and the creation and support of public good is traced by Charles Leadbeater in his 2004 article “Creating the Public Good”. He reminds us that the public and private have always coexisted in mutual benefit relative to the exercise of freedom that enables democratizing capacity through the flow of information and knowledge. Through their devolution and freedom they facilitate even mediate incentives that build citizen participation and responsibilities for local, bottom-up action in the public good, balancing the private, driven by individual and economic agency and consumption. The public and private dynamic involved at both macro and micro levels in governance, at state, organization and individual levels foreshadows the pattern of information provision, use, control and dissemination discussed in Chapters four and five.

Like Leadbeater, Braman also portrays the importance of information and related knowledge in shaping society and less obviously how it is shaped by social context. According to Braman, “definitions that treat information as a constituted force in society.... apply to the entire range of phenomena and processes, in which information is involved, can be applied to a social structure of any degree of articulation and complexity, and grant information, its flows and use an enormous power in constructing our society (and ultimately physical) reality” (1989:241). When information is seen as incorporating flows and exchanges, context becomes important. Information has “a past and future and is affected by motives and other environmental and causal factors (Braman, 1999:241). Information, as a

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6 6 Leadbeater makes the case for a state that “governs through freedom, by shaping how people make private choices” that influence public good. (2004:89) and in doing so “align top-down state with the demands of bottom-up society” (2004:91).
result, is inseparable from its mode of production or organisation and its mode of storage (Braman, 1999). There is a reciprocal shaping process that is interactive and social.

Context becomes critical, a point Jeremy Wyatt stresses in relation to health and medical information, in order to preserve original meaning and source which ensures validity and credibility (1998). This richness of connection and meaning is an analogue world and one that is flattened with the reduction of detail in digital transmission. Via the Internet, information can change hands repeatedly and be reshaped with every exchange, giving rise to concerns by both expert as well as lay users of health information content. Information can be granted integral power as “a constitutive force in society” (Braman, 1989; Berg, 2001) particularly when stripped of original context reshaped and used for new purposes. Rogers contends that having online information that users want makes it an economic and political force (2005). Thus Lash’s contention is that a critique of information is one of power when it and its flows shape practice, identity, association, exclusion as well as intellectual property. That power, Lash posits, is politically reinforced in a modern society deprived of the time and space for sustained reflection and critique (2002). Inability to have time for critical reflection in an overwhelming online information environment is a theme expanded upon by Nettleton and Burrows (2003). Rogers (2005) also traces the information politics of the World Wide Web within a context where technology privileges links to certain content (see the discussion of search engines in section 4) but, also demonstrates how the online information capacity of differing providers mediate what and how it is made available. So while in principle anyone can post anything to the Internet, actual practices are constrained.

A contemporary understanding of literacy lies in the concept of ‘multiliteracies’ as the “increasing multiplicity and integration of significant modes of meaning-making where the textual is also related to the visual, the audio, the spatial” and “recognizes the complexity of sources from which we attain information” (Locke, 2007:5)
The practice of access and use of ‘quality’ information involves a literacy consisting of basic principles of critique and reflection such as the identification of origin or source, currency and timeliness. They are implicated in the determination of reliability, validity and accuracy. However, most – 75 percent - of search engine users do not check source or date of the information site according to the PEW “Online Health Search 2006” study based in the United States. The move from lay online information user to that of expert involves a recognition that these are fundamental issues of quality and validity. Clarity of the content is also implicated, as is an understanding of the aims of the online source, as well as discerning bias or a lack of balance in the content of a site. Time and space to reflect on these critical factors is increasingly illusive

I was reminded of the rich history of health information as a socially mediated and facilitated knowledge system when I read a letter to my grandmother, recently immigrated to Ontario. From her mother in Ireland, the letter took ten days and contained details of treating diphtheria. The letter was a day late. My Ireland-born uncle had succumbed to the disease from unpasteurized milk. The letter survived to motivate my research though the story had never been told and his grave remains unknown.

The personal story is not uncommon. Making it public illustrates a history of complex social issues involved in health information that mediate lay and expert knowledge and needs, enabled by technologies. The last can foster dissemination and the freedom to access it. The first requires multiple literacies. In relation to print materials perceived literacies seem less than those involved in online content yet both require critical review and reflection in formal and informally socially mediated environments. My grandmother, as those before and after her, drew on her well known social network to gain tested health information. Provision and acceptance involves skeptical, reflective reasoning among lay and more expert, socially engaged individuals, learning from each other.
according to Lash (2002), Nettleton and Burrows (2003) at a time when there is a growing need for such critique. In literature related to the development of online information there is little evidence and significant gaps related to users’ expertise in the critique of such content (see section 2.3 for additional discussion).

Obvious identifiers of online information, such as those distinguishing between public and private sector sources, can act as a signpost indicating some level of quality for users. Public sector information is commonly seen as expert because of its relationship to credible government or academic sources. Private, commercial sources, on the other hand, tend to be trusted less as their profit-making drive can subvert good intention. The distinction may be more assumptive than factual but in effect can be seen as an example of ‘modernity’s’ lack of trust in all sources, including expert, professional, governments and elected officials (Giddens, 1998; Nettleton & Burrows, 2002; Lash, 2002; Stones, 2005). Modernity is also seen as a ‘risk society’ where there are greater uncertainties and unknowns, with less certain solutions (Nettleton & Burrows, 2002; Hardy, 2003). These same authors see greater access to an expanding amount of information as offering few assurances that users are finding the right information. As a result, users are increasingly left to learn how to process varied and contradictory information.

In her questioning of whether “function-based literacy prepare students for a critical or meaningful engagement with their world”, Kathryn Locke notes the expectation that such practices are assumed to correlate with employment and the illumination of deficiencies that isolate or marginalize individuals (2008:4). The author points out that what is seldom acknowledged is the rapid obsolescence of specialized literacies tied to evolving technologies. Literacy research reminds us that it is a changing and dynamic learning process tied to purposes that are essentially social.
The political tensions between expert and lay information on the Internet is seen when “experts do not agree with the ‘expert human’ (lay) arbiters of the Web” (Rogers, 2005: 16). In the authors’ exploration of the variation in online information about the new drug ‘Viagra’, Rogers revealed that while professional experts sanctioned its use in limited ways, lay users of the drug provided contextualized online information that accredited other varied uses. They presented “‘underground’ accounts, now above ground and resting, … quite easily next to the official’s, (but) do not allow the rest to experiment freely” (2005:56) because public users of online information are cautioned by the corrective content of other well informed lay sources (Rogers calls them experts). Diversity of information and expertise helps correct problematic information through a process of self censorship involving the lay use of critical and analytical literacy (Ferguson, 1997:256; Eysenbach & Kohler, 2002; Nettleton & Burrows, 2003; Pleace et al, 2000) in what can be seen as the social shaping of informational content.

Opportunities are created for interaction and reasoned dialogue, as a democratic forum when “professional and institutional authority is challenged by such “fluidity of lay-expert relationships” (Hardy, 2003). The prospect of altered power and authority relative to professionals, organizations and structures led Giddens (1991) to suggest that “the Internet may provide the means for a partial or full-blown reskilling of lay users.” A reskilling of lay information providers, not mentioned by Giddens, could also be expected but, in my view, requires change that balances resources, power and authority. It is a shift in expert, lay expertise that Hardy (2003); Nettleton & Burrows (2003) suggest is possible if not already occurring.

Rogers (2005) questions the temporal and credible nature of web information suggesting that there may well be a trend to online lay information, integrated with practical experience, becoming more timely, even expert in comparison with traditional patterns of judging and certifying information, particularly that which does not acknowledge
alternatives. The Internet, as a public forum, becomes an environment where new and/or unusual events and trends can be identified and tracked. Examples include infectious disease, particularly across inaccessible, rural and remote or closed political borders (Eysenbach, 2004) as well as controversial or illicit drugs and behaviours (Kittler, 2004).

Provision of information can involve individuals, organisations and varied levels of government but the traditional separation of public, governmental agencies and profit-making, private agents has become less clear. Increasingly, initiatives, promoting online information, involve a partnership of both. Distinctions about the nature of information provided are, as a result, blurred, particularly in the case of health information. Ambiguity increases when sources are not clearly indicated or observed.

Determining what information is available online for what purpose is a daunting task. A high proportion clearly fits a marketing, service and product promotion and actuarial mandate (Benedict Taylor, 2003). The commitment of resources in relation to expected outcomes makes it difficult for certain information providers to participate, equally, for example the third, or community and voluntary sector. Closely aligned to front line practice, it is a diverse sector made up of non-profit community and volunteer-based agencies traditionally dependent upon government regulatory and financial structures and increasingly affiliated with business sponsorship. While frequently marginalized by the power and authority of government and commerce they are a potential bridge between the two groups (Jewkes, & Murcott, 1996; Day & Schuler, 2004). They can be invaluable in partnerships involving a mandate addressing broad public good. As the complexity of technology, purpose and content increases so does the interrelatedness of information provider and user roles and the function of information content. Crossing broad professional and sector boundaries will grow in importance with partnerships and participation increasingly valuable to understand integrated functioning and varied user/providers’ needs and expectations.
Greater trust has historically been placed in sources with academic, research ties and a public mandate. Issues highlighted in Giddens’ concept of ‘modernity’ have altered powerful relationships to credible information, as previously described. As a result, the user is much less trusting and yet has a much greater need for quality information (Nettleton & Burrows, 2003) which they can make good use of. The ‘embeddedness’ of information content, preserving links to source and original context, becomes, as a result, much more important as does a multiplicity of literacies to manage, critically reflect upon and judge online content. These skills and abilities are also fundamental to meaningful citizenship where individuals are active in creating meaning but also shaping that which becomes meaningful. 

2.2.5 Information Provision, Use and Quality

Who uses what type of online information and how, are fundamental questions that when answered provide valuable detail supporting the design and implementation of ICT projects focused on health information. Yet such information remains difficult to obtain. More generally, Anderson & Tracey found that in using the Internet in everyday British life, "People are not doing anything particularly new, they are doing old things in new ways and finding that some of these new ways suit their lifestyles better" (2001: 459). Electronic technologies are frequently implemented with the intention of doing something new in a new way.

While ICTs have growing capacity to monitor who is accessing what information (Poremsky, 2004; Rogers, 2005) and who is using it; collecting and sharing meaningful data remains problematic. It remains general and localized, internal to private business environments. Such information, however, is key to decisions shaping information provision.

7 Essential literacies, see Locke’s definition offered on page 82, are implicated in citizenship roles that promote democratic action. (Brabazon, 2007)
access and use and mediates their quality. National data is largely quantitative with statistics categorized, providing decontextualized numeric data linked to demographic, gender, education and economic descriptors. No primary U.K. sources were located that contextualized use qualitatively, describing online users’ activity in accessing or making use of electronic content. In their “Critical Analysis of the Literature on the Internet and Consumer Health Information” Powell et al (2005:41) revealed that much of the existing work concentrated on quantifying and measuring characteristics and “revealed more about the concerns of health professionals than about the effect of the Internet on users.” Efforts by the ‘PlaceToBe.Net’ initiative in collaboration with WorthMedia, the Universities of Brighton and Sussex and officials from the Brighton and Hove e-Government programme demonstrated real constraints and weaknesses in gathering, compiling and making meaningful such information. Questions remain to be answered, detailing who is interested in what information and why.

Existing information on Internet use in the U.K. remains sparse and general, particularly in relation to health information. For example in their study addressing the relationship between reflexivity, information and health, Nettleton & Burrows (2003) cite Hallawell finding that 39 percent of households could access the Internet from their homes in 2001. By 2007, the Office for National Statistics (ONS) published the results of a quantitative study which found 61 percent of households had Internet access (www.statistics.gov.uk). In common with Hallawells’ 2001 study the ONS found access for households headed by a professional and those with higher education was higher than those with a low skilled, less educated head, signifying a significant divide linked with social, economic, educational and employment issues (www.statistics.gov.uk). While physical access is fundamental for access; reasons for use along with the ability to make use of both technology and content also constitute access (Gurstein, 2004; Brabazon, 2008). The utility of Hallawells’ data and more recent national studies indicate the role varied social and economic factors have as determinants of access and the corresponding importance of understanding varied groups or communities of ICT users.
The 2007 UK study found that 67 percent of the adult population had accessed the Internet in the previous 3 months with nearly half of them using it every day. More men than women, an average difference of 9 percent, were active online. Women were more active in two activities online: seeking health related information and looking for information related to education, training or courses (www.statistics.gov.uk). The gender difference is not substantial, reflecting, in the first case, a traditional social or lifestyle pattern where women tend to be more assertive in managing health issues for family members. This gap may narrow depending upon the breadth of the definition of health related information, especially if it includes nutrition and fitness which men have been found to have a strong interest in.

The majority of access takes place in the home at 87 percent (www.statistics.gov.uk). Home was followed by work, another persons’ home, then place of education. Access via these other places had declined in the last year. Public library and Internet café use had halved with only 4 percent of online active adults using them. The last two sites can offer informal and at times formal learning opportunities related to Internet use and these are relevant to strategies enhancing access. Nearly half of online adults acknowledged self-study and informal assistance from colleagues, relatives and friends as the primary means of gaining skills. Thirty percent noted formal education with slightly less citing training courses related to employment. Most obtained skills through more than one source. Skill levels were related to frequency of use and occupation with professional positions achieving higher levels of competency (ONS, 2007).

Lack of skills and the need to access the Internet tied as leading reasons that one quarter of UK households did not have Internet access. Cost was cited by one eighth as preventing access. Thus the 2007 ONS Internet Access study delivered evidence related to barriers to Internet use relevant to understanding reasons for resistance or exclusion. While only 10 percent of the 16-24 age group had never used it, 84 percent of the
plus 65 population had never accessed the Internet (ONS, 2007). The plus 65 age group remained low users with 25 percent active but they were also the most rapidly expanding group of users (ONS, 2007), unsurprising in an increasing saturated market. The pattern is an old one, tied to factors involved in ageism (Brabazon, 2005). Among the five top reasons adults were not using the Internet the only difference between working age and those retired was a sense of feeling too old (ONS, 2007). Seniors who were online had family encouragement.

My experience is that among seniors with adult children in professional occupations, a growing number have a hand-me-down laptop. Use is primarily for email among family and friends with relevant photographs increasingly popular. Few attempted online searches. The last was particularly true for those with dial-up access. Many expressed an interest in learning more but found formal courses too involved. Their interests were practical, related to ease of use with basic skills developed in line with needs.

Similar determinants are revealed in the PEW Internet & American Life Project mentioned previously conducted a series of surveys in the United States related to online information and health. Covering a decade, they indicate general trends but due to time and geographic specificity their generalizability to other populations is limited. General characteristics and trends, however, hold indicative value for the UK. The global nature of the online environment aids such general value but becomes a constraint when unique characteristics linked to geography (time and space) fail to be recognised by the user/seeker. A strong interest in health insurance is a specific interest within the private, profit-oriented United States health care system where the PEW studies were focused. Such evidence was of interest to the private sector of the health system where profits are linked to limiting costs. The result is a synergistic relationship, contrasting with the paucity of such research in publicly-funded health systems. The PEW
studies are also uniquely accessible, bridging international, public, private and distinct disciplines. The broad accessibility is linked to the fact the studies are supported by an independent think-tank which does not make policy recommendations, thus the data requires interpretation to become both meaningful and useful.

The qualitative PEW data does address the key questions of who needs or searches for health information, how it is conducted, when, where and for what reasons. For example, a 2003 survey of households found that “eight in ten Internet users looked at one of 16 health related topics” (Fox, 2005: 1). A focus on specific categories by medical disease in the majority of such studies is a constraint in efforts to understand interrelated or broader aspects of online health information use. More pragmatically an associated study found that, “health seekers go online to become informed, to prepare for appointments and surgery, to share information, and to seek and provide support” (Fox, 2005:1). Contrasting with constructed presentation of illness and disease as concrete categories are broad and multiple purposes to access. The PEW studies also showed that women were more likely to use the Internet for health resources although men, interested in broader health issues such as fitness and weight, were increasing their usage. Online health information users were likely to be college graduates, have strong experience with online information and be using a broadband service (Fox, 2003). Those with six or more years experience searching online were twenty percent more likely to engage in detailed searches (Fox, 2003).

Evident is the importance of both experience and expertise for access and quality outcomes. Experience not only increases sophisticated usage, as indicated above; it increases awareness of factors that enable or constrain access and quality. A PEW study, by Fox, found forty four percent of regular Internet users published their own thoughts online, while thirteen percent establish their own web sites (2005). This evidence points to the transitory nature of the online environment and its users. Successful online health information environments are likely to work with users to support and advance their expertise, interests and participation.
Access issues, expectations and demands vary with needs and impact use. For example twice as many broadband users, rather than dialup users, sought information on particular physician or hospital information (2003) suggesting a technical determinant mediating access to more detailed information. While speed and quantity related to enhanced media are valued in the technology, the social determinants recognized in skilled access and use are equally necessary to facilitate access to quality information. Further exploration of the relationship between online dial-up and broadband could lead to valuable insights into technological determinism and more subtle variables impacting access, use and quality. Particularly valuable would be a better understanding of noncommercial reasons for online access and use of information.

The Pew Internet Health Report, “Vital Decisions” found “disease information, material about weight control, and facts about prescription drugs top the list of interests for US-based health seekers. A typical health seeker searches for medical information only occasionally and relies on search engines and multiple sites (Fox & Rainie, 2002). A more recent survey of online health searches found “specific diseases and treatments continue to be the most popular topics. But the greatest growth in the US is in seeking information about doctors and hospitals, experimental treatments, health insurance, medicines, fitness, and nutrition” (Fox, 2005). It is a pattern found with other studies (Benedict-Taylor, 2003; Payton & Flatley Brennan; Eysenbach & Kohler; 2003; Eysenbach & Kohler, 2002; Flatley Brennan, 2000; Fox, 2005) indicating disease-related strategies that structure the searches.

Few of these studies reflect upon or acknowledge how the design of information and content along disease and illness criteria become prescriptive, shaping categories and becoming a determinant of searches. Also demonstrated and of concern with such a deterministic trend is the importance of recognizing varied groups and community needs that may be cultural or geographically specific. For example the high interest in
locating information about health insurance, found in the PEW survey by Fox & Rainie (2002), is a concern specific to the U.S context in which it was conducted.

‘Finding Answers Online in Sickness and in Health’, the most recent PEW study, found that 58 percent of those who found crucial or important Internet information, during a loved one’s recent illness, indicated it was the single most important source of information (Madden, & Fox, 2006). An earlier U.S. PEW survey found that a great many ‘health seekers’ indicated “the resources they find on the Web have a direct effect on the decisions they make about their health care and on their interactions with doctors” (Fox & Rainie, 2000). Five years later another PEW survey found that “one in five (20%) of online Americans said the internet had greatly improved the way they get information about health care” (Madden & Fox, 2006). In his U.K.-based work, Hardy (2003) makes the point that online health information seekers are more likely to be intentionally ‘seeking out’ rather than browsing for content. While such findings are indicative of health information interests and perhaps needs, the issue remains as to whether such knowledge is available to, of interest, or given consideration by decision-makers. Online health information continues to expand in provision and use, remaining one of the most popular reasons for searching the Internet. It is a pattern likely to continue, particularly with social and political developments which are likely to increase demands and the need for good health information. These include health system reforms that witness resource constraints and an increased role of the patient, client or citizen in maintaining or managing their own health and wellbeing. A discussion of such changes in the UK is provided by Wyatt (1998, 2005) and Hardy, (2001, 2003).

Reasons why internet users search for certain types of health information according to the PEW authors include the fact that “many health-related Web sites supply more content and that might be driving users toward certain topics” (Madden & Fox, 2006:5). The authors also recognized the role of social policy when “government agencies call for obesity awareness and public education about nutrition” (2006:3) which increases
public awareness and likely prompts more traffic to related sites. Such contextualization of online traffic to particular sites and content is seldom captured or critiqued in reports and is an area that requires serious scholarship, interpretation and reflection.

There is a significant amount of valuable information contained in the U.S.-based PEW studies which necessitates translation and contextual analysis to be of value in other localities. The breadth of knowledge and understanding required in this interdisciplinary study required the contribution of valuable evidence through an original interpretation of this data. Here, for example, evidence establishes a context which indicates the ease with which determinism enters into decision-making when the influence of pre-determined, prescriptive, health and disease categories remains unquestioned. The expertise of professional experts and sectors constrains any lay questioning of traditional practice limiting the examination of alternatives.

How the numerous decisions related to the needs of online information users, the assessment and choice of technology, and desired outcomes, (Eysenbach, 2001; Hardy; 2003; Schuler, 1996; Gurstein, 2003) required in the planning, design and implementation of an informatics project are made, will influence its shape and outcomes. How required information is sought and assessments and choices made are indicative of whether technology has a determining role or one that is socially shaped. In the latter the role of expert knowledge aside from that tied to technology can also have a determining role at a social level. The challenge is one of allowing room for the non-expert questioning of entrenched practices and policies which can create the space for more informed decisions. These decisions contribute not only how technologies and information content and providers are viewed but in this case how the information user is seen.

There is an expansive literature on configuring the user of technology (Gurstein, 2004; Oudshoorn & Pinch, 2003). Limited views and assumptions perceive users of ICTs as an undifferentiated, homogenous
group and as passive recipients of technology. Seen as largely naïve, users are seen to require education and skill development (Fitzgerald et al, 2002; Williams & Edge, 1996) in order to truly understand the value of new technologies (Woolgar, 1991) and to effectively use them. Such a TD view continues when decision-makers tend to be experts with narrowly focused, specialized knowledge and experience, who make assumptions about users, based on their own information, interests and values (Woolgar, 1991; Oudshoorn et al, 2004).

Woolgar (1991) makes the point that “different groups and individuals at different times claim to know what the user is like”. Similarly, Akrich (2002) makes the point that “technological developments impinge on a society composed of complex, many-sided users in a heterogeneous set of relationships”. Williams (1997) notes that users’ views are frequently represented by ‘proxy’. When left to those concentrating on design and implementation the danger is that they become deterministic ‘demi-gods’ forecasting future and use which, to intended users, may not be that attractive (Akrich, 1995) thus increasing the risk of failure.

The shift to user-oriented design began in the late 1980s but according to Oudshoorn and colleagues (2004) has not transferred into current practice. According to the authors, a number of barriers remain. For profit-oriented organizations, she notes that the drive to production of a unique product results in secrecy and limited testing until the marketing stage when it is too late for modifications and the process is driven by a deadline for sales. Such pressures may have led the authors to posit a difference in the willingness of the public-sector to do more user tests than private-sector organizations but it has proved overstated. Unencumbered by ethical and bureaucratic permissions the private sector is free to actively survey users but case studies indicated a lack of interest due to “a fascination for the new technology” (Oudshoorn & Pinch, 2003:33). Their frequent government subsidy leave them in a relatively risk free situation. According to the authors, more powerful, political interests obscured the notion of public interest and what counts as public needs (Weber, 1997). A larger concern was “how technological artifacts
incorporate barriers to specific groups of users” (:30). They, like Woolgar in earlier studies (1991), suggest that it is related to how users are conceptualized, whether, for example, identifiable persons are included in or excluded from the testing of technologies. Even when users are not formally involved in the design, technologies may be adjusted for certain groups by the incorporation of future user images based on the notion of assumptions, outlined earlier (Woolgar, 1991 and Akrich, 1995).

Orlicowski (2004) contributes the notion of configuring the context of use, as an addition to the mutually constitutive configuration of technology and user.

Orlicowski noted that “Innovators define the preferences, motives, tastes, and competencies of potential users and inscribe these views into the technical design of the new product” (2004:31). The authors suggest that the process of inscription results in attributes of the user being scripted into the process of design and development. Attributes become actors/agents mediating agency seen when categories and inscripted terms facilitate searches with the intention to enable finds but can constrain the process, often unintentionally. The authors also caution that “if the user representations incorporated into the artifact fail to match the actual users, it is very likely that the technology will fail” (2004:32). The importance of first time users valuing their experience, is documented by Akrich (2002), for they will then promote improvements and encourage others to adapt it. Such user/champions are instrumental at the level of ‘conception – diffusion’ as well as in the process of commercialization and adoption. In participatory projects users become champions of adoption, potentially assisting with innovative use.

Technology’s role in constructing, framing and transforming the identities of users is not new (Woolgar, 1991; Akrich, 1995; Oudshoorn et al, 2004). It is possible to “create new identities, or transform even reinforce existing identities, by delegating and distributing specific responsibilities, skills, and tasks to users” (Oudshoorn et al, 2004). For example, Hardy (2003) examined Loader’s 1998 study of ’NHS Direct Online’, referencing the affiliated ‘NHS Direct’ telephone advice service, as services limited by
government and professional policies and guidelines with a remit lacking interactive features, presenting content available in print or paper-based information. While users, in my own appraisal, are assured of evidence-based material there are few options to seek out additional or comparative information and if a concern does not fit a diagnostic pathway that is offered, then users have little option than to explore elsewhere or follow the frequent recommendation to consult a health professional. A second NHS example pertains to the ‘Choose and Book’ initiative which presents patients with the opportunity to book the place, date and time of a specialist consultation (Bainbridge, 2006). While offering choice the technology may inadvertently have assumed what patients wanted to be able to do. The system also shifts responsibility to the patient for such arrangements, one not be desired, for a number of reasons outlined in studies by Henwood et al (2003); Balka (2004) and Hardy (2003).

Inscription and the construction of user identities have particular implications when software is ‘off-the-shelf’ as opposed to customized for a particular group or context.

Electronic health record software is highly structured and prescriptive of how and what data is captured and managed. Numerous complex lessons have resulted from less than successful implementation in varied contexts and reveal limitations of a ‘one style fits all’ generic product. Customizing or developing bespoke software offers some resolution allowing for unique features and uses specific to a given context such as differing national health care systems and particular user audiences. The role of information content related to electronic technology is largely missing from studies addressing user relations and innovation, diffusion and implementation studies. In acknowledging such gaps this research recognizes information content as an important actor/agent that is configured by multiple relations to context, designer, user, provider and technology. Constitutive factors relative to users and innovation, diffusion, design and implementation are also implicated in how information content is shaped online.
Returning to the more specific research imperative in shaping an information initiative, when a known technology is privileged over investigating other perhaps more appropriate or customized options, 'path dependency' emerges. A heritage of use may privilege the process of selection such as going with a market favorite over the design or customization of a technology to accommodate users and/or context (Oudshoorn et al, 2004). The notion of path dependency is extended in Oudshoorn’s study recognizing technologies become embedded and have a ‘life history’ beyond design and product features that configures the user. Going, for example, with an ‘off-the-shelf’ software may result in an application with social biases entrenched and internal to its functions. An obvious example is seen in online games where masculine characteristics are often privileged. Such privilege may not be conscious or intentional but a consequence of assumptions. The process represents a gap in the intention to design for ‘everyone’ and the inability to assess and accommodate heterogeneous user interests and skill levels according to Oudshoorn et al (2004). The over-stylized rigidity of some electronic patient or health record systems are also an appropriate example, with actuarial and practitioner interests and needs weighted more than those of others including patients. In the age of expanding digital solutions, efforts to capture and measure valued information, reducing analogue data to either/or sums for digitized transport and dissemination, represents a broader pattern of reduction with calculated activity pathways that streamline work and increase life’s activities. Established patterns are difficult to alter particularly when reinforced by social, economic and political pressures that desire efficient and effective processes and procedures. In such situations, the reinforcement of the social and the technical is a co-dependence that acts to constrain the consideration of options or alternatives seen most obviously with the neglect of assessing user needs and interests.

8 The two distinct technology formats represent distinct characteristics in informational content with analogue a richer formate and digital a reduction to either, or dualities. See Barbazon, 2005.
When frustrated by inadequacies in design and use, users may well find ways to appropriate and reconfigure technology to suit their own purposes. This informal agency can be a resolve to live with what is given them, accommodating their lives to it, such as in the case of generic health records, or it can require small changes, or a significant investment of time and learning. These actions can lead to frustration, self-doubt, and anger particularly when the investment in using and the attraction of the technology become unbalanced (Oudshoorn et al, 2004). Responses to such gaps include ‘work-arounds’ and ultimately resistance by users particularly when high expectations were met with less than successful outcomes. Efforts to assess user needs and ICT usability have evolved but learning who users are and what they are doing online is seldom an easy task and can be prohibitive in time and resource limited ICT projects.

In their text Rice McCreadie and Chang question many assumptions made regarding users stating that “understanding the many factors involved in information access requires accounting for a variety of perspectives. Indeed, even the same user in different situations is likely to view and be viewed differently” (2001:38). In the locality of Brighton and Hove, U.K. efforts to find out who uses what online information proved daunting. Evidence collected in two studies commissioned by the PlaceToBe.Net demonstrated little effort by information providers to collect such information (Benedict-Taylor, 2003; Coultas, 2003). Web tools proved to be poorly developed for such data collection providing insufficient detail. Not only did data fail to be captured but may not be made use of. Numbers of visitors to a site or searching a particular category provides no contextual detail of the reasons or needs that promote access and use of online content (Poremsky, 2004).

The rise in participatory strategies, engaging designers, service providers, sponsors as well as potential users has gained value as a methodology to identify, weigh and balance multiple social factors and desired outcomes (Cardno, 2002; Keeble & Loader, 2001). However, participatory processes can be time consuming and expensive, a constraint when many informatics projects are subject to short term, limited funding and timeframes (Day & Schuler, 2004). Participatory methods are complex
and difficult to manage well, and sustain. Recent research has indicated that one group can come to dominate the process. Users, perhaps because of a history of neglect, have been found to have such a strong role and be given such authority as to actually constrain processes by high and at times unrealistic expectations. Decisions can become ponderous and overly ambitious. A necessary compromise for time and resource-limited projects may be found in consultation, incorporating participatory methods.

A large part of the difficulty in adequately understanding the role or contribution of the user is not only the varied assumptions made, but the legitimacy of methods used to analyze the user. Akrich (1995) documents the ‘prima facie’ distinction between techniques. There are those that are legitimized on a scientific and conceptual basis and considered explicit while in contrast others seem more empirical or implicit and are seen to lack objectivity and credibility. In common with Woolgar (1991), Akrich is also sceptical of tests easily employed to alleviate technical concerns. They can be misleading, she argues, because they give the impression of dealing with the relationship between user and technology when, in fact, they fail to cover the full range of variables involved. Testing is often an easy way to minimize the number of dissatisfied users (Woolgar, 1991; Akrich, 1995), while concentrating on marketing, implementation and sales.

When ideal or expected events, actions or outcomes do not emerge, Woolgar (1991) documents the tendency to blame naive users for ICT-related problems, while blaming the technology when problems occur for expert users. Differences in definitions and perceptions of expertise have a fundamental impact on decision-making at key levels related to the design and implementation of an information initiative. Drawing upon Giddens’ 1991 research, Hardy confirms that everyone holds expertise in some specialist area of knowledge while all of us take a lay role in seeking others’ expertise (2003). The duality is central to his exploration of the “reconfiguration of lay expertise” based on the reality that “informed expertise is essentially social, fluid and emergent” (Hardy, 2003:272).
Forming opposing ends of a varied continuum are the extremes of expert or lay knowledge. Between this duality are infinite variations formed, shaped and constantly transformed through social experience that validates knowledge. Recognized is a complex dynamic process where individuals or groups can possess both lay and expert knowledge in distinct areas. Knowledge is transformed through engagement in learning involving social interaction broadening expertise that becomes shared and therefore commonly held. The identification of shared expertise is the foundation of professional groups, specialist fields and disciplines. This elevation of expertise is relevant to understandings of health and related quality information the topic to which our discussion turns.

Conversely, the lack of expertise reduces credibility and valued contributions in a learning and decision-making environment. Since users frequently have a lay knowledge of content and the technology that contributes to online information, users have a marginal role in their design and implementation. When users are involved they bring their past experience and expertise to the task (Williams, 1997) and may also have widely differing understandings of the technology, its content and utility, a phenomenon first identified by Pinch & Bijker (1984). Differing perceptions, understandings and valuing of their knowledge, be it expert or lay, also contributes to their marginal role. Whether user needs and interests are well assessed or considered through participatory processes is indicative of deterministic practices that can marginalize users. Such practices increase the likelihood for limited, homogeneous design, anticipated outcomes and benefits which, as previously mentioned, are counter to the growing body of evidence recommending heterogeneous views of users, outcomes and desirable benefits (Akrich, 1995; Woolgar, 1991; Cardno, 2002).

Discourses related to health have commonly drawn upon expertise associated with the predominant field of medicine (Hardy, 2003; Berg, 2001; Ferguson, 1997; Levenson, 2003). It is an historic pattern based on contested professional knowledge and expertise that have embedded specialist roles (Rachlis and Kushner, 1994; Hardy, 1998, 2003). Such
practices are also seen in the contested notions of Health Informatics and Medical Informatics but the tensions are long existing. Dependency is associated with the entrenched power of the biomedical model, acting as a “political straitjacket” (Annandale, 1998). For example, in tracing the social theoretical foundation of health and illness, the author recognized the emergence of social services as a response to social ills not treated by a science-based, capitalist-oriented profession focused on interventions of the physical body (1998). These ills are linked to the determinants of health including adequate housing, employment, nutrition, leisure and transport. Added, as a result of this study, is access to appropriate information. These determinants continue to be mediated by the contested nature of health and medicine seen in the contradiction between patient and citizen safety and the promotion of profit relative to capitalism captured in Marxism’s Political Economy (Annandale, 1998). Capitalist pressures on medical practice perpetuate inequality and unequal access continuing the role of social classes and mediating individual and social group’s ability to effect social change claims Annandale (1998). In addressing modernity the author addresses the disorganized nature of capitalism with the dissolution of its industrial base and rise of the information and knowledge economy. The result is a fragmented and international environment allowing a more flexible economy argues Annandale (1998). As a result “the market is in everything and nothing is incapable of being commodified” (Landry & MacLean, 1993: xii in Annandale, 1998:17). This economic change has increased the freedom of individuals to act, to exercise a new critical reflexivity but it is an activity preformed in an environment of increased ‘meaninglessness’ and consumption (Annandale, 1998). Annandale suggests it is an environment in which the ‘use-value’ of information is less a concern than outcomes enhancing personal status, seen in the common consumption of designer names and as indicated in this study the branding of goods and services.

Recognition of the value of patient/client/consumer/citizen experience and their situated knowledge is a recent development. Specialist medical knowledge has dominated expert health knowledge reducing the
opportunity for a more inclusive discourse. Critical deconstruction associated with the theoretical approaches of modernity and postmodernism (Annandale, 1998; Hardy, 2003) and science technology studies (Henwood et al, 2003; Webster, 2004) has facilitated the analysis of power and agency revealing the privileging of expertise and bodies of knowledge disproportionate to similar even complimentary ones. Unsurprising is the total neglect of individually situated, lay knowledge even when it is specific to those consuming or benefiting from health and medical care, treatment and information. Yet this is the level at which the value of research, expertise, policy and practice is tested and found valid and made useful or not.

The conceptual deconstruction of the medical and health disciplines has also illustrated reduced trust in traditional expertise. It is part of a larger pattern involving a more sceptical if not critical citizenry willing to ask questions as well as consult alternative sources of information (Hardy, 2003; Rogers, 2005). The trend is captured and expanded upon in critiques exploring an environment of exponential growth in online information and corresponding flattening of expertise (Anderson, 2006, Keen, 2007; Weinberger, 2007). It is a context where everyone becomes an expert (Keen, 2007), levelling knowledge because what is new, definitive and valuable information is obscured9. Novice, untried or tested information can masquerade as expert, particularly with uncritical repetition through blogs and wikis. The ability to sift through varied content and judge quality and usefulness is reduced due to pressures of time, resources and helpful markers or signposts. While these risks to substantial critical review have been captured in varied studies especially those valuing the reflexive capacity of patients and professionals little attention has focused on reviewing the citizen as patient or carer and their ability to access and make use of valuable online health related information.

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Moving beyond Parsons’ theory, viewing the person as a “valued social commodity and health an essential resource for individual achievement and a sustainable society” (Annandale, 1998:17) means patients no longer are relegated to the role of passive recipients of expert care and treatment. A corresponding growth in the field of health promotion and wellness programmes, involving behavioural change, has aided the shift in responsibility for health to the individual self. That allocation of responsibility is exemplified at the interpersonal level in the common greeting of ‘how are you’, ‘are you all right,’ and farewell of ‘take care of yourself’. Required are resources and support which are largely assumed to be available. Information, like the previously mentioned determinants of health, is a significant resource. Information continues to be available from traditional providers including health and medical professionals and increasingly through print materials for diverse reasons, tied to policy directives and in varied media including the Internet. That information remains largely in the jurisdiction of the producer and distributor and is instilled with goals both paternalistic and service related.

Medical sociologists have been critical of rhetoric promoting patient, consumer participation and choice when evidence points to their continued exclusion in practice, something Annandale (1998) suggests is deliberate. In the 1990s the author notes they were the “motif of the health service reforms” when “purchasers and providers have been required to take their views into account”(1999:213). Policy directives such as the Patient’s Charter (1992, 1995) and local health needs assessment with a focus on listening to local voices and patients’ views exemplified a context which according to the author created high citizen expectations and a professional culture whose fear resulted in protectionist strategies. Examples of patronizing agency are seen in ‘by proxy’ representation of local and patient/consumer needs with a further silencing occurring when financial concerns out-weigh other concerns and the review of alternatives.

This political environment is a crucial factor when framing the transformation of online community health information. The meeting of
two sectors, health and technology, each with a history of paternalistic and deterministic assumptions instils a decision-making environment with historical patterns, seen in social norms, rules and practices that are not always conscious. In this study, the user is potentially not only marginal as a non-expert and an inconsequential subject for increasing revenue relative to IT but is also peripheral to the interests of maintaining stable health and social care services and professions. This pattern is demonstrable in the broader, national ICT programme with a pragmatic strategy of ‘build it and it will work - they will come’.

The gulf between dominating bio-medicine and health which value differing knowledge and expertise, philosophies and practices result in tensions and contests creating barriers to change. The pattern is seen in the challenge for primacy between Health informatics and Medical Informatics (Hovenga et al, 1996; O’Carroll et al, 2003). A more complex understanding of the value of users’ expertise and experience is situated in the emerging field of community informatics. Together with greater attention to the heterogeneous nature of expertise, interests, needs and expectations, informatics studies may facilitate a more inclusive process of assessment, evaluation and decision-making.

Recent recognition of the experiential nature of the Internet, in combination with perceptions of risk (Nettleton & Burrows, 2003), make consumers of information less willing to trust ICT systems. This is particularly true when they fail to justify themselves through the verified delivery of services according to audience needs as well as a lack of provision of varied information sources and content containing reasoned dialogue (Nettleton & Burrows, 2003; Hardy, 2003). Thus emerge two criteria that users apply to their review of online information but are seldom considerations made relevant to a criterion ensuring quality information. Much needs to be learned about this gap but it would seem to be a further example of users’ perceived not only as passive recipient of information but as a homogeneous audience without expertise to judge quality, for themselves or the opportunity to develop such expertise.
The intranet is identified by Hardy (2001) as an innovation that "blurs the distinction between users, consumers and producers of information that further challenges our conceptualisation of expertise." While producers often have an implicit tradition of perceived expertise attached to them, the increased skepticism of modernity (Giddens, 1984; Latour, 1999; Bauman, 2000; Hardy, 2003; Nettleton & Burrows, 2003) no longer means such reverence is automatic. The capacity but also constraints impacting critical and reflective capabilities of information users are documented by Nettleton & Burrows in the context of "profound changes to the level of social epistemology" when "the proliferation of information communication technologies will influence the means by which knowledge and information are generated and sustained" (2003:170). While Hardy suggests there will be new opportunities, and new dilemmas for both consumers and producers of health, and social care information (2003), Nettleton et al (2003) propose a new and influential 'medical cosmology' that they tentatively call 'e-scaped medicine' based on the potential cultural impact of ICTs, which in the area of health that has particular impacts on professionals and related sectors.

The vast quantity and variety of health information on the Internet results in what Nettleton & Burrows terms 'irrationality' (2003). Users are left to their own devices to make sense of it (2003). In addition the interaction of (lay) abstract and expert systems decrease time for users to think critically, these authors suggest (2003). ‘Signposts’, signalling appropriate (quality) information, are problematic. In this new online information environment such conventions including brands and quality badges are still evolving. A related constraint is the fact that Information can easily be decontextualised with the effect of dumbing down not only the information but the process of critical analysis constrains quality for all users. The authors suggest active reflexivity becomes inseparable from the active assessment of information, constraining the time to accomplish both (Nettleton & Burrows, 2003). Nowhere in the literature reviewed here has the role of users' ability to process and evaluate online health information been given attention as a base for action which could support their efforts. Instead a pattern of protective, patronizing, paternal decision-making can
be found that prescribes activity and limits information valuable to health and wellness.

Micro relationships, such as those involved in understanding the role of information users, providers and content are what ‘Actor network’ studies are helpful in illustrating. Attention to these relations extend beyond the role of individual actors (human and non-human) and networks to include the role of varied structures involving institutions and organizations as well as technology and online content as supple, adaptable, social actors or more prescriptive, scientific/technological actors.

2.3 Community, Health, Information and Technology

2.3.1 The Internet: Increasing democratic flows of information?

The exponential growth of health information on the Internet is representative of a broad and unparalleled growth in health-related publications and media consumed by the general public. A number of factors frame and facilitate this trend. First the existence of such material along with the technology to produce and promote it, gives them deterministic roles. Health information has a long history involving various media as a means of informal education and more recently formal promotion of health and wellness. Secondly, public interest in - or need for - such materials is linked to an ageing society, experiencing more long term illness and chronic disease (Webb, 2003), while a greater interest is taken in maintaining health and youthful well-being. Significant reviews of these trends can be found in Balka (2004); Berg (2001); Esyenbach, (2001, 2002); Ferguson (1997); Flatley Brennan (2001); Hardy(2001, 2003); Harlow & Webb (2003); Nettleton & Burrows (2003); Potts & Wyatt (2002); Wyatt (1998); Street (1997) and Hancock (2000).
Early in its innovation, the Internet was recognized as a potentially democratic information environment based on the observation that anyone (with hardware, software and literacy) could, in principle, post anything (Abbot, 1999; Schuler, 1996). Significant inequalities in access and use of digital technologies were revealed in studies, employing a lens of analysis similar to the analytical scepticism advised by Woolgar (1991) in his review of ICT and user relations. Multiple disadvantages or divides, outlined in 1.3.1, restrict the provision of information content and who can access and make use of the information. When technologies become more sophisticated, requiring greater skills, knowledge and regulations, it is no longer an accurate maxim that ‘anyone’ can post ‘anything’ on the Internet (Rogers, 2005). Growing concern over a perceived lack of regulation and certification of content has created apprehension regarding the quality and safe use of online information, particularly related to health (Eysenbach, 2001, 2002; Rogers, 2004). The expansion of new electronic environments such as wikis and blogs adds complexity, particularly as they seem to encourage ‘lay’ user participation once thought to be the democratic revolution of the Internet. However, these new domains are subject to rules and regulations that are often feudal in nature (Rogers, 2004). The broad context of health information on the internet with particular relevance to community health information will be addressed below.

2.3.2 Health Information

Health information, available online, is diverse with an unprecedented amount available to the Internet literate\textsuperscript{10}. Statistics are collected on who is accessing the Internet, where and how but not why. Research has

\textsuperscript{10} Optimistic generalizations about the opportunities of E-initiaves, common to ICT initiatives, fail to recognize diverse groups who are not connected, who may be marginalized and disenfranchised by age, education, economic factors, interests and needs. Policy too fails to acknowledge or address such varied factors.
linked differing health orientations to motivation for seeking online health information as a functional schema (Dutta-Bergman, 2004) but more specific reasons are beginning to be interrogated. This absence in the study of motivation and rationale is significant. Quantitative data fails to provide details (Powell & Clarke, 2002) that situate varied users within environments increasingly recognized as complex and influential. In their 2003 study that uniquely looked at teens searching online for health information, Skinner et al found they valued privacy and found public environments and those subject to human surveillance a constraint to access. These social settings have an impact on e-information interests, needs and access. Related attributes include family, friends and significant others as well as groups or communities sharing special interests. The last include those related to employment and leisure activities which vary with age, education and economic status. To be informative, studies must focus on and be inclusive of multiple variables and their relationships. Without more comprehensive studies, this current doctoral research acknowledges that there are significant gaps in current findings. Issues of age (Payton & Flatley Brennan, 1999; Eysenbach, 2000; Skinner et al, 2003)), gender (Fox, 2005; Balka, 2006) education (Fox, 2002, 2005) and literacy (Homewood, 2004; Mackey et al, 2005) for example are referenced in relation to diverse users but more intensive detail is beyond the time constraints and remit of this research.

Exceptions are the work of Ferguson (1997) which identified information user attributes relative to their interests and values which promote action and Hardy (2003) who addresses aspects of expertise. Focused on a particular audience of users, “young peoples’ perspectives on using the Internet to obtain health information,” Skinner (2003:1) and his colleagues exemplify how complex interrelated variables pertaining to access and quality can be made informative.

Researchers including Eysenbach claim that ‘Information technology and consumerism are synergistic forces that promote an ‘information age healthcare system’ in which consumers can, ideally, use information technology to gain access to information and control their own health care, thereby utilising health care resources more efficiently’ (2000:1714).
It is a future reality that remains subject to the shape of ICT health information initiatives, a point Schuler (1996) makes in reference to a healthcare revolution related to community technology and CI. Researchers in CI offer community-focused methods for technology while those in health promotion and health informatics have high hopes for better practices. Others such as Hancock (2002) remain more cautious. The sceptical attitude extends to what benefits there may be for users who are patients, clients, citizens, those who are the 'worried well', idolizers of perpetual youth as well as the critically and terminally ill and their carers. Both sides have issues of trust relative to both expert and lay information online as well as off-line. Related discussions can be found in the work of Coulter et al (1999); Hardy (1999); Henwood et al (2002, 2003), Nettleton & Burrows (2003). Henwood and colleagues (2002, 2003) go further, probing the issue of user/patient and citizen responsibility and how this may be changing without regard for their interests or needs. Expectations are also high around the potential for online health information to revolutionize health care systems, or at least change organizations and practice (Street, 1997; Webb; 2003). New information and communication technologies according to Webb will "come to have a decisive role in a complex field of transformations that are taking place in the caring professions" (2003:236). This research extends that transformative role beyond heath care professionals to those who make use of such services. Ultimately the outcomes of such change will be judged in relation to who benefits and how. They will be shaped in relation to definitions, with health a primary concern. Technological platforms help shape information, communication and the future health system.

**A Definition of Health**

Health is variously defined. Valuable discussion of tensions and contestations are found in the work of Atkinson (1995), Annandale (1998).
and Taylor et al (2003), with analytical distinctions situating health relative to medicine. The root issue is the question of purpose or agency. To track and monitor this imperative is it best to focus on the individual and physical manifestations, or on larger groupings that share mutually manifest issues impacting health in the broader sense? A more complex and intricate definition of health is inclusive of wellness, prevention and promotion along with care and treatment and recognizes multiple determinants of health impacting individuals and varied groups. Individuals are both constrained and enabled in their ability to manage good health and wellness. It is a definition meaningful at the level of community where the multiple determinants of health11 and related sectors (housing, transport, social services and welfare, economic development, recreation and leisure) exercise significant agency. The definition, adopted in this study, is based on the World Health Organization, and is used in health promotion and ‘Healthy Communities’ initiatives (WHO, 1986; Taylor et al, 2003). A broad and inclusive definition of health information crosses the boundaries of psycho-social, economic, political, educational and cultural attributes which link to determinants of health. Thus information related to health, at the community level, becomes quite diverse.

Online health information is available in unprecedented volume and variety, but much depends upon access, quality and the ability to make use of that information (Potts & Wyatt, 2002; Eysenbach, 2002). While significant investments in electronic health information technology and content continues, there has as yet been little evaluation of these projects, particularly in relation to information users or providers (Nicholas et al 2000; Akesson, 2006; Homewood, 2004) at the community level. Information providers, particularly in the private, profit-driven sector are likely to evaluate internally with the result that knowledge about benefits and outcomes remain private. There is not only a paucity of good studies but barriers to learning from significant projects.

11 Programs such as Healthy Communities / Municipalities, supported by the World Health Organization are increasingly taking action on determinants of health at the local level.
A surge in specialized research on quality of health information has resulted from fears over the potential for harm from poor information. The growth of this field of study has perhaps over shadowed other interests related to quality. This includes the safety of its use, points raised in the work of Nettleton & Burrows (2003); Potts & Wyatt (2002). Attributes of use have been detailed largely in research attached to the field of health informatics (Berland et al, 2001; Flatley Brennan & Friede, 2001; Eysenbach, 2001, 2002). To understand the issue this research also draws upon IT user studies referenced in the previous discussion. Work on access, most frequently in the guise of the digital divide (DD), has taken place in a variety of fields. In particular the analysis of policy and practice issues in the emerging field of community informatics has demonstrated a narrow definition of access (Day & Schuler, 2004; Day, 1999; Gurstein, 2004). This review is expanded in 1.3.1.

Few studies address quality beyond the limitations of information features. A few have attempted to bridge the gap between quality, access and use (Wyatt et al, 2005). It may be that concern over quality is limiting, if not preventing, access to potentially valuable health information. Access is related to - and informed and inflected by - quality. Online health information is available because of a technology infrastructure as well as willing health information providers. The action of conducting an online search involves technology, largely invisible and therefore not always well understood, but in its functions acts as both a structure for and a mediator of information. Beyond the obvious interface of computer, screen, service provider is the ‘inscribed’ behaviour (Hanseth & Monteiro, 1997) of search engines and websites, portals or gateways as well as that of the users and providers of information. The design of information has always mediated consumption (Lash, 2002) but on the Internet, relative to search engines, issues of metadata, search terms, format, classification terms and categories as well as algorithms and sponsored links, mediate whether certain information is found in particular ways (Sherman & Price, 2001, Rogers, 2004). Details of the technological functioning of these
tools are not within the remit of this study, but are necessarily noted as
determinants of related agency deserving further study.

Health information provision and use involves both public and private
activities and participants including individuals, organizations, systems
The result is varied contexts and influences that motivate and act to
constrain or enable the provision and use of online health information.
Actuarial goals and objectives, for example, have shaped many health
informatics initiatives (Hovenga, 1996). Such adoptions of ICTs within
specific settings are less complicated than those crossing sectors or
organizational partners. It is a pattern also found in broader adoptions of
ICTs (Day & Schuler, 2005) and represents a TD approach, all too
common when users and lay participants are not given consideration or
made part of decision making processes.

In response to the new capabilities of ICTs, new research fields have
developed. Rapid growth, combined with the development of specialized
fields of research and practice, characterize informatics fields over the
past decade. Informatics is a term connoting a scientific approach to the
intersection of technology and information sciences. It has become a
widely applied term but remains contentious particularly for those
researchers interested in and adopting a more social shaping ethos to
their work. There is apprehension that the technology focus might result in
a lack of balance necessary to guard against technological determinism.
Several researchers in the community informatics field prefer the phrase
community technology in order to pair the social and the technical more
equitably. This research focused on two primary informatics fields,
Community (CI) and health informatics (HI) which inform this work. Sub-
specialties of these fields, including medical, consumer, and social
informatics also contribute to understanding the broad context of this
study.

HI and CI share a number of principles that offer the potential to identify
valuable guidelines to assist informatics initiatives involving both the
community and health information. To increase the success of such initiatives it is also important to identify better practices. Past projects offer many lessons for critical review that point to good practices and principles. Where appropriate a variety of case studies will be deployed to assist my analysis. The original contribution to knowledge of this thesis is to research and investigate the Community Informatics and Health Informatics paradigms and determine where they conflate and disengage, to moderate and test these approaches through local example. Finally, with these investigations and applications aligned, there is a considered investigation of Placetobe.net, ensuring reflexivity of the local experience within the wider scholarly literature.

2.3.3 Health Informatics

The growth of ICTs in relation to health has created high expectations related to potential outcomes. The convergence of technology within such a social environment involves established roles and practices that create both opportunities but also challenges. Change and transformation are involved in both technical and social innovation and transformations. Webb, for example presents the possibility that new knowledge and information availability will "affect health and social care as a whole, reconfiguring traditional boundaries and challenging assumptions about inter-professional knowledge." (2003:235). It is a changing environment in which the field of health informatics is emerging. It is not a straight forward emergence. Concepts and definitions, such as the term 'informatics' itself, are contested.

Health Informatics is variably defined. The Centre for Health Informatics recognizes it as the application of IT in healthcare. It is a “complex and intellectually demanding interdisciplinary field in which medicine, computer science, management science, statistics and engineering are all represented" (www.cs.tcd.ie/CHI/, 2001). The principles and practices of health informatics continue to take shape as the field emerges. As a
result, a number of concepts and key definitions are contested. Whether HI includes medical informatics or the two are seen as distinct is a debate made more obvious by the interchangeable use of the terms (Coiera, 2003, Hovenga, 1996). The controlled environments of physician practices, clinics and hospitals were the settings for early information and communication technology (ICT) projects creating a strong medical foundation for informatics initiatives and a heritage of practice.

Rapid growth has resulted in several sub-specialties. Many such as nursing and clinical informatics correspond to professional groups who stand to benefit from a specialized focus on their information processes. Health Informatics holds the advantage of not being an exclusionary term (International Medical Informatics Association, 2004) when health is accepted as an all encompassing term. Hovenga (1996) argues that health informatics is the larger field, encompassing the lessons of medical informatics. Others continue to champion medical informatics as the more dominant field. Coiera (2003) makes the point that such arguments allude to the foundation of medicine giving precedence to the scientific tradition while other fields, incorporating more observation–based, empirical fields, continue to be suspect. The debate is not easily resolved but poses the danger of compromising the value that can be found in bridging the gulf between the fields of medicine and health which is a particularly problematic situation when the importance of sharing valuable information is realized for both patients and carers as citizens, as well as for professional development and collaborative referrals to related fields including social services.

Kouroubali is critical of HI as “treating health care in a rigid, structured format where computers are introduced in organizations to facilitate already existing practices. The highly individual nature of practice has not been extensively appreciated” she notes (2002:6). More recently, attention has turned to how information in medical and health care settings is intimately linked with other information (Please et al, 2000; Levenson, R & Johnson, 2003); both specialized and expert and that which is more general, experiential and related to lay users such as
patients or citizens. Health information systems will, according to Kouroubali, be more successful if attention is paid to the two-way, transformative, relationship between human agency and structure rather than static categories and structures.

The formal health care system, with existing communication and information patterns incorporating aspects of medical and health informatics, tend to dominate how ICTs are implemented in health related settings. Although the NHS is undergoing significant change as well as the development of a national technology infrastructure, there is growing skepticism regarding what will be really accomplished. The strategy and goals are linked to ‘Information and Health for All’ (NHS Improvement Plan, 2004; NHS Information Authority, 2003). Related directives are aimed at increased integration among services and extend to social care along with the provision of greater patient choice and empowerment (Information for health, NHS, 1998). Will such investment and transformation result in innovative and beneficial change?

The last decade in the United Kingdom has seen a variety of efforts to align health and social services to enhance referral processes and delivery of services that closes gaps for clients, patients and citizens. A transfer of responsibilities to local authorities with policy directives driving collaboration and partnerships (Annandale, 1998) has established a context that in principle should be viable. The role of information relative to citizen awareness of services, help and consultation as well as organizational ability to exchange information often of a confidential nature are critical processes increasingly realized as potentially enabled by ICT (Levenson & Johnson, 2003; NHSDOH Social care green paper, 2005).

At the time this research began, there was a strong push to ICT initiatives within the NHS. Substantial government and financial support in partnership with private IT firms was seen as the ultimate route to success which involved multiple accountabilities. As the budget expanded criticisms grew. As this research concludes, there is an overwhelming silence regarding progress and the future of ICT developments in the NHS while deficits experienced by Trusts and local Authorities are
receiving strong publicity. The paradox is one about which the lay public as well as professional staff are aware. It is not the remit of this research to explore the many complex and related issues in the case of the NHS, but it is one likely to be the topic of a multitude of future studies that would be expected to deal with issues of technological determinism, along with aspects of social determinism.

The relationship of such policy to practice in ICT initiatives is challenging, provocative and important. This link is one impetus for this doctoral research. The transformation of authority and power to action is a long established focus of research aimed at enhancing our understanding of complex environments related to society, technology, community and health information. The paucity of case studies on community-based, health information/informatics projects linked to a dominating focus of ICT in medical settings for specific outcomes is managed and somewhat expedited through this study involving a broader set of actors' testing broad, macro-level objectives. The community level health-related environment is one involving many and varied organizations and agencies, both public and private in operation and include traditional and new participants in the delivery of health, medical and social services. Emerging from varied disciplines with a shared interest in ICTs benefiting community is the emerging field of Community Informatics. The valuable contribution this field can make to this work and the recognition of good practices follows in 2.3.4.

2.3.4 Community Informatics

Community Informatics (CI) is the study and the practice of enabling communities with Information and Communications Technologies (ICTs). CI seeks to work with communities towards the effective use of ICTs to improve their processes, achieve their objectives, overcome the "digital divides" that exist both within and
between communities, and empower communities and citizens in
the range of areas of ICT application including for example health,
cultural production, civic management, e-governance among
others. (Gurstein, 2006:1)

Community Informatics (CI) recognizes the need to actively promote
critical principles, values and practices that can guide the design and
implementation of new technology projects to benefit varied communities
(Bieber et al 2002; Gurstein, 2001; Keeble & Loader, 2001; Schuler,
1996). Communities are recognized as diverse. All involved shared
interests, values and consensual action, and may be geographic in
case or specific to special interests such as professional groups and
those focused on expert knowledge or of a common aim such as those
focused on self-help. The latter may be online and virtual and distanced
from shared local or in-person communication. Dynamic groups within
participants’ communities are seen to benefit from democratic action. CI
practitioners value the relationship, advocating the use of relevant
principles and practices at a number of levels including active consultation
and participation, decision making, design and implementation processes
which are seen as helping to ensure appropriate use of ICT.

A common objective in the CI application of information and
communication technology is enabling “community processes and the
achievement of community objectives” (Bieber et al, 2002; Keeble &
Loader, 2001; Taylor, 2001). Much activity involves the use of ICT by
individuals engaged in collaborative activities, generally outside of the
workplace and within a social sphere of relationships, involving areas of
common interest or local focus. The result is a diversity of knowledge
based on experience related to ICTs implemented at the community level
and used to facilitate the needs and interests of users at that level. The
most successful ICT projects are linked to participatory processes within
environments where they are linked to existing initiatives where innovative
implementation has a regenerative effect through their provision of
additional resources and renewed interest and support (Keeble & Loader,
2001; Day and Schular, 2005). The CI authors found that constraints to
success were related to a dominating ‘project’ culture’ involving limited funding, resources and timeframes that curtail action on aims and objectives and work against principles of sustainable development.

Community Informatics is a term that first appeared in 2003. While an increasing number of researchers and practitioners from varied professions and disciplines (Taylor, 2004) contribute to CI, the field itself continues to query its form and function (Stoecker, 2005:3). In his review of the CI field, Randy Stoecker (2005:3) notes a discomfort with the concentration on technology as “the primary method or tool enabling CI work”. Others agree that technology can easily become prescriptive and deterministic without the balance of strong CI methodologies (Schuler, 1996; Day & Schuler, 2004). Recognizing this tension between technological determinism and social shaping influences is an advantage to the field. It fuels the ongoing CI debate regarding methodology that can be too attentive to technology at the risk of purpose related to broad community benefits (Stoecker, 2005). It is a debate also common to the work of those involved in Science Technology Studies where attention is paid to options not chosen and related gaps in practices and outcomes (Webster, 2004; Wyatt & Henwood, 2005).

Not all practitioners of CI are comfortable with the term informatics. There is a decided difference between the terms ‘informatics’ and ‘technology.’ It is a distinction recognized through the expertise of varied researchers but one seldom identified beyond recognition of unbalanced, deterministic practices due to a lack of knowledge and attention to the agents and agency that push or pull technology in a social context. Design and implementation is compromised by such a lack of expertise. The term informatics extends beyond a technology focus, recognizing it as an enabler. In that role, the purpose of information as content, its shape, management and storage as well as potential uses must be addressed in order for technology to have beneficial value and outcomes. While informatics attends to broader social functions, it can also be prescriptive in method and application, unintentionally narrowing choices in the same
way technology, as a determining force, can. Thus a limited development path is made probable when use is poorly conceptualized or configured.

Some CI practitioners prefer the term ‘community technology’. The field has roots in the community technology movement which witnessed the use of media such as telephony, radio and video (Schular, 1996; Chamber, 2003; Ramirez et al, 2002) for community development and more recently TV for social learning (Masthof & Pemberton, 2003) and knowledge transfer initiatives. This history invokes a methodology aligned with community or economic development (Bieber et al, 2002) and extension practices (Chamber, 2003). These theory-based practices commonly recommend a user-needs focus, often involving users as participants in the initiatives (Chamber, 2003; Ramirez et al, 2002). The advantages are many including gaining their support, with some becoming champions of the technology. Often a greater alignment with realistic community user needs can result (Ramirez et al, 2002) generating anticipated outcomes as well as being open to and mentoring, unanticipated but appropriate outcomes. The last is largely an unexplored phenomenon which may have significant benefits in relation to user participation in health and social care environments, and should be a priority for future research. The two terms - ‘community’ and ‘technology’ - have a recursive relationship which, according to Taylor (2004), strengthens both the methods of CI and technologies adopted.

‘Community’, as an adverb, helps to balance informatics and ‘technology’ but too often ‘community’ remains an undefined descriptor (Butcher et al, 1993) allowing the determinism of technology to dominate by defining use and audience, for example.

Community is a complex and varied social phenomenon, one that is ancient, crossing time and the space of varied societies and geographies. It has proven highly flexible. In practice, community is based on common interests and the desire to come together (Butcher et al, 1993). More traditionally, community has a special geographic link for varied groups that can act in, or are located within community. The advent of electronic, ‘virtual’ communities has demonstrated the importance of principles
beyond geographic location illustrating the binding importance of common interests, values and action in creating community. As a significant part of CI, an enhanced understanding of the dynamics of community includes concepts such as Wenger’s ‘community of communities’ (1998), and in particular ‘social networks’ with their capacity to transcend varied groups, internal to or external to a particular community.

A good understanding of community or multiple communities, as users, is implicated in successful CI projects. CI uniquely offers a variety of tools and methods suitable to dealing with the varied forms and functions of community as a “multidisciplinary field for the investigation and development of the social and cultural factors shaping the development and diffusion of new ICTs” (Keebler and Loader, 2001: 34). CI has demonstrated success, tied to diverse community activities including community development, regeneration and sustainability projects (Schuler, 1996; Day & Schuler, 2004; Stoecker, 2005).

Success in CI-related initiatives has most often been linked to the involvement of a variety of partners with many crossing traditional sectors and drawing upon formal or informal social and professional networks. They have a history of taking action at points where ICTs intersect with community core values (Schuler, 1996) such as education, culture, communication, democracy, health and well-being, and economic equity and opportunity. Schuler’s early text on CI demonstrated how successful projects are often tied to existing multi-purpose facilities such as community centers which usually have the knowledge and a resulting obligation to act on community issues (Schuler, 1996). A mix of advice, training, demonstrations and service provision are integral to the success of these community-centered CI projects (Schuler, 1996).

The importance of people working in collaboration must not be undervalued. Examples of community-based projects involving multiple partners bridging a variety of sectors including private, profit-making, public, not-for-profit and volunteer/community sectors have demonstrated significant success and valuable outcomes. Understanding the dynamics of
initiatives offer valuable lessons and learning for this research. The challenges of learning such lessons and transferring them to meaningful practice have been referenced in the preceding discussion of a highly complex environment. Add an emphasis on health in a community information initiative and additional factors become critical to success. Attention has been given to access, quality and use issues. CI continues to inform those concerns but also the dynamics of a multi-partner, cross sector partnership. How key questions are addressed and varied interests and values considered in decision-making processes assist our comprehension of processes shaping the technology and associated initiatives.

Early recognition of the value of CI to issues of ICT in health was revealed in the CI literature by Douglas Schuler. He provided the type of cross-sector, transdisciplinary goal that CI increasingly realizes. In doing so, he exemplifies CI, principles and values. Schuler wrote that “Human-centered community health care … can reinvigorate the system which is more important than the injection of technology into it.” (1996:156). Recognition exists that technology has a facilitating role, and that actions and agency addressing social elements supersede and are primary to any transformative ability technology offers. CI acknowledges how social characteristics including attitudes towards technologies, interests and values can be embedded or inscribed in the processes of design and implementation. Decisions defining health information categories or classifications, search terms and metadata tags capture and embed conscious and unconscious ideas, values and interests as do expectations regarding use and utility, inscripting patterns of agency and action. These functional dynamics mediating the social and technological are central to a CI informed health information/informatics initiative.

Evaluating technology in the CI context involves a number of questions useful in other, broader or more specific contexts of use. A priority should be the question of whether ICTs provide a useful service. The purpose of technology should be framed in terms of who will gain from its use and who will lose and promote community (Felsenstein in Schuler, 1996:23).
fundamental question is whether “they are systems that real people can use to address real problems” or will they be “banal and unimaginative such as seen with other media outcomes” (Schuler, 1996). A core theme throughout this research is whether ICTs are deployed in innovative ways or whether new technologies simply are used to replicate older functions, a preposition proposed by Street and colleagues. Their 1997 review of health promotion and interactive technologies has much in common with the practices that the later evolving CI field promotes. Key to commonality is the adoption of community development philosophy and practice which holds central the needs of citizens. It is a relationship worth future exploration relative to community-based e-health, social care and volunteer/community sector initiatives.

The consequences of ICTs and in particular the Internet and its content are only beginning to be understood. Within this vast landscape, this study adds understanding and context. Our existing conceptualization of these elements and their inter-relationships is increasing as discussion moves to focus on the online environment and those who provide e-health information as well as those who make use of it.

2.3.5 Issues of Provision and Use of Online Health Information

Two decades of development has moved the Internet away from its military roots allowing it to rapidly evolve and diversify into a tool for public use. It also became widely accepted by the academic community. It remains largely a technology of innovation with continued novel adaptations and pilot projects testing its capacity and beneficial outcomes. Now generally accessible by citizenry able to make use of computers and online content the Internet increasingly reflects the broader social environment in which it is used. It no longer has the exclusive and specialised role of preventing permanent breaches in the exchange of critical information. It has become a global library for the majority of users but one with the potential for significant benefits but also variables
creating risks. That risk relates to uncertainties and limited utility of the Internet by both content providers and users which has limited advances in the introduction and integration of the Internet or its specialized forms – Intranets within organizational environments.

Hardy, drawing upon Giddens’ notions of modernity, suggests that “if ambiguity and uncertainty, intimacy and estrangement are central to contemporary social life, these [are] ….. reflected in the Internet [and] … poses challenges and opportunities to all who consume or produce health and social care information, advice and services” (2003:401). After more than a decade of transformation in the public sphere through Third Way, neoliberal and neoconservative ideologies, the Internet has moved from a highly flexible, largely unregulated informational environment to one that is subject to powerful market forces whose actors, structures and agency enables and constrains the environment and its content.

The exponential growth of online health information has spawned a variety of research initiatives with substantial attention to quality issues. Few attempt a more comprehensive understanding of varied agents and systemic relations. A number focus on online health information, many within a HI context. Health information initiatives can frequently cross private and public sectors with commercial, profit making goals and public interest objectives found in various initiatives, as mentioned in section 1.3.3. There no longer is a clear separation between non-profit, public and profit-making private sectors with the former increasingly engaging in revenue generating activities, adopting commercial strategies, usually to increase their sustainability. Thus while private and public are conceptual themes, referenced throughout this research, it should be understood that they are not completely discrete. Beyond revenue goals, the duality offers insight into goals and interests often contentious which require negotiation in shared partnerships. As the health, social and volunteer/community sectors seek to enhance their work through the use of ICTs they commonly enter into partnerships that result in a dependence on the expertise of profit-oriented IT firms and their experts.
Examples of online health information case studies involving multiple organizational partners crossing public and community sectors were not located in the UK. Varied projects that partially fulfilled these characteristics were found but related case studies were few. In the UK, NHS Direct phone and online (Hanlon et al, 2002; Eaton, 2002; Goode, 2005) were examples while internationally, more similar but highly complex examples were the Canadian Health Network and HealthInsite, Australia (Glenton, 2005). Studies tend to be evaluative reviews of use yielding some valuable information on access and quality but little on formative or instrumental activities linking decision-making and the shaping of the project. They are examples of a growing number of projects related to the broader domain of health whereas the majority of past initiatives have taken place within fairly traditional health and medical environments, connected to HI. They demonstrate design, development, implementation, use and evaluation aligned with traditional policy, practice, goals and objectives in the sector (see discussion in 1.4.2).

While it is possible for those with hardware, software and relevant literacies to find almost anything they are interested in on the Internet there are few assurances that people are finding the right health information at the right time or in the right place. The right information refers to its quality but also its usefulness, implying that it is in a form that is usable and enables those accessing it to make use of it. Much remains to be learned about all of these factors particularly the last. There is however, a growing body of literature suggesting that the sharing of personal, patient experiences online can be of value in contextualizing specific health information (Forkner-Dunn, 2003). Online discussion groups are an example. The advantage is an interactive environment which can act as a 'community of interest' or 'of practice' which offers the benefit of discussion by those with similar or shared experience and knowledge; lending a form of peer and 'experiential' validation as well as support (Forkner-Dunn, 2003; Pleave et al, 2000).

Information at the right time refers to the fact that the search can be the result of an urgent need but just as important is whether information is
timely or current as well as relevant to those accessing it. The first factor is a matter of access in a timely fashion. It is one that frequently begins with the ability to have physical contact and has been responded to through governmental policies of free public access points in libraries and other public facilities. A concerted trend for public access in health and medical facilities has not occurred in the UK. It may be a possibility not to rule out given the revelation in the recent national study of Internet access which found that 75 percent of frequent users used varied access points (ONS, 2007). A surprising amount of information on the Internet is undated and too much is seldom, if ever, updated in a regular manner. At the same time, evidence (see discussion regarding the PEW surveys in 1.3.4) suggests that only 25 percent of online information users check the source or date of content. Recent Internet Audience Metrics (Netratings, 2008) found that on average citizens spend one hour per day and much of that time is in a surfing session with a web page viewed for just under one minute (Nielsen/NetRatings, Feb., 2008). It is detail that could be of value, informing the design of online content and when acted upon could aid common search practice and the presentation of results.

Finding health information in the right place also refers to timely access. A key advantage is temporal continuity, as the Internet is available twenty four hour a day, 365 days of the year. However, information may not be relevant to the location in which the user is situated. A significant motivation for searching online may be symptoms, a recent crisis or diagnosis related to the searcher, significant others or carers (Cline & Haynes, 2001; Murray, 2003; Fox, 2006). Time and place becomes relevant to such users. Responding is the parallel growth in the home use of the Internet. The impact of a diagnosis, often takes some time to come to terms with. Studies reporting on that experience note the value of accessing online information some hours after a consultation or during periods of related insomnia. This renders perpetual access valuable.

As well as confirming the usefulness of specialized health information from individual shared experience of an illness or disease (Rogers, 1998; Akesson, 2006), online discussion offers the opportunity for asychronic
or synchronic access. Issues of right time and place can be met as are issues beyond more narrowly defined health information. Thus quality of life factors, for example, are often discussed and solutions or resolutions realized through interactions. Such social support is invaluable to provide reassurance (Potts & Wyatt, 2002) but is unlikely to be sanctioned under existing evidence-based criteria. Increased information, according to Wyatt (2002) can improve the patient’s understanding of their condition, encourage self care, enhance mental well being and assist in the appropriate access of professional health care services as well as care giving. Search engines have increasingly become a mediator of information in the right time and place. While search technologies have greatly improved, it still requires strong and reflexive search skills to locate desired or appropriate information. This is particularly true of geographically-sensitive information which will be illustrated in the following discussion of search technologies.

A key concern with online health information is quality related to credible, expert information. Issues around technology literacy but also health information literacy bring to focus the paradoxical treatment of lay and expert information. Information has long been tied to aspects of personal, organizational and as a result political power. Perceptions of experts as opposed to lay information or knowledge, increases the political nature of the information environment. While Webb notes that “knowledge -creating organisations depend on the interaction between explicit knowledge and tacit knowledge as a source of innovation” (2003:235), professions, are often primarily concerned with protecting the quality of explicit, expert knowledge. The "specializations and differentiation of expertise" restricts interpretations and negotiations in a more objective process according to Hardy (2003:201). The result is certification, branding and visible accreditation with the intention of reducing risk by indicating some degree of quality. However, it is not always clear what criteria or expertise are used to establish a criterion for quality. Such detail is seldom attached to a website and can in itself present a potential barrier. Other barriers to online health information are also possible with firewalls that forbid search
tools and therefore access. A lack of diversity or depth in online content is also a constraint.

The power of information within a traditional medical or health setting is seen by Webb when, “knowledge is part of the causal power of network flows, which, as flows of power, become more important than the specific interest they represent (patient's needs)” (Webb, 2003). A number of lessons are present in the history of design and utilisation of electronic patient or health records (EPR/EHR) (Berg, 1999, 2001; Webb, 2003). Already mentioned was the importance of capturing the right information, in the appropriate manner which includes ensuring links to source and context a continuity Berg (1999, 2001) stresses. Here additional factors are identified including capturing information in a timely fashion and in an appropriately comprehensive manner. While these factors are ideal electronic patient/medical/health records continue to evolve in order to meet such goals. Mediating such goals is the contested nature of the three forms of records and related issues of ownership. As a consequence systems often capture information within certain set boundaries which define and limit contextualization. Further use of this information for purposes beyond the patient, as original source, risks manipulation, decontextualization and the portrayal of data and knowledge quite separate from what was intended when collected a warning detailed in studies by Berg (1999, 2001). Overly simplistic searches that link stripped down factors such as lung cancer and smoking, obesity and arthritis or heart disease can fail to capture full details, resulting in an overly simplistic story that fails to tell of more complex interrelationships pertinent to unique individuals and differing populations (Balka, 2006). Quality of the information is compromised and trust reduced when searchers recognize the presentation of shallow information. Unintended consequences such as these have the potential for unintended harm and are not exclusive to ICT aided online health information collection and management but is typical of any information system (Rogers, 2005). The example is a caution regarding the unintended manipulation of information, involving its presentation that is so easily facilitated by ICTs.
Health Information is far from stagnant. Please and colleagues present evidence suggesting that “online self-helpers’ are reshaping the health care system based on their own preferences” (2000:256). The ability for such lay users to make a difference regarding health information content on the Internet remains to be fully explored. The point is raised here as illustrative of information user participation and transformative potential that have lessons related to access, quality and use issues. These same authors argue that the issue of bad medical information online is not worse than bad medical information offline: “it is not so different from the question of bad medical information at cocktail parties, in the tabloids, at your supermarket checkout counter, in magazines, in advertisements, or from other sources” (Pleace et al, 2000:256). The authors argue that self- helpers 'self-correct' bad or inappropriate information. This is true of active users of online information and is typically seen in interactive environments such as discussion groups or list serves but remains to be the focus of formal research. A similar challenge to poor information offering the possibility for correction of poor information is also seen in offline social or community networks and historically in more intimate situations with family and friends. Quantifiable differences involve the medium, its reach, and more subjective views of lay and expert knowledge which alter context and normal social boundaries such as time and place.

The misunderstanding or misinterpretation of high quality information is also a potential problem raised by Potts and Wyatt (2002). Little work has centred on understanding the development or transfer of valuable expertise for such purposes, particularly in relation to public users. The global capacity of the Internet does not account for recommendations and available products, services and treatments that are limited by the governance of health care systems, to particular geographies. Such international knowledge has liberated citizens as consumers and patients from the boundaries of their own healthcare systems, witnessed by the growth of cross border health service procurement. Practitioners and health systems can be negatively impacted due to increased but falsely-

122
based patient, citizen expectations. Significant examples include recent
media dissemination of the positive outcomes of pharmaceutical drugs,
not yet authorized for wide use. Public awareness, aided by a
combination of information and communication technologies, led to
significant lobbying and publicity. The result was an emotive response
with active advocacy disrupting traditional assessment processes, in
some cases speeding these drugs into early and inconsistent use. The
fact that these were new - not fully assessed - and quite expensive was
not weighed by citizen advocates, but the financial consequences for the
universal health system were substantial and not given similar attention
by the information and communication media.

Paradoxically not everyone wants to access and use online health
information. Online health information is still an evolving medium leaving
room for other media and means of access. In light of the way other ICT
initiatives, such as online education, have been championed by political
policy frameworks, local directives and complimentary economic
incentives, there is a need for caution. The redirection, for example, of
funds away from education to online technologies and course
development had serious consequences for the system and for learner’s
options (Brabazon, 2008; ONS, 2007). It is a pathway resembling recent
NHS ICT activities whose sanction and legitimation in the face of
uncertain benefits are increasingly questioned in view of other competing
health and medical concerns (Bend, 2004).

Many social influences support online health information. National
governmental programmes include the National Infrastructure Initiative, E-
government and the NHS Information for Health programme. The last
initiative has often been tied to the management of health care costs, an
issue previously mentioned. There is also an increasing focus on healthy
populations and prevention. Patients’ ability to help themselves through
informed choices was increasingly recognized. While there is also a rise
in consumer desire for increased information, there is a corresponding
transfer of responsibility which, dependent upon the nature of the
relationship, could be shared or fully devolved. It is a devolution found
problematic in the current context of change and online information concerns (Henwood et al, 2001, 2003). System change and agendas can appear to restrict or contract services through social or organizational sanctions and forms of legitimation that dominate patient/consumer/citizen use and needs.

Some consumers may not want the information or responsibility, a situation Henwood and colleagues urge be considered (2002). To further understand why and how health information may be used and the potential for change from online health information, Ferguson offers a six-level categorization of information-age health care users (1997:257). Based on the experience of a medical environment, the categories move from the professional as authority - the least desirable level according to Ferguson - to the individual as self-carer, which he argues is a more desirable level (1997). These linearly portrayed, seemingly progressive levels imply an increased role for access to good health information. The role is made valuable in relation to others as experts or fellow lay consumers and experts in their own right. The formal categories include 1) passive patients, 2) concerned consumers and 3) health-active, health responsible individuals (1997). Significant value can be found from recognition within the conceptual model of the diversity of health information seekers and users. Considering the issue of diversity, further attention to the practical application of the model may recognize that information users move between categories according to variable environmental or social circumstances. While debate over risk, quality and to a lesser extent access dominate online health information developments Ferguson’s work is one of many studies (Brodie et al, 2000; Payton & Flatley Brennan, 1999) confirming a strong increase in online users of those most interested in health concerns.

Due to the lack of a good understanding or thorough assessment of user/consumer access and use of e-health information their activity is very generally framed, by default, within existing definitions of technology access, the DD and variable quality signifiers. The first was previously discussed in 1.2.4, while quality and mutual relationships are discussed in
chapter two. Economic concerns are implicated but disagreement exists around whether ICT saturation levels and public sponsorship of access centres and training, intended to promote access and literacy, can or will reduce these gaps (Brodie et al, 2000, Gurstein, 2004). The debates are representative of the complex nature of the multiple, interrelated factors, involved.

Saturation levels in regard to Internet access have just begun to be debated. After rapid uptake by groups below the age of sixty, growth has begun to flatten (NOS, 2007; Brabazon, 2008). National statistics from the 2007 “Internet Access” study show an annual growth rate of 5 percent from 2005 with 57 percent of households and individuals, 13.9 million, having access to the Internet. There remain significance differences among those who have access and those who do not. Uptake trends vary according to groups defined largely by quantitative studies with the young more active and those in employment or active in leisure activities related to ICTs active adopters. Reasons for not having access included a lack of need or interest for 24 percent of respondents. Skills and the high cost were a concern for 14 and 11 percent of respondents. Access is available elsewhere for 9 percent. Concerns regarding security and harmful content were important to five and three percent of respondents. Thus non-use reveals important variables mediating access more than the characteristics of users.

Less difference is seen once people gain access to the Internet, according to a study by Brodie et al (2000). The author states that “its use at home to get health information is similar across income, education, race, and age” (2000:11). He argues that, “the number of persons using the Internet to access health information should rise along with computer use” (2000:11). Their study is unique in extending our understanding of the boundaries economic and education status\textsuperscript{12} has relative to accessing e-health information. Thus interest in and need for health information is not well defined by such class factors, and appears to have some

\textsuperscript{12} See the discussion of PEW findings in 2.2.1
consistency across social demographics. The difference then is understood to be access to the Internet, first and foremost, with particular online content secondary to that requirement.

Information and digital gaps may dominate the complementary notion of a ‘knowledge gap’ but it is recognized that some people have better access to information than others. In the HI literature the inequity is recognized in Eysenbach’s (2000) comparison of the availability of health information with the meaning of the ‘inverse care law’. The availability of good medical care tends to vary inversely with the need for medical care, in the population served. Access “to appropriate information is particularly difficult for those who need it most”, he proposes, naming it the ‘Inverse Information Law’. The comparative ‘asymmetry’ of on-line information is mentioned by Ahmad et al, 2006 as creating a problematic environment of too much information to effectively decipher and make use of well. A corrective to what Eysenbach characterizes as the existing narrow, definitions, supporting practices that perpetuate such social inequality and exclusion is public health policy (2000). This research may well go beyond policy identifying multiple factors involved in theory and practice that CI highlights as valuable. Through an appreciation of their triadic relationships, a corrective framework for community-based health information/informatics initiatives may be conceived.

2.3.6 Health Information Quality and Access

As online provision and access to health information on the Internet has escalated, questions about quality and accessibility of that content have expanded. The result has been a significant escalation of specialized research on quality issues largely influenced by the medical model. Here the discussion focuses more on quality attributes of health information. Uniquely, it will also address the increasingly obvious, inseparable interrelationships with access and use. To do so, this discussion reflects
upon previous commentary offered in this chapter.

Quality initiatives are ostensibly driven by concerns over risk to patients or citizens, who access and make use of online health information of uncertain lineage. The idea of the Web as a dangerous place, according to Rogers (2005), emerged in the Netherlands in 2001 when the Ministry of Health chose an editorial approach to vetting and authorizing a small set of ‘information partners’ to be placed on the health kiosk portal. That project focused on purpose, target group, source, date of publication and background context with references provided as well as demonstrating a non-commercial nature as conditions of trustworthiness that determined inclusion. Rogers also discusses the history of America Online (AOL) which “traded on the Web as a danger zone, as rumor mill - a chaotic space of questionable purveyors of information” (2005). The author suggests this was based “on occasional reported cases of people obtaining pharmaceuticals and other products (and contacts) through unregulated (web) channels and using them improperly” (2001). The benefit for AOL was a commercial one, championing itself as providing reassuring access to trustworthy information according to Rogers (2005).

The diversity of health information providers, with widely varying objectives and goals for its provision, does legitimately raise concern. A number of studies provide insight into the complex issues involved in this emerging environment. The evidence provided remains fragmented. No comprehensive studies documenting the extent of the problem were found. Two paradoxical perspectives of risk can be seen with the first situated in the HI field where expertise and best evidence for quality is a solution. Conversely, in the CI field risk was heightened by a lack of focus on citizen and user’s needs and their level of skills as seekers of health information. A more contextualized study by Potts and Wyatt investigated the perceptions of Internet-aware doctors about the actual benefits and harms to their patients of using the Internet (2002). The results suggest that, “patients derive considerable benefits from using the Internet and that some of the claimed risks seem to have been exaggerated” (Potts & Wyatt, 2002:2). While the study found that benefits outweigh harm for
patients, physicians were seen as less fortunate. They experienced additional expectations from patients, increasing their workloads.

In addressing issues of quality, the intention is the prevention of physical, mental, and emotional harm caused by wrong, misleading, inappropriate, false, fraudulent, or self-serving information as well as attending to self-mistreatment and misdiagnosis along with needless worry, the basis of a new focus on information related hypochondria (Risk & Dzenowagis, 2001; Potts & Wyatt, 2002). Their review of quality initiatives found numerous organizations with different philosophies, approaches and processes. While the primary goal was ‘citizen protection’ some “have a secondary goal of protecting the company’s ‘good name’” (Risk & Dzenowagis, 2001:3). Others such as Rogers (2005) are sceptical about the order of these priorities particularly when there is a commercial revenue mandate or when sustainability of organizations and professions are a concern.

Drawing upon the work of Eysenbach & Diepgen (1998), Risk and Dzenowagis note that “even when information appears to be of high quality it can cause unintentional harm to citizens” (2001:3). They describe a number of reasons, including: “language and complexity barriers, inappropriate audience or context, unavailability of certain services or products in different parts of the world, difficulty in interpreting scientific data, accuracy and currency of information, potential for source bias, source distortion, and self-serving information” (2001:3). Clearly, a variety of elements contribute to the quality of health information. Identified in their review of major English-speaking initiatives, Risk and Dzenowagis found that sets of criteria derived from very similar roots and, differed only in language and expression (2001). “Principles of honesty, privacy, confidentiality, accuracy, currency, provenance, consent, disclosure and accountability” are the roots (2001:24).

In a brief comparison with eEurope, quality criteria for health-related websites confirmed that language is a primary difference with the terms transparency, authority and accessibility differing but corresponding to
those noted above (2002). Related initiatives including EQUIP and Discern, identified additional or more precise criteria including: clarity, credible, relevant, balanced, unbiased, choice or options provided within content, the provision of appropriate links, the source clearly indicated, the provision of related contact details and aims of provision that are clear. This brief synopsis demonstrates the complexity of factors contributing to and determining quality health information. What is missing from literature reviewed is any indication of the role played by formative design and implementation practices related to online health information in establishing quality criteria.

Core information characteristics, distinguishing information from basic data, are noted by Abbott (1999) as accuracy, timeliness, completeness, conciseness, and relevancy which match the quality factors already investigated through this thesis. The information versus data debate has been around longer than the quality controversy but while there is debate and ongoing contests among experts, lay users of online information are less likely to have a good knowledge or understanding of such tensions. Certainly there will be on going ‘growing pains’ associated with what has been a rapidly evolving technology, a phenomenon understood from social shaping and science technology studies and other interdisciplinary studies such as Winston’s (1998) work “Media, Technology and Society”. However, it is surprising that little focus has been on the role of literacy and building or shaping online environments that help users, lay or expert make the best use of online health information. It is a philosophy found in CI practices. Enhancing knowledgeable searches and use would seem to be a good way to ensure no or minimal harm. The potential lesson in this comparison of theory and practice is the role of information flows among experts and lay users. Is there some obligation if not a duty or responsibility to assist the online user in their quest for quality information?

The majority of these quality factors apply generically to online and even off-line information. Unclear is whether there are additional variables relevant to community health information. It would be reasonable to
propose that quality at this level would be linked to the nature of the information and knowledge generated pertaining to special interests, particular values and in many cases linked to a specific geographic area. The growing sophistication of health evidence, seen for example in the field of epidemiology, means that particular health concerns can be identified for specific physical localities which, if acted upon, may well be a specialized sector of future, ‘next generation’ of quality health information.

Transforming sets of quality criteria into policy and governance programmes for online information is the challenge of practice and three common mechanisms were summarized in the study by Risk and Dzenowagis (2001). The first were ‘codes of conduct’ or ‘ethics’. They rely on self-certification by participating web sites and essentially provide a claim or pledge but there is little enforceability attached to the process (Risk & Dzenowagis, 2001). An example is the HON Code. ‘Third-party certification’, the second mechanism identified by the authors, may or may not be inclusive of codes of conduct and ethics but usually requires subscription or fees to the certifying agent for the use of a logo attached to content. Examples include: MedCERTAIN, and MedlinePlus. The third mechanism, intended primarily for citizen use, is a ‘tool-based evaluation’ using a predefined questionnaire that yields a ‘quality score’ for the content a user is interested in (Risk & Dzenowagis, 2001). It alludes to health information users being active in their review but primarily does the job for them. The result is a protective, patronizing mechanism rather than one promoting knowledge ability and action by users.

A dynamic, diverse but largely undefined user population makes it difficult to plan access and quality standards. General understandings result in generic principles and standards guiding design and implementation with a corresponding inscribed functionality. Risk and Dzenowagis (2001) provide the example of MedCERTAIN with advanced ‘next generation’ tools aggregating and interpreting metadata as an extreme example of such inscription. They may be important developments but evidence of their value relative to increasing the quality of online information is
uncertain. Their value is primarily in their technical capacity to find and retrieve information of a particular type. It is an important distinction directing attention to access as an overlapping attribute with quality and one that directly involves the role of search engines. There is criticism that aspects of search technology may do as much to limit or prevent access to quality information as enhancing information. It is a discussion continued in the next section focusing on the role of search engines and the process of searching for health information.

How quality factors can be practically addressed and managed as part of a long-term sustainable process remains problematic. All three mechanisms currently compete in the market place. No particular one is outstanding or well accepted. Barriers to a popular and comprehensive quality mechanism include unresolved issues identified by Risk and Dzenowagis (2001). A summary is worthwhile. The burden is primarily placed on citizens to ‘care about’ and make the effort to understand and apply criteria. The authors detail how that burden is also shared by the information providers, third-party accreditation organizations, sponsoring organizations and involved health professionals. All must care enough to take action to gain knowledge and understanding. Accreditation and sponsoring agencies must also develop a viable supporting business to have a sustainable support role.

Currency and maintenance of up to-date-quality information is one of the most significant challenges in the provision of online health information. Constraints in doing so are linked “to scarcity of funding for voluntary and non-profit organizations and for-profit and fee-based organizations alike, and to low acceptance of quality programs” (Risk & Dzenowagis, 2001:25). Many quality initiatives are particularly dependent upon donation and grants making then vulnerable to “conditions outside their control at best, and to potential undue influence at worst” (2001:25). The authors’ advocate third party certification for the greatest credibility but this presents an on-going financial burden that may be too great for some providers. Such constraints can limit access to health information. The recommendation also does little to address information user ambivalence
or indifference toward quality issues. The authors have analysed a quadripartite picture of user knowledge, motive and ability. It is a model that continues a perception of the user as passive and distant from expertise. There is very little in the literature that speaks to the possibility of health information users as capable learners, becoming knowledgeable, critically skilled and achieving some expertise.

The issue of quality is linked with information literacy and taking action if not responsibility for learning, knowing, understanding and practicing good information skills. Linked to such a role is the potential devolution of responsibility, a contested process with political implications. Critics argue that financial constraints impacting the health system and withdrawal of resources at the service delivery level, disadvantages patients, devolving responsibilities, which are not always desirable, obliging greater self-care. Cautions implicated in such scenarios exist in a variety of consumer-focused literature, related to health systems change, including the CI field and online education transformation as previously noted. The potential for negative consequences is greatest when supportive as well as varied alternatives and options are not adequately in place. Here that would include quality online health information as well as mechanisms to support information users.

Because quality is interrelated with access and use concerns, the possibility of litigation, is a force Goodman and Miller (2000), suggest should promote ethical practices, based on what exists as a medical standard – that of doing no harm. While their work addresses the dissemination of health information through medical IT systems internally and institutionally it is a philosophy of practice they strongly advise. They suggest it is an ethical imperative based on a responsible understanding of the disruption the introduction of new tools into environments with established social norms and practices can have. The effects are subject to analysis not only for accuracy and performance but also for acceptance by users, when there are consequences for social and professional interaction, and the context in which they are used (Goodman & Miller, 2000).
Lessons related to quality have largely originated in medical settings. Attempts to generalize the broader, more complex health sector at the community level, with diverse providers and users of information content is problematic particularly when minimal comprehensive research studies detail participants and the environment. Concern if not fear is attached to providers who are outside of credentialized health related disciplines. The ‘gray market’ or pseudo-health providers of information, as Risk and Dzenowagis label them (2001:27), are seen as complicating efforts to introduce and develop quality standards. They present the greatest challenges to ensuring the dissemination of good quality health information and practices and for its access and use (2001). The authors are one of a few addressing the character and dynamics of this sector. Few studies have taken on the demanding task of fine analysis of this highly varied and rapidly expanding sector. In their work for the World Health Organizations (WHO) the authors distinguish this sector from the more legitimate role played by the alternative and complementary health-care sector. Such intimate understanding and sensitivity adds value to knowledgably weighting diverse health values and philosophies tied to variable practices.

They suggest that reputable producers would not have many problems complying with quality criteria (2001). They presume that this sector will philosophically remain outside of applying quality standards other than in a self-regulatory manner (2001). A positive example of best evidence accreditation is seen in the work of the Bristol Cancer Care Group, one of the leading UK care–centred organizations integrating traditional and alternative practices. Risk and Dzenowagis state strong concerns over the profit motives of the grey sector are more problematic (2001). It is a characterization of regulation and accreditation that easily incorporates any but mainstream, traditional health care. While they go so far as to suggest fraud and deception, they do not validate the statement in their study nor is validation found in literature reviewed here but would seem to be a widely held opinion. While there is likely to be a degree of such activity among the grey sector, such perceptions can demonstrate political
forces acting out of self interest as much as in the public interest. Traditional medical practices, as Ivan Illich and other writers in the field of medical sociology have demonstrated, are not free from fraud or deception.

Quality health information may require a recast of the lay-expert relationship into one that is dialectical, where shared explanations and courses of action are constructed (Nicholas et al 2000). Such a process would be a user-centred approach. It would require more autonomy for governmental organizations because as Hardy suggests (2003) state-sponsored sites are constrained by concerns not to stray from what is judged to be safe for users to read and not to deviate from current health or social care policy.

2.3.7 The Search Engines and the Search for Online Health

*Information*

On the Web (as elsewhere) sources are in constant competition with each other for the privilege of providing information. They compete for inclusion as well as prominence ... to be the leading information, the source that matches the information requested or given at any particular time. (Rogers, 2005:1)

What information is found and what is absent or missed has much to do with the way search engines are designed and made to function (Rogers, 2005). Information retrieval and information design are fundamental issues. It is the interaction of human and machines that produce results but results are mediated by an infrastructure designed with purpose and function that remains out of sight of the user. This intangibility is true of not just technology functionality but can also be true for goals and objectives related to interests and values – the mediating politics helping shape technology. There are plenty of reasons for technological functions remaining out of sight, according to Rogers (2005). The key one, he
states, is the difficulty the user has in first understanding such functionality and secondly the possibility of their intervention and manipulation of results. The last point hints at the protection of software copyright.

Search engines are poorly understood and as a result their unique features and functionality are not taken full advantage of, according to Poremsky (2004). However, arguments are expanding to support Internet and search literacy. It would seem to be particularly important to empower users within an information environment that is growing in complexity and ambiguity. Commercial advertisements on the Internet have rapidly expanded. Concern is developing over difficulty in differentiating commercial content from that provided by more objective sources. Identifying source and context of information has always been a fundamental attribute on which quality of information is judged, yet seems to remain under-valued in online environments. In regard to regulatory policies Rogers’ example of the American Federal Trade Commission recommendation that search engine companies disclose paid link policies and ‘preferred placement’ schemes would go some distance to clarify the nature of online information.

A more practical concern continues to grow as the way search results are exhibited becomes problematic to accessing the best information. Preferred placement and inclusion schemes can alter, if not interfere with results when commercial content is found and ranked higher than other content. The presentation of those results gives the appearance that it is information of equal value to any other content. In a survey by searchenginewatch.com published in Rogers (2005) the majority of search engines were involved in these schemes. Less than half disclosed this fact. Commercial content has moved from self contained advertisements, distinguished in a side bar or pop up screen to being central to search results and this has extremely serious implications for access to quality health information and its use. Certainly in a professional sector increasingly focused on best evidence for health and medical decisions, such an informational environment will slow access and potentially become more problematic. Thus the trend to specialized
search engine environments which can operate in controlled informational environments but it may be one that reduces or negates the real value of the Internet and World Wide Web once offered as an open environment offering reciprocal flows of information, that some dared to call 'democratic' (Schuler, 1996).

Pressures promoting online commercial content and related innovations are enormous with the drive to gain an economic return on Internet investment strategies. Advertising on some search engines helps finance the site and can be an alternative to charging a subscription fee to online users (Poremsky, 2004). Financial security is a powerful factor in community-based projects which are normally dependent upon temporary and rather fragile funding schemes along with the good will of diverse supporters or partners (Popple & Redmond, 2005). Increasingly projects must balance and potentially make trade offs between goals and objectives attuned to what is in the best interest of the public in order to ensure project sustainability.

Rogers speaks of the politics of search engines roaming a space that manages the “collision between alternative accounts of reality” summed up in the term ‘informational politics’ (2005:1). The last is a term he uses to reference “how western governments stage democracy” through “media communication strategies”. They are effective for ensuring views fall into line with official accounts (Rogers, 2005:1-2). He provides the example of predetermined categories for a ‘democratic’ online discussion forum that essentially reflected and confirmed government goals and objectives. The use of such categories whether predetermined or evolving are increasing used to structure content and information on the Internet and in doing so restricts or enables access and therefore quality. When there is greater concern over potential harm and litigation influences related to decisions, than exclusivity and purpose must be queried.

Probing the purpose of the internet, Rogers raises the analytical question of whether principles of exclusivity, fairness and scope of representation are a test of the ‘front-end of the Internet’ (2005). Deploying these three
factors, how does the less transparent, technical, back-end and the more open, public, front-end facilitate or constrain alternative accounts of reality, reducing or opening up democratic processes? In reducing openness, transparency and controlling or narrowing dynamic processes there is the potential to ‘flatten expertise’. Open processes involving external, public users and internal (less transparent, more private) service and information providers offers the potential for high participation of both ‘expert’ and lay’ people in dynamic, iterative processes that aid ‘deeper’, shared understandings and learning.

Rogers’ work has gone a long way to reveal the multi-dimensional factors that adjudicate technology, information and quality, access and use but the study area is new and emergent. He calls for action to determine how to adequately capture ‘alternative accounts of reality’ determining who, or what ‘agent’ or ‘agency’ should adjudicate. What is being ascribed to Web or Internet dynamics which he recognizes as the “result of collective human activities with machines” that may be out of sight or incomprehensible to humans without techniques, information and knowledge to understand those dynamics.

What information is displayed and/or found by search tools has much to do with the way search tools are activated. This is what Rogers describes as the politics behind how a search engine or portal selects and indexes its information and pertains to the ‘back-end’, internal functions (2005). Meta data and varied forms of information tagging mediate what information is seen by search engines and what remains invisible. As a result, a significant amount of information remains hidden and therefore not accessible on the World Wide Web. Existing public search engines provide limited functionality.

Search engines function by categorizing content. Databases of text, amounting to an exponential number of web pages, are explored (Poremsky, 2004). Google’s success has been linked to its capacity to identify and retrieve information based on design features that monitor the popularity of web pages and common search patterns or interests. These
factors have also become the basis for determining search aids such as precise search terms and classification systems. Increasingly dictionaries\textsuperscript{13} of terms are made available on major search portals to aid the searcher. Poremsky (2004) noted how competing search engines have developed and varied their search features, adding multilevel topic directories. Some are prepared by direct human intervention or what Rogers (2005) calls ‘voluntaristic techniques’ seen in self-reporting, others such as Yahoo, employed skilled internet surfers for this work. Others draw on the services of www.looksmart.com or the Open Directory Project, www.dmoz.org for the compilation of topic directories. In a ‘non-voluntaristic’ approach, inclusion is based on measures of quality of information vetted for a site and search tool (Rogers, 2005).

While categories assist searchers, little evidence exists that general search engines, for public use, are being refined to assist the searcher in finding and capturing information most appropriate to them. Such capacity would likely increase access to quality health information in the future. But it is part of what can flatten and equalize the status of information as Rogers points out, when multiple sources are vying to be placed under “the same generic heading in authoritative, aggregated listings” (2005:2). The competition in the ‘back end’ is over particular key words associated with particular sources which mediates search engine finds but has little direct correlation to the quality of the content. The call for disclosure over search engine dynamics extends beyond the mix of commercial practices with ‘editorial content’ to acknowledging the mix of elements in their ranking (logics) such as metatags, hyperlinks, and pointer text to produce more ‘public-spirited returns’ (Rogers, 2005).

Google is currently the leading search engine. In February, 2008 The U.S. Core Search Rankings reported that Google searched about 5.9 billion pages of the 10 billion ‘care’ searchers conducted in the U.S.

\textsuperscript{14} “The solution to this (automated) search engine problem put forward by commercial and non-commercial entities alike has been the human-vetted directory.” Open directory project (dmoz.org) is a leading version which is meant to be more inclusive and fairer (Rogers, 2004:55).
U.K. data was not found except for evidence that found 87.7 percent of Google.UK were from that country thus there is a national brand loyalty (Alexa, 2008). Google was identified as the primary tool for 59.2% of all searches on the Internet (searchenginewatch, 2008). Because it is linked to other search engines Poremsky estimated that it was actually responsible for up to 75% of all Internet searches (2004). It remains a reasonable estimate given additional tools, like the search appliance used by the PlaceToBe.Net, that have been brought into the marketplace. Poremsky also examines the characteristics common to successful search engines. Many have several years of existence, demonstrating that such operators have a strong knowledge of the Internet and software design as well as a desire to make searching as easy as possible (2004). Engines search large databases, "offer excellent help information and powerful search tools and an overall 'look and feel' that's conducive to searching" (Poremsky 2004:8).

Search engines can also be information service providers and portals, becoming a means to achieve financial rewards. Google has remained primarily a search provider, where as Yahoo is an information service provider and portal, providing a one stop page for news, weather and numerous human interest sites. As a new medium mediating such knowledge, "the Web has been found to be and taken as a valuable collision space between official and unofficial accounts of reality" according to Rogers, (2005:28). Innovation and relevant results have helped assure Google's popularity which has become pervasive due to ease of use and results that keep users coming back to it. They are seen as indicators of success but whether they are indicative of good search engine practice remains to be seen. As Google diversifies its search engine products much will be learned in the future from this leading Internet firm.
2.3.8 Mediating Access to Online Health Information

The Internet has changed the way people live, work and communicate with each other. Following a pattern of media that includes the telephone, radio and television the Internet is championed for advantages that potentially frees and democratises the exchange of information and communication with value added through real interaction. Outcomes so far remain unable to demonstrate such value and sceptics speak to the heritage of missed technological opportunities. Gains have been experienced by those most able to rapidly adopt and adapt the Internet to enable their interests and needs. The PEW Internet studies demonstrated a pattern of familiarity and expertise that supported learning, uptake and adaption. The young, the well educated and employed in settings supported by peers, education or learning situations have benefited from early access. Those without obvious need and supports such as the senior population and marginalized groups including the under or unemployed, single mothers and the physically disabled are less likely to manage access.

The Internet is likely to become an important part of how public health and medical professionals communicate with the public as citizens, consumers, patients and clients. How best to convey accurate, trustworthy, and influential information regarding health and its promotion, encouraging wellness and prevention, supporting choice in health matters such as care and treatment options while managing risk continues to require significant research investment and testing of approaches.

The results by Kittler and colleagues suggest that information obtained from trustworthy sources on the web may be effective in positively influencing the behaviour of the public during a public health crisis. If, in addition to public information campaigns, public health authorities provided physician practices with validated and targeted information on emerging events that could then be e-mailed to patients, such an individualized approach could provide an additional lever, to elicit appropriate responses from the public (Kittler et al, 2004:10). While
reflecting the paternal and rather patronizing tone all too common to the disciplines of medicine and health, in HI, the role of health information, in a population context, relative to particular communities, addresses broad potentials possible with more innovative use of online information. The attention to a broader contextual environment also recognizes the importance of traditional but common communal learning situations where flows of information and related knowledge can be tested and validated among varied experts (Slack, 2000; Brethnack, 2004; Wellman, 2004).

Policy guides and determines issues that impact not only the quality but also access to online information. Fitzgerald et al (2002) note the defensive and reactive responses to technology when narrow decision-making allows TD to prevail. For example, policy may limit what information is made available online to that which already has been well reviewed and made available in print. This cautious approach narrows information available as well as the role of online technologies, resulting in limited access and quality of online information. While such national and international decision-making processes frequently play ‘catch-up’ to innovation and adoption processes, a bias to E-strategies has dominated all strategic planning. Concerted attention to E-Commerce or Business and E-Government from essentially an economic perspective has resulted in their dominance as all powerful, well resourced, participants. While the Internet has expanded to include public and private partnerships, the weaker, less well resourced are easily marginalized. An example is seen in the voluntary/community sector which often bridges these other sectors (Butcher, 1993; Jewkes, R. & Murcott, 2003). Supremacy of the economic model, both in language and action, means more marginal sectors struggle to participate. It is a dynamic that replicates the relationship of well developed and less developed nations when economic measures dominate.
2.3.9 Policy, Research and Practice

Research conducted in the field of community informatics (CI) (Clement & Schade, 2002; Eysenbach et al., 2002; Day & Schuler, 2004; Day 1999; Gurstein, 2004), has demonstrated how narrow or poorly refined definitions in policy can constrain practice. Research can contribute to connecting policy and practice and the benefits of an interactive cyclical transfer of evidence and knowledge. Yet methods fostering such action remain scarce. This research is sensitive to the role theory and methods have in making transparent the interrelationship of policy, practice and research and contributions to any or all of these domains.

In situating these debates within the broader context of a community health information/informatics initiative, the goal of this doctoral thesis is to provide a more concise determination of key concepts and track and evaluate the appropriateness of linkages and relationships. Understanding the implications of TD and SST in relation to online information content will have implications for policy and practice as well as the context of future research. While specialized research fields have responded to the increasing need to understand the challenges of developing successful adoptions of technology, there has been little critical review of this distributed learning and knowledge environment. The result is compartmentalized study that can restrict attention to overlapping factors and multiple interdependencies without a broader view of dynamic iterative transformation.

Fitzgerald brings some practical realism to these efforts with Woolgars and Kouroubalis’ suggestion that “if decision-makers are happy with satisfactory rather than optimal outcomes then processes are likely to remain limited, even constrained” (2002:7). Her conclusion acknowledges phenomenon seldom captured in IT studies. Research interests have tended to concentrate on technological perspectives, especially new and emerging ICTs. Findings, then, are distinct from such social influences or consequences. Considering ‘the social’ involves not only issues of decision-making but project and partnership cultures (Fitzgerald, 2002;
Webb, 2003) and related politics of expert and lay knowledge (Hardey, 1998, 2003; Nettleton, & Burrows, 2003) as well as priorities and goals related to public and private interests (Kouroubali, 2002). Complex research approaches are required. Crucial to these macro processes are elements of the social which emerge in interactions between expectations and outcomes. Mediating the two are understandings of needs and related social and technological capacities. It is these relationships that are central to this research.
3. **Adaptive Methodology**

An original methodology was required for this unusual and dynamic research context. A review of similar studies was helpful, yielding valuable lessons on the application of theory and identifying gaps or weaknesses in analysis and methodologies of similar studies. Choices were guided by the need to address broad questions penetrating macro and micro levels of activity and analysis, involving complex social and technological agency across diverse organizations acting in partnership. Practical experience also informed the design valuing research, meaningful to those often neglected or marginalised in existing e-health initiatives such as the community/voluntary sector. Similarly a guiding principle recognized real value in research that strengthens opportunities for transfer into practice. Thus a mechanism was sought relative to the methodology that ensured findings could be applied.

This chapter introduces and details the nature and benefits of using a particular form of qualitative methodology to conduct this research study, addressing an Internet based community information/informatics initiative. Methodology and corresponding methods align with research objectives and supports rigour. This research follows a traditional research design structure (Denscombe, 1998). The result is a series of research stages, aligned to and represented by the thesis chapters.

Qualitative research methodology addresses a research environment that is both dynamic and complex and supports the investigation of both technology and social interactions. The project focused on the goals and objectives of a cross-sector partnership, to increase access to quality community health information. Therefore the research must attend to complex interactions at a number of levels. Theory and methodology were carefully chosen for their ability to address and capture the detail of such an environment.
This chapter establishes the foundation for succeeding research stages and chapters pertaining to data analysis, interpretation and discussion as well as conclusions. The original employment of Structuration Theory that extended concepts of Actor Network Theory while incorporating knowledge from the emerging fields of Health and Community Informatics builds upon the foundation.

3.1 Research Design – Methodology, methods and tools

Qualitative Methodology

Qualitative research focuses on the study of social and cultural phenomena (Blaxter et al, 1996). The use of qualitative methodologies in order to capture emergent phenomena at the intersection of technology and human behaviour is based on a recognition that information systems are fundamentally social (Hirschheim, 1992 in Hunter, 2004). The advantage of qualitative research is the ability to conduct investigations in natural settings capturing interpretations of particular time and place (Hunter, 2004). Situated meaning and knowledge are preserved (Dalcher, 2004). The assertion is that most of our knowledge is gained or mediated by social interaction and construction, seen in language, shared meanings, documents, tools and technologies as well as other artefacts defines interpretive research Klein & Myers (2001).

When the study is focused on an information system, in a community setting, Hunter suggests there is a heightened need to understand related phenomena and their meanings as ascribed and interpreted by the involved actors in the natural context (2004). For these reasons case study methodology (see 3.3) was chosen. The method is congruent with the theoretical frameworks detailed in chapter two. Three methods of data collection - observation of partnership meetings, semi structured interviews and document analysis - were used because of their relevance
to the research questions and theoretical perspectives. Together, they promote validity through analytical triangulation. Reliability is also gained through the preservation of interpretive links to situated knowledge (Yin, 2003:14; Stake, 1995) for which qualitative methods are valued.

The Research Question and objectives explore phenomena and related meanings in the social-technological relationship as a broad goal establishing the context in which activity takes place. More specifically, the focus is on a partnership of seven diverse organizations, across varied community sectors. Together the intention is to increase access to quality community health information. This initiative, the PlaceToBe.Net, consists of a complex structure and environment that requires an examination of formative and developmental contexts as well as instrumental planning and decision-making processes.

The primary aims represent expected outcomes, situated in relation to other complimentary aims, and all influence the course of the initiative and this research. Early observations and discussions in the study environment confirmed the research question and objectives and led to the decision to utilize case study methodology. Value is recognized in a concentrated analysis of events in situ to capture relations of multiple-factors influencing a community-based initiative. The uncommon and innovative nature of the PlaceToBe.Net, while attractive, meant that the circumstances and related case studies were important to contextualize the initiative and ensure the study had relevance. The primary research question asks **what key factors shape the development of a community health information initiative when it has the goal to improve access to quality community ‘health’ information?** To answer this question, two research objectives were identified. The first was to evaluate the values and interests of key stakeholders as represented in the design and development of a community health information (CHI) initiative. The second was to identify factors shaping the choice and design of technology in the initiative. They are interrelated and as such reflect the inherent nature of the processes under analysis.
Resulting challenges offer the potential for significant knowledge that uniquely informs praxis.

### 3.2 Methodology

This research study focuses on a case study, a methodology valuable when addressing a specific location (Yin, 2003), allowing the detailed examination of events in their setting (Blaxter et al, 1996) or “real-life context (Yin 2003). The research draws upon the work of Meyers (1997), who describes it as the most common qualitative methodology used in the study of information systems. Orlikowski & Baroudi also confirm that the organizational context has gained research precedence in these types of studies with a firm shift, away from technical issues (1991). The case study is of value in addressing the shifting dynamics of social and technological determinism.

The methodology focuses on relationships in-situ, allowing detailed explanations while presenting descriptive detail and instrumental data, relative to what Stake describes as purposeful discovery and contextualized studies (1995), which is an advantage in such a complex research study. The knowledge of participants and situational meanings are critical to the analysis of such a community-based ICT initiative. It is a naturalistic enquiry process that is required according to Dalcher in his work on information systems failures, because such knowledge “tends to be fragmented, distributed and hidden within the context” (2004:306). Capturing detailed, subjective knowledge and situated meaning, particularly in relation to a chronology or timeline that illustrates and confirms temporal veracity, are attributes of case studies that researchers such as Dalcher (2004) find valuable. For these reasons the case study research design outlined here will attend to multiple levels of participation and viewpoints, captured in the data, relative to a three year chronology of
the PlaceToBe.Net. Multiple views, for example are seen in relation to the determination of goals, options, choices and ultimately decisions made within the PlaceToBe.Net.

3.3 The Fit of Methodology to the Research Context

In this research, the case study method is particularly appropriate as the research follows an initiative from formative meetings in the spring of 2003 through the planning and development process until July 2006 when committee meetings were discontinued. There was significant change during that time along with variation in participation. Capturing the dynamics of change and involvement contributes to understanding the processes of social shaping. Such processes, including complex decision-making, are intimately tied to this evolving environment. These processes can also demonstrate the influence of technological determinism when, for example, ICT experts and technology requirements dominate such processes.

The methods of data collection and a methodology have been chosen for their ability to capture and maintain contextual data. Knowledge specific to organizational participants is multi-disciplinary as was the review of related literature. For that reason it is very useful to be able to assess the initiative from several viewpoints and directions. A case study approach with varied methods of data collection and analysis facilitates such an assessment but also ensures an integrative, systematic review that addresses relationships and their implications. It is by capturing that which is not necessarily public and making it public, Dalcher (2004:307) argues, that research can contribute to a greater understanding of the complexities implicit in information systems.

For these reasons, a detailed study is valuable for examining the planning and implementation processes of the PlaceToBe.Net (P2B) partnership. Between July 2003 and May 2006, the researcher attended search engine
committee meetings involving seven organizational partners. Key community organizations were represented as partners with private and public interests, and were as a result variable participants in the PlaceToBe.Net. Reflecting upon the private and public processes of the initiative three methods of data collection were chosen and are described next.

### 3.4 Three Methods of Data Collection

The three data collection methods of meeting observations, participant interviews and document analysis were employed to capture and preserve situational links to meaning, knowledge and aspects of participation. Contextual data was particularly valuable in this case study involving multiple organizations in a partnership endeavoring to develop an innovative community-oriented information system. Varied methods\(^{14}\) offer the potential for a more holistic approach to explain, in-depth and first-hand, the events, human activity and processes implicated in a multi-dimensional and dynamic research study.

The three data collection methods are representative of key activities within the study. Regular partnership meetings were observed to capture evidence of decision-making processes and the values and interests that individual partners contribute to the PlaceToBe.Net. Key documents guided the planning and decision-making processes and provide a cross reference for analysis of meeting and, as discussed next, interview data. Interviews with key participants were an opportunity to explore and potentially test concepts and questions arising from the data already collected.

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\(^{14}\) Methods are defined as the means of data collection employed. Methodology is defined as an overall research approach. Tools are defined as specific techniques employed within this collection process. (Gomm, 2004; Hunter, 2004; Scott Poole, M & DeSanctis)
collected from meetings and through document analysis. Thus the timing of interviews was important. They took place towards the end of regular meetings as implementation began.

3.4.1 Observations of PlaceToBe.Net (P2B) Meetings

The researcher attended PlaceToBe.Net (P2B) meetings as an observer. On occasion, when the researcher felt it appropriate, she participated in a limited fashion (Blaxter et al, 1996 & Denscombe, 1998). The choice to do so was based on ethical concerns involving the provision of information that could be of value to decision-making processes. To not share such information might have been detrimental to the project.

Extensive notes were taken of these meetings and later transcribed into digital form. Observations in the early stages contributed to the formation of research questions and, in later stages, to the emergence of concepts and propositions. In the latter case, observational data played an important confirmative role in relation to data gathered through document analysis and interviews. The intention was to observe a number of issues situated in a natural context (Dalcher, 2004). These issues included the nature of relationships among partners of the PlaceToBe.Net particularly as they related to decision-making. By observing and learning about such project processes, in their natural context, attitudes, interests and values of participants, represented in discussions, were captured, in-situ and recorded for analytical comparison with other data.

During meetings it was recognized as important for the researcher to be as unobtrusive as possible, to not alienate others and alter participation shapes and patterns. The researcher - when appropriate - clearly identified herself and the nature of her role to ensure her behaviour did not appear secretive or in any way threatening. In doing so, the
researcher was interested in preserving as natural a setting for
observation as possible. In practice, there were frequent changes in those
participating and attendance at meetings fluctuated. As a result, the

**Chronological Timeline of the PlaceToBe.Net.**

<table>
<thead>
<tr>
<th>2003</th>
<th>PlaceToBe.Net Meeting - details of P2B health initiative.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oct 15</td>
<td>PlaceToBe.Net Meeting - proposal presentations</td>
</tr>
<tr>
<td>information mapping</td>
<td>- review project specification and finalise it. Timeline for Tender Process:</td>
</tr>
<tr>
<td>Oct. 25</td>
<td>PlaceToBe.Net Meeting - Meeting of the Web</td>
</tr>
<tr>
<td>Development Sussex PCT</td>
<td>November 17 PlaceToBe.Net Meeting - proposal presentations</td>
</tr>
<tr>
<td>November 17</td>
<td>P2B Meeting, Review tenders</td>
</tr>
<tr>
<td>2004</td>
<td>PlaceToBe.Net Meeting - PALS review report meeting</td>
</tr>
<tr>
<td>January 22</td>
<td>PlaceToBe.Net Meeting, Search Engine Requirements</td>
</tr>
<tr>
<td>by Mark Walker</td>
<td>P2B Meeting, Review tenders</td>
</tr>
<tr>
<td>February 10</td>
<td>PlaceToBe.Net Meeting, Search Engine Requirements</td>
</tr>
<tr>
<td>Capture</td>
<td>P2B Meeting, Review tenders</td>
</tr>
<tr>
<td>July, 4</td>
<td>User group meeting, Requirements Specification</td>
</tr>
<tr>
<td>Review Meeting (H)</td>
<td>November 23 PlaceToBe.Net Meeting - Update with Mark Walker</td>
</tr>
<tr>
<td>Aug. 10</td>
<td>PlaceToBe.Net Search Engine Meeting, Agenda</td>
</tr>
<tr>
<td>Sept. 1</td>
<td>- Review phase one by Steve Crossan.</td>
</tr>
<tr>
<td>specification for Phase two</td>
<td>PlaceToBe.Net Meeting - Update with Mark Walker</td>
</tr>
<tr>
<td>November 23</td>
<td>PlaceToBe.Net Search Engine Meeting, Agenda</td>
</tr>
<tr>
<td>SCIP office</td>
<td>PlaceToBe.Net Meeting - Update with Mark Walker</td>
</tr>
<tr>
<td>2005</td>
<td>P2B Meeting, Review tenders</td>
</tr>
<tr>
<td>January 18</td>
<td>Meeting of the place to be, phase 2 of the search engine implementation project.</td>
</tr>
<tr>
<td>February 15</td>
<td>Torchbox presentation.</td>
</tr>
<tr>
<td>appliance)</td>
<td>PlaceToBe.Net Meeting (search engine Google)</td>
</tr>
<tr>
<td>March, 1</td>
<td>PlaceToBe.Net Meeting set up of a new appliance</td>
</tr>
<tr>
<td>April, 4</td>
<td>PlaceToBe.Net Meeting</td>
</tr>
<tr>
<td>May 12</td>
<td>PlaceToBe.Net Meeting Agenda usability</td>
</tr>
<tr>
<td>feedback</td>
<td>PlaceToBe.Net Meeting Brighton &amp; Hove Community</td>
</tr>
<tr>
<td>May 27, 2005</td>
<td>PlaceToBe.Net Meeting</td>
</tr>
<tr>
<td>Server (specs)</td>
<td>PlaceToBe.Net Meeting regarding functionality of</td>
</tr>
<tr>
<td>October 6</td>
<td>PlaceToBe.Net Meeting</td>
</tr>
<tr>
<td>Google search engine</td>
<td>November 10 Official Launch PlaceToBe.Net</td>
</tr>
</tbody>
</table>

Figure 2.
researcher became one of a few regular attendees. This strong identity made it at times difficult to maintain a low profile as an observer. There were several occasions when I was called on to offer related expertise. In response, I was careful to offer my viewpoint as a researcher rather than speak on behalf of the partnership.

Transcription of these observations was laborious and time consuming. This work however, provided the opportunity for reflection. The time involved also provided the chance to clarify issues, check data and to reflect allowing early concepts and patterns to emerge. Efforts were also made, at this early stage, to identify emerging themes common to or linking with related theoretical frameworks. Document analysis, outlined below provided valuable conformation of such themes and concepts.

According to Prior (2004), through a research process, documents are important for more than their content. How they are produced and function in natural, social interactions along with their process of diffusion can be very illuminating. The author notes that they are situated products and as such can take many forms. Documents act, "first as receptacles of content and in the second they enter as functioning agents in their own right" (2004:376). The process of document production and consumption are two distinct aspects, mediated by use, and diffusion within and outside their settings that are evidence of their manipulation (Prior 2004).

The function of documents - internal and external to the partnership - reveals much about their intentional and unintentional agency, their content and social role. For these reasons, the ways in which documents were prepared and produced, how they were used and how they function in organizational settings figure as key concerns in the research process (Prior, 2004). Analysis of these roles in the case study, which itself focuses on processes of online information provision and use, offers significant insight.
3.4.2 Document Analysis

Document analysis took place on an ongoing basis throughout the research period. While public documents, made available on the P2B website, were reviewed other internal P2B and affiliated documents were sought out and examined. Because of the volume of material, documents were accessed and reviewed on the basis of what information they could contribute to clarify issues arising from observations and interviews. Attention was paid to the context in which documents are produced. Whether they were produced internally by affiliates of the partner organizations or commissioned from more distant parties was weighted as an indication of influential interests and values. Similarly the chronological position and link of individual documents was deemed influential. The most tangible evidence of value and influence was the pattern of dissemination and use of key documents and whether their use was predominately public and shared or internal and private as decision-making aids. What the documents said or do not say extended this public, private analysis. The identification of underlying content assumptions relevant to key research themes and concepts was key. Over all the analytical intention was to clarify key arguments presented and from a sceptical reflective stance weigh how valid (well supported) and convincing those arguments were. Questioned was the long or short term focus taken within the documents with the intent to ascertain the sustainability of the PlaceToBe.Net.

3.4.3 Interviews

A semi-structured, informal interview approach was adopted. Topic areas were defined and relevant questions drafted with key issues highlighted to guarantee they were attended to. Consistent themes were addressed
during interviews while allowing follow up on interesting views or relevant issues that arose. As the interviewer, I was cognizant of ensuring a degree of continuity within the interview process while at the same time framing a comfortable and pragmatic experience. The instrument acted to guide the conversation, which Charmaz suggests gives the interviewer more control over the construction of data, (2002). The approach was suitable for investigating participant views, experiences and feelings about the P2B initiative in relation to the research questions.

It was essential to moderate the relationship between externally confirmed facts and specific interpretations offered by stakeholders. Determining the layering of information is particularly important when knowledge was informed by practical experience and related preconceptions. To this end, I adopted the stance Charmaz recommended of keeping “researchers close to their gathered data rather than to what they may have previously assumed or wished was the case” (Charmaz, 2002:676). It was a principle borrowed from grounded theory.

Similarly, I recognized the critical process of maintaining a “tight fit between the collected data and analysis of the data” with a methodology providing tools for analysis as well as helping ensure appropriate data is collected (Charmaz, 2002: 676). As a result, I was conscious of and reflected upon the depiction of emerging data. This provided the opportunity to expand and refine the process. As ideas and issues emerged during the interview I was able to pursue additional leads in a flexible, emergent manner (Charmaz, 2002). The method proved useful in addressing individual experiences and helped achieve a balance between hearing the participant’s story and probing processes under discussion (Charmaz, 2002). A constructivist approach, according to Charmaz, perceives interview material as ‘views’ ensuring an emphasis on locating their data in context (2002) and this researcher recognizes the data as representative of a particular story at a specific point in time.

This flexible interview approach drew upon the researcher’s previous experience conducting interviews in the museum and heritage sector.
where it was important to tactfully draw out information that individuals might not fully realize was valuable. The ability to establish a comfortable context and relationship, putting the interviewee at ease, was crucial to establishing a level of comfort and trust that would allow an illuminating discussion. The interviewer tactfully revisited difficult issues and redirected questions when appropriate. At times, it was necessary to bring an interview back to the question while at other times it was appropriate to follow an unexpected contribution.

The interview began with a review of the information sheet allowing the opportunity for questions and clarification. The consent form was signed. A copy was mailed to the interviewee. The interviewer made it clear that the process was intended to benefit both parties as a fairly open discussion of the P2B initiative. Therefore an account of the interview was offered to interviewees. This also ensured they were comfortable with the account of the interview. Efforts were made to keep the interviews to an hour in length. When the interviewee was agreeable and content deemed important, extra time was taken. Each interview required 6 to 10 hours of transcription. Interviews were recorded to avoid losing valuable content during an intense discussion. An MP3 player was ideal, due to its minimally intrusive size. Transcription from an MP3 player, via voice recognition software, demonstrated the importance of reliable technology and consistent use. I recognized concerns related to the mediating role of ICTs and ones raised by Poland (2002) in his critical review of practices in preparing interview transcripts. The use of the same MP3 player would have eased the process, providing continuity, helping to ensure consistent capture and review of the interviews. A single researcher repeatedly listening to dialogue, capturing and confirming text, speaker’s intonation, pauses, turn-taking and implicit and explicit content added methodological value. The continuity and consistency of one researcher allowed an efficient and effective recognition of common patterns or themes among not only the interviews but between them and reviewed documents. With the recognition of emergent themes I was able to concentrate on meaningful areas of the interview transcripts.
The first interview question was broad and open ended, which allowed the interviewee to discuss general issues. This type of question began each category outlined in the schedule. Questions could be adapted relative to conversational information obtained. The order of questions sometimes changed but each category was covered. See appendix one for a copy of the interview guidelines.

The identification of jargon and keywords were instrumental in locating patterns leading to the emergence of concepts. The sole researcher had the advantage of working through all data, recognizing, defining and capturing such key concept terms in a consistent manner. Because one researcher reviewed all data collected, the opportunity was maximized to engage reflectively with the transcription process noting consistencies or inconsistencies in what was being said or stated, by whom. The process gave the researcher the advantage of becoming very familiar with the data and emerging themes. Additional reflection provided the opportunity to identify cross-cutting patterns resulting in complex relations. Time for reflection also provided the opportunity to clarify issues and check data.

Extensive notes made during the interviews supported transcription and assisted the interpretation of this material. The notes also provided some insurance should the technology fail. When a request to go ‘off the record’ was made, the recorder was switched off. Notes were taken on the single occasion this occurred. They were discussed with the interviewee to ensure accuracy and satisfaction with the content.

3.4.4 Ethics Review

The interview process was guided by the NHS Research Ethics Committee application process. New guidelines and a detailed online application process came into effect in November 2004, requiring any research involving NHS patients or staff to complete the ethical review
and research governance processes. Four NHS employees had been identified as key interviewees. They had attended several P2B planning meetings. The possibility of adding two other NHS staff who had less direct involvement but who held key administrative positions also existed. It should be noted that significant time and effort was spent completing the NHS Research Ethics Committee (REC) application process with no confirmation that NHS staff would actually agree to being interviewed. As a result of NHS research approval the University of Brighton gave ethical approval to the research study.

Submitted as part of the extensive NHS Ethical Review process were: a detailed schedule to guide semi-structured interviews (see Appendix two), a copy of the invitation to all interview candidates, a copy of the interview consent form and a copy of an information sheet detailing the research and its implications for those engaging in an interview. Each candidate received a letter of invitation to participate in an interview along with a copy of the listed documents with the exception of the interview schedule. Candidates were offered a choice of interview locations and given details regarding contacts should they have questions and concerns about participating.

Key participants representing the seven PlaceToBe.Net organizational partners were identified as potential interviewees. Twelve key individuals were identified. Most had attended search engine committee or board meetings, been consulted about the initiative or had conducted research for the PlaceToBe.Net. Seven semi-structured interviews were completed. A number of barriers were identified that prevented the completion of interviews with each partner. A number of staff changes occurred with the result that no one regularly participated in PlaceToBe.Net committee meetings from the Sussex University or local Primary Care Trusts. In the last case, two key technical people, who were insightful about the relevance of the PlaceToBe.Net project, moved to new jobs and new staff did not attend meetings or become as interested or involved. A number of potential interviewees, including Brighton and Hove Council and PCT managerial staff, had heavy demands on their time. The context and
consequences surrounding this lack of participation will be further explored in the next chapter.

No NHS staff agreed to be interviewed. Two IT staff left their positions while two others had taken maternity leave before interviews began. In a final effort to gain an interview or some degree of insight, feedback was sought from the managerial level which had been involved with the PlaceToBe.Net Board. As a result the Administrative Assistant to the head of Community Partnerships, at the local PCT, replied stating that “appropriate staff had consulted the relevant web designers / masters who felt they had nothing more to offer, since the search appliance had been installed and was in use”. The response was indicative of a technological deterministic view and these participants greater distance from the PlaceToBe.Net initiative. The lack of continuity in participation also meant that shared experience and learning inherent to discussion, decision-making and problem solving as well as identifying and confirming the role of partners and processes did not occur for NHS staff. Other partners were similarly affected. Their commitment and limited attendance at meetings corresponded to the lack of an interview. The next chapter explores concerns with participation.

In comparison with the other methods of data collection, I recognized that interviews are a finely grained tool capturing “social reality as it is experienced and expressed by respondents” (Poland, 2002). Interviews helped capture not only specific views but attitudes, interests and values relevant to the research questions. However, because an interview was not obtained from each partner organization the data set is hampered by self-selection. As such they are an indication of partners more involved or committed to the PlaceToBe.Net leaving understanding of those absent dependent upon secondary sources and a more speculative view. In the next chapter, I evaluate the rationale and framework for this unevenness in participation and contribution.

In combination the three sets of data provided the opportunity to compare and confirm patterns, themes and concepts. These emerged from across
differing data sources which were compared to initial sensitizing concepts. Those confirmed as common became key concepts that will be outlined in the following discussion.

3.5 Data Analysis

Retaining intimate links to the original study environment revealed the connection between phenomena and their environment (Yin, 2003) a primary concern in this research design. Such links help ground the data, critical in a study intent on identifying sociotechnical issues inclusive of but extending beyond what have been dominating aspects of organizational change (Berg, 1999) Here the research is interested in values and interests particular to partner organizations and their representatives as seen in partnership meetings, related documents and activities. Rigorous data collection supports the application of Structuration and Actor Network Theories, identifying themes and concepts and developing or expanding relevant theory. Varied methods of data collection, explained below, allowed comparative analysis enhancing the rigor of the research process.

The systematic collection of illustrative data (Atkinson & Coffey, 2002) is recognized as integral to meaningful analysis. Qualitative research methods allowed a varied and at times flexible approach to the collection of data (Strauss & Corbin, 1998; Marshall & Rossman, 1999) and while these methods need to be rigorous so too does the method of analysis. This is particularly true when dealing with the comparison of similar and dissimilar data which, in this research study involves diversity across disciplines and community sectors. For example, definitions held by organizational partners, with regard to community, quality, access, community information and health may differ. What was witnessed in practice during meetings and interviews could differ from the rhetoric of
documents and interviews. Such gaps were significant, often representing elements leading to themes and concepts. The next chapter expands on the value of shared interests and learning, particularly in relation to gaps related to key definitions such as community, access and quality.

Focusing on the exploration of natural situations, flexible and inductive analytical steps leading to conceptual understandings from such data was found in the principles of grounded theory (Charmaz, 2002; Myers, 1997). The work began with areas of interest highlighted in relation to Structuration and Actor Network theories (Cordella & Shaikh, 2006). The result was initial sensitizing concepts. Interview questions, as a result, were focused to help ensure the researcher remained attentive to emerging data, minimizing opportunities for researcher “assumptions or wishes” as Charmaz cautions (2004). It was a careful balance that the researcher negotiated. Assisting this more transparent process was reflective practice, a cycle of visiting and revisiting theory relative to analysis of data revealing themes. The method sought to develop or extend theory, grounded in data, systematically gathered and analysed (Myers, 1997; Cordella & Shaikh, 2006) through adopting grounded theory techniques while attending to Structuration and Actor Network theories and lessons provided by Health Informatics and Community Informatics.

In initiating the work, I anticipated organizational change concepts would be fundamental to the study, particularly those corresponding with concepts of shared learning, relevant to a partnership environment. I envisaged pressure for short-term outcomes might differentially influence shared learning, impacting original interests and values while longer-term goals and results might allow the time and space necessary for something new or different to evolve from the multi-partner information/informatics initiative. Conversely, the initiative could simply provide a new way of completing older tasks. Conceptions such as these were based on particular insights into the dynamics of such a project or initiative. In this case, they were based on the varied employment experiences of the researcher within health and social care organizations as well as
community-based cultural partnerships. Being aware of possible assumptions and guarding against subjectivity was therefore important and methods were employed to test concepts and increase open and transparent processes of data collection and analysis.

Methods from grounded theory helped ensure that themes and concepts emerged from or were confirmed in the data. The result was what Myers calls a “continuous interplay between data collection and analysis” which sets the method apart from other methods (1997:6). Following Myers suggestion, additional data was sought out, when appropriate, to extend, compare and verify analytical themes (1997). A typical example in this research involved revisiting documents to pick up on themes overlooked, earlier.

Comparative data offers the opportunity for greater integrity. The overlap between literature, observations, document analysis and interviews became an important means of revealing consistent issues, themes and concepts, revealed from various viewpoints. Accumulated evidence, then, helped verify initial concepts and themes. It was a process compatible with ST use of ‘methodological bracketing’ which guides the research focus to certain aspects. In clarifying the method Stones suggests that two forms are often valuable and both ‘agents conduct analysis’ and ‘agents context analysis’ are employed to capture the dualistic, non-reductionist detail suitable to ST. The combination again preserves a focus on linkages between actor/agents and context of activity.

Relationships are also preserved through ensuring that data sets were not analysed in isolation (Charmaz, 2002). Because themes and concepts overlapped in this research, it was both necessary and valuable to spend time in the comparison of similar and dissimilar themes. Early on, it emerged that there was a significant dichotomy between what was private and what was public. This determination cut across other concepts and themes. Addressing these features at a number of levels revealed distinct interests and values and their contextual links. This discussion on public and private configurations of information and expertise is continued in
Much was also learned from what was missing from the data. The more obvious example was the void left due to the non participation of NHS employees.

An iterative process of identifying concepts, at an early stage, a process that continued, allowed testing against new data that quickly focused the research on key thematic areas. The researcher was guided by the data relative to theoretical perspectives, with the weight of evidence supporting the main concepts emerging from the data. In this manner research boundaries were defined by key concepts and themes. Key research questions were grouped to represent bounded areas of inquiry. Analytical questions also emerged during this process such as who needs what community health information, how the latter is defined and what contributes to both access and quality health information. The two types of questions aided a reflective process of interviewing and analysis.

Open coding lead to the development of provisional categories and subcategories of concepts. Ongoing data collection extended these categories. Initial analysis identified categories pertaining to; sociotechnological features, factors enabling something new or different or the same old, public and private domains of action, key communication and information flows, social networking - learning and capital, social and technological determinism enabling similar, traditional and safe patterns of activity. These emerging themes and their relationships are relevant to Structuration Theory (Giddens, 1989; Stones, 2005) and Actor Network Theory (Latour, 1999; Law, 1999).

The two theories provide strong, compatible, but varying frameworks to compare and discuss concepts and their relationships. In analysis, the advantage of using grounded theory techniques is its’ value in developing contributions to both macro and micro theoretical concepts which can enrich the transfer between research, theory and practice. The result is outlined in chapter six, developing a theoretical framework.
3.6 The relationship between data and theoretical framework

In Hunter’s review of qualitative methodology (2004) he confirmed its value for investigating the relationship between information systems (IS) and social context. In this study the focus is on factors shaping the choice and design of technology including the values and interests of key stakeholders as represented in the design and development of a community ‘health’ information (CHI) initiative. Particular attention is paid to how these factors impact access and quality issues as primary objectives of the CHI initiative. To achieve these research goals attention focused on (1) enabling and constraining factors frequently tied to actors/agents and structures and (2) power relationships among varied actors including partners, groups, organizations or individuals particularly where actions (3) may influence those of others. Thus relationships and the flow of information and communication are important factors. These research goals are enabled by the micro and macro concepts of ST and ANT which aided analysis.

The broad social-technological nature of the PlaceToBe.Net initiative and its environment required the consistent interrogation of both social and technological deterministic actors and agency. The two distinctions could have set up a largely dichotomous study, except that fundamentally ANT stresses the dynamic interaction and mutually constitutive relations of human and non-human actors (Latour, 1999; Cordella & Shaikh, 2006). ANT used as a fine grained tool focuses on relations between actors and networks while ST offers a more complex, ontological understanding. Constitutive interrelationships are illustrated as conscious and external or unconscious and internal, to individuals or groups. Factors such as these are recognized as having a role in the shaping of a community ‘health’ information/informatics initiative. The early identification of ‘sensitizing’ concepts, including the theoretical elements of actor, agency, structure

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15 See chapter 3
and networks as relational and mediated by power, authority, resources, social norms furthered the investigation. Similarly emerging themes such as ‘inclusion’ or ‘exclusion’ relative to what is perceived and acted upon as ‘public’ or ‘private’, ‘lay’ or ‘expert’, ‘conscious’ and ‘external’ or ‘unconscious’ and ‘internal’ enriched the development of concepts and theory.

Beyond acknowledging and interrogating the ability of deterministic powers that constrain or enable processes, was the impact of such views on choices and decision-making processes that helped shape the initiative. For example, choices included how health or community were or were not defined. Decisions involved aspects of access, quality and needs assessment. The combination of theory aided by community and health informatics, results in the evaluation of differing viewpoints and multiple factors related to human and nonhuman agency that impact aspects of access and quality, within the analysis a multi-partner, community health information initiative.

A more considered interrogation of the role of actor/agent and their networks is enabled by the application of Actor Network Theory. Here, the micro aspects of participants, both human and non-human and the impact of values and interests are explored relative to complex networks of internal and external relationships. ANT offers a useful vocabulary to trace how "plans, goals, and intentions are translated and inscribed into alternative expressions that may or may not be material", according to Monteiro (1998). ANT recognizes dynamic processes with competing goals, translations and unintentional or unanticipated outcomes. Increasingly valued as an analytical framework ANT “gives voice to technological artifacts” (Cordella & Shaikh, 2006:18) ANT is also criticised as imbibing technology with agency which again privileges it. A more balanced perspective recognizes the potential, outlined here, to capture the mutually constitutive relations that result from the interaction of human and technology. In doing so, ANT does not need to give preference to one or the other as having greater agency. This is a valuable lesson provided by the fundamental principle of ST which does not privilege agent or
structure. ANTs’ methodological value is in understanding the contextual dimensions that inform agency and action in networks of human and nonhuman actors. Networks are extended to structure recognizing similar constitutive factors thus the intersection of ANT and ST.

Actor Network Theory (ANT) addresses actor and network, as co-constructed entities taking their form and acquiring attributes as a result of the relations they engage with. Having made significant, if not revolutionary, contributions to social theory, the use of ANT in a more simplistic approach, concentrating largely on dichotomous perspectives, has come to be criticized for neglecting complexity, aspects of heterogeneity and otherness (Law & Hassard, 1999). A reduction to specific rules, claims and names, the achievement of a well defined theoretical perspective is, according to Law, weakening rigorous investigation as it creates a ‘fortress-like boundedness’ preventing theoretical transformations which keep theory alive and relevant (1999:3). These tensions, in the use of ANT, are counter to the criticism of ST considered by some as too abstract, or philosophical (Stones, 2005) and without methodological tools that can aid analysis and that helps validate theory (Poole & DeSanctis, 2004). These differences have a complementary function that supports critical investigation in this complex research study.

Moving beyond the duality of structure and agent, without giving primacy to either, ST attends to both in an interactive process. Particularly useful is the enhancement of Giddens’ conception of the ‘duality of structure’ (1984:25) by Stones, detailing “a complex and mediated connection between what is out-there in the social world and what is in-here in the phenomenology of the mind and body of the agent” (2005:5).

The many, varied actors involved in the PlaceToBe.Net included the individual partner participants and their respective organizations. Other groups acted as key actors including the funder (Invest to Save Budget, Office of the Deputy Prime Minister) and the outcomes of preceding community information related projects. Also taking the role of actor were
tangible factors which had a role in shaping or configuring choices. Examples include the three project aims, conceptual definitions such as community and health, information as content, providers and users of health information and key issues such as access, quality and community health information along with key research documents. Technology in its various actual and possible manifestations also played an actor role. All also engage reciprocally in structure/network, actor construction involving agency. Similarly, a number of ANT studies show how the “inscripted characteristics of actors affect a chosen network”, a reciprocal process with the network also defining the actor as an output, according to Cordella & Shaikh (2006:9). Networks are thus defined as a group of unspecified relationships among entities whose nature is undetermined. Action is generated by the relational nature of actors and network, a process that is cyclical and recursively negotiated (Law & Hassard, 1999; Cordella & Shaikh 2006). The result is numerous possible pathways for development. Action is dependent upon some stabilization in the process. This requires some alignment among actors and actor-network and occurs through ‘translation’ or ‘interpretation’ of what each actor makes of the other actors in the actor-network (Cordella & Shaikh, 2006).

ANT attends to actors creating agency or action at a micro level, within a series of linked relationships, creating a network (Latour, 1999). Networks draw attention to elements that enable or constrain relations, such as the flow of information in organizations. In networks, it is who has what information and how it is shared that receives attention. While the same is true of structures, with dynamic and dualistic mechanisms at play (Stones, 2005).

Common attributes are recognized as shared by networks when compared with structures. While structure denotes various systemic co-constructive processes that shape action/agency and actors and structure networks are more flexible, frequently informal, linkages of actors. Reed (1997) criticizes ANT as offering a conflated analysis, a ‘rendering down’ of agency and structure that disconnects the pair along with action or the agency responsible for generating them. Their vital role of reproducing
and transforming social structures and agents or actors is denied by a ‘flat’ vision. The author argues that “institutional and organizational forms can only be described and interpreted within their local settings or contexts” in order to gain an “appreciation of their inherent complexity, contingency and fragility … as transitory manifestations of relations of dominance-subordination” representative of underlying, related forces (1997:27). It is a rich and holistic rendering that draws on the dissection and assemblages a postmodern lens offers and one that compliments the temporal fragility of Bauman’s *Liquid Modernity* (1999). Law & Hassard’s recent review of ANT argues for the theory to return to addressing tensions and the ‘other’ which do not fit smoothly into the analytical framework that has become so popular in information systems (IS) research (1999). To do so would be in keeping with the activist principle espoused by Science Technology Studies (STS) and can take advantage of commonly valued interdisciplinary methods. The criticisms and gaps correspond with Stones argument for strong Structuration, a theory that fits with the valued tools and methods common to STS (Jasanoff & Mitcham, 2001; Cutcliffe, 2000), HI and CI (Stillman, 2005).

Beyond concrete forces that constrain or enable processes are found the impact of subtle values and interests related to social and technological determinism, which influence choices and decision-making processes that help shape an initiative. A more balanced account of inscription by both human and nonhuman agents and structures which views all as participants in processes of sociotechnical inscription is made possible. The relationship between Structuration theory, Science Technology Studies, Community Informatics and Liquid Modernity adds meaningful context relative to issues of change, transformation and the fluidity of temporal relationships.
3.7 The Researcher’s Role

Acknowledged in undertaking this research was the varied employment experience of the researcher which contributed to initial ideas, concepts, even assumptions that helped frame the study. The previous section discussed issues of subjectivity versus objectivity when the researcher has an intimate knowledge of environments similar to that of the study. A second factor mediating objectivity, raised by Seale (2004), involves ‘tensions’ or expectations to please differing audiences while balancing the commitment to rigours of practice. The potential for such tensions in a partnership of significant community organizations was recognized early in the design of the research and reducing subjective involvement was one reason why a more participative, action research methodology was not chosen.

Seale cautions researchers about the trend that “sees moral and political values substituting as guarantors of standards” (2004:409). While this research is objectively funded, partner organizations potentially have an interest in the research but also an interest in the deployment of findings. On several occasions, the need for PlaceToBe.Net evaluation was raised in reference to this research. The decision to not conduct a more evaluative study preserved a more careful, scholarly and distant study that could address a diversity of views, concepts and themes, rather than prescriptive emphases.

Rigorous and repeatable research is an accountability heightened with the involvement of public sector partners and an interest in aiding the public good (civil issues). Rigorous practice must acknowledge and balance interests with research quality. Differing viewpoints were therefore considered and efforts made to ensure questions asked and answered were critical, rather than trivial ones. Questions cut across a politicized environment. In initiating the study the researcher was aware of
entrenched interests and values on a number of levels. Partner organizations had varied interests in how quality information may or may not be defined and how health information is identified and judged. Access issues and in particular controlled access to certain health information was recognized, early, as a controversial issue mediating quality. It proved a substantial concern for one partner. Whether obvious and explicit, or understated and implicit, these concerns impact the project under study in a number of ways. Analytical, reflexive practice (Koch & Harrington, 1998) or Woolgar’s (1991:4) ‘sceptical reflexivity’ can aid examination, uncovering subtle interests and relationships within their context.

It is an environment that challenges the researcher with regard to decisions of rigorous and objective design and analysis. The importance of engaging in reflexive practice, the ‘inner’ and ‘outer’ dialogue, Seale relates to Campbell and Stanley’s (1966) conception of external and internal validity (in Seale, 2004:410), becomes a valuable practice for the researcher. Validity is greatly enhanced when external project relations, overall purpose and research consequences are made as transparent as the ‘inner’ (internal) logic of research claims in respect to evidence. Resolving additional dilemmas such as the interests of local audiences versus more global implications of research can be managed with strong reflective practice.

Documenting the political tensions of a research environment early in a project aids the formation of critical research questions but also situates the research in relation to such concerns. The opportunity for researcher bias is a common criticism of qualitative research but according to Hunter (2004) many practitioners agree that the concern is a positive force resulting in more conscious and reflective practice. The result is often a high level of disclosure, documenting relationships and patterns that might not have been attended to otherwise. Reflective disclosure results from active engagement in the research environment (Walker, 2002).
Researchers tend to work closely with study subjects. Familiarity is seen as grounding the research in practical experience. However, an obvious concern regards research bias. Many practitioners (Hunter, 2004) argue that it is a positive concern that results in researchers being more conscious and reflective with good practice resulting in the disclosure of any likelihood for bias. Concerns regarding the verity of qualitative research extend beyond research bias to reliability. The ability to replicate research is a widely agreed practice for any research and assists in the validation of findings (Hunter, 2004). The practice of good research design and detailed explanation of research is vital to demonstrating quality, reliability and validity.

3.8 Limitations of research design

In retrospect, there are a number of ways that the research could have been strengthened. One tension throughout the research process was the nature of the researcher’s role. There was some value in having a contributory function, even if a limited one. The question regarding more active involvement was judged and resolved on an ethical basis. Unique dilemmas related to whether the researcher should have had a more active and participatory role continued due to the emergent nature of the initiative and constraints related to obtaining appropriate information and knowledge upon which to base decisions. I was also faced with the reality that much valuable information and knowledge was not readily available. It was a critical environmental constraint to record. Information and communication flows, as result, became much more important to monitor and understand as indicative of how agency, structural and social networking as modalities constrain or enable the initiatives work.
The participation of partner representatives varied greatly due to staff changes, organizational restructuring, internal priorities and varied commitments to the P2B. The result was low continuity among participants. On-going and shared learning that builds knowledge capacity within such a project was compromised. While observations captured this reality, there were times when the researcher realized that discussions would have been different, richer in diverse views had a greater number of organizational partner representatives been present. Interviews provided an opportunity to follow up on such themes but the separation from an interactive context resulted in a different, if not limited, account. In reality, those who were weak participants were most likely not to be available for an interview.

A more complete and richer picture may have been made possible by conducting interviews with local policy makers in positions related to the provision of online health information. Realistically, however, issues related to access and quality health information constitutes new and emergent specialist knowledge which P2B partners for example, struggled to understand. Policy makers, if the evidence of policy documents is an indication, may well have offered the well established principles and guidelines found in those documents but the opportunity may have provided a means to test concepts and gain insight into contextual factors.

The researcher also recognized there were constraints on the degree with which some partner representatives felt they could freely express opinions. The new NHS Research Ethics (REC) approval process enabled a strong research design and process but required significant time and resource commitment to the process. A number of difficulties and limitations were experienced in the process due to its recent implementation. There were gaps in information and understandings around the particular conditions that required specific approval processes and when staff in newly created, organizational structures were involved there were gaps in knowing who had authority to oversee approval. Employees themselves seemed, at times to be unsure and insecure about breaching protocols. On several occasions, I realized casual
conversations were potentially cut short or ended because the discussion had touched on something that they did not feel comfortable disclosing.

While health information was a central focus of this research the NHS were actually very distant participants in the PlaceToBe.Net partnership. As a result, there simply was not as much attention to related issues as might have happened otherwise. At times the leadership of the PlaceToBe.Net met privately with NHS partner representatives. Little information was available about such discussions. Quite a broad review of varied policy documents was possible but beyond the constraints of the research timeframe. Relevant to this doctoral scholarship were documents that focused on the information society, e-government, and those related to NHS health information and informatics and the National IT Implementation Strategy. A general review of national policy trends specific to access, the digital divide and quality of health information became a pragmatic solution to make the research study manageable. However, its brevity is clear. Conversely, Seale warns of the “new threat of energy put into excessive literature reviews at expense of applied research” (2004:412). While such an imbalance, if there is one, may be symptomatic of an emerging research area, a closer, more mutually rewarding research relationship with the initiative might have lead to greater balance and understandings of many of the issues raised here.

Despite the limitations outlined, they do not detract from the authority and legitimacy of the overall research but in fact are important to acknowledge as valuable lessons for future research. The thesis now proceeds to present the data collected during the research, starting in the next chapter with an evaluation of the local case, with consideration for how an original contribution to knowledge has been created through the precise and considered discussion of how paradigmatic and scholarly potentials are aligned with actual online practices.

A review of the literature revealed little integrative coverage of the dynamics of actors, structures and networks in relation to issues of health information, access and quality. Consequently, both case study and data
analysis chapters make significant contributions to understanding notions of access to and quality of health information as dynamic processes. A thorough and rigorous analysis of the case study data revealed a conceptual framework identifying good practices for the design, development and management of a community health information initiative. That framework is outlined in the findings chapter.
4.0 PlaceToBe.Net

The PlaceToBe.Net presents an opportunity to invest in projects which will help provide better quality information to the people of Brighton and Hove. (Riches & Walker 2002)

This chapter details the events that brought about the PlaceToBe.Net with a specific focus on how activities and decisions, over three years, impacted on key aims related to access, quality and community ‘health’ information. Within this broad context, the research examines organizational partner interests and values and the resulting outcomes of the partnership. During the project several key pieces of research were conducted and are discussed in relation to partnership aims and the shaping of outcomes. Revealed is an ambiguous and wayward developmental pathway highlighting questions and decisions that determined particular features and innovative directions. The detail revealed in this account of key factors and processes shaping an information technology solution, in a social environment, establishes a foundation for discussion and analysis in the following chapter.

4.1 The PlaceToBe.Net: a complicated origin

The need for increased access to community information was fundamental to a number of initiatives. Key Brighton and Hove organizations in for a decade had attempted to use new information and communication technologies for this purpose. Examples included the interconnected Community Information Network (CIN) project and the Information and Communications Development Pilot Project (ICDPP). As a result of the common involvement of interested individuals and key organizations, findings from both projects informed the PlaceToBe.Net. Such involvement informally created a social or community network based on shared ideas, goals and objectives, along with possible actions.
A significant champion of these interests was the Sussex Community Internet Project (SCIP), a not-for-profit organization, initiated in 1996. Several staff and members of the Board of Directors were involved in the CIN and IDPP projects and championed proposals leading to the PlaceToBe.Net. As a participant and witness of IT/ICT trends and their impact on communities, SCIP has managed, where many have not, to be sustainable. Diversifying from an internet provider, SCIP’s evolution has included varied initiatives and public/nonprofit and commercial/profitable partnerships (Day, 1999), pragmatically aiding sustainability. This success and guiding principles underlie SCIP’s role in the PlaceToBe.Net. The organization’s web site confirms that, “SCIP promotes and develops ways in which new information and communication technologies (ICT) can benefit local communities, by ‘supporting the people who support the people’ ” (SCIP, 2006). SCIP targeted the “not-for-profit sector, in particular voluntary organisations and community groups delivering services to end-users. A more detailed discussion of the initiative is provided by Peter Day, in his 2001 doctoral thesis.

In the spring of 2000, the City Council was awarded the sum of £417,000 to develop an information technology project (Argus, 3/6/2000). The March story in the newspaper also noted that as part of the Brighton and Hove ‘wired city’ campaign the PlaceToBe.Net portal would deliver public and private sector services. A bid by the city council to the central Government’s, Invest to Save Budget, (office of the Deputy Prime Minister) had secured funding to “set up a commercialised partnership which would deliver high-quality content16” (Walker, 2003a). After one false start the project finally began in the spring of 2003. The challenges would be many. To narrow the broad remit, the initial focus was on health information.

16 An early proposal suggested high quality content would involve multi-media “www, digital TV and WAP” (Walker, 2003)
4.2 The Role of Health Information in the origin of the PlaceToBe.Net

SCIP, along with organizations that were to become founding partners in the PlaceToBe.Net, had an interest in the provision of community information pertaining to health. The need for greater access to good community information had arisen from the work of traditional information providers such as libraries, council authorities, social and health care service agencies. Many of these organizations were experiencing transformation in mandates and strategic initiatives related to the dissemination of information, electronically. For example, Council-led, e-Government (UK Cabinet, 2005, 2006) had the goal of increasing public participation in civil society, one it shared with local social and health organizations to promote more inclusive decision-making processes. While national policies were established, local implementation and practice remained unclear. The gap seemed more serious for health and social service organizations as it was such a novel area to be developed at the local level and one, by appearance, delegated to recently recruited IT experts.

Such top-down work is dependent on information and communication flows across organizations and within organizations. The last was critical to the shared learning environment and decision-making involving diverse organizational representatives. Access to and dissemination of information influenced and shaped the PlaceToBe.Net. While policy tends to be top-down, implementation and practice moves in both directions potentially informing and allowing iterative learning, reflection and possible transformation throughout a dynamic process.

At the beginning of the initiative, it was difficult to determine what interests, understandings or expectations founding partner organizations held relative to health information. The Primary Care Trust, obviously, had the most direct interest in health information, heightened by recent
national, regulatory strategies that included attention directed to increased information (NHSIS, 2003) allowing greater patient choice (NHS DOH, 2004b, 2005, 2006). This involved referral and treatment processes and the integration of social and health information at the local level (NHSDOH, 2004c, 2005) to aid both professionals and service users. However, other partners held electronic health information, in some form, a situation increasingly recognized as the initiative unfolded.

The newspaper, for example, managed an extensive archive of health related material and was challenged in the goal of optimizing electronic access internally and for the public, externally. The two universities had similar concerns. The more obvious related to education and academic research for internal goals but also external collaborative or partnership goals. Other interests were also realized including the ability to share valuable information across disciplines and departments.

The City Council realized varied information interests crossed departments. Most notable were health and social services with organizational boundaries and sectors such as those related to housing, the aged, youth, the environment and aspects of employment intersected. As an example the city and local NHS trust had committed to a partnership addressing links between health and social service activities.

Eventually, it was acknowledgement during PlaceToBe.Net meetings that these large information organizations had real difficulties knowing what information they held of value and to whom it was valuable. Shared learning during meetings brought new realizations about what health information might consist of and transformed existing ideas of health information. It became obvious that health was taking on a definition, not formalized, that was inclusive of promotion, wellness, prevention as well as care and treatment. As a result, all of the diverse partners’ information resources held some relevance to health. Understanding how and why and to what purpose remained uncertain within organization partners and the PlaceToBe.Net partnership. The external context of top-down policy and predominantly bottom up information provision and use provided
informal and disjointed clues without the benefit of formal assessments. The PlaceToBe.Net was a unique opportunity, one not formally acknowledged, to ask such questions and act to find answers relevant to partner organizations as well as the partnership. This type of work corresponded to supplemental aims which were longer-term in nature and while they could aid sustainability were not easily fostered by the short-term funding of the project culture.

4.3 A Proposal and Project in Transition

A sustainable, high-quality community portal for the city was seen as desirable and achievable in the 2001, SCIP report to partners. It was an opportunity not to be missed, according to the report, otherwise the city risks falling behind in “terms of technology and information”, funding and “major private sector providers” (2001:1). The report to the partners highlighted a number of contentious issues that would continue to play a critical role, shaping the initiative. One concerned the involvement of partners. Many questioned the appropriateness of the group at the table and whether the “right public-private mix” or expert-lay participation had been met because “it was key to success” (SCIP, 2001). There was a divergence of views as to whether or not it mattered at this stage. A second tension was related to the “lack of clarity regarding aims and the audience” SCIP, 2001). The report noted that “While most want to see it focused exclusively on local people the question of who and for what requires much more work” (2001). The goal of clarifying target audiences and the “urgent need to understand in more detail what users want” required primary research (SCIP, 2001). This research process and outcomes are discussed later in this chapter and chapter five. Related to clarity, was the issue of adding value to a space “where new and different things are created and new partners brought together,” a recommendation in the report, (SCIP, 2001:3). Many interconnected issues involved a third
tension related to the exclusive or inclusive nature of the project. The first example involves support and resource sustainability related to generating revenue or being a not-for-profit service. Related to functional or purposeful sustainability are issues around who decides what content or partners are in, or out, and why? The issue was exemplified, if not somewhat clarified, in the first meeting of the committee (13/8/03) when in relation to the search engine/solution, the principle of making content available versus releasing it to a third party portal site was established. A related inclusive/exclusive dichotomy was seen in the choice of a ‘technology solution’ which the report indicated as being “driven by overall priorities for developing specific functionality” (2001:3). The obvious example was the choice between a generic, off-the-shelf solution and a specifically designed, bespoke technology. How either would prioritize local information as high ranking search results while ensuring control over what is found and what is restricted or kept private were implicated issues. These issues are explored further in chapter five.

Little movement occurred for the next year as a variety of events impacted the initiative. A change in CEO for the City of Brighton and Hove resulted in a reassessment of council related projects including the PlaceToBe.Net. The delay coincided with the decline, globally, of the ‘Dot Com’ phenomenon resulting in a decision to discard that advertising-driven, business model for a web site facilitating access to local community information (P2B, 2004). Over the summer of 2002, partners, who remained interested in the PlaceToBe.Net despite a number of false starts, were consulted and a set of recommendations developed to take the project forward (Riches and Walker, 2002). Three projects were detailed as opportunities to “support and help develop existing activities in the public and community sphere”. These included the “Brightonbrain – the city’s search engine”, “integrated health information” and a “community server” (Riches & Walker, 2002:2). Commitment and involvement of key people from organisations across the City was seen in the Riches & Walker Report, as “necessary to move such projects forward” (Riches & Walker, 2002:2). Different resource needs, opportunities and challenges, in terms of sustainability, were recognized.
The 2002 report included partner feedback. In it, the University of Brighton is mentioned as noting valuable links to research in Community and Health Informatics. The University of Sussex identified links with business developments and academic links as vehicles for widening participation (a current strategy for many universities) and indicated links to other education providers as valuable (Riches & Walker, 2002). The newspaper was supportive in principle but had reservations related to the heavy role of Council as well as delays that might result in a loss of energy and enthusiasm (Riches & Walker, 2002). The reported interests were indicative of the level of representation and involvement in the PlaceTo.Be.Net. The University of Brighton was represented by both faculty and senior leadership while only the latter was true for the University of Sussex. The original representative for the Argus newspaper held significant interests in business practices and issues of competition that initially stalled the project. An IT manager replaced the senior editor in 2003 and although tension remained around these issues, work concentrated on moving towards tangible outcomes. There were times when tensions rose between the practices and principles of business and the aims championed in the interests of public-good clashed. This was seen in concern over the lack of clear aims and viable outcomes from the project start. It became more focused when the possibility arose that other less news-focused papers might become partners. This exemplified issues beyond competition with questions of content quality and substance raised. Eventually the question of an editorial role and interpretation of information resources in relation to use was raised in a critical and sceptical manner by the third representative from the newspaper who was an experienced editor and manager of IT. The questions broadened discussion and emerging definitions of what was accessible, quality information. No resolution resulted as discussion quickly returned and focused on the pragmatics of the agreed on technology solution. Implied was the common assumption that the technology would offer the solution. Indeed the automated, inscribed functionality would constrain or enable processes that would shape access and aspects of information quality.
The Primary Care Trust, as a partner, saw the potential for strong links with other projects including the Joint Information Unit, an initiative between the PCT, Social Care and Health\(^{17}\). The 2000, Riches and Walker report describes the Joint Information Unit as having ambitious targets, seeking agreement on standards for information, a common set of categories for information and providing jointly commissioned services such as “interpreting into community languages” (2002). Their report perceived PlaceToBe.Net funding as enhancing this work, providing opportunities for a wider perspective. Working more closely, with community-based information providers and the Brightonbrain would benefit such work, the authors suggest. The same view was not openly shared by NHS representatives.

After submission of the Riches and Walker report, the Brighton and Hove CEO\(^{18}\) agreed that the project should “proceed with original recommendations and SCIP should lead the development of the project” (SCIP, 2004:2). A revised bid document was submitted to the Office of the Deputy Prime Minister in October 2002. With approval “the project was in fast track development mode from December 2002-April 2003, including consultation and negotiations with the Council (as Accountable Body) and the Invest to Save (ISB) Officers at the Office of the Deputy Prime Minister (ODPM) which was funding the project” (Walker, 2004). Detailed work, setting up the partnership and “developing a set of project proposals” took place in December 2002 (SCIP, 2004). Early in 2003, the seven organizational partners met to formally found the corporate structure.

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\(^{17}\) The Joint Information Unit

\(^{18}\) The new Brighton and Hove CEO was appointed summer of 2001
4.4 **Structure and Action for the PlaceToBe.Net**

Before the founding board meeting took place, a website for the PlaceToBe.Net was created in February. It created a tangible presence for the initiative and made available to the public a number of key documents. A member only, online, PlaceToBe.Net discussion forum would also be established to assist project development and the sharing and dissemination of information and communications. Documents, meeting notices, agendas and minutes were sent through the yahoo forum. Links were sent for several informative documents related to semantic search tools. Limited discussion took place as it was not promoted. Difficulties related to security software that seemed to block the receipt of attachments compromised adequate functionality for all members thus constraining what might have been a valuable collaborative and shared learning forum.

At the founding board meeting in May 2003, partners committed in principle to the creation of the PlaceToBe.Net (SCIP, 2004). Four partners signed with others following suit during succeeding meetings. That August, the SCIP report “Improving Information and Communications for People in Brighton & Hove” identified the seven key partners as the:

- Brighton & Hove City Council
- Brighton & Hove Primary Care Trust (BHPCT)
- University of Brighton
- University of Sussex
- Sussex Community Internet Project (SCIP)
- The Argus/ thisisbrightonandhove.co.uk (Newsquest)
- Virtual Brighton and Hove

The diagram below illustrates relative relations between and among the partner organisations. SCIP as the key organization supporting the initiative is larger. Distinct and separate are three public sector
organisations. The Council is shown surrounded and affiliated with the local PCT and a private web portal company. All partners have separate affiliations with SCIP made formal by the partnership.

By September, the PlaceToBe.Net had become a corporate structure. The first meeting of the Executive Board included SCIP members as well as executives from the organizational partners. The Project Executive position had been assigned to a SCIP staff member, a long-time champion of the PlaceToBe.Net, and agreed previously with the City Council. Established at this meeting was an advisory group commonly referred to as the search engine committee which was to have key role in facilitating the work. According to the meeting minutes a group, made up of “technical and business experts, representing partner organizations, would lead on the project specification for a search engine and participate in the tender evaluation” (P2B Board, 9/8/2003).

In the fall, the 2003 Summary Position Paper prepared by the Project Executive stated that “the placetobe.net is:

- A city-wide partnership
- Involving public, community and private partners
- Focused on improving quality of information available to local people” (Walker, 2003/2)
The partnership agreed that “theplacetobe.net will seek to improve the quality of information available to people living and working in Brighton and Hove, in particular by the use of new technology and by working in conjunction with public, private and community organisations that provide information of relevance to the local community” (SCIP, 2003). Thus a general audience, more specific than ‘local people’ (Walker, 2003a) was defined geographically. The fact that information would be built around existing providers from public, community and private sectors (Walker, 2003a) helped clarify the initiatives aims and goals. While a number of issues remained unclear, including key definitions of community, audiences, access, quality and health information, attention became focused on the PlaceToBe.Net aims and objectives, which are detailed in the next section.

4.5 Moving ahead; the PlaceToBe.Net Aims and Objectives

Early in 2003, agreement in principle among the founding partners meant that work could proceed in regard to PlaceToBe.Net aims. The summary position paper of February, 2003 laid out those aims:

- “To improve the quality of information available to local people”
- “To build supportive links between local information providers”
- “To build and support information systems which help provide better access to high quality information”. (Walker, 2003/2)

The first aim involved issues of information access and quality as well as the intended audience. The PlaceToBe.Net remit was broad, based on “widespread support for focusing on activities that improve access to and the quality of public and community information” (Riches & Walker, 2002). The need to focus the early development of the initiative on a particular type of information was felt to be a means of expediting as well as
monitoring the work (Walker, 2004). As an initial stage, a focus on health information was viewed as a means of establishing good practices and to learn lessons, useful to future work, related to specialized community information such as education, housing, arts, leisure or transportation. As a result, lessons learned could potentially contribute to other information sectors.

A review of PlaceToBe.Net documents, chronologically, finds the early focus on health mentioned in Riches and Walkers’ (2002) report to the CEO, Brighton and Hove City Council. In the report ‘Integrated Health Information’ project, was noted as one of three related projects and was described as related to “many different projects underway which are looking at how to integrate information from different public resources”. The project corresponds closely with the goal of a Joint Information Unit between PCT, Social Care and Health (Riches & Walker, 2002:6). At the time national policy was driving the integration of health and social service information. PlaceToBe.Net funding was also seen, in the report, as enhancing this Unit’s work as well as “linking with the other proposals to provide opportunities to introduce a wider perspective” (2002:6). SCIPS experience and network involving varied community volunteer sector organizations had created awareness, if not understanding, of the critical role information played in the delivery of such services. It was knowledge that varied among the organizational partners in the PlaceToBe.Net.

‘The PlaceToBe.Net, An Introduction’, produced in August 2003, noted that “health has been chosen as the first focus for this research, which will map the existing online and offline information resources which are available to local people”. This was the goal of a health information mapping project commissioned from Worth Media, a private, new media firm already contracted for projects by the local PCT. The first phase was an initial sweep to identify what was out there, with results intended to raise additional questions for further research. A database of some 200 reviewed sites was created and placed online for PlaceToBe.Net partners to access. It was an attempt to disseminate and share valuable project information but there was no attention or review to how effective the
medium was to increasing knowledge and reflection on such information. The discussion will next concentrate on how this and other research was reported to the board.

Published in the fall of 2003\(^{19}\), the study ‘Mapping Local Online Health Information: analysis and outcomes’ identified several key features of locally available health information. Key findings were recorded in the December 3\(^{rd}\) 2003, Board of Directors minutes. Reported was the fact that much online health information was found to serve a goods and services, marketing and promotional role. This was also found to be true of mandated health organizations whose websites were highly descriptive, providing service and contact details, booking or referral information, all of which are administrative and promotional in nature. The fact that the majority of health-related information, located online, was supplied by private, profit-making commercial agencies which, again, promoted services and products was also reported. No attempt was made to explain this pattern. While it would typify a context uncertain of its audience of users there was no acknowledgement of such a gap. Reports also noted that health information provided by governmental organizations, in particular the NHS, tends to be an electronic version of what is available in print form, stated the report. Much information was found to be repetitive with numerous sites providing the details of surgeries and dentists, for example. The danger in such a pattern of presentation is the impression that it constitutes health information. Discussions at PlaceToBe.Net meetings continued such assumptions when there was no exploration of what constitutes health information. As a result definitions were left informal and independently or mutually assumed by partner organizations. No formal reporting left a gap in this knowledge.

A summary document prepared for the same Board of Directors meeting (3/12/2003) records feedback from partners that included a statement from the Head of Partnership and Organizational Development, at the local Brighton and Hove PCT, identifying that there were “in principle –

\(^{19}\) The first report was produced September 2003 and revised November, 2003.
strong possible links with other projects within PCT" (Riches & Walker, 2002:4). Also mentioned was the link “to a Joint Information Unit” and new personnel in connection to the Patients Advisory Liaison service and a review of public information. No attempt was observed to identify related potential and no formal links were made beyond the recorded compatibility by the head of the local PALS initiative who along with her superior were representatives on the PlaceToBe.Net Board.

The benefit from the health information project, recorded in the document, PlaceToBe.Net Project Details 2003/4, was that “all providers of health-related information (would be) better informed of existing usage of health information in the city." Also noted was the benefit of “better quality health information more readily available to local people.” A ‘Health Information Project’ would support activities that would help the development of a city-wide health information strategy to understand and “map the existing provision of health information” and “develop better links between providers across the city” (Project Details 2003/4). These were laudable goals given priority in reports but received less than adequate support. The result was a lack of actor authority and agency.

How to identify what information was needed by the community was an issue raised repeatedly at PlaceToBe.Net search engine meetings. In addressing the question of audience needs, frequent reference was made to earlier, public consultations. While not specifically identified they were likely related to the earlier CIN and ICDPP projects because involvement of the public, and volunteer/community sectors were noted with recognition that they were often marginal to information and communication technology (ICT) developments. Organizational partners in the PlaceToBe.Net indirectly represented this sector through other involvements. See partnership and networking discussions. It was understood that the sector had needs, but they were a publicly resourced sector with resource constraints that made it difficult to recognize their value or beneficial use. This inequity of opportunity constraining R&D in this sector was frequently mentioned during committee discussions but
without more formal authority through acknowledgement in documents it remained an informal concern.

The PlaceToBe.Net formally engaged in learning about the general information needs of the local people in Brighton and Hove by contracting the ‘City-wide, Omnibus Survey’. Prepared in November 2003 by a researcher at the University of Sussex, the survey probed three overarching questions.

- Who has access to the Internet in Brighton & Hove?
- What do they use the Internet for?
- What would improve the effectiveness of their usage?

The initial findings indicated limited information was available with “the majority of a statistical nature and not analysed”, making it difficult to put internet usage into context (P2B Board, 3/12/2003:3). For example, the most frequently searched phrase on the Brighton and Hove City Council website was the term ‘social services’ which returned the least results because the majority of information available online was categorised under ‘social care and health’. This example makes explicit the fact that access to quality health information is mediated by search terms and technology. On this basis and a greater understanding of related issues, the omnibus report recommended additional primary research be conducted. The finding was acknowledged but situated outside the project’s immediate and short-term remit. Without follow-up the recommendation remains only that. Left on the pages of a report it may be given authority and agency in the future should the PlaceToBe.Net sustain its aims and actions. The same can be argued for reports finding that there were “barriers to sharing information across the partner organizations, most especially in the area of web site statistics” (Coultas, 2003:4). Some rather general indications of who was searching for what information were provided based on national indicators weighted by local population features. This inadequate detail was made more obvious in the ICT Usage Survey Part Two report, 2004. There was insufficient attention to the very generalness and vagueness of this data which failed to
actively promote further exploration and assessment to support the work of the PlaceToBe.Net.

Based on the results of the Omnibus Survey, the PlaceToBe.Net recognised it could, "also provide a focus for a number of research activities which will investigate current and future usage of computers, the internet and other communication technologies by local people. This will include sharing information across the city about how many people use the internet, what they use it for and how they would like to see it improve" (2003:8). Such information was seen as key to the decisions faced by the PlaceToBe.Net but was constrained by more practical issues – the need for tangible outcomes seen in the development of a search engine. Success offered the potential to sustain and develop capacity to attract and develop additional resources that allowed longer-term aims to be acted on.

The Omnibus authors acknowledged the importance of PlaceToBe.Net partner cooperation in the research and results. An unanticipated result was the fact that many representatives interviewed indicated the questions had “caused them to reflect on their own evaluation process” … “to reflection on the role of information within their organisation and sometimes … the role of the interviewees themselves within that organisation.” (2003:8). This mutual learning process provided partners with a greater awareness of these issues with the recommendation that “Theplacetobe.net should endeavour to position itself so that it can advise people on how to collect the relevant information on internet usage e.g. web stats and surveys… and motivate discussion about the value of these types of statistics in guiding strategic decision-making about future use of computers and the Internet across the city” (2003:5). Such a role connects the first PlaceToBe.Net aim of increasing access to quality community information, with the second aim, below.

**The second aim of the PlaceToBe.Net** - “to build supportive links between local information providers (Walker, 2003)” - corresponds to the development and management of the partnership itself. The value of
partnerships was outlined in the August, 2003 ‘Proposal Update’, by Walker, which noted the importance of “working across organisations to share information”. The value of partnerships across sectors and relative to access to quality community information was recognized in varied ways and means throughout the length of the initiative. Tangible evidence was seen in prepared project documents of the multiple and overlapping relations among varied local initiatives, involving health information and the PlaceToBe.Net initiative, were seen in two documents indicating potential links and common aims with the ‘Community Partnership’ (formally the Local Strategic Partnership), the 2020 Community strategy and the ‘Local Health Improvement Programme’ in Brighton and Hove. Evident from the review of key documents was the practice of key individuals participating in multiple projects, becoming the hub of a community network, enabling action. While interested in each others work, the ability for organizations to collaborate, or act in partnership, proves challenging. Interviews conducted for and reported in the “City-wide ICT Usage Omnibus Survey” found, for example, that each “organisation, and interviewee within it, had a slightly different understanding of the aims of the placetobe.net” (Coultas, 2003:8). The research also found a division between, who knew what, about the use of technology in larger organisations which raises concerns for external partnerships like the PlaceToBe.Net. Similarly, the survey provided evidence of a low level of shared understandings among partners as well as internal, organizational limitations to gaining an understanding of the PlaceToBe.Net initiative. Such a project context can create constraints when lessons from similar initiatives have shown that a high level of shared understanding is considered critical to cohesive partnerships and their productive outcomes (Ramirez et al, 2002; Chambers, 2003).

Information and its flows were critical to forming the partnership with formal and informal community networks playing a role in bringing key organizations together. The formative role of earlier projects such as the CIN and ICDPP has been discussed. Information resulting from their activities has informed the PlaceToBe.Net including finding that a common need involved greater information about community groups and
organizations. This was supported by the frequently cited and externally published, Mills, Seymour and Taylor report, “The Voluntary and Community Sectors in Brighton and Hove: Support and Representation” (1998)\textsuperscript{20}. It identified the need for comprehensive information on the community and voluntary sectors and recommended the development of an electronic database for that purpose. The PlaceToBe.Net initiative recognized the importance of such an outcome. The sector was indirectly represented in the partnership and ideas and needs had moved beyond a standard database.

The question of representation was raised on several occasions with regard to having the right people with the right expertise contributing to the search engine committee (Board of Directors 3/12/2003). While technical and content expertise was present there was no similar reflection on a broader range of expertise related to information provider/user (audience) interests or representation. Towards the end a number of external organizational representatives attended the committee meetings. In observation this seemed to serve several purposes. There was a desire to share knowledge and mutual expertise, gained from similar work as well as explore avenues of collaboration and cooperation for the future.

Once the search engine was running the PlaceToBe.Net expanded its partners. More information providers were welcomed. Under what circumstances this would take place was a discussion that arose at several meetings but no firm decision was reached prior to the launch of the search engine appliance and the discontinuation of search engine meetings at the end of 2005. Some five hundred potential partners were identified through the Omnibus Study and as of mid 2006 the number of organizations participating in the search engine was steadily increasing.

The third aim of the PlaceToBe.Net was to “build and support information systems which help provide better access to high quality information”. The

\textsuperscript{20} While published external to and prior to the P2B project it was produced by researchers at the University of Brighton and was therefore known by those within related, informal, social networks.
original September, 2001 proposal was for a portal which would function as a “directory of information, like Yahoo” (Riches & Walker, 2002). An earlier ‘Report to Partners and Recommendations for Development’ described the portal as acting as “the main gateway for local people to access integrated local services and information” with the “presentation and aggregation of information and services” (SCIP/P2B, 2001). The portal would also provide a “unique mix of public and private space in Brighton & Hove” according to detail captured in the ‘Omnibus study’ on city wide information (Coultis, 2003:24). These were valued goals that continued to inform the work but technology and needs had evolved and were continuing to do so, particularly in view of the wider PlaceToBe.Net context. For example, private R&D was dominating how and what health information content was increasingly available online.

The “Brightonbrain” replaced the portal model in the August 2002 proposal to City Council which described it as a city-wide search engine, modelled on the success of Google. The portal model had “presented too many problems for potential partners, as well as creating an unsustainable model” (SCIP/P2B, 2003b). The new tool would be designed to accommodate existing “databases and websites – ESCIS, the Council intranet, various PCT resources, for example… community resources which SCIP and others maintain and several privately-owned databases” (Riches & Walker, 2002). The “BrightonBrain” proposal recognized that large amounts of information already existed on local websites (Walker, 2003b). It also noted that there was little interaction between local information providers and little signposting or sharing of similar information (Walker 2003b). The document claimed “a specialist localised search engine can help build a framework of information, creating links between sources and helping people find information they want” (Walker, 2003b). The search tool would be accessed through its own site as well as through search boxes on every participating partner site (Walker 2003b). The author noted that detailed work involved: (1) building a tool to search through local information, (2) developing access to a search engine through partner’s web sites, (3) working with local information providers to help improve the suitability of their information,
and (4) rolling out the search engine across a network of local sites. As the first major PlaceToBe.Net project, the search engine would “simultaneously search the information published on local web sites” beginning with those belonging to the partners and expanding to create a network, in a second phase of work (Walker 2003b).

The invitation to tender was circulated at the end of September, 2003. In preparing the tender “the project group was very careful to prepare a brief which concentrated on asking the right questions, rather than proposing specific solutions” stated the Project Executives report which recommended an IT firm be awarded the contract (SCIP/P2B, 2003c). The specification, therefore, identified current problems and issues related to information seeking and publishing and requested solutions. Fifteen bids were reviewed by the committee against criteria developed by the Project Executive and Project Manager, in line with City Council procedures. A strong onus was placed on the ability of the potential firm to bring experience and understanding of working with varied partners with diverse needs as well as demonstrating accountability for their costs. Aiding the sustainability of the initiative was also seen as a valued contribution. Five firms were short listed and subsequently presented to the committee. A final decision was made after two firms were asked to provide additional material on the management of metadata, relative to diverse electronic resources across the differing partner sites. Preference was given to the locally situated IT firm, awarded the contract in December 2003.

After nine months of development and consultations with partners the agenda for the September 2004 search engine meeting and notes from the previous one, indicated strong progress. The next stage was “to see it working for the Council and Virtual Brighton”. Agenda items indicated action on issues related to the design of the search results. These included factors to help people use the results, the fit with functionality of partner sites and how to achieve quality results through features such as

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21 The City provided a staff person as Project Manager to provide administrative support. Two individuals held this position.
page rank and Google integration. Consultations had been held with partner organizations identifying technology and information needs as well as constraints. These issues as noted above required significant development time and resources to resolve. The resulting bespoke solution was seen as potentially ‘leading-edge’ with value to other councils and cross-sector enterprises. Funding, ownership and potential sale or lease of the unique tool became fundamental issues challenging interests and values that differed from private, IT firms and partners to publicly supported and sponsored PlaceToBe.Net aims. Original funding prevented any form of profit being made and although the IT firm was willing to donate time and resources it was with the prospect of future financial gain from the uptake of the tool. Conceding to the funding constraint, limiting profit motives, a pragmatic change of directions ensued.

Google as a search engine, increasing its branding and market share, was recognized as a valuable tool early in the project. In the initial committee (13/8/03), Google was referenced as “a kind of short hand, explaining what we are trying to do”. Acknowledged was a “basic simplicity at the front end while behind was strong capacity - results were delivered in combination with ease of use”. The Riches and Walker report noted that “Google wins user approval because of the quality of its answers – how well it predicts which answer you’re looking for” (2002:3) The authors also point out that Google “learns which answers are most used and therefore continually improves the quality of its answers over time” (2002). These quality claims illustrate the challenge of lay and expert understandings of technological functions, a tension first raised in 2.3.7 and will be expanded in the following discussions chapter. In the face of complexity and demand for project results it was difficult to ignore the market leader when Google had very little direct competition. Google’s widespread popularity was based on distinct advantages, easily understood by expert and lay users. The model was easy to use. Users were satisfied with the results to a greater extent than with other search engines. Google had set a new standard and for all of these reasons was an easy technology choice, one critically examined in discussion of the
findings. No off-the-shelf product provided this functionality for local community use. However, by the end of 2004 Google made such an appliance available in the UK.

The choice between the purchase of a Google technology (not actually ready for the U.K. market at this time) or to develop a bespoke product had first been raised in the 2002 report to City Council. This report stressed the need for the solution to "grow with use". It also acknowledged that "the search engine is only as good as the information it has available". The vision, advocated in the document, is one of the "Brightonbrain scouring a host of local information resources on an ongoing basis – much as Google does - … offering access to other people’s information, rather than having to look after its own" (Riches & Walker, 2002). This design, according to the report, would reduce the high editorial and updating costs involved in a portal model. Similarly, the "development of information categories based around lifestyles, service needs, life events and so on" was viewed as "less straightforward to manage and maintain". Throughout much of the formative work these issues came up in more of a sporadic, than planned manner indicative perhaps of the less than straightforward nature of these complex issues and how people, working together, are attempting to come to an understanding. Resolution was sought, within the original tendering process which stipulated partner consultations on the issues. This process was underway, in the first phase of search engine development, when a decision was made to significantly change course and move to an off-the-shelf appliance just released in the U.K. by Google.

Design and operational features such as the use of metadata, tagging and common classifications including taxonomies in relation to making content visible and public or keeping it invisible, protected and private were noted by web experts, at committee meetings. There was generally a strong desire to maintain editorial control (determining what is visible and accessible and what is not) over information content by web experts.

22 Bespoke refers to a customized product – not off the shelf.
attending meetings. Perhaps it was not surprising that the most adamant represented the NHS and Universities. A number of discussions indicated

A result of growing public interest in complimentary and alternative medicine is attention to integrated medicine. In Ontario I became aware that many people were hesitant to tell their GPs that they were using such products because they did not want to risk becoming ‘orphan’ patients. Non disclosure however posed particular risks.

In Brighton and Hove an Integrated medicine group founded by a pharmacy lecturer and a GP began periodic meetings in hospital facilities in 2006. The two meetings I have attended attracted a broad representation of health care professionals and alternative and complimentary practitioners, lay experts and citizens as consumers of services or patients and clients. Both meetings gave me much to ponder around issues of access to quality health information.

The most recent meeting focused on the topic of diets, questioning whether they work. Instead of a key speaker, a forum of several experts provided commentary on their relevant specializations with an informal exchange of information and views involving all attending. It quickly became evident that this exchange was invaluable situating the discussion in an informed context. The definition of weight, obesity and related eating disorders were challenged. The subject came to be seen as highly complex, involving issues of behavior, physical and emotional functions, with no easy answers. While the discussion recognized weight issues were inclusive of other eating disorders it was not a common understanding in NHS directives. Attending GPs noted their hesitation in raising the subject with patients. A number were frustrated at what they termed as out-dated and limited clinical guidelines that still recommended the high consumption of carbohydrates, now known to be inappropriate. New evidence was discussed involving the role of lipids or proteins, knowledge obtained through individual research and expert contacts but information that was not being disseminated. A number of those present arranged to obtain this new information.

Other discussions illustrated how popular media were giving out messages about diets. Those desperate to lose weight were vulnerable to messages about the Subway diet or a quick fix through one type of cereal or diet drink. There is little to counter the barrage of such popular messages.
the importance of information ‘signposting’ which requires knowledgeable design of content that can guide searches to particular information while limiting contact with other content. A significant example in the discussion of these issues related to health information, and defined by participants, was information accredited by certified medical and health authorities.

Information certified by different means was frequently classed as complimentary and alternative because of less certain quality. Emerging from this description are various factors implicated in quality. It is clear that the role of professional bodies and the manner by which quality is judged become key factors determining access to health information.

Issues of metadata, tagging and making information visible were addressed with the implementation of the Google search appliance which left such details in the hands of those designing the application of the appliance on a given site or portal home page. The home page for the appliance detailed categories for specific searches and these classifications required design, and for best results, guidance and agreement from the partnership. By the time such questions came up, attendance at committee meetings had declined (P2B meeting, 1/3/2005). A key meeting on these options had, for example three representatives in attendance.

The decline could be explained by various reasons. The most likely being a sense that the work was essentially done with the search tool requiring minimal ‘tweaking’ in order for it to operate. There was also an awareness that the project was coming to completion with funding nearly exhausted. During the last meetings the Project Executive noted a changing role for the committee to one of advising on policy, practice and procedure. It was a function generally accepted by the few regular participants but the form and modality of the committee was not made clear. Without broader committee participation, shared understanding and commitment to this on-going role activity faded. Several additional partners joined but active promotion of the PlaceToBe.Net beyond the presence of the online search engine was not observed.
Did the PlaceToBe.Net increase access to quality community information? Through the use of the new search engine Place ToBe.Net partners had increased access to each others electronic information. Its quality however, remained a product of those providing the content. It was an outcome resulting from default with the relegation of responsibility for information quality back to the partners as providers. Evidence of quality remained at the level of source with the partners seen by the partnership as appropriate providers of content and because they were key community organizations they would be known by users aware of local practices. No definitive answer to the question resulted from the work of the PlaceToBe.Net. Guidance providing more answers is the result of this research.

4.6 A Change of Direction in 2004

In December 2003, the contract to ‘build’ a search engine for the PlacetoBe.Net was awarded to a local IT firm, RunTime Collective. One of their first tasks was to meet with key partners and determine requirements for search engine optimization including improved metadata with the goal to make “information easier to search at a higher quality” (SCIP/P2B, 2003c:2). The December 3, 2003 Report to the Board of Directors had indicated a preference for ‘open source’ software based on “cost, sustainability and the wider values of the project”. Second was the need for a scalable solution workable with a variety of diverse sites beyond the founding partners and third to “be realistic about the resources which partners can put into the project” (SCIP/P2B, 2003c:2).

By February 2004, efforts were underway to capture search engine requirements in a users’ group meeting. An overview report of the project went on to detail the users: “The key users of the search engine are taken
to be those organisations based in Brighton and Hove that gather, manage and publish information for the use of people who live or work in Brighton and Hove and its visitors” (2004). Information seekers were seen as “people who lived or worked in Brighton and Hove and its visitors” (2004) seeking information about the area. Current users were recognized as those people already using the Internet to gather information. The Placetobe.net was also interested in understanding the needs of people not currently using the internet to access local information.

The 2004 report also detailed the founding members, unchanged from those detailed in this doctorate. Other local information providers - "as many as 500 local websites, provided by many different organisations" - were noted as possible future members. No plan was developed and no formal strategy taken to ensure increased participation in the PlaceToBe.Net, although such actions would have complemented its aims and sustainability. Capacity had been enhanced through shared knowledge and learning but the resources and authority to actively sustain the PlaceToBe.Net were not obtained and interest and participation faded.

The brief report detailed benefits to users. Walker states that “appropriate local online information is quicker and easier to find; when visiting local sites, from elsewhere on the Internet eg search engines, with clearer links between related information sources” (2004:2) desirable. Benefits for information providers included “greater visibility for existing online information; improved searching within sites; links from other local sites; searchability through external search engines; improved search facilities within partner sites; use of government approved information standards; the facility to provide related links to information offered by other providers; better understanding of the use of existing online information; better understanding of the value of individual information resources; more visitors to existing online information; more relevant visits to existing online information; information and statistics to guide future strategies” (Walker, 2004:2). Reflecting back on the discussion of sociotechnology shaping evidence is accumulating that the focus on use is predominately
related to the provision of information, a phenomenon to be discussed relative to findings.

Published in June 2004, the ICT Usage Survey Part Two detailed usage, in Brighton and Hove, of available information. Most significant was the finding that, “There is no direct publicly available information on internet usage across Brighton and Hove” (Runtime et al., 2004:3). The report compiled data on usage utilizing information about the city’s population in combination with national level survey data provided estimates on aspects of use, including those distinguished by dial-up Internet access, or utilizing broadband. The generality of these estimates (no specificity to use of content) was made particularly evident as the study acknowledged the likelihood of under- or over-estimates. Twenty city districts were recognized as socially and economically disadvantaged with their populations more likely to be excluded from Internet technology which would reduce city averages of use overall. However, the opposing trend, of higher education standards for a high percentage of the population and a higher than average new media sector increased the cities average, related to use. Concrete answers, as a result, remain illusive.

The choice to implement the Google-powered search engine marked a second stage in building the partnership. It came after the January, 2005, review of the Search Engine provider (Walker, 2005a). Functional searches on each partner site with a central portal facilitating simultaneous searches provided the foundation to build “links with more local partners to add content” (Walker, 2005b). These two features met all but one of the desired success features outlined in the 2005, document “Implementation for the p2b.net search engine”, which left “work in a way which the partners feel is of benefit to the users of their site(s)” to be judged. Key issues identified in this report that required attention were individual and committee meetings to meet partner needs, technical deployment issues, policy issues, design of the portal and results facility, and inclusion of new partners. A questionnaire to help resolve these issues was circulated to organizational representatives attending the search engine committee.
The results of a Usability study of the Google appliance (Walker & Light, 2005g) was reported to the PlaceToBe.Net meeting in May 2005. The study contracted to a researcher/consultant at the University of Sussex recruited volunteers through a call for participants made by the Project Executive within his social network. The pragmatically, selected group was random but did represent an older age group with the time to devote to such an event and an initial interest in the technology. They were not selected on any criteria that assessed interest in online content other than some familiarity with using the Internet and goal to search on a particular subject of their choice.

There was overwhelming consensus that Google was a market favourite. Its unrivalled popularity and lack of a comparable quality search engine tool made it the easy choice. Much affection was demonstrated for Google with comments that included ‘old faithful Google’. Such overt sentiment and awareness was not surprising given the concurrent media attention to Google as a rapidly expanding enterprise capitalizing on the global success of its search engine (Brabazon, 2006; Shaker, 2006). The usability study went on to describe a number of findings that the PlaceToBe.Net could consider.

The study found that people are more likely to use site navigation rather than do a search, the last activity they would engage in to locate information. The way search results are presented is often not obvious to the searcher with, for example, the first ten returns receiving attention and others ignored because of failure to move to the next page (Walker & Light, 2005f). It was acknowledged that it was difficult to know how much can be done to guide people through a search process. When people liked what they found, there was enthusiasm, otherwise a search was begun again often without fully realizing the constraints or positive outcomes of the first try. For example searchers, at times, failed to recognize they had good results because they were not summarized well or were too far down the return list.
The search box was found to be a limitation due to size and pre-programmed search items that automated searches interfering with the intentions of the searcher. Without summary information on finds, such as is the case with the current search function on the City Council site, searchers have difficulty knowing which choice to make. Because people are not refining their own searches the need was identified to standardize what was happening. Standardization in the form of an ‘a’ to ‘z’ search listing was recognized as not particularly helpful, if the term is not present. In viewing the newspapers’ website it was found that many searchers did not know where to go and had to be directed to the archives. There was often too much variety in the design and in the means of accessing information. The newspapers’ search results were compromised by the lack of a meaningful date on the source document.

These attributes of searching online illustrate aspects of usability but also access and quality (Henzinger, 2002; Shaker, 2006), all of which overlap in the complex system involving information provision and use. Usability has become a specialist area with a significant body of knowledge informing new subspecialties. One that will have particular relevance to health information addresses website design for those with disabilities. A detailed exploration of this work is beyond the scope of this study. However, it is critical to recognize, it is highly relevant to access and quality a relationship made clear with user interaction. In continuing the description of how the PlaceToBe.Net attended to such issues evidence grows that these interrelationships demand greater attention.

Searchers’ comfort level was enhanced when they found Google as a feature on websites but they often failed to realize they were on a particular site rather than the general internet. There was significant familiarity and trust in the name which was viewed as an advantage to the PlaceToBe.Net which recognized a need to market itself as something, even better, delivering local information. The familiarity of Google may have unintentionally limited more innovative approaches to a search tool. At the same time, the advantage of Google working to remain a market
leader through ongoing R&D was valued as something that the PlaceToBe.Net cannot manage as a small independent company.

In spring 2005, it was announced that “a new kind of search engine has been launched which will only search information about Brighton & Hove. www.p2b.net ‘The Search Engine for BRIGHTON & HOVE’, is based on Google technology and has been created by a partnership of eight local organisations” (Walker, 2005f). Wired Sussex, a private, commercial new media firm, had formally joined the partnership. The June 30 launch at the newly opened Library saw many guests including Google’s Director of European Sales celebrate the achievement. He congratulated the partnership commenting on that unique aspect of a project adopting, in an unanticipated way, the Google Search Appliance. The appliance had been seen as largely a tool that would appeal to extended business enterprises.

Coverage of The PlaceToBe.Net launch included a news story in the Argus. A formal publicity campaign that would increase knowledge of the search engine as a local brand did not emerge, although such work was discussed during meetings as fundamentally important to PlaceTo.Be.Net outcomes. Partner organizations were just becoming acquainted with the tool and perhaps broader promotion was premature. A news story placed on SCIPs’ website highlighted the fact that, “SCIP played a leading role in developing the project, since its inception in 2000” (2005f). A further claim made of the PlaceToBe.Net project, the website noted, was that, “the search engine has remained the centrepiece of the partnership’s work. Experts from the partner organizations worked together to design a structure for the proposed search engine and produce a functional specification. This laid the foundations for the technical development of the project and underlined the collaborative spirit of the partnership”.

In addressing the innovation in information services the article notes that “the partnership bought a Google Search Appliance to power the search engine. This is a high quality search product typically used in large
enterprises but ideally suited to the needs of the partners. It is used in two ways: One to provide a central search engine site at p2b.net; and two to provide high quality search facilities on each of the partner sites” (Walker, 2005e). Currently the tool was active on the original seven partner sites. After further testing, using the partner’s websites, the next step would be to start adding as much useful local content as possible.

After three years of committee meeting observations, interviews and review of key documents the reference to ‘useful local content’ was obtuse. What makes this content useful and or local and why would people want to access it? These questions remained unaddressed. The concluding impression was that the technology was functional and it would provide informational content, for access. The Users as the audience would therefore come23. The opportunity to disseminate meaningful knowledge about the purpose and use of local information resources, whether health related or not was not made use of leaving the public as potential users to guess what and why they would make use of the PlaceToBe.Net. This being the public situation of promotion and knowledge transfer what occurred internally, within partner organizations could not have been that different. This proposition is founded on the earlier account of internal organizational dynamics including the flow of information and communications that allowed gaps is understanding and knowing.

A full launch took place on the 10th of November 2005 at Fabrica as part of the Virtual Brighton Festival. It was attended by over seventy people and according to the summary on the PlaceToBe.Net website, “provided a chance to describe how the project has developed, demonstrate the Google technology that powers it and get feedback on what local websites to include”. The Cities eGovernment Manager spoke of “the long gestation period for the search engine”. She “emphasised how partnership is at the core of the search engine - the eight partners have worked together to build a vision for the search engine and to address the technical and

23 “Build it and they will come” is a frequently-used quotation referring to W. P. Kinsella’s work of fiction “Shoeless Joe” where a farmer builds a baseball stadium in his corn field in the belief ‘the greats’ would come (1982).
logistical issues to create a new kind of collaborative information tool” (P2B website/ launch, Nov. 2005). In a similar vein, Robert Whiteside, UK Sales manager for the Google Search Appliance “praised its citizen-centered approach and the uniqueness of the project - certainly in the UK”. Presented as an innovative example of adopting the search appliance was the example of ‘Re:search’, at the University of Brighton. The adaptation was the result of a committed and highly motivated technical expert with the foresight to perceive its usefulness within a complex, internal academic environment. It was an environment not readily recognized within the more public context of the partnership. At the PlaceToBe.Net public launch it was exemplified as a result achieved against significant barriers.

Since then, a growing network of local sites “is being added in an organic way, in response to the needs of users and requests from local site owners who want to be in the search engine” (Walker, 2005f). No fee is charged for being in the search engine, according to the website, but the “partners are developing policies about the quality of information held in the search engine, as well as rules about what is appropriate, such as not including adult content” (Walker, 2005e).

4.6.1 Timeline of the PlaceToBe.Net

At a glance, the timeline, below, shows gaps. These are indicative of an early, false start and the challenges faced by the project. In December 2002, work officially commenced. The researcher became acquainted with the project in June, beginning formal observations in August. A second gap in 2004 occurred with intensive consultations with partner organizations and development of the initial search engine tool. Meetings resumed with a review and evaluation of new technology options.
<table>
<thead>
<tr>
<th>Year</th>
<th>Action Steps</th>
</tr>
</thead>
<tbody>
<tr>
<td>2002</td>
<td>Report to David Panter, Brighton &amp; Hove CEO (project revisions)</td>
</tr>
<tr>
<td>2002</td>
<td>ODPM approval</td>
</tr>
<tr>
<td>2003</td>
<td>The PlaceToBe.Net web site was created. Summary position paper</td>
</tr>
<tr>
<td>2003</td>
<td>“The project was in fast track development mode from December 2002-April 2003, including consultation and negotiations with the Council (as Accountable Body) and the ‘Invest to Save’ (ISB) Officers at the Office of the Deputy Prime Minister (ODPM) which is funding the project.” (Walker, 2004)</td>
</tr>
<tr>
<td>2003</td>
<td>Founding board meeting supporting the “formation of a new not-for-profit limited company as a vehicle for developing partnership projects to improve the quality of information available to local people” (Walker, 2004).</td>
</tr>
<tr>
<td>2003</td>
<td>Meeting with representative Sussex University. Details reviewed and confirmation that the university would join the partnership.</td>
</tr>
<tr>
<td>2003</td>
<td>Meeting with B&amp;HPCT – update on legal position,</td>
</tr>
<tr>
<td>2003</td>
<td>Theplacetobe.net An Introduction (Proposal Update)</td>
</tr>
<tr>
<td>2003</td>
<td>Meeting with the Pro-Vice Chancellor, University of Brighton regarding Companies House documents formalizing the PlaceToBe.Net</td>
</tr>
<tr>
<td>2003</td>
<td>Founding Executive meeting attended by six partner representatives, apologies from B&amp;HPCT. Clarified the role of the group, update on progress and discussion regarding award of contracts.</td>
</tr>
<tr>
<td>2003</td>
<td>The PlaceToBe.Net An Introduction, August, 2003</td>
</tr>
<tr>
<td>2003</td>
<td>Incorporation as a limited company theplacetobe.net</td>
</tr>
<tr>
<td>2003</td>
<td>theplacetobe.net Board of Directors Meeting</td>
</tr>
<tr>
<td>2003</td>
<td>Health Information Mapping</td>
</tr>
<tr>
<td>2003</td>
<td>City-wide ICT Usage Omnibus Survey</td>
</tr>
<tr>
<td>Date</td>
<td>Event Description</td>
</tr>
<tr>
<td>-----------</td>
<td>-----------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>30/09/2003</td>
<td>Invitation to tender to help build theplacetobe.net – posted on web site and circulated to hard copy press.</td>
</tr>
<tr>
<td>10/10/2003</td>
<td>Executive meeting</td>
</tr>
<tr>
<td>15/10/2003</td>
<td>Building local knowledge Phase One</td>
</tr>
<tr>
<td>27/11/2003</td>
<td>Feedback and consultation meeting with partner organizations</td>
</tr>
<tr>
<td>3/12/2003</td>
<td>The PCT representative signed the company papers at the Board of Directors meeting</td>
</tr>
<tr>
<td></td>
<td>PlaceToBe.Net Search Engine Tender awarded after review of 15 proposals.</td>
</tr>
<tr>
<td></td>
<td>Worth Media produced final Health Information Mapping report.</td>
</tr>
<tr>
<td>4/12/2003</td>
<td>Initiate Runtime tender</td>
</tr>
<tr>
<td>2004</td>
<td></td>
</tr>
<tr>
<td>10/02/2004</td>
<td>The document ‘Search Engine Requirements Capture; User group meeting’. Key users, seekers, information providers and benefits are identified in the document.</td>
</tr>
<tr>
<td>2/07/2004</td>
<td>Place to Be. Net Feedback Session, review of research &amp; progress. Phase Two</td>
</tr>
<tr>
<td>9/2004</td>
<td>Original completion date for search engine and community server and research strands. An information provider’s forum and future meetings to be held in 2005.</td>
</tr>
<tr>
<td>2005</td>
<td></td>
</tr>
<tr>
<td>01/2005</td>
<td>P2b search engine requirements reviewed in light of New Google product and decision to go with the latter. (Walker, 2005)</td>
</tr>
<tr>
<td>04/2005</td>
<td>Report commissioned from researcher at Sussex University on Usability of the Google appliance.</td>
</tr>
<tr>
<td>12/05/2005</td>
<td>PlaceToBe.Net meeting - Agenda usability feedback</td>
</tr>
<tr>
<td>6/2005</td>
<td>Launch of the search engine powering search on each partner’s site along with a central portal offering all simultaneous search. End of stage one and beginning of next stage involving more partners and additional content.</td>
</tr>
<tr>
<td>2/07/2005</td>
<td>Google makes Brighton and Hove theplacetobe (Wilcox, 2005)</td>
</tr>
<tr>
<td>28/10/2005</td>
<td>Launch of PlaceToBe.Net</td>
</tr>
<tr>
<td>10/11/2005</td>
<td>Launch of the P2B, Fabrica (part of Virtual Brighton Festival)</td>
</tr>
<tr>
<td>2006</td>
<td></td>
</tr>
<tr>
<td>2006</td>
<td>PlaceToBe.Net Search Engine functional. Wired Sussex became a partner.</td>
</tr>
</tbody>
</table>

Figure 4.
This chronology shows the new ‘Google Appliance’, the PlaceToBe.Net search engine as operational early in 2006. Wired Sussex, a private IT firm, joined at the time of the launch, becoming the eighth partner. Although this partner organization was a late joiner, it is recognized with the original seven partners at the bottom of the website’s main page. That statement may be intended to fulfil the need to acknowledge information providers, an important attribute of quality information recognized at PlaceToBe.Net meetings. Other than a brief introduction to the site, there is no formal indication or direction for users to attend to the site author and sources of the information.

Functionally, a user can select from a pop up menu whether to search all eight partner sites simultaneously or select a particular partner site. Five topics are identified and presented on the main page as search options otherwise terms can be entered for standard or advanced search strategies. A link is visible on the page titled “Search for information on Google Local” which takes you to a Google-powered map of Brighton and Hove. A separately profiled link takes any searcher into a page commemorating the launch in Nov, 2005. A chance for the user to respond is provided with the link “Does this work? Please click here to give us feedback.”

Design features on the site do reflect learning from committee meetings, documents and discussions. In conducting a search there are two options for displaying retrieved documents. They are a preference to arrange by date or “sort by relevance”. The last did not seem functional and there was no information on the function available. Another feature that would seem to have been informed from project learning is the ability to access a list of sites that can be searched. Under the heading “search list” the seven partners are each profiled according to the lists they provide as content. Below them is a list of “others” which reveals those “being added and tested as part of the set up process and may or may not be fully in use depending on our testing”: They include sites headed as community, local portals, learning, arts and culture, sports and recreation and pubs.
Chapter four described the PlaceToBe.Net case study, its context, significant developments and identified key issues and processes. The next three sections discuss these themes and concepts (similar though emergent) through the application of Actor Network Theory (ANT) and Structuration Theory (ST), along with a knowledge of theory and practice from the fields of health and community informatics, to reveal lessons and enhance our understanding. The chapter begins with themes and concepts related to the contextual elements of a community ‘health’ informatics initiative. Both macro and micro issues are referenced, demonstrating the dynamic interplay of multiple actors/agents and structures or networks that impact agency. Part two addresses a variety of processes of mediation that facilitate aspects of agency related to interests and values identified in the role of organizational partners and their representatives as well as other actors including PlaceToBe.Net documents and meetings. The final section brings an understanding of how complex processes are linked to context influencing the shape of the PlaceToBe.Net and ultimately outcomes, deliverables and sustainability. This last component offers constructive processes involving forms of configuration beyond that portrayed by ANT.

Together the three sections in this chapter capture two fundamental objectives. One is to address the questions and aims of this research. The second is to build upon the learning and lessons the case study provides, to configure a conceptual framework providing guidance for future, similar, practice. This will be the goal of the last chapter. Concluding discussions, conclusions, themes and concepts are discussed in a conceptual framework that may be helpful in future health information/informatics initiatives.
5.1 The Contribution of Theory, Research and Practice

Key factors that help shape the development of a community information/informatics initiative with health as a focus are presented and analyzed in these chapters. An affinity was found between sensitizing concepts from the literature reviewed in the second chapter and the concepts and arguments that emerged from the data. ‘Technological Determinism’, seen in the over emphasis and dependence upon technology as a solution and defining factor within society and culture, was highlighted. It in turn illustrated a similar pattern in ‘Social Determinism’, with an over dependence upon certain expertise at the expense of more balanced or contrasting knowledge. Their relative dynamics, illustrated in the rich literature of Social Shaping and Science Technology Studies revealed an environment that is overtly hybrid, liminal and ambiguous, fusing the sociotechnical in intricate and complex ways. The two spheres work, inseparably, to influence and shape a particular technology and its social setting.

The partnership of public and private organizations established this dynamic as a key factor. The account of the PlaceToBe.Net in the previous chapter, revealed public and private domains of action to be determining forces parallel to social and technology ones. They function as cross-cutting themes linking similar factors, revealing important patterns and relationships. For example the role of expert or lay knowledge, understanding and learning can be seen as internal and private or external and public. As a result, it can be inclusive or exclusive of each other’s body of knowledge and learning. Another example is seen in the role of organizational representatives in senior, middle or lower management positions that may be technically related or accorded multiple authorities and expertise. The last category and those in senior positions with multiple links and involvements to the PlaceToBe.Net were seen to be more active and inclusive in the sharing of related information and communication that benefited inclusion and penetrated barriers.
between what might be private or public. Additional cross-cutting themes included the **role of power**, authoritative or allocative and relations to agency, resources and capacity for action. The role of power is linked to conscious and less conscious understandings of social norms, rules relations and practices that shape interests and values and may determine participation and aspects of decision-making.

Three forms of data, collected over a three year period between July 2003 and July 2006, allowed comparison and validation of these emerging and sometimes complementary concepts. Recapping briefly, they include observations of PlaceToBe.Net meetings, analyses of documents and interviews with key participants, representing partner organizations. Key concepts include: social and technological determinism, domains related to public and private activity, expert and lay knowledge and the related exercise of power and resources primarily in decision-making but relative to information and communication flows.

The choice of theory to inform but also guide this research study was made based on multiple concerns. Chapter three confirmed that particular modes and forms of theory are required to address broad conceptual and practical issues with the potential to encourage new knowledge, informing practice. This goal engages with Rose’s definition that “useful theory should lead to improvements in capacity for effective action” (1998:2). It is the ‘difference that makes a difference’ (Rose, 1998:2). This and succeeding chapters begin to examine the relevance of theory and research to practice. This is the difference Rose champions and it is one of the original contributions to knowledge that this research makes relative to a community ‘health’ information/informatics partnership.

Community health information can create a particular network or more formal structure within an initiative with particular relations based around common interests and where shared values or concerns are recognized. Such factors play a mediating role among actor/agents and structures/networks.
The field of Community Informatics was particularly valuable as it examined social and technology aspects of varied partnership-based, ICT projects (Schuler, 1996; Keeble et al, 2001) operating at the community level. Demonstrated was the fact that a consultative or participatory approach to technology implementation can enable strong community use, reducing factors that result in a more technologically deterministic approach. A more balanced sociotechnological approach was seen to provide the potential for more varied benefits and valued outcomes. Participation in design and implementation of an information solution has additional benefits including shared learning and understanding and greater civic involvement as well as nurturing champion and leadership qualities, detailed in chapter two.

Health Informatics provided a body of largely scientific knowledge related to content shape, and information quality factors as well as access and use issues. HI originally focused predominantly on the medical and clinical realm (Hovenga et al, 1996) as generators, managers and providers of information and while there is growing attention to consumer informatics (Eysenbach, 2000); less attention has been directed to health information at the community level. At all levels, HI research is drawing attention to the way new technologies are influencing established information and communication patterns in health and medicine (Ferguson, 1997; Henwood et al, 2002) with consequences to public perceptions of expertise and trust (Hardy, 2003).

A consequence of bringing the emergent fields of HI and CI together was the need to attend to ongoing debates around definitions and key issues such as access, quality and the provision of information. Resolving questions with regard to information users and providers, needs, content and use will have a number of benefits for future initiatives. One advantage is that a better fit can be created between a technological innovation and its application and use. Such awareness will assist the mechanism by which content is shaped and framed for particular
platforms. It will facilitate the determination of what form health information is made available, to whom, at the community level.

Three encompassing themes focus the analytical discussion in this chapter. They reflect key conceptual stages involved in the design and implementation of a community health informatics initiative. While discussion is framed in this manner the stages are not discrete but overlap between the three thematic areas. The contextual formation of the initiative begins the discussion. Mediating factors and processes (modalities) that shape the initiative through the agency of decision-making and choice reflective of partner organizations’ interests and values will follow as the second theme. Thirdly, a focus on outcomes and sustainability situates discussion on what this means for the initiative’s outcomes, deliverables and sustainability as constructive, constitutive results. The analysis supports the development of a conceptual framework developed in the final chapter which can inform practice and guide similar initiatives in the future.

An evaluation of context allowed the exploration of organizational partners, investigating aspects of their actor, network and structural attributes in their involvement in the PlaceToBe.Net related to the partnership aims. Relationships illustrate agency and the influence of modalities revealing organizational partner interests and values that mediate their actions and ultimately help shape both the technology and the initiative. The duality of structure and mediating modalities is illustrated on a number of levels. Revealed are constitutive elements of the partnership, detailing the varied actor roles of organizational partner, leadership, expert and lay participation, project aims, the website and meetings.

Processes played a mediating role in the initiative and are the second encompassing theme discussed in relation to varied actors and structures. They involve constitutive processes of transformation, change and stability that construct outcomes and sustainability, the third encompassing theme is discussed in the last section of the chapter.
This investigation intends to engage in a sophisticated analysis of an IS, Community Health Information/Informatics initiative, moving beyond dualistic, dichotomous relations to understand multiple tensions and interrelationships that are constitutive and which mutually configure related action and events. The frequently criticised abstract quality of ST is used to advantage, as a strength in this research, with macro concepts drawing attention to the tensions and ubiquitous nature of multiple and inter-related factors in a complex, dynamic environment. The duality of participants for example, as actor/agent engaged in various structures and imbued with variable power and authority expands a matrix of dualities.

5.1.1 Duality of Structure as Analysis

A prototype demonstrating relations of Structuration theory was first offered by Anthony Giddens and is presented on page fortytwo. Below the model has reversed the first and last lines, placing structure onto - and interaction at - the bottom. Rose’s (1998) adaptation of Giddens’ (1984) model of Structuration (page 42) shows structure and agency (actors exercising power) are recursively dependent upon each other thus becoming both medium and outcome of social practices. Dependent flows of influence are made visible on the model below, adopted by both Rose (1998) and Stones, (2005) from Giddens’.
In this model, structure and human interaction are conceived as three dimensions. The recursive character of these dimensions are illustrated by flows, linking modalities across dimensions. For example, “as human actors communicate, they draw on interpretive schemes to help make sense of interactions” (Rose, 1998:4). In turn, they reproduce and modify those interpretative schemes, embedded in structures as meaning and signification. Both conscious and less conscious interpretations, based on existing understandings of relevant social rules, norms, relations and practices are involved. Thus a micro level of abstract, subjective agency occurs which is revealed through corresponding relationships and actions. Dimensions of engagement, participation and decision-making are revealed in further examples found in section 5.1.4.

5.1.2 The Formative Context of a Community ‘Health’ Information/Informatics Initiative; Common Vision and Goals Aiding Engagement

What factors bring about an initiative such as the PlaceToBe.Net? Shared interests and understanding among individuals and organisations,
fostering a shared vision and mandate, are implicated in partnership formation; a phenomenon discussed in chapters two and four. These key processes have been described in the fields of community development (Ramirez et al, 2002), health promotion (Street et al, 1997) and recently, community informatics (Schuler, 1996). Partners bring resources, expertise and authority in agency forming a partnership structure. The reciprocal interplay of these key factors acts to shape relations, interests, values and agency through the context of structures and networks.

Chapter four presented the argument that shared interests and values led to the common goal of increasing access to quality online community information. Contextual factors in the broader global and local environments, discussed in chapter four, reshaped the initiative after several false starts. Partner commitment was surprising. Networking among key individuals would seem to have had a nurturing role, one worthy of future research to confirm enabling value. More formal community and social networks with multiple inter-relationships, instrumental to involvement, were noted in the same chapter. Much of this activity took place prior to this research study and continued outside of observed meetings, with the result that patterns and events have been recognized but detail not readily captured. The contribution of such varied networks as well as related structures external to, but also internal to the initiative will be expanded in the following discussion.

Why the seven diverse organizational partners, across private and public sectors, came together to support the PlaceToBe.Net initiative became apparent through their engagement and participation. Conceptually, this activity consisted of complicated processes involving recursive inter-relationships between numerous and varied actors, forms of agency, structures and networks. This matrix of relationships in The PlaceToBe.Net mediates our understanding of the shaping processes as well as the eventual outcomes of the information systems based initiative. Illustrated through my doctoral research is how contextual aspects of actors, agency, structure and networks, and their respective mediating forces, helped shape the PlaceToBe.Net. Thus it is important to identify
and understand the reasons for engagement and participation in the initiative.

5.1.3 The Context of a Community Partnership; Common Experience a public and private dichotomy

Organizational partners had some experience with the role of information and communication to be deployed within community groups and services and the relevant role information and communication technologies (ICTs) could play within a community. Directly or indirectly, many partners had been involved in previous initiatives such as the Community Information Network (CIN) and the Information and Communication Development Pilot Project (ICDPP)\textsuperscript{24}. Common experience and learning, in the past, meant that partners were aware of and potentially shared related interests, knowledge of issues and understanding of how aims or goals were formed.

When different organizational representatives attended meetings, gaps in the shared understanding were demonstrated and more evident became the particular interests and values of their organizations. This was seen in assumptions around how quality of health information would be determined as well as how the issue of access was addressed. Both of these examples are illustrated later in this chapter.

Shared Concerns, External and Public But Sometimes Internal and Private

Individual partner organizations, as providers of community ‘health’ information, were dealing, internally, with the same or similar questions

\textsuperscript{24} See chapter 4
and issues. This history, their understandings, interests and values was brought to PlaceToBe.Net meetings. During discussions, varied attention to issues of access and use from internal research studies and reports were raised. While understanding increased among active partners it was difficult to judge to what degree this was shared as consensus was not tested. Without a common partnership, understanding the external, public implications of these issues remained problematic and insufficiently addressed.

**Internal, External, Private and Public Duality of Issues**

**An Understanding of Interests and Values– Quality and Access**

<table>
<thead>
<tr>
<th>The NHS as a Partner is an Example</th>
<th>INTERNAL</th>
<th>EXTERNAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>The PlaceToBe.Net</td>
<td>INTERNAL</td>
<td>EXTERNAL</td>
</tr>
<tr>
<td><strong>INTERNAL</strong></td>
<td>Evidence that the NHS internal policy (not formalized) managed access to quality health information through internal practices, limiting online access to expert-certified content.</td>
<td>The NHS provides online access to documents previously certified in print. Therefore access is to expert information first made available in the form of brochures and reports. The process does not increase access except for its movement to an external electronic environment.</td>
</tr>
<tr>
<td><strong>EXTERNAL</strong></td>
<td>Only NHS certified information is presented. Efforts focused on preventing any association with other health information. Policy not clear and is interpreted by technical staff as blocking any unauthorized material.</td>
<td>Assumption by the PlaceToBe.Net that the NHS is the indisputable arbitrator of quality health information. It is a conclusion among organizational partners that remained although somewhat tested by an increased understanding of the value of alternative information including the contested area of alternative and complimentary medicine.</td>
</tr>
</tbody>
</table>

Figure 6
Revealed in this systemic relationship was a duality. While it became obvious to the researcher, it was not formally acknowledged within PlaceToBe.Net meetings or documents. Unconsciously, such understandings influenced discussion and decisions. Related tensions within the role of what were internal to the partnership or organizations and as a result often private and what was external and therefore often public was informally present. It is a duality illustrated in the matrix example below and one that will be addressed throughout this chapter.

Knowledge and therefore an understanding of what ‘local people’, ‘the community’, as information users, needed or wanted, in the form of community ‘health’ information was also minimal. The importance of forming and acting upon definitions of such issues was introduced in chapter four and will be reviewed here in relation to interests and values of actors and structures and PlaceToBe.Net agency below. Their weak conceptualization and contested nature constrained efforts to thoroughly understand the information user and information provider roles. Weak understandings relative to the design and implementation of an information system/search engine were implicated in motivations, manifesting agency as well as engagement regarding the PlaceToBe.Net.

5.1.4 Engagement and Interests

While common concerns lead to engagement, partners’ interests varied in relation to the nature of their organization. Private, commercial, profit-making partners were interested in knowing about and participating in an innovative initiative that could be of assistance in furthering their own goals as well as monitoring potential competition. The concerns of public, service, non-profit, organizational partners were not that different. It was in their interest to know about and be involved in such an innovative
initiative, in order to learn and benefit from innovation. Involvement helped ensure inclusion rather than being marginalized and disadvantaged.

The diagram on the next page demonstrates the interrelationships of the seven partner organizations with overlap symbolic of communication and joint interests. The partner organizations have not been identified clearly as either public or private sector for several reasons. First there is common knowledge about the type of enterprise that formulates universities, council, NHS/PCT and Argus newspaper. SCIP and Virtual Brighton and Hove are less known. The first as the lead partner holds a not-for profit philosophy but engages in profit making to support its work. Thus the definition of public and private became blurred and at times contested. The resulting tensions are less for the purely private

**Relationships among PlaceToBe.Net Partner Organizations**

![Diagram of relationships among PlaceToBe.Net Partner Organizations](image)

Figure 7. (Original in colour)

enterprise partners, virtual Brighton and Hove and the newspaper. However, public and private enterprise, profit strategies are increasing related tensions in the work of the other partner organizations. Any internal ambiguity is challenged by a partnership which must manage related policy and procedures and ethics. This was seen in the example of the newspaper when questions related to business practice versus public supported R&D were raised. For those accessing related products and services clarity related to the fundamental principles, values and practices
remains even more problematic. Citizens accessing such services may have minimal interest in knowing such factors but as has been raised in this doctoral research, those making use of online health information have good reasons to know who is providing it and why it is being done in a particular form and language.

Public and private sector partners were pragmatically brought together for the PlaceToBe.Net. It was a partnership arrangement encouraged by a funding framework which promoted partnerships involving the marginalized and third sector which is so involved in addressing issues of social inclusion (www.isb.gov.uk, 2006). In this respect, the goal of the PlaceTo.Be.Net was a “City wide partnership” (Walker, 2003a). Partners crossed distinct sectors and represented a broad cross section of the public as their client base. While they held diverse interests there was little evidence of values or interests to acknowledging the importance of learning about and acting on the interests and needs of their clients or other varied citizen groups. Representation of values and interests, whether internal to the organizational partner or external to the broader population, was part of formative processes shaping the PlaceToBe.Net and related technology solutions. A missed opportunity noted here is revealed as a serious constraint. Limited use was made of internal organizational knowledge around their interests, values and needs. Actors failed to recognize or take initiative of similar knowledge related to their clients who were likely to be eventual users of PlaceToBe.Net online information. The constraint did not appear to be conscious or deliberate and can be viewed as the determining influence of informal, less conscious learning or knowledge associated with internal rules, norms, practices and relations of organizational structures as well as those acting within the partnership.
5.1.5 Individual Organizational Partners as Actors as Structures/Networks, Exercising Agency

Organizational partners and their representatives, participating in the PlaceToBe.Net, held both actor and structural influences and capacities. The actors reflexively monitor activity and, in doing so, consider, consciously or less consciously, aspects of structures and modalities that mutually influence them. Concentration is on the relationships of power exercising authority and the allocation of resources, seen as macro level concepts. For example power and related authority are socially negotiated by the rules and norms that contextualize it as either public or private agency. What follows is a brief outline of the organizational partners that situates the two forms of power in relation to interests and values. The organizational partners’ authority in identifying and acting upon the interests of their clients, consumers, patient or user groups is also acknowledged. Possible agency was revealed through my research as a unique means of assessing diverse audience needs for health information and as such is an original contribution to knowledge worthy of future study. It is valuable in a context where rhetoric about the Internet easily presents an environment where everyone can access any thing. The practical reality differs, and is far more complex with diverse groups having limited or no access. Some consciously do not participate while others have little conception of use or what benefits would result. This variable context of use and anticipated outcomes becomes more apparent as Internet penetration and use begins to plateau and data shows specific patterns of use and nonuse (ONS, 2007).

SCIP

The Sussex Community Internet Project, SCIP and key staff persons took a formative role in the PlaceToBe.Net. These same individuals had been active in previous projects leading to the PlaceToBe.Net. A SCIP, Project Manager was instrumental in developing the proposals for the initiative and later took on the Project Executive role, providing consistent
leadership and fostering participation. Similar, though less consistent, involvement came from a SCIP colleague whose expertise focused on website design and community partnerships, including the community/voluntary sector. Both had community-based experience through the third sector with projects spanning across sectors. SCIP had a history of community service, technology project involvement in practical, community development contexts. Typical of such public-service initiatives, SCIP struggled with sustainable issues (Day, 1999) which strongly influenced much of its work. Sustainability was to be a strong consideration in PlaceToBe.Net work. The concept will be explored in the final section of this chapter.

**Virtual Brighton & Hove**

Two other partner organizations had consistent representatives attending meetings. One was the manager of Virtual Brighton and Hove, a private, commercial website enterprise with a history of links to City Council and SCIP projects. With early involvement in the development of ICTs to profile community information, the website enterprise, as a commercial service, evolved to be one of the first sites promoting public information about Brighton and Hove. Now it is one of several commercial sites variably profiling city information. Like any IT/ICT initiative challenges remain in how to be competitive, profitable and sustainable. There is then a mix of largely private interests with public-focused operations.

**The Newspaper**

The other organization with representation consistently at meetings was the local newspaper. As a long-established, well branded, commercial enterprise, providing a news service about and to the local community, it had significant expertise regarding information content delivery and the community itself. Three individual staff members, in succession,
represented the newspaper. First was the Managing Editor followed by a
webmaster. In the end an Editor with substantial experience with web
technologies in the news industry through work with Newsquest, the
 corporate owner of the newspaper was a committed representative. The
Omnibus Survey (Coultas, 2003) noted that Newsquest had conducted a
study regarding internet use that would be of interest to the
PlaceToBe.Net but it was not clear whether it was actually available as a
private, commercial research document or if it was referenced as a
primary source.

The newspaper had the largest archives of information specific to the
community and various efforts had been undertaken to develop the
resource with the aim of increasing the profit of the newspaper. Noted
previously was the concern by the newspapers management over public
sponsorship and funds spent on a project that they felt private enterprise
was suited to deploy. While a significant tension, early in the initiative, it
was not formally or openly discussed at meetings. Such silence may well
have been indicative of an implicit understanding around the rules and
norms governing the initiative and represent a degree of stabilization
among the representatives of partner organizations that allowed work to
proceed while contentious issues were marginalized.

Brighton and Hove City Council

Six individuals from the Brighton and Hove City Council were, at various
times, invited to attend search engine meetings, but their attendance was
rare. Consistent participation came from the manager of e-government
who had been involved in the original and succeeding proposals for the
PlaceToBe.Net. There was a well developed relationship with the Project
Executive through mutual work with the local council. Common interests
and values aided cooperation in finding funding and developing initial
proposals. The manager had much to gain from collaboration. Internally,
the Council as well as the eGovernment project would benefit from
PlaceToBe.Net's success. Issues of information access and quality were significant as was citizen awareness and involvement in decisions shaping public services such as those related to health and social services. There were varied links and expectations for beneficial outcomes. Sponsored by the City Council, two other employees, in succession, acted as Project Manager for the initiative.

Local NHS Trusts

Seven individuals from local NHS bodies including the Brighton and Hove Primary Care Trust (BHPCT), South Downs PCT, the University Hospital Trust and the Health Informatics initiative, were each recorded as attending at least one meeting. There was no consistent attendance at search engine committee meetings from NHS representatives. During the initiative, three web experts from the local trusts who had attended PlaceToBe.Net meetings left their positions. Two staff involved in online information concerns went on maternity leave at the time interviews were conducted.

As an organizational partner, local NHS trusts had the most direct interest in health information, heightened by recent national, regulatory strategies that included greater attention to increased information (NHSIS, 2003) allowing greater patient choice (NHS DOH, 2004b, 2005, 2006), involving referral and treatment processes and the integration of social and health information at the local level (NHSDOH, 2004c, 2005) to aid both professionals and service users. At the same time local trusts were mandated to actively partner with relevant, local initiatives, such as the PlaceToBe.Net, (NHSDOH,1996) they were tied to national guidelines and policy that, in the case of health information, had not matured to include local, contextual, considerations and this constrained their participation. It was a clear example of structural concerns, internal to local trusts but also external to national organizational policy, procedure and practice guidelines, inscribing actors and agency or their mode of
participation. Partner representatives were uncertain about their role and what agency they had in relation to the PlaceToBe.Net initiative. This was particularly true in respect to the more complex issues raised in a partnership of organizations when they didn’t share health sector culture. The related aim of increasing the quality as well as access heightened these tensions among structural, actor and agency and co-constitutive factors.

The complimentary nature of their respective aims and objectives could have enabled participation, however, a number of constraints limited opportunities. The NHS at the time, was undergoing significant change as well as expansion of activities related to online health information with the result that there were significant staff pressures which constrained attendance at meetings. Media coverage of significant budget deficits impacted the trusts, at a critical time in the research study, increasing pressures on NHS staff, locally, and is seen as a likely constraint to their more active participation. As a large national entity, the NHS presented infrastructure limitations and obligations that constrained active participation in the PlaceToBe.Net.

The Project Executive made significant efforts to maintain and develop contacts with existing and changing NHS staff, often meeting with them external to search engine meetings, which helped bridge this gap. There was little evidence of NHS staff consulting with higher authorities about policy or procedure that might have also bridged constraints. Evidence pointed to assumptions regarding the role of health information which also influence participation and work. This was witnessed, for example, at the October 25, 2003 meeting with NHS web-related staff. During a conversation about what information should be available online, one representative offered quick responses to issues that indicted an adherence to strict policy removing any responsibility from them and from the local level. Two other representatives gave considered comments that allowed some discussion to take place and some consideration of broader online health information trends. While there was no immediate, follow up, contact was maintained with these last representatives. They, however,
changed employment and the continuity of interest and understanding, so vital to participation and shared learning, was broken. The new web staff did not attend any meetings, although he did meet with the Project Executive and did support and agree to make use of the eventual search engine appliance on the Trust site. The last was expedited through a sudden change of practice by the Trusts service provider, when advertisements were introduced threatening NHS standards.

The Two Universities

Web-related personnel from the two Universities had workplace pressures that could similarly encourage but indeed limited their participation. The universities, like many service organizations, were aware of limitations with web technologies and the daunting task of longer-term future development, particularly with limited resources and exponential developments in the technologies. When the Sussex representative left his university position no one replaced him as a representative at PlaceToBe.Net meetings. Sussex had decided to pursue an internal search engine solution. The Project Executive periodically contacted staff but at one point, noted a gap in knowing who was an appropriate contact; evidence of a lack of interest or support by varied actor/agents and their agency with in organizational structures. The last limitation is important to recognize as regret over lack of participation was expressed informally by a senior representative from the University at the Launch of the search engine. Lack of participation may, retrospectively, have much to do with the fragility of information flows internal and external to the organization that did not facilitate a good understanding of the PlaceToBe.Net project among the actors and within related structural processes.

At the University of Brighton two individuals, one leading a university community partnership project and the other a web expert, regularly attended initial meetings of the search engine committee. In their interviews for this study both confirmed that they were keen supporters of
the PlaceToBe.Net but internal organizational priorities had prevented regular participation. A particular gap in management understanding of University support for participation in the PlaceToBe.Net constrained expert participation at meetings. Both individuals remained informed and involved, external to the meetings. Both felt that the external PlaceToBe.Net initiative would aid internal University understandings of their respective work. In particular the web manager hoped there might be improvements in the focus on and allocation of resources and support to ICT functions internal to the University. Both had frequent conversations outside of committee meetings with the Project Executive, remaining engaged in activities.

An innovative adoption of the search engine appliance was the result of work external to one expert’s responsibilities. This spin-off initiative demonstrates unique agency within multiple inter-related and at times competing structures with the related constitutive agency of actors abiding by organizational/social rules and norms. Each had the potential to enable or constrain such an innovative initiative. In this case, it would appear that power and authority was exercised as a positive force by an individual actor, accepting a high degree of risk, within the politics of these relationships, finding value and benefit in the spin-off product. It was candidly acknowledged that the work was an interesting project expedited by the perception of an internal growing need that was not being formally addressed but was likely to create high future demands in light of RAE requirements. The product however, remains largely unknown, as it has not been actively supported or promoted, within the internal university environment. Its potential value and use is therefore constrained. Critically this could be seen as a result of an innovation occurring outside of the standard, expected or acceptable process which threatens accepted practices, norms and rules that maintain relations among actors and structures. While it would seem to be successful it is not yet popularly accepted, perhaps due to the radical process and individual risk taken involved that challenged internal organizational rules and norms but somehow allowed this novel development. It is an unusual example of external technology and partnership, aiding the development of an
internal application. Unless widely tried, tested and adopted the innovative tool is unlikely to expand to more public adoption by other partners. Such support and expansion would be a significant sign of partnership success, proving a meaningful outcome that was unanticipated with the potential for some shared reward. Such outcomes and measures of partnership success will be explored at the end of this chapter.

Other Organizational Partners as Actors, Structure/Network, Exercising Agency

Based on PlaceToBe.Net developments, a variety of other individuals and organizations were invited to attend search engine meetings to offer expertise or share similar concerns. A special committee meeting (25/10/2003) involved additional web experts working with local NHS trusts. Two other key meetings, one to demonstrate the search engine appliance and a second, to report results from a usability study, involved other participants. These others shared an interest in the aims of the initiative and included organizations with similar or complimentary mandates like the East Sussex Community Information Service (ESCIS) and Brighton and Hove City’s 20/20 project. They will be referenced in greater detail in following discussions.

As peripheral actors, their interest was much more oriented to their individual organizations and what they could learn that would be useful to internal mandates. Representatives of ESCIS attended the PlaceToBe.Net search engine meeting on May 12, 2005, presenting findings from a usability study. Findings were presented from a small usability study, based on observing 6 individuals conducting searches across local sites. Key elements in search engine and website design relative to access and quality were identified, at the end of the chapter, as problematic and of interest to all present.
Evidence indicated that the searchers were largely unaware of the ESCIS website NS yielded a valuable lesson. Information users benefit when it is clear what a website has to offer. Such an identity is tied to establishing trust, critical to users’ willingness to access information on a site as well as establishing a measure of value. Both are key to evaluating the quality of information on a site. It is a lesson that correlates to and therefore could easily be subsumed by the notion of branding a particular site or search tool but the issue is more complex than a commercial notion of branding retrieval. When issues of access and quality are linked to processes the broader theme of assisting information users through developing good search techniques can be recognized. It was a concern raised during the same meeting but one that was seen, particularly by ESCIS representatives as “a pipe dream”. It was not the first or the last time the issue of assisting information searchers was raised but was an example of public service organizations being dismissive, of doing so. ESCIS was an affiliation of libraries established to provide information for the community of East Sussex. While it had developed valuable website resources it was not well known as a provider of local information.

This example is evidence of several conceptual issues at play, constraining the efforts of the PlaceToBe.Net. Private and public interests and values are in evidence with the internal capacity of ESCUS taking priority over interests in assessing the needs of the public. Recognized were a number of interrelated factors but there was little interest or ability demonstrated in acting upon opportunities presented by this new knowledge. There appeared to be general informal consensus that reaching a certain level of success was satisfactory.

Understanding the impact of public and private partnership is increasingly valuable at a time when such partnerships are expanding without critical review. Questions about their unique shaping influence need to be asked and answered in order to better understand social and cultural impacts. It is a duality that has proved controversial in the health care sector resulting in significant tensions and contested jurisdictions and expertise. In this study it is a dichotomy that has been found to extend to the role of
professional as expert, as well as the lay user, as amateur and public citizen. The two may not be so disparate however, as recent work by Keen (2007) and Gladwell, 2001) suggest the definition and recognition of expert and amateur has been altered, even conflated by the influence of online technologies and the contemporary characteristics of modernity (Bauman, 1999). Both the lay amateur and expert have public and private interests that either enable or constrain these roles. In doing so their function mediates inclusion or exclusion from, for example, expert or experiential information, knowledge and learning. These roles can transform with more permeable public, private boundaries.

5.1.6 Participation, Commitment and Support

Commitment related to shared interests and values in the PlaceToBe.Net goals was promoted but also confirmed in related documents which recognized their actor status, agency and structural properties. A formative document referenced a ‘unique opportunity’, ‘one not to be missed’ in connection to available funds (Scip, 2001). Identified links to broader contexts in these authoritative documents established or confirmed structural influences within which the PlaceToBe.Net operated. The commitment to an information or search engine solution was one, made evident, as largely defined prior to the formalization of the partnership. The technology solution, as traced in chapter four, emerged from other initiatives as a viable goal and was confirmed in formative documents that included a Pre-PlaceToBe.Net report by Mills et al (1998) on the Third sector.

As a leading ICT development at the time, search technologies were increasingly familiar becoming a tangible medium, partner organizations could cohesively focus on. Recognition by organizational partners that independently they were unlikely to achieve such potential outcomes due to constraints related to resources and available expertise and
technology, increased the likelihood of support, success and ultimately the initiatives sustainability. The University of Sussex became the exception, implementing its own form of search technology, something they had begun to develop while the PlaceToBe.Net was struggling to fruition.

Different levels of participation by organizational representatives were aligned to aspects of commitment and support including interests and values. The lack of commitment noted above might have been related to the fact that senior University of Sussex officials were not directly involved. The University of Brighton had a senior official attending PlaceToBe.Net Executive meetings along with, on occasion a faculty member who was a SCIP board member. The recently appointed head of CUPP at Brighton University, also participated in early search engine committee meetings. The communications manager working with website development at Sussex was informally involved and supportive, in a networking capacity, according to details reported at committee meetings. The same was not known of their counterpart at the University of Brighton. A webmaster from both Universities was expected to attend committee meetings however, the representative from the University of Sussex left his position prior to attending these sessions. After keen participation in initial committee meetings the representative from the University of Brighton was required to attend to other duties, but because of a real interest in the initiative and proposed technology solution he continued, on his own time, to stay informed about the PlaceToBe.Net. He realized the value of a unique adaptation within his organization and in his own time he developed it relative to strategic internal organizational documents and eminent priorities. The result provided an early learning opportunity as well as a tangible demonstration of the potential value of such a search tool across disparate databases, departments and schools. Indeed this was seen with its positive review at the Launch of the P2B Search Engine. This particular scenario will be referenced again in the conclusion of this chapter and the final chapter.
Participation by organizational representatives from the NHS paralleled that of the University of Brighton with senior management attending executive meetings but there was an absence of expected representatives from committee meetings. Senior e-government and City Council assigned project staff regularly attended meetings but other staff, less formally involved, rarely attended. These flows are discussed in the next section related to processes and inclusion or exclusion.

A similar but less clear pattern of organizational support and participation was found with the private sector partner organizations. Senior management from the newspaper had participated in original executive meetings but reservations regarding public (council) sponsorship reduced cohesive support and no activity was taken for nearly a year. When the partnership was formalized an Argus web master consistently attended committee meetings, contributing to the search engine tender process and clarifying issues related to the work of the Argus. He wished the initiative luck when he announced his leave and change of employment prior to the contract being awarded. Replacing him was an editor/web expert who also attended the executive meetings. Involvement in both types of meetings created the opportunity to quickly acquire a knowledge and understanding of the initiative and perhaps a more comprehensive one. She would later acknowledge the difficulty of understanding clearly the actual PlaceToBe.Net aims, particularly from a business perspective. She became a regular participant asking for and contributing significant information while demonstrating the need to communicate PlaceToBe.Net developments to senior management and web staff in her own organization. Such flows of information and communication were not formally recognized as critical by other partner organizations but it was observed as a common phenomena, left private and unaddressed because it was not formally recognized. This subject is evaluated further in 5.2.5 along with an understanding of practice and procedures differing from private business to public service organizations as well as issues related to technology in mixed expert and lay situations.
The newspaper was one of the first partners to officially implement and test the new search appliance. Initial difficulties were related to a lack of detailed communication and information within the organization to the webmaster who had not regularly attended PlaceToBe.Net committee meetings. Once this constrained agency was recognized the webmaster attended a committee meeting with a specific focus on implementation and design issues of the new search appliance. No other webmasters took advantage of this formal orientation.

Variable attendance by organizational representatives was characteristic of the remaining partners. The Executive of Virtual Brighton, a member of the SCIP Board, attended executive and committee meetings and would arrange a substitute to attend when necessary. There were, however, informal opportunities for organizational partners to keep up with the initiative through overlapping networks related to similar work involvements. The discussion and agreement of issues among the Project Executive and Manager of eGovernment and at times the Virtual Brighton representative, away from committee meetings was observed. Certainly such activity was expedient. However, it perhaps inadvertently acted to exclude other PlaceToBe.Net representatives, particularly when resultant choices were announced without full details or additional discussion, at meetings. Such pragmatic activity, informally and less consciously, was a constraint to greater participation and related shared learning and knowledge generation.

5.1.7 The Role of Champions and Leaders

Meeting arrangements, related flows of information and communication were managed by the Project Executive. Such agency was expected, based on commonly understood and accepted rules, norms and practices, but experience and skills also mediated actions. Thus an understanding of
varied issues associated with different organizations provided insight into
constraints to active participation by staff from, for example, the NHS and
Universities. As a result, alternative flows of information and
communication compensated and preserved some degree of commitment
and participation in their advisory roles.

Management of contextual and formative issues such as these relate to
the participation of actors and constraints, implicitly or explicitly
understanding organizational or professional structures. This role fell to
the two originating champions. Their perseverance and interventions were
significant resources. This leadership role is seldom well recognized or
documented through research. Their corresponding partner organizations,
SCIP and the local Council, are detailed in chapter four as having had a
stronger formative role compared to other partners. Both provided these
highly motivated staff, willing to champion the initiative, for differing but
mutually beneficial reasons. Motivating agency was significant and
involved specific funding so necessary to initiating projects. Recognized
was an opportunity, to be taken advantage of and with the council, a
credible organization, to gain support for a technology solution. Funding
prerequisites had a determining influence on the early choice of an
information system, search engine focus. SCIP had established a record
of community-based work and an understanding of general information
issues, locally, as related in chapter four. Motivation within the Council
was concentrated within the e-government programme. Key staff were
aware of overlap between council initiatives and that related issues were
ones faced by many local groups or organizations. It was an
understanding that developed further as a result of shared experience and
learning which was observed during meetings.

Formal support of the PlaceToBe.Net by the champions went beyond
shared signing of the incorporation papers, by all seven partners, to
include additional obligations. Financial accounting and project
management were formally supported by the Council, while a SCIP staff
person took the Project Executive role. A fellow SCIP staff member
contributed advice and as an organizational representative he would
mention concerns related to the volunteer/community sector in which he had significant IT design experience. The formal roles were contractual, confirming a degree of power, authority and corresponding allocation of resources but the less formal, at times less tangible, allocation of support was also instrumental to the achievement of results. These informal channels included networking and demonstrated the importance of varied or alternative mechanisms of support. The importance of such contributions shaping an initiative can remain unaccounted, unrecognized and therefore not well valued (Ramirez et al 2002). It is a gap possibly constraining more dynamic actions in project formation and management and one I would urge research attend to.

A common acknowledgement during interviews was the degree to which these two individuals had championed the PlaceToBe.Net. A variety of obstacles were overcome. Changes in organizational representatives required the Project Executive to motivate, negotiate and educate those newly involved. It was time consuming, exhausting resources that might have been used otherwise. A better understanding of partnership dynamics including issues of engagement, retention, building a history and trust (Ramirez et al 2002; Wilcox, 2003) as well as sustained participation which in future situations encourage balanced action and resources supporting a better strategy.

Critical to partnership formation and capacity building according to Ramirez et al (2002) is two-way communication using different techniques. It promotes a more participative form of needs assessment, common and shared goals (Wilcox, 2003) and knowledge providing a foundation for action allowing the flexibility to adapt and accommodate iterative transformative or alternative strategies. In their review of diverse ICT projects, at the local level across Canada, these community development/technology researchers also stress the importance of engagement with communities which allows potential users to test project assumptions of their needs (2002). It is a recommended practice absent form the PlaceToBe.Net leaving gaps in understanding both needs and community/communities. Related participation also confirms the value of
monitoring particular goals and intended outcomes and the ability to shift as goals and aims alter. Related outcomes can only be revealed if they are isolated and measured and the choice of what receives attention can limit what is perceived as valuable or valid outcomes (2002).

**Common Understanding and Shared Objectives – the question of clarity**

While all partner organizations held information relevant to the local community and health, there remained a lack of detail as to exactly who held what type of information and who it was significant to. This situation was generally true of all information, although the focus was intended to be largely on health, as the primary online content, making it a key actor. The situation revealed variance in actors' interests and values. Key questions such as what information, for whom and why, were never fully addressed or clarified. Related issues requiring clarity included; what was meant by community or local people, by quality, access and health information. They remained somewhat abstract, a situation discussed in interviews. They were questions raised during discussion of tender documents, less specifically during review of the proposals but more directly during tender presentations when issues of consultation and partner organizations needs, resources and expectations became central to PlaceToBe.Net outcomes and sustainability.

These questions were also raised conceptually through the lens of Structuration and Actor Network theories and themselves become actors/agents reiteratively influenced. The agency of the questions will be further addressed within discussions of PlaceToBe.Net research and efforts to address quality and access relative to local online information provision.

Partner organizations came to the PlaceToBe.Net with individual understandings of these issues based largely on internal social rules,
norms, relations and practices. Participation in meetings encouraged engagement in social discussion, resulting in shared learning and knowledge that develop common understandings of key issues. While these issues were key to the goals and objectives of the PlaceToBe.Net as documented in related documents and in introductory remarks at committee meetings they were frequently subsidiary to meeting discussions concentrating on a technology solution. For example the SCIP (2001:3) report noted that the choice of a technology solution was “driven by overall priorities for developing specific functionality”. This was also captured in committee meetings when issues related to access and quality returned to the functionality of a search engine solution and related tender specifications or design and implementation features. Confirmation came in interviews when several participants acknowledged discomfort with the degree of attention placed on the technology which made it a primary actor. The effect was agency that reduced broader discussion of issues such as needs related to understanding the user and the quality of information content. Both were identified by interviewees as missing, compromising the clarity of PlaceToBe.Net objectives. Processes related to the clarity of definitions and objectives are implicated in a number of issues and will be revisited in this chapter

**Focusing a Broad Remit**

While the partnership formed around a broader remit, ‘health’ became the focus concentrating efforts on a core information set, with leaders expecting lessons generalizable across other information sectors. The context of why health became the focus was detailed in chapter 4. Revealed were the varied interests of organizational partners as well as gaps in knowledge and the constraints of ambiguous or contentious definitions as well as tensions related to organizational and professional transformation.

Health was a sector with a high profile. Significant media attention was related not only to public health, medical issues and fiscal concerns but
also the broader context of substantial investment in a national IT programme. The restructuring of local Authorities and Trusts along with the development of community partnerships involving, policy prescribed, integrative projects, with social care services, brought attention to broader determinants of health. Recognition of the social determinants of health in relation to the Community 2020 Partnership drew attention to the correlation between the former's eight project areas including the Healthy Cities initiative and local, on-line information in related sectors such as education, recreation, culture, transportation and economic development. While regulatory frameworks and policy increasingly supported national directives promoting “health information for all”, translation of such directives to local action was difficult in a context already managing significant systemic change. There were, as a result, substantial pressures and challenges on local NHS Trusts and Authorities at a time of change and uncertainty in the use of on-line technologies and information content. Internal organizational interests also mediated the participation of experts in the PlaceToBe.Net.

**Movement into Agency/Action**

The first search engine committee meeting reviewed the context that formed the PlaceToBe.Net, acquainting partners with immanent actions including key pieces of research. Study proposals were outlined and assigned to consultants, requiring the review and agreement of an informed committee to move them into action/agency. This process was effective and efficient but did circumvent opportunities to explore research topics and alternatives. Whether intentional or not the effect distanced any specific interests or related contributions from partners. It did little to enable or facilitate an open, shared and somewhat democratic process that nurtures participation so crucial to a committed and dynamic partnership.

The lack of a firm definition of health information became apparent. Minimal discussion resulted in informal shared understanding among the
partner representatives based on their own internal understandings of related practices, relations, rules and norms and an expanding knowledge of what that meant within the partnership. Understandings became explicit only when related discussions arose but were seldom formalized. Revealed was a progression, witnessed in initial assumptions or references to medical, formal health service details, and NHS sanctioned content which correspond to implicit understandings of related structural norms, rules, relations and practices. There was a commonly held attitude that the NHS set the standard for quality health information and that anything else was suspect. Health information has a heritage linked to the rise of specialist professions dominated by medicine with expertise (Illich, 2003, 1974), actuarial and legal practices dominating practices25 (Hardy, 2003; Webb, 2003). Health information has always had a role in individual and group relations within community and broader society, as witnessed in cultural artifacts whose symbolism implicitly or explicitly communicates such messages. Examples are found in the decorative arts, oral storytelling and print. The purpose, explicit or not, was the promotion of health of individuals and groups with an understanding of their relational dependence.

During meetings and interviews, references to health information and needs often drew upon personal understandings along with more institutional-based formations. Organizational representatives’ stories usually detailed the health concern of a friend or relative experiencing the frustrating task of weeding through outdated service information that was repeated on numerous websites and almost always required telephone follow up to validate accuracy and usefulness. Such personal experience may remain unconscious and implicit but the ease with which such stories were shared indicates that they can not help impact the interests and values of organizational representatives. As a result, such implicit experience contributes to decision-making processes.

25 Relevant research fields and literature were discussed in Chapter two.
A more holistic understanding of the role of actors, agency and structure (networks) involves how interests and values mediate power, authority, resources and action or agency in the partnership. For example different NHS staff during different meetings expressed views that indicated common assumptions that their organization’s view of health information and quality were widely accepted, uncontestable standards. However, because there was no continuity in NHS participation, other organizational representatives had developed a mutual understanding of these issues (what was known, not known and what efforts had taken place to clarify these issues) that evolved from participation in discussions related to partnership actions or other related agency. These actors were also familiar, consciously or less consciously, with the role that the technology solution had relative to these issues because of active involvement.

Quality of ‘health’ information, for example, was increasingly seen as linked to the operational variables of the search engine/appliance as well as attributes of the information itself such as currency and usefulness. The first becomes more technological deterministic when information attributes receive less attention while a homogeneous approach is applied to the dynamics of content. Attention to content rather than information results in a simplified approach that risks reducing attention to attributes that mediate access and quality and in the case of health information can limit ability to know or evaluate well the evidence base.

Examples given here demonstrate an expedited project or initiative with time and resource pressures seen in the requirements of external sponsors which the PlaceToBe.Net needed to meet. A number of subjective or overly simplistic understandings can result which may or may not be obvious and transparent but are implicated in understandings, interests and values that led to pragmatic actions. Thus is explained the easy acceptance of technology as the primary actor determining quality and access variables. Informational quality remained unresolved as organizational partners had, in most cases not addressed this internally. Traditional practices, norms or rules could therefore not be referenced.
The gap extended to the PlaceToBe.Net whose novel and innovative work held little precedence on which to draw.

A further example of the mediating role of interests and values is seen with the keen support of a web expert, which was motivational for the involvement and transformative participation of other technical experts, within their own organizations as well as externally to the PlaceToBe.Net. Early in the initiative, the keen interest of a key NHS web person helped expand and alter understandings, opening avenues to explore informational and technical issues related to access and quality. Observed at a special meeting, involving NHS IT personal, discussion broadened from a narrow interpretation based on that organization’s culture with certain rules, norms, relations and practices, to witness views of other information providers and just as important, perspectives about information users. The last, however, is a body of knowledge that while occasionally discussed, remained allusive.

The opportunity presented by such a champion dissipated as a number of factors intervened. Before any follow up meetings he changed employment. Another similar champion did not appear. At the same time NHS priorities seemed to reduce staff ability to be active participants. It fell to the Project Executive to ensure some form of involvement. This occurred through telephone conversations and meetings with several key web experts as well as management staff who formally had agreed to NHS support and involvement.

Key to achieving outcomes was a strong partnership. The importance of each partner having a common and shared commitment was noted in chapter two along with the valuable role of leaders and champions. When attendance at committee meetings declined, the Project Executive held a pivotal role ensuring some enduring commitment through communication and information exchanges outside of meetings. This was particularly true for the NHS, and both universities whose staff representatives had conflicting obligations without being allocated sufficient authority to remain closely involved. A key turning point for the PlaceToBe.Net was the
adoption of the new search application. Some partners had more commitment or expertise than others which supported and facilitated the achievement of this work.

Shared experience, if not learning, in the PlaceToBe.Net partnership, constituted dynamic processes providing the potential for numerous outcomes benefiting the emergence of common aims, action and supporting sustainability. This dynamic of is illustrated below and will be referenced within many of the themes and concepts reviewed in this chapter. Experience and knowledge are weighed against varied understandings such as common or shared interests, values, norms concerns and desired goals that give validity and motivation to the exercise of power and agency. Implicated are relations including flows of information and communication and conscious and less conscious understandings and knowledge related to the exercise of power.

**Structuration Process of Engagement, Partnership, Maintenance and Transition**

![Diagram](image)

Figure 8.
Networks, Structures and the Flow of Information and Communication

Relationships, described in chapter four, were at the heart of the PlaceToBe.Net initiative. They were formalized through network processes (a series of linked relationships) that identified common interests and desire to take action. These network relations draw attention to elements that enable or constrain relations, such as the flow of information and communications within or outside of organizations. Networks are co-constructed. Who has what information, how it is shared and acted upon contributes to outcomes. Similar relations and processes are also found in structures, discussed below.

Networks were important to the PlaceToBe.Net. Already mentioned was their capacity in bringing about the partnership. Apart from the organizational partners, as actors; networks were also actors creating agency facilitating the work. For example key pieces of research were contracted from affiliated organizations and individuals, within less formal networks. WorthMedia, a private new media firm, was contracted to do the Health Information Mapping study (Benedict Taylor, 2003) while a consultant at the University of Sussex undertook the Omnibus Usage study, part one (Coultis, 2003). That first researcher, in presenting results (P2B meeting, 2/7/2004), noted the importance of contact pathways in finding what did or did not exist in the way of ‘usage’ information and in obtaining interviews.

Actor - networks demonstrate a clearer picture of who is involved, in what relationships and implications for outcomes. For example the research studies and the efforts of the PlaceToBe.Net were dependent upon the flow of information and communication facilitated by various actors, networking. This co-constructive process is evidenced in the aforementioned studies but the process is more complicated. The iterative and constitutive role of power that is authoritative and distributive of resources in relation to social rules and norms were is implicated. Inclusive or exclusive features of the initiative are linked to what is public.
(usually non-profit) and external or private (profit-making) and internal characteristics as well as related information and communication flows linked to shared understandings, experience, learning and action.

External network contacts meant that PlaceToBe.Net partners were aware of broader trends related to eGovernement (see below) and City partnerships involving health and social care issues (see 5.4 - Other Partners). Whether or not these extended network links had a direct impact on the PlaceToBe.Net is difficult to measure but are important to acknowledge as an influence relative to understanding partner interests and values that shape their contributions.

While the PlaceToBe.Net aims were to increase access to quality community ‘health’ information and to do so, in part, by supporting links between information providers; in practice it was developing a technology focused, online network of information complimentary to the initial step in a human or organization-based, community information network. Technology, a non-human actor, network and structure, with strong agency is seen as the solution within PlaceToBe.Net aims. These cumulative roles will be discussed in chapter seven. Here, in relation to the context of the initiative it is useful to note that organizational partners were connected outside of the PlaceToBe.Net as well as within the partnership. For example the private enterprise Virtual Brighton and Hove had a history of involvement in City Council online initiatives. More formally, the Primary Care Trust was a partner in the health stream of the Cities 20/20 project and the Health and Social Care Information project. As a result, the first organization partner had a solid familiarity with the PlaceToBe.Net proposal and formative aims that aided participation. In the case of the NHS there was not the same personal networking or understanding as too many individuals were peripherally involved. Coordination of involvement and knowledge generation was minimal, as a result.

Both on-line technology enabled and off-line human-enabled networks complement the goals of eGovernment. This explains the local
involvement and support of the City’s manager. The goals also reflected practices advocated by the field of Community Informatics, based on community technology experience and evidence. Social or civic involvement and participation in community-based projects, for example, was valued. Greater access to government services and information was the primary goal of eGovernment and complemented ideas of democratic and inclusive online information, championed by CI.

Important to realizing these goals would be how they were defined and therefore acted upon. Specific to the PlaceToBe.Net aims were definitions of community, access, quality, health and community health information (see chapter 6). Implicated in these core definitions were perceptions of what is meant by social, technology as well as determinism related to the former. In turn these perceptions and definitions help form attributes, giving actor agency status and identifying power, authority and resources.

5.1.8 Inclusion/ Exclusion (public/private, lay/expert, external/internal)

Issues of inclusion or exclusion were involved in perceptions and definitions of who would access and use electronic health information. PlaceToBe.Net documents commonly used the terms ‘local people’ and ‘community’ to describe potential users of the search tool. The degree to which such fundamental definitions were identified and action taken to address them is implicated in the aims or priorities of both the PlaceToBe.Net and individual partner organizations as well as their mediating representatives. Agency, in the utility of research, reports and documents demonstrated the values and interests of these same actors, illustrating their influence on how the initiative was shaped. Below, evidence found in key documents, compared with meeting observations and interviews is presented.
Organizational Partners, their perspective

PlaceToBe.Net partner involvement might be expected to be representative of the local people or community, who were to benefit from the initiative. It was a claim made early in the Project Executive’s report to the City CEO, in 2003 and one repeated in succeeding documents and meetings. The seven partners did hold the potential for broad representation with, for example, two universities and the local newspaper participating. An argument could be made that, in the interests of their client populations, they offered broad community representation but did such client considerations take place in PlaceToBe.Net, search engine committee meetings? A focus on the role of information providers and the needs of the organizational partners, relative to a technology solution, dominated meeting discussions, obscuring other, broader concerns including those of diverse users and related groups or particular communities.

Understanding the User Population

For example, when it came to understanding the needs of information users generally, or specific to health information, there was, in common, little knowledge or information about what information was needed. There were significant gaps in understanding such as who would use particular modes and forms of ‘health’ information. In the context of the seven organizational partners the newspaper published and was sold to the general population of the community of Brighton and Hove but also to visitors and others with an interest in local news and perspectives on the news. Through varied meeting discussions, understood was the fact that universities recognized their largest client base were students but goals also included attracting staff, researchers, lecturers as well as funding and potential partners. Combined, these two types of organizations provided evidence that the geographic boundary of the city, as the user audience, was problematic. It was a point raised early at committee meetings. The information resources of both organizations extended to but also included populations and geographies beyond the City. Future expansion of the
partnership may well include those with a similarly broad audience. No firm definitions were reached regarding community, local health information, users or needs of users. Attention turned to and focused upon existing information resources as representative of potential use. It was indicative of a rationalization that would grow but would have significant impact on issues of access and quality which are discussed in the next section.

Little effort was made to develop a greater knowledge of the user population although the ICT Usage Ominibus Study, part 2 (2004), which emphasized the importance of knowing the user to design the delivery of information well. There was common recognition at the meeting, presenting the results of the key research studies, that this knowledge was vital to the goal, underlying the PlaceToBe.Net aims, of improving services (P2B meeting, 2/7/04). Knowledge, however, remained general with attention turning to the nature of information resources, in existence, as a means to focus the efforts of the PlaceToBe.Net. It was a focus that would extend to defining the attributes of information itself, including what was accessible as well as quality. These attributes are discussed further in 5.3 as processes with constraining and enabling power which influences the final shape of the PlaceToBe.Net solution.

**Who Needs What Health Information**

While it was recognized that the seven partner organizations each held varied health information resources, knowledge of those holdings was often very general and specific to individual organizations needs and use. The newspaper knew its holdings pertained to news items over a significant number of years, thus providing an archive of historic information, much pertaining to local health. University representatives acknowledged that health information was scattered across the university among distinct faculties and schools, projects and researchers who might have little knowledge of each other. Difficulties in acting on such distributed and compartmentalized information resources were briefly noted with meeting discussion moving on to the provision of information to
prospective students and bodies interested in the university and its work. For example, the simple act of providing a prospectus was recognized as difficult with the candid admission that many recognized weaknesses with current online practices but knew there was little likelihood of addressing new practices for change. Concern was raised over future information needs related to the RAE. Specific to health, doubt was expressed as to who would have an accurate knowledge enabling assessment.

**Decision-making constraining or enabling actions and goals**

The examples demonstrate the interplay of structure, actor and agency in negotiating a common understanding of basic ‘health’ information needs and potential uses. Assumptions and choices of who is involved and who participates as well as what factors are attend to, can be seen as part of the initial process of engagement, establishing goals and objectives. The decision early on, to concentrate on existing information, pragmatically enabled short-term goals but potentially could have unanticipated long-term implications, constraining sustainability for example. Knowledge and the resulting ability to act on real health information needs and utility remained abstract, obscure and limited. Demonstrated was how the agency of decision-making has dualistic implications for a number of factors that lead to dramatically different developmental pathways. This is particularly true when key decisions are made early. It was a point raised by Doug Schuler (1996), noted in chapter two’s discussion of CI. The ability to recognize options, alternatives and contingencies in ICT planning and development processes corresponds to processes of participation and decision-making where agency, actors and structures (networks) dynamically interact to shape outcomes. Such shaping impacts sustainability, a discussion which will conclude this chapter.

Documentary evidence provided by the Health Information Mapping and Omnibus Usage studies illustrated a common pattern of information provision based largely on what existed, in authorized print and electronic formats (Benedict Taylor, 2003; Coultis, 2003). Further supporting a lack of focus on the information user was the finding by Coultis, that there was
little understanding within organizations of what information should be made available online (2003). PlaceToBe.Net research studies reported the repetition of basic service and administrative information online. Its currency was recognized as a quality issue. The focus on this type of health information would seem to confirm its value rather than lead to questions whether other information might be just as or more valuable. Thus basic assumptions based on what was extent consciously or less consciously limited broader, more future-oriented interrogation of meaningful health information as online content.

Attempts by the partnership to understand health information needs centred on learning about what health information existed. What was found in the Health Information Mapping Study (Benedict Taylor, 2003) had implications for access and quality relative to use and the user which will be discussed below. Little detail was revealed about actual user needs. General points were raised about the help that could be provided to assist information searchers to develop critical appraisal skills and support their understanding of how a search is conducted. This is a discussion that crosses conceptual topics as well as issues of inclusiveness or exclusion and the main discussion will take place at the end of this chapter in relation to aspects of the process of search, access and quality.

A gap in health information provision was recognized in the Health Information Mapping Study, when the potential value of public, citizen focused discussion groups on health interests and experiences were recognized as potentially valuable. Few examples were found of local self-help discussion forums. A recommendation was made to support such a forum with appropriate disclaimers to enhance quality and inclusiveness of information and protect the liability of the information providers and PlaceToBe.Net.

The needs of the information user were linked to understanding the use of online information and that became a separate, more general, study. In fact the findings of the ICT Usage Omnibus study, part two were quite
general, with findings largely extracted from secondary sources and hypothetically applied to the City which gave it minimal value (Runtime, 2004). It did recognize distinct, geographically located, populations characterized by distinct advantages or disadvantages in education, economic status, and the adoption of new technology. A focus on health issues was missing from the Omnibus Usage study, part two (Runtime, 2004). Even though health remains one of the top three uses of the internet, it was not included as a category in the national survey, used as a key data source, in the study and that absence was not reported to the PlaceToBe.Net.

Several additional issues regarding inclusion and exclusion arise from my research. As well as providing evidence of who and what was considered in relation to information needs, this study demonstrated the ease with which information sources can exclude potentially useful data such as a category for health information use (Runtime, 2004). Gaps in the collection, identification and sharing of data and statistical information were identified in the ICT Usage Omnibus study, part one. The study found that there was little attention to collecting and making use of information about who was doing what online and for what reason (Coultis, 2003). The author acknowledged that asking questions about such information stimulated reflection by PlaceToBe.Net partner representatives who worked with online information. A number admitted that little thought or attention had been given to such a process.

The issues that have emerged around users’ needs or uses of what local, community health information, are dependent upon key definitions. How community, user, and health information are defined had a strong influence on how the PlaceToBe.Net took shape. Key definitions will be discussed in relation to the processes that mediate such actors within dynamic, constitutive factors in the section to follow. This section turns from issues of engagement, commitment and participation to focus on the agency of actors, structures and networks in the complex processes that helped shape the PlaceToBe.Net initiative. The duality of structure and
related modalities are concepts enabling our understanding of how factors enable or constrain and will be interpretive tools.

5.2 Agency of Actors, Structures and Networks, Enabling and Constraining the PlaceToBe.Net

In this chapter, the discussion moves beyond contextual issues related to the PlaceToBe.Net with its’ focus on community ‘health’ information/informatics. Key development stages have provided a structure for discussion of complex issues and relationships. Because the stages are not discrete and overlap so too will the content of related sections. Moving beyond a primary focus on context the main focus turns to agency, detailing actors and related reciprocal, constitutive influences of structures and networks, in processes, involving multiple mediating factors. How such factors and processes contribute to choices, decision-making, and ultimately pathways, determining outcomes, traced in relation to how the PlaceToBe.Net is shaped and more specifically, their relevance to issues of access and quality. Ultimately actions and agency determine the shape of outcomes and as a result influence sustainability. Outcomes that are valued by users and participants result in access and quality of content that they value. Such use relates to support that helps promote sustainability of an initiative such as the PlaceToBe.Net.

Strong ST focuses on the micro level of project/initiative development, in-situ. In combination with attention to more macro stages of issues and concepts that ANT and ST assist in illustrating, balance in analytical understanding as well as connection to practice is promoted in this study. An advantage exists in the identification of cross-cutting themes that identify links so that patterns can be identified and captured.
5.2.1 Processes of Mediation Shaping the PlaceToBe.Net

The processes involved in a community partnership, addressing local online health information are complex and while often treated as discreet, are dynamically interrelated. Already mentioned, relative to the broad context of this work, in its formative stage, were processes of engagement, external social networks and participation. They will continue to be referenced in relation to the agency of various actors, structures, networks and resulting actions as examples of key constructive processes. At the same time, cross-cutting themes involving the roles of power – authoritative and allocative, and relations to attributes such as public, private, expert, lay, internal, external, inclusive or exclusive will increase understanding of relationships and patterns of action. The result reveals overlapping aspects of agency and networks with formal and informal attributes of structures and human and non-human actors.

5.2.2 The Partnership as Actor, Agency, Structure and Network; enabling and constraining Outcomes

Recognition of the inseparable nature of the roles of actor, structure, agent and network within the PlaceToBe.Net, is understood through the conceptual lens of ST. Our understanding that all are interrelated and as such, have mutually constitutive properties has been enhanced. The initiative was the foci around which actor/agents took action exercising agency but it was relations within the PlaceToBe.Net and among each partner organization that mediated action/agency; seen most tangibly in relation to their common aims. Noted previously were the broad contextual relations, including social or community networks that helped to initiate the partnership. Both organizations and individuals are easily identified as actors/agents but under the lens of ANT and ST, so too, were perceived networks and related structures. For example, the City Council,
e-Government and the 2020 Community strategy (formally the Local Strategic Partnership), its Healthy Communities program and the ‘Local Health Improvement Programme’ were actors, if somewhat distant, within networks and varied structures. These actors, including human and non-human, act in relation to structures which influence understandings. According to ST these structural dynamics can be conscious and external as well as internally known or less conscious and private (Giddens’ notion of virtual, 1984; Stones, 1995). Shaped were individual and group interpretations of social rules, norms, practices and relations in the context of varied structures/networks.

A valuable example of influential relations shaping IT was seen in the NHS and its partnership with the 2020 Community strategy and Local Health Improvement Programme when an early interest, recorded in the 2002 proposal, indicated that collaborative action defining electronic health information categories might be broadened in relation to the work of the PlaceToBe.Net. The early presumption by different partners was that there was a common need for such health categories. Without reference to other options it clearly was a technology driven assumption, based on established practices and the preferences of electronic information management and website design. The early network relations that raised this possibility did not develop into a formal or consistent relationship and so independent work resulted. Options beyond the use of categories were opened up by the time the PlaceToBe.Net formed. Innovative ideas were influenced by notions of the semantic web, combined with uncertainty around what health information would be managed and who and how it would be used. Mutual learning, an expansion in common knowledge and understandings helped develop a realization that doing something new and different was possible, enabled by changes in technology and the social context. While the evidence is tangible and direct regarding evolving technologies less direct and evidenced is the link to social change that social shaping theories recognize as critical to their shaping.
In this case study, recognition that conscious and less conscious interpretation of rules, norms, relations and practices by individual organizations and across networks prior to the PlaceToBe.Net partnership were either implicit and private or explicit and more publicly or commonly known reveals a complex dynamic of social shaping. The example of categories, assumed as a necessary feature, was clearly linked to such a pattern of interpretations. Categories as a design element for search technology became an issue again when the decision was made to go with the off-the-shelf Google appliance. It was a prescriptive feature but one that hosts of the tool could modify according to preferences but few representatives of the organizational partners took advantage of a special meeting to learn about customizing the appliance for their own needs.

5.2.3 Social and Organizational Rules, Norms and Practices

Assumptions regarding technology can be powerfully pervasive, particularly from expert to lay person. Dependent upon a changing context, different social or organizational rules and norms came into play in the partnership. Each partner brought an understanding based on their own organisation with their distinct sectors overt and underlying social rules, norms, relations and practices, for example involvement in the PlaceToBe.Net required a reorientation, disrupting organizational representative's usual social, structural and institutional knowledge which influences customary practices. Knowledge and resulting practices became more heterogeneous, a point Latour makes in his ANT review of transformation (2005). Impacted by the partnership, introduced was the possibility of doing new things or something different. Giddens 1984) noted how these modalities mediate the exercise of authority and allocation of resources with the result that they can be innovative or be reinforcing, replicating traditional practices through decisions made and that dynamic will be illustrated in examples below.
This dynamic activity underlies many processes and can act to sustain managerial control according to Giddens (1984). Because of the nature of this activity, involving the agency of power, control can be intentional or unintentional. In the case of the PlaceToBe.Net uncertainties and ambiguities left substantial authority in the hands of the leadership whose greater understanding of the whole ensured significant power and agency. Attendance at meetings was good, particularly early on, but there was a high degree of dependence upon leadership to provide necessary information and point the group in the direction of an appropriate choice or decision. As meeting attendance dropped this dependence increased.

Networking among individual organizational representatives enhanced members’ knowledge of each others’ interests, values, strengths and abilities and therefore their ability to question or be critical but also to contribute relevant information. However, dependence upon the leadership remained high. In such a situation, decision-making processes, as a key example, can be compromised, with constrained agency in information provision, critical reflection, or shared learning. It may not be conscious or intentional but simply pragmatic. The pressures of limited funding and time, constraints noted in chapter two, can lead to expedited processes that unintentionally foster dependence, promoting a dominant authority which can compromise the more open, participative and comprehensive decision-making that are good practices recommended by CI practitioners, also discussed in chapter two (Schuler, 1996; Gurstein, 2000, 2004; Keeble & Loader, 2001; Day & Schuler, 2004). It is a situation typical of those documented, all too often, in the field of community informatics. It is one, seen in the PlaceToBe.Net.

A key step for the PlaceToBe.Net was the choice of a consulting firm to carry out the search engine contract. It was led by the Project Executive with the support of a City appointed Project Manager. City policy and procedure guided the tendering and selection process, requiring a degree of external accountability. Fifteen firms were short-listed based on a formal matrix of factors provided by the leadership. A less formal review
requested the identification by committee members of ‘something outstanding’ or ‘different’\textsuperscript{26} (10/08/2004). The process was expedient. Observations suggest that the informal review of ‘something outstanding’ was based on implicit as well as explicitly understood factors. Innovation and technology functionality such as the compatibility of WAP and wireless with internet search content were two distinctive features noted by committee reviewers. ‘Something different’ applied to the social sphere saw attention to firms with strong experience working with partnerships, particularly with the voluntary/community sector. Interest was seen in firms with experience in Open Source and search protocols common to the public sector particularly local authorities and national, government initiatives. However, the fact that few partner representatives participated in the short listing of tenders meant that the decision was made by the few who were to became consistent participants in search engine committee meetings.

Five firms were invited and made presentations to an audience composed of PlaceToBe.Net executive and committee members. Several members took on the task of asking questions pertaining to topics such as; project costing, experience with partnerships, as well as search issues including metadata and database compatibility with usability and sustainability also receiving attention. Topics, while pertinent to the PlaceToBe.Net, tended to represent the interests and values of the organizational representatives asking the questions. For example private enterprise, organizational representatives, concentrated on costs. Those with experience in the volunteer/community sector focused on issues of partnership building and needs assessment, as well as aspects of sustainability. The questions also illuminate priorities in relation to the partnership and its’ goals. In doing so the focus ranged from social to technological issues and vividly demonstrated their complex relationships. The process revealed gaps in knowledge, understandings, and interests related to the proposed work. Consideration of technical functionality revealed relationships to how access and quality are seen (defined) and acted upon. Resolving how to

\textsuperscript{26} The two terms were specific to the instructions given by the Project Executive for the review of tenders.
address these key concerns held implications for PlaceToBe.Net sustainability, a concern early in the work but one in which complicated relationships were not made particularly clear during the development work.

An obvious link was the connection between branding, certifying, benchmarking, signposting and marketing the PlaceToBe.Net and its deliverables. Once the technology solution began development, concern with branding and marketing grew, seemingly reducing earlier attention to issues of sustainability and implications related to quality and access. The concluding section, 5.3, will detail this process.

### 5.2.4 Agency of the Project Executive and SCIP

The role of the Project Executive in the context of forming the PlaceToBe.Net was described in chapter 4 and 5.2. Attention now focuses on agency. As one of two people instrumental in developing the proposal he acted as a champion, not only an individual actor but one with formal ties to an organizational actor, both having network contacts which also are actors with some agency. All such actors had some structural authority and allocative power in the distribution of resources. As a leading actor the Project Executive was enabled to learn about, attract and bring others together, forming the partnership. Past involvement in similar initiatives facilitated the development of network contacts while he became known as a champion, keen to act with others on common interests and goals and with the resources, authority, power and structural facility to bring about action or exercise agency. Thus the original proposal was submitted with the collaboration of the City’s Manager of eGovernment. Later the two would act together to revise it. Their formal as well as informal relations outside of meetings supported and facilitated
the PlaceToBe.Net. For example local council expertise was accessed to evaluate the Google appliance.

The assessment of interrelated actor/agency, structural/network features and related modalities seen in the leadership role also extends to individual partner organizations with each making a similar assessment of the role and involvement of each other. It is not surprising that such assessment also reflected partner organizations interests. Examples demonstrating such recursive, iterative assessment among organizational partners which mediates agency will now be the focus of this research.

A discrete example is seen in the involvement of the Project Executive and other supportive members, from SCIP, in earlier initiatives such as the CIN and ICDPP which resulted in special knowledge of related issues and committed to take action on them. Two general reports detailing these projects were available on the SCIP website. Findings and project materials were stored at SCIP but lessons from those initiatives were not formalized for broad dissemination. Reference was often made to the information and learning that resulted from projects such as these. This created a special expertise for the initiatives leaders but was one that was internal with limited public dissemination. Other partner representatives had some familiarity but it was general. For example, mention was often made of the volunteer/community sector and perceptions of their needs as an under resourced and technology challenged sector. Such situations are all too common in projects that result from good-will and have little formal, long-term support.

Differing but complementary expertise came from the City Council whose eGovernment Manager was mentioned as instrumental in the formation of the partnership as a co-author of the PlaceToBe.Net proposals. The recently appointed manager recognized common interests and synergistic aims that advantage mutual benefits from joint work. Bringing the authority, power and supportive resources of the City Council together with SCIP presented an attractive nucleus, attracting partner organisations of similar status. Clearly benefits related to the type of
partner organizations involved. For example without the Council and Universities it is questionable whether the NHS would have been so involved. Thus, external as well as internal forces enable or constrain participation and agency. In the case of the NHS, serious consideration of the PlaceToBe.Net search engine only occurred when their service provider became problematic and a crisis loomed.

The leadership of the Project Executive was instrumental to engagement but importantly, in the later participation of organizational partners. The early engagement and visible commitment of others, perceived as significant by other organizational partners, was important to the formation and when ongoing was also valuable to longer-term sustainability of the initiative. In this discussion ST provided a useful lens to explore the less conscious, less tangible factors that mediate these processes of partnership.

5.2.5 Mediating the Flow of Information and Communication

The use of a website, set up prior to the inaugural Board of Directors meeting, along with a Yahoo-based discussion forum became actors, adding mediating structural supports with the potential to enhance and maintain the interest of the PlacetoBe.Net partners. Both allowed the dissemination of information including meeting notices, agendas and minutes as well as reports. Feedback could be solicited through the sites. The agency of use, however, mediates the value of these mechanisms to the extent that partner-representatives gave attention to the information and communications. Similar mediation occurred with the provision of partnership information when meeting minutes were not regularly available. Constraining information and communication flow was a technical glitch experienced in the interference of security software which at times blocked the receipt of messages, particularly attachments.
Additional effort was required from the intended recipient to access the content and stay informed. The example demonstrates the importance of the flow of information and communication as a mediator of action and involvement. Experienced on an individual basis it was similarly resolved and was only raised briefly at a meeting. As a situation occurring internal to the PlaceToBe.Net process it could have had agency as an example of broader technological phenomenon which can unintentionally limit access to any online information but such broad implications were not raised. As a mediating process consisting of actor, structure and agency information flows influenced all aspects of the initiative with valuable examples already given in relation to engagement, participation and agency of processes. Other variables related to deliverables and outcomes are now evaluated.

5.2.6 Aims and Principles Guiding the PlaceToBe.Net

The flow of information and communication from preceding initiatives and related research reports helped form the three aims of the PlaceToBe.Net. These aims held actor, agency and structural/network roles. Aims result from the co-constructive relations of structures and actors and mediating modalities with agency guiding work, confirming or transforming mandate and vision. With common understandings, partners can assess and confirm their role, as actors, contributing to structural phenomena and managing agency, all of which are mediated by reiterative modalities. The partnership was a significant actor as were the partner organizations, because they supported their representatives’ involvement and variably supported the PlaceToBe.Net.

Following the concepts of ST, the benefits in participation for partner organizations were assessed for varied reasons but primarily classed as internal (not fully conscious), personal and private to the individual
actor/organizational representative and similarly internal to the partner organization but also external, in relation to the PlaceToBe.Net, its potential outcomes and public audience. However, precise knowledge of such assessment was difficult to precisely document or observe but can be alluded to in the illustrated actions and roles of actors. A more precise assessment would prove a valuable addition to this type of research study in the future but would require a significant timeframe. In this study understandings are based largely on the roles and actions of organizational representatives and related network relations. Agency in relation to outcomes and the audience will reciprocally impact partner organizations and representatives exerting an influence that involves issues of authority and the allocation of resources, the negotiation of power within perceived structural pressures involving social rules, norms, relations and practices.

**5.2.7 Duality in the Nature of Agency Determining Participation**

<table>
<thead>
<tr>
<th>STRUCTURAL Rules &amp; Norms, Practices &amp; Relations</th>
<th>INTERNAL</th>
<th>EXTERNAL</th>
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<tr>
<td>ACTOR Interests &amp; Values</td>
<td>Internal</td>
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<td>Organizational Partner</td>
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<td>Partner Representative</td>
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<tr>
<td>PlacetoBe.Net Partnership</td>
<td>Internal</td>
<td>External</td>
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Figure 9.

For agency or action to take place an understanding, implied or made more obvious, occurred in regard to whom does what for what reasons.
While decision-making helped formalize this process making it more conscious (external and public) many choices can remain informal and may remain largely unconscious (internal and private). For example certain partners were likely to value the public element of good-will and information marketing which have an internal/private motive as well as external/public relations attributes, recursively considered within multiple structural and actor influences. Consideration of such factors differs across public, private and professional sectors represented in the PlaceToBe.Net initiative and can be seen to underlie larger issues. Tensions and debate over public expenditures on the initiative versus private sector activity able to do the same was a macro issue. The willingness and degree of involvement in making organizational information content available online, through the PlaceToBe.Net search engine, are related to the variables in the complex dynamic, illustrated here and one that will be addressed again later in the third part of this chapter.

Because of SCIPs’ strong leadership both as an organizational partner and through the agency of the affiliated Project Executive, the influence of such an actor, its agency, structure, and network ties, is valuable to understand. Most obvious would be the influence of SCIP principles. Reviewing SCIP in the context of community technology initiatives, for his dissertation, Peter Day (1999) highlighted key principles that guided the organizations work. They include: (1) to work in partnership, not competition, (2) be led by people, not technology, (3) learn from others and share experience and skills, (4) do not exist for private profit, (5) empower users to be information providers, (6) run at minimum cost to achieve maximum participation, (7) value all contributions from all parts of the community (SCIP, 1997a). Such principles and values may not have been exclusive to SCIP. Within the partnership there was little evidence that they were shared among individual organizational partners. However, they might be expected to influence the partnership’s three aims given the power, resources and authority invested in SCIP, relative to an understanding of related social rules and norms and that is discussed next.
The three PlaceToBe.Net aims had much in common with these principles\textsuperscript{27}. For example tensions around issues of competition became obvious early in the initiative when the newspaper questioned the leadership role of the City Council, suggesting that public funds should not be spent on an initiative that the private sector could do (Riches & Walker, 2002; Board of Directors, Dec, 2, 2003). Thus tensions involving the issues of public and private mandates and sustainability were raised with respect to the goal of increasing access to quality community ‘health’ information through the development of an information system solution – a search engine. The tensions and related issues would be on-going and took varied forms which both constrained and enabled the initiative. For example the issue of whether City Council should lead the initiative was resolved when SCIP and the Project Executive accepted leadership. However, the Council maintained financial control and was the final authority as the party accountable to the Office of the Deputy Prime Minister for the Invest to Save fund.

SCIP’s principles also link to the PlaceToBe.Net aim, of building supportive links between information providers. However, the goal was mediated by the constraints and enabling aspects of a tight project timeframe and significant goals, pragmatically considered. Thus an advantage can be seen in the limited number of partners involved. Other constraints such as time limited the use of resources, including the amount spent on research activities, public or community consultation and communication processes, reports and the dissemination of information.

Organisations with well established, private, commercial service partners, such as the newspaper can exert significant power and authority over a new, tentative and potentially fragile public enterprise. They also can hold valuable resources for allocation with implied authority and agency, a

\textsuperscript{27} The PlaceToBe.Net aims were: (1) “To improve the quality of information available to local people” (2) “To build supportive links between local information providers” (3) “To build and support information systems which help provide better access to high quality information” (Walker, 2003/2)
capacity recognized in the NHS, for example. The scrutiny of social rules, norms and practices from peers and other organizational partners, influences the dynamic of participation and agency. The unknown characteristics of new technology, as well as the complexity of technology projects make both vulnerable to reservations and criticisms, within or outside the PlaceToBe.Net. Concern was expressed over clarity of the PlaceToBe.Net aims and initial activities by several representatives especially those holding strong business models. A more flexible view was typical of other organizations in less profit-oriented sectors.

The work is also susceptible to a high degree of public scrutiny, accountability and even sanctions by external entities/actors, which may have no direct involvement or investment in the initiative and lack, therefore, the shared experience or expanded understandings, that knowledge in the context of the initiative, provided. Such informal, distant actors and related structures held implied power and authority with modalities less constricted to the partnership and mediated by a broader social context of rules and norms. Examples in this case study include the ODPM, Invest to Save department, and at various times the non-participating staff of the partner organizations.

5.2.8 Socio-technological Dynamics

At a more micro, technological level, the contentious public/private issue can be seen to be implicated in the choice of an off-the-shelf versus bespoke search engine solution, customized to the unique context of the PlaceToBe.Net. The example is pertinent to the second SCIP principle – to be people led and not technology led. It fits with aims focusing on access to quality information for local people through a technology solution and alludes to socio-technological dynamics in the design and implementation of such a technology solution. While the popularity of
Google could arguably make it people oriented the debate remains as to the dominant force driving its use.

When difficulties arose with the tendered, bespoke solution requiring significantly more time and resources, a tight timeframe and limited resources contributed to a pragmatic decision to change directions and implement a newly available product from Google. The change of direction was led by the Project Executive at a time when work had moved behind the scenes with less direct committee involvement. Meetings had become fewer in number and not as well attended. A critical point was reached where the initiative could have faltered, particularly as it had done so preciously. A timely decision would ensure continued work and increased the likelihood of tangible outcomes thus reducing vulnerability. A report, produced by the Project Executive, briefly outlined and compared nine options for the committee to weigh up. A Google search appliance was detailed for the first time as a viable option. A meeting held in January, 2005 provided additional detail with new presentations from the two original candidates for the bespoke contract. Attention continued to be directed to the PlaceToBe.Net aims. In making the choice, according to the Project Executive, there was too much information to provide, in this situation, which risked overwhelming participants. The difficulty, he found, was to provide that which was valuable to making a decision thus the powerful role the leader held is made evident.

The contracted IT firm had proposed completion of the bespoke search engine viable through the firm’s future commercialization of the tool. It was one of eight other options that were not accepted. Going commercial was controversial. It was a possible breach of the funding arrangements and tested the values of the partnership. Investigations, however, were made by the Project Executive. There were pressures to achieve results as well as aid sustainability for the initiative. The fourth SCIP principle - not to exist for profit, was maintained. Concerns around sustainability, however, continued to raise the issue of creating a revenue stream, a subject covered in 5.3. Early on, the PlaceToBe.Net partners had also
made it clear that no partner should profit from the initiative (Riches & Walker, 2002) and this principle was also maintained. Sustainability issues are discussed in greater detail in 5.3. These issues and their resolution through decisions and options exemplify their determining role in how the PlaceToBe.Net was shaped and are emblematic of related interests, values and differences that can create tensions or ease collaborations. Differences across the for-profit, non-profit sectors, even when sharing a public service motive, can be seen to create tensions but tensions may not be all that obvious, as demonstrated above. Implicit attitudes regarding, for example, the strategic nature of aims versus greater flexibility, allowing interpretation or transitions, can impact a partnership. Partners may withdraw, finding it less rewarding to attend meetings, without providing a reason for doing so. Expectations related to conscious or less conscious perceptions and understandings of structural and actor mediation may not have been met. Factors such as these help build and sustain an initiative are explored in section 5.3.

Participation and relations also pertain to building supportive links between information providers, a key PlaceToBe.Net aim, involving complex social processes. Related opportunities began with the engagement of organizational partners and involved a desire, on their part, to share interests, experience and knowledge. Such sharing was fundamental to developing and maintaining links and partnerships and involved the flow of relevant information and communication.

The early exploratory nature of PlaceToBe.Net search engine meetings, with a focus on understanding individual, organizational partner needs, in relation to a technology solution, did facilitate this process of sharing. It was a period of trying to come to terms with the varied social and technological aspects of the initiative. There is, as a result, a duality and mutually constitutive relation between the processes of sharing and the exchange or flow of information and communication. It is a phenomenon this study has alluded to previously and one it will come back to, in reference to the PlaceToBe.Net processes and outcomes in 5.3.
Outcomes from shared participation include other forms of reciprocity but such processes are contingent upon an environment or context that supports and potentially rewards sharing along with flows of information and communication. Sorting out what influences these processes is difficult. While interests and values are fundamental, conventions such as learned social rules, norms, relations and practices influence the interests and values of actors. For example, technology, within a pragmatic view of financial and time constraints and the need for a tangible result, became a determining focus as a foundation upon which options and decision-making occurred. The previous example of a bespoke versus generic technology solution demonstrates the interplay of these factors. As the partnership moved ahead, becoming more focused on technical aspects, participation in meetings and the nature of what was shared, changed. Created was a context where interests and values became aligned with increasingly pragmatic and expedient agency.

As attendance at meetings declined the question of whether the right experts or representatives were involved in the committee was raised for a second time. The resulting discussion queried whether the technology focus had dissuaded other participants. For example, a web expert - previously keen - no longer attended. Concluded for a second time was the general feeling that representation was “good” and according to the leadership others could be contacted and kept informed outside of meetings (Walker, 2003). The absence of the keen web expert had been noticed but an explanation from the Project Executive revealed difficulties with internal constraints in communication and information limiting participation relative to organizational priorities. The particular example was unique in that the representative had significant foresight and expertise that recognized the organizations ability to make use of and benefit from the search technology. His superior did not share the insight and did not provide authority or support for work of an innovative nature apart from regular duties.
Empowering users to be information providers was another SCIP principle that corresponds to the PlaceToBe.Net aim to support links between information providers. Chapter four portrayed the seven organizational partners as diverse and significant providers of information related to the community. Their participation and agency, assisted in building credibility, early in the initiative and in the long-term it would attract additional partners and extend links, potentially developing a network, of information providers. Over the course of PlaceToBe.Net meetings, attention focused on existing information and related providers which constrained other considerations including the potential of users to also be providers of information. This narrow view may have been a response to the previously mentioned tight timeframe and funding concerns. The limited view may also have been due to a pragmatic approach to the PlaceToBe.Net initiative, acknowledged by the Project Executive (interview, confirmed in meeting observations) and one that was supported, formally or informally by the partners. There was an implicit, common acceptance that understood the need to move ahead because time and participation were limited resources.

The PlaceToBe.Net understanding of the role of information providers expanded during the three years of the initiative. A fundamental awareness grew that partner organizations had an interest in each others information. Particularly important was the development of an understanding regarding the possible breadth of health information and the ability to access and share varied types. While there was recognition of varied types of health information there was minimal discussion around implications related to quality. In addressing access the focus on issues of agency and provision remained primarily on a service delivery model leaving broad and unexplored distinctions between health information certified by national institutes with such a mandate – the NHS, and other sources unresolved.
An obvious advantage of the PlaceToBe.Net partnership, which became clear, was the value of sharing data and statistical information regarding public use of individual electronic resources (Coultis, 2003). A recommendation was made in the ICT Usage Omnibus Study, part one, for the PlaceToBe.Net to take a leadership role promoting such sharing thereby closing this knowledge gap. It was the type of role that others including an NHS representative, working in health informatics, thought could expand to address issues related to online delivery of community ‘health’ information (P2B meeting, 2/7/2004). That suggestion also involved a regular electronic bulletin to aid and support the exchange of partner experience and promote a greater understanding of online, health information, provider issues and concerns. There was no formal follow up on this possibility. The opportunity was raised late in the initiative’s work when funding, supportive resources and deadlines were nearly exhausted and attendance at meetings had declined. While aspects of engagement and participation processes were present, the agency of transforming them into PlaceToBe.Net goals and desired outcomes, a dynamic focused on in 5.3, failed to transpire.

5.2.10 Shared Interests, Experience, Learning, Understanding: Knowledge and Action

To learn from others and share experiences is another SCIP principle which complements the PlaceToBe.Net aim to support links between local information providers. Many variables enter into such goals which were fundamental to the partnership including engagement and participation discussed earlier. Partners exert agency acting relative to their interests and values shaped largely as representatives of organizations tied to various structures and networks.

The node of uncertainty was the degree to which any personal, more private interests and values may have entered participation in learning
and decision-making. Meeting observations captured personal examples offered by organizational representatives of their own or that of friends and relatives in the use of online information to resolve a health concern. Three examples were also offered in interviews. While the examples were received as interesting and informative, at meetings, no direct influence was seen in the way planning and decisions proceeded. A common feature of the personal stories was the repeated replication of redundant and outdated service information. The situation did flag the importance of current information that was regularly kept relevant and which enhanced that too often replicated across websites. The challenge of these two quality and access features was delegated back to the information providers. One reason was the lack of long-term sustainable support for the PlaceToBe.Net which saw the solution as being a human editor overseeing the information.

High attendance at meetings early on was an indication of strong interest. Attendance declined in the last months and while it could easily be seen as a decline in appeal and commitment factors, the reasons were more complicated as declared in this thesis. Attendance therefore is an inadequate means to measure shared interest, values, learning and experiences. Active participation was a better indication. Observed interactions confirmed that partners were at different stages in electronic search technology. The earlier example that organizational representatives were progressively sharing knowledge that recognized each held some form of community health information, in varied electronic form is important. It was an understanding critical to exploratory discussion of technical options and related decisions. It brought clarity that each partner organization had varied interests, expectations and needs regarding the PlaceToBe.Net.

Partners variably recognized that there was something to be gained from ongoing involvement if not participation. Explained earlier was the fact that a number of organizational partners had irregular attendance at meetings, reducing actual participation, but often they remained engaged with the initiative through less formal meetings and information and
communication exchanges. Shared knowledge and understandings, seldom explored in relation to the determination of options and decisions in ICT projects, can be seen as unanticipated outcomes in the case of this partnership. A growing understanding of the dynamics of partnerships recognizes that such macro level outcomes are likely but there can be little certainty as to the specific, micro level, shared learning or knowledge generated from what are time and resource intensive processes. The failure to attend to and understand such critical process elements means related evidence is not captured or recorded. The example indicates significant value beyond engagement and participation with mutually active processes that enable critical evaluation of information and new knowledge supporting decision-making. Revealed as an original contribution to knowledge is the fundamental role shared interests, values, learning, knowledge and understanding have to the exercise of power resulting in meaningful agency.

A more tangible example of a valuable outcome resulting from shared learning and knowledge is one already mentioned. It was the PlaceToBe.Net realization that research about online information usage was minimal and therefore a constraint to future activity. Information providers were not collecting good information, identifying or analysing their own related data and there was little consideration of sharing such information (Coultis, 2003). It exemplifies a lesson learned as a result of shared learning in the PlaceToBe.Net partnership. This new knowledge had individual, internal significance for each partner organization, as representatives acknowledged in observed discussions. However, there was also a novel recognition that such mutual work would be of value, internally, to the partnership as well as externally beyond the PlaceToBe.Net. As a result several organizational representatives noted they would be doing something new and different should they monitor, collect and potentially share information about use of their online resources. It is an excellent example of the role shared learning played within the partnership relative to individual organizational and group interests and values that mediate participation. Making overt this dynamic and transformative relationship is an original contribution to knowledge.
Like each partner organization and the partnership itself, definitions, in the work of the PlaceToBe.Net, are seen to have duality of structure (Giddens, 1984). Definitions not only frame policy but determine practice. What actors pay attention to or not, as they filter, select and attend to events or issues related to issues and values, is fundamental to the way definitions are formed and made meaningful. Once again, reference can be made to the Coulitis report which documented significant limitations and gaps concerning the use and access of online information (2003). The report had surveyed organizational partners and also contained interviews that confirmed these gaps. Part Two of the ICT Usage Survey also verified the fact there was minimal meaningful information (Runtime, 2004). As already mentioned the reports offered little, other than generalizations extracted from national data applied to the social demographics of the more local, community population. Because knowledge was minimal, numerous assumptions regarding, who the audience would be, and what their needs were, continued to exist and within the context of these studies became more valid. This was also seen in the definitions formalized in PlaceToBe.Net documents and which extended to the dialogue of committee meetings. For example the audience, or users, were frequently referred to as ‘local people’ which became further refined to the ‘community’ of Brighton and Hove.

The definition was challenged by the reality that existing ‘local’, community information, in electronic form, included a broader geography, neighboring communities being a significant example which would be extremely difficult to alter. The rational to concentrate on existing electronic information as a parameter for action, within the initiative, added to the ambiguity of what the PlaceToBe.Net meant by community information. It raised additional but related issues of how quality and access were defined and addressed. The resulting understanding of the sociotechnical environment and how its variable attributes act to constrain
or enable information access and quality is original research contributing new knowledge

5.2.12 Health Information, Defined and Existing

Why health information became a focus of PlaceToBe.Net aims was understood from the meeting discussions more than from available documents. For example, health information was first mentioned in the August 9, 2002 report to the Chief Executive Brighton and Hove City Council in reference to “new projects which will support and help develop existing activities in the public and community sphere.” Integrated health information is listed as second of the three related projects which included “the city’s search engine” (BrightonBrain) and a community server. It was a description of the role of health information that while alluded to in discussions, would not formally come up again.

The Board of Directors meeting on the 3rd of December 2003, records feedback from potential partners that included a statement from the Head of Partnership and Organizational Development, at the local Brighton and Hove PCT, identifying there were “in principle – strong possible links with other projects within (the) PCT.” The representatives comment continues, explaining an “identified link to Joint Information Unit”, while also mentioning “new personnel in (the NHS) organization” (Riches & Walker, 2002:4). The benefit from the health information project, recorded in the PlaceToBe.Net document ‘Project Details 2003/4’, was that “all providers of health-related information (would be) better informed of existing usage of health information in (the) city.” Also noted was the benefit of “better quality health information more readily available to local people.” It went on to say a ‘Health Information Project’ would support activities that would encourage the development of a city-wide health information strategy to understand and “map the existing provision of health information” and
“develop better links between providers across the city” (Project Details 2003/4).

The quotes from these two documents represent the contrast between what were identified as internal needs, concerns by a key organization, the local PCT and the key aims and objectives of the partnership which held an outward or external view of the benefits for ‘local people’ through a partnership of community organizations. While this tension of what is internal and external to organizations and the partnership or public and private became obvious, relative to health information, it was not exclusive to the realm of health. The challenge of balancing internal and at times private organizational goals with those of the partnership, which were external and publicly focused, underlies the work of any collaboration (Lowndes & Skelcher, 1998; Repo et al, 2005). It was a tension aggravated, perhaps, by the many challenges involved in a partnership when it is dealing with an innovative, potentially ground breaking initiative. Recognizing the implications of such tensions becomes most crucial, as a result.

Related contentions were found when it was stressed that the PlaceToBe.Net had a broad community information remit rather than a particular focus on health information. There was according to a SCIP representative “insufficient evidence of a clear aim to focus on health” (interview 2005-10-06). Clarity was offered by the Project Executive, who stressed the ability of health to cross over varied community sectors (interview 2005-8-5). Health, he stressed, involved information related to the eight action areas identified by the Brighton and Hove Community Partnership Strategy (see partnership discussion, chapter 2) which included housing, business, transport and employment, for example. This statement came after almost 3 years of work and after regular search engine meetings where discussion, on occasion, had raised the question about what constituted health information. This researcher, acting as a limited participant, raised the possible value that determinants of health, defined by the World Health Organization, might have for the partnerships work. These determinants informally aligned with the eight action areas of
the Community Partnership Strategy, named above. A definition, however, was never formally presented but over the course of the initiative, partners seemed to accept that health information was broad and inclusive of diverse sectors corresponding to what could be classified as wellness, health promotion and prevention as well as a more traditional perception of health information relative to medicines focus on care and treatment.

The process by which the partnership came to focus on existing information as defining its work and that this was the boundaries within which it proceeded in relation to health information was largely pragmatic. The tensions and contests surrounding what constituted quality health information, particularly that not sanctioned by the NHS were volatile and potentially a threat to project outcomes. It was also clear that the large organizations with varied departments and projects did not actually know what health information they held, nor did they know its' value for users. This was a situation unlikely to change in the immediate future. Pragmatically it made sense to concentrate on what was extent.

The degree to which partner organizations, individually or in partnership, exercised agency to better understand information resources and related use has been largely understood through their primary role as information providers. It was in this capacity that organizational partners participated in the PlaceToBe.Net. During search engine meetings it also became apparent that they were just as likely to be information users and access each others content, creating an unusual relationship. At the same time all of the organizations, in some form, represented information users and the extent to which they were considered is indicative of the values and interests that shaped the initiative.

It is a discussion confirmed in the third section of this chapter which focuses on concluding elements of the PlaceToBe.Net. These include outcomes or deliverables, the constructive, constitutive results of agency. They are results linked to values and interests revealed in this critical review of processes and agency mediated by the enabling and
constraining factors that negotiate power, authority and resources. Ultimately the sustainability and benefits of this community initiative, with an initial focus on health information, are determined by the dynamic processes, and are further analyzed through the following discussion. Inter-relationships are uniquely captured and portrayed to encourage further investigation of new knowledge potentially of great value.

5.3 Construction of Deliverables and Outcomes, Sustainability

Agency is exercised relative to actors’ conscious or less conscious understandings of structures and related social rules, norms relations and practices. The impact of these dynamics has been explored relative to context, in issues of engagement and participation (5.1) and within processes that include the determination of options and decisions (5.2) that mediate outcomes. While ST duality of structure helps illustrate a relatively equitable dynamic its application to non social/human-based environments remains untested. Structures determined by online technology environments, such as search engines and designed content are new and less obvious or transparent in their functioning making them less likely to be open to human-interpretation, particularly by lay users. Formal knowledge of rules, norms, relations and practices resided within a minority of experts who without contest exercised greater power of authority and resources in the design and maintenance of a technology solution. The majority of participants, as a result, retained a sense of ambiguity regarding the functioning of online structures, one that is similar to the uncertainty of perceived actors. Both involve questions and perceptions related to human-based or non-human related functioning. The duality parallels actor-mediated conscious and less conscious understandings of structural influences and agency. Thus a number of dualities and their relations are revealed and now explored.
Here the focus is on the constructive or constitutive outcomes from processes that result in deliverables or outcomes that impact sustainability. Examples reference the related aspects of context and the dynamics of agency, in processes leading to and concluding in an information system solution, for the PlaceToBe.Net initiative. As has occurred throughout this study the lens of ST and ANT in reference to HI and CI will aid the interpretation of evidence drawn and presented.

Previous attention was given to the external and internal dynamics of actors and structures relative to reflective processes of conscious and less conscious understandings and knowledge which were recognized as mediating agency through notions of related structures. Attention to relations among actors, structures and modalities helps our understanding of what is internal and usually private and that which is external or public. It is an active duality implicated in decisions, already described, which help shape outcomes. The duality is fundamental linked to frequently unrecognized dynamics that informally determine and shape a health information/informatics initiative.

External interests and values, for example, are frequently associated with that which is public and involves an audience, users, as well as activities such as those recognized here which focused on marketing. In contrast, the internal, is usually associated with private organizational issues such as policy, procedure, practice, product or planning and strategic development. Both arenas have specialized rules, norms, practices and relations that operate through both conscious and unconscious levels of agency. Because this discussion moves beyond the formative context and the agency of processes to a third stage involving outcomes and deliverables, attention is required to relationships across these stages, the cross cutting factors that Structuration Theory help to illustrate. Understanding these dynamic processes further illustrates how micro issues can have long lasting, macro implications. Such results gain in clarity and bring greater understanding when the quadripartite cycle of Structuration theory, developed and detailed by Stones (2005) is applied.
The ‘conjecturally- specific relates to social rules, norms, practices and relations commonly perceived by actors as directly attributable to the structures within which they are active. In contrast the general- dispositional is a less conscious interpretation of these same structural features that equally impact the actions of related actors.

This internal duality is detailed as attention turns to aspects of the search engine which have been modest to this point. While it was a central actor, around which the goals of the PlaceToBe.Net were to be achieved, the partnership, essentially through social processes, illustrated here, enabled it. A more specific investigation of key elements within the sociotechnical environment makes clearer their interrelationships. It is a nature nurtured by multiple dualities interacting to form understandings, construct choices and decisions. In the end, evidence linked to deliverables, outcomes and issues of sustainability point to processes, increasingly recognized as complex and opportunities to enhance benefits, positive results and strong outcomes when the complexity can be better monitored and managed.

The 3 levels of human and structural interaction, their interactive duality, and recursiveness are shown in the diagram below. Employed as an analytical aid, shared understandings are seen as weighed internally and externally by partner organizations via their representatives with varied conscious and less conscious interpretive schemes providing legitimation. Flows of information and communication and varied interests and values influence interpretation and legitimation that assigns authoritative as well as allocative power which manage agency. These complex, interdependent relations are cyclically played out throughout decision-making processes that help shape initiatives as they have the PlaceToBe.Net. The examples relative to choices and decisions are numerous as discussion continues first with the search engine and finally to the portrayal of an emergent framework useful in guiding such initiatives.
5.3.1 An Information Systems Solution; the search engine

The solution of a search engine/tool quickly emerged from the initial, perceived need for an information system. The linking of varied databases would thereby increase access to quality information but to what extent remained unexplored. The goal made it a significant actor/agent with important structural influences, described here. Confirmed was the structural duality of search engine/tools. Attention continued to be primarily on power, allocative or authoritative, mediating resources involved in agency. Combined, these concepts aid our understanding of the variables that enable or constrain beneficial outcomes and the sustainability of a health information/informatics partnership such as the PlaceToBe.Net.

Access to local health information is contingent on provision and use which, as explained in chapter two, is indicative of quality. The three
actions, access, provision and use, overlap in constitutive processes that enable outcomes and aid sustainability. Through a better understanding of the multiple factors and relationships involved in the dynamic processes determining access and quality, good practices can be identified for future initiatives. Linking and making distinct data bases available to search processes and to a broad public user base was one way to increase access. However, the details of design and selection of a search engine solution revealed complex factors that arbitrate aspects of access and quality.

Why a Search Engine

Search and retrieval, along with the need for local content were identified early as major weaknesses related to information access and quality and confirmed at the July 2004 search engine meeting. The manager of the City’s eGovernment program stated at the time that, “it is why we are building a search engine”. It was confirmation that a search engine, technology solution was the path perceived, as an obvious choice, to resolve varied issues influencing access and quality of community ‘health’ information. The decision gave the technology a determining role as actor as well as structure. The ability to search for information, health or other, related to a specific geographic community, had initially contributed to the focus on an information solution for the PlaceToBe.Net. Recognized, through previous work (see chapter 4), was the fact that search engines failed to facilitate easy internet searches related to a specific local. The need to enhance and bring together varied and valuable databases was seen as a means to increase access to quality community ‘health’ information. While, in principle this would help, whether it was a viable means to increase access and, or quality remained uncertain. A partial answer is illustrated in discussion of these information attributes through the following discussion and concluding chapters.
In the same manner that ‘user’, ‘health’ and community or local were identified and defined (discussed in chapter two), access and quality remained attributes that were variably understood. In practice, access and quality were largely determined by existing providers of ‘health’ information (Benedict-Taylor, 2003). Providers selected content, defining online attributes which influenced how that information is found by search engines (Rogers, 2004; Lash, 2002). The lack of more comprehensive definitions as well as attention to their overlapping relationships compromised the role of quality and access as significant actors and structures. As a result, their agency and structural influences were less obvious. Any equitable duality, was subtly unbalanced with only a partial understanding of issues related to access, quality and the agency of actors and structures. The dominance of structural properties and related modalities of power and resources were, for example, seen in presumptions made around NHS standards for quality and a dependence upon one option, a technology solution, increasing access and negotiating quality. The move by the PlaceToBe.Net to focus on existing information, noted previously, removed the need to more thoroughly examine these key attributes of ‘health’ information, central to the initiatives aims.

5.3.2 The Social Technological Focus

Evidence emerged throughout this study indicating complex dynamics between the social and the technological that recognize both are interlinked. Chapter two covered variables that mediated a socio-technical environment. Power and agency, in systemic relations constrained or enabled interests, values and choices that mediated decision-making and the allocation of resources. The shaping process extended to the social and technological inclusion or exclusion which influenced access, use and quality. The result was an increased knowledge of the multiple and inter-
related issues that enable or constrain access to online health information. It is an original contribution to what has been a narrowly focused knowledge base. As analysis in this chapter moves into constructive, constitutive deliverables and outcomes and issues of sustainability, in relation to attributes of access and quality, deterministic consequences of technology and specific societal pressures, as determinants, become clearer.

New opportunities presented by evolving technology in relation to the shared interests and goals of increasing access to quality community (local) ‘health’ information, online, was part of the formative context establishing the PlaceToBe.Net. Mentioned was the influence of networks in the formative stage and how these formal as well as more informal flows of information and communication, the last among less participative partner organizations, formed networks of interest and support, aiding active participation. Thus the social dimension became a more recognized and tangible contributor. A degree of informality was recognized in the role of networks that differentiates their function from structures. This offers a more flexible social environment, less restricted by, or attentive to, the rules, norms and practices inherent to structures. The last, as ST recognizes, are interpreted by actors on both a conscious basis with formal recognition and an unconscious basis, allowing less formal consequences. It is a duality that leaves room for subjectivity and assumptions particularly when planning and design processes are subject to tight timeframes and resources that constrain participation. Learning that fosters a knowledge base supporting good decision-making and the recognition of options and alternatives is also mediated by the dualities. For not only are conscious and less conscious understanding present, but formal and informal processes inflect and shape such knowledge. A third duality also mediating understandings and resultant knowledge is that of private and public interest and values described previously. The interactions of these dualities reveals complex and dynamic relations that enable or constrain new opportunities related to such partnerships and is therefore an original contribution to a fragmented and poorly developed knowledge base supporting good practices in partnerships.
As the PlaceToBe.Net formalized its own structure as a cross-sector partnership, the influence of social rules, norms, relations and practices internal to organizational partners, and externally as an influence on the evolving partnership can be seen. Conjecturally specific understandings are seen in knowledge of internal structures, specific context and related contours that shape and explain how organizational partner representatives adapt to the PlaceToBe.Net context. Each brings an understanding based on external activities in formal projects and more informal social networks. It would explain the diffidence to the NHS as experts on health information and issues of related quality. General dispositional knowledge, in contrast, is based on less formal experience and is transposable. There is room within such interpretive schemes for the subjective as well as the objective and that which is less consciously acknowledged. The two forms of knowledge work in synergy shaping adaptations to new situations such as the PlaceToBe.Net partnership. Such an analytical framework is uniquely applied to the health information/informatics partnership revealing an original contribution to knowledge that has the ability to be an informative aid to practice.

5.3.3 Who was involved and why

The appropriateness of those participating in the search engine advisory committee was questioned on several occasions. The issue involved doubt around ‘the right expertise’. There was a dominance of IT and web-related skills provided by partner representatives. The issue was laid to rest by the Project Executive who felt expertise was appropriate. The strong involvement of web related staff may well have been related to their common incentive. Many acknowledged their inability to do alone what was being proposed jointly. Frustration at the lack of progress within individual workplace organizations was acknowledged during interviews.
The initiative was seen as a chance to not only share such concerns and potentially influence that situation.

In contrast, representatives of NHS organizations seemed wholly concerned with internally prescribed behavior that limited their involvement and participation. More than other organizational representatives they were conscious of the needs and requirements of their organization, consistently expressing views that were in line with internal policy and procedure. A prime example of such behavior was outlined in chapter four. Prescriptive behavior such as this was a significant constraint to joint innovation. It might also explain their general lack of participation and failure to concede to interviews for this research.

In relation to the last new ethics and governance procedures and permissions were implemented during this research. A detailed package was prepared for both committees and permission granted but this researcher often felt staff were uncertain about their freedom to discuss issues without formal permissions. On two occasions staff were unclear as to how their particular NHS organization was managed by these committees because they were either newly formed or in the process of restructuring.

The lack of NHS participation meant that expertise related to health information and quality issues was not available at committee meetings. While this expertise was not limited to NHS representatives, there was an acknowledged recognition that the organization provided desirable, credible expertise. In committee discussions related to quality, the lack of expert opinion and action left the issue to be managed by each organization internally, and other options unexplored.

The revelations demonstrated a further example of the conceptual duality emerging as a significant structural phenomenon in this research. Internal, often private or less conscious expectations for participating in the PlaceToBe.Net compare to those that are more external or public and more consciously acknowledged. The structural nature of the first is a context that allows or supports assumptions while a more public and
conscious context requires open or transparent exploration of issues. Assumptions can have enabling or constraining power as this research recognized. The property is seen in relation to the degree of definition and common understandings that formed within the partnership. The property is also implicated in internal organizational structures that constrain or enable PlaceToBe.Net participation and support. Thus constrained communications and information can produce assumptions that intentionally or unintentionally reinforce organizational structures that may deny the chance to influence and possibly transform such processes.

5.3.4 Interests Shaping the Search Engine

Emerging from the accumulated evidence was the realization that both internal and external interests, values and bodies of knowledge shaped the PlaceToBe.Net context, processes and outcomes. These attributes extend notions of knowledge recognizing the involvement of learning that is formal and informal and often shared. Knowledge was revealed through aspects of agency, to range from expert to lay, relative to particular situations or contexts and the interpretation of actors with authority, tied to varied structures. Agency invigorates a cycle in which involved interests, values and knowledge allows reflexive and reiterative action and praxis. In tracing such patterns or cycles in internal and external spheres, seen in a partnership of public and private organizations, factors and processes that constrain or enable were revealed that can inform practice.

The example of how and why different organizational partners valued information about online information users demonstrates these related dualities. Partnership studies attempted to capture and transfer such information but individual partner organizations did not explore nor formally contribute knowledge of their own client populations. The observer queried the degree to which they new their own client population.
The University of Sussex and the newspaper were at varied stages of developing internal search technology, while the University of Brighton was some way away from that development. Brighton’s representative, as an IT expert, recognized that it was important to understand what the public might need, in the way of University information and realized this went beyond knowledge that was currently available. A number of assumptions limited discussion, focusing on access to prospectus.

A formal assessment of needs was given brief mention and delegated as an aspect of work in the bespoke tender. Informally, discussions at the search engine meetings identified existing information and communication flows that included dissemination of course information and research activities. Internal information needs were also identified as fragmented, largely unrecognized and therefore inaccessible making it difficult, if not impossible, to assess and document them. Health information, as previously mentioned, existed across schools, departments and campuses. It was a situation that at first the Universities representative, a web expert, felt he had little real knowledge of but later, during discussions revealing broad aspects of health information, speculated that he did have an understanding based on involvement in another project. The last exemplifies a gap between expert knowledge and practices and conscious or less conscious understandings with participation and information determining choices. Unaffiliated, project-based networks can also have unanticipated value when associations are made conscious.

Both universities had a strong interest in search technologies as did the webmasters from the two local Primary Care Trust and a third Hospital and University Trust. Brighton University had a history of involvement with these types of projects through faculty involvement in ICDPP, CIN and SCIP along with active research around community needs and university-community partnerships (CUPP). The PlaceToBe.Net was seen as a valuable initiative through which website resources and support across the University could be enhanced. In particular, additional search capacity was seen as valuable in linking dispersed departments and researchers
related to health as well national (RAE) accreditation (Interview, 2005). Private partners such as the local newspaper and Virtual Brighton and Hove also had an interest in maintaining their level of information technology and content relative to others in the community. The NHS was directed by national directives that were found challenging to interpret and implement locally based on the degree of uncertainty and caution exhibited in committee discussions.

5.3.5 Search Dynamics – Keeping it simple

While technology and particular social contexts shaping the initiative had dual actor, structure roles so too did the search engine with specific online activity enabled or constrained by related agency. This duality was acted out through conscious and unconscious components of understanding, interests, values and knowing. Search engines for example, define ways and means of going about a search but they also intentionally (consciously) and unintentionally (unconsciously) set boundaries around content found and how it is presented, as results, to the user.

In initial PlaceToBe.Net meetings, the Project Executive provided details of search engine/tools and guided discussion around issues and varied options. There were strong contributions from organizational representatives with relevant expertise. Questioning from lay representatives clarified issues though at times there was obviously a mismatch in understanding between technical experts and lay learners that seemed to frustrate both and slowed meetings. The dynamic of learning by both experts and lay representatives however, created opportunities for the discovery of new ideas, different concepts or ways of doing things, opening opportunities for innovation. Speculation around the development of the semantic web was one example furthering the knowledge of search tools designed to be more responsive to users’ interests or needs. However, a number of constraints reduced related
potential for innovation. Limited time, resources and support, typical of projects or initiatives with short term funding were significant barriers, a phenomenon identified frequently in CI studies as noted in 2.3.4.

5.3.6 Information Searchers/Users Needs

The varied formal and informal efforts taken by the partnership to learn about users of online ‘health’ information yielded evidence that much remained to be learned. A review of PlaceToBe.Net documents and committee discussions verified gaps in basic information and an environment where obvious opportunities to gather such information were not occurring. Particular efforts were taken by the partnership to learn about the health information context of use (see Benedict Taylor, 2003) and while the findings were received with interest by the committee and executive as well as at a special meeting of NHS IT experts, little action resulted. In hind-site it may have been that the study findings were too general, lacking concrete detail and recommendations to distant from immediate concerns and aims. Upon reflection the situation demanded a high learning curve for organizational representations and the partnership which was constrained by the practical limitations of the PlaceToBe.Net. Such a challenging context may have resulted in a less conscious approach, relying more on assumptions, and pragmatics, than critical attention to the details of issues and opportunities for innovation.

Over the course of PlaceToBe.Net meetings some understanding evolved that users of health information and search tools needed to be critical reviewers and users of ‘health’ information and search processes. It was a prospect raised at different search engine meetings. Raised early - and on three occasions by this researcher - it was a point of interest based on findings from literature focused on consumers of online health information. On separate occasions it was raised by the Project Executive and by representatives from SCIP and newspaper.
A sense of not knowing how to take action on this need seemed to underlie inaction. Discussion during the PlaceToBe.Net meeting, reviewing findings from the usability study and testing of the new search engine appliance, indicated it was difficult to know how much could actually be done to guide people around or through a search (P2B meeting, 12/5/04). At the same meeting, a representative from a similar but different partnership with a functioning, regionally-focused, information website expressed an attitude that helping online searchers was rather idealistic and unrealistic. Few PlaceToBe.Net partner representatives were present and the indifference expressed by the expert to actions that would enhance searchers understandings and ability to make good use of search tools and content quality went unchallenged. Perhaps the goals were somewhat lofty. The difficulty of incorporating them within a short-term strategy for a functional search technology, demonstrating tangible success in meeting PlaceToBe.Net goals that also satisfy sponsors is recognized. Certainly the technology dominated the final committee meetings leaving other aims unresolved. An active search engine did increase access especially for the partners but primarily to information provided by these partner organizations, according to their internal criteria for doing so. However, the research revealed surprising constraints in the technology solution that limited access as will be discussed below in relation to quality.

5.4 Increasing access to quality community ‘health’ information

The discussion now turns to agency related to key PlaceToBe.Net aims involving increased access and quality of information. To this point, an understanding of organizational partners interests and values as participants in the partnership and their shared learning and knowledge in common goals has been illustrated as critical to how such aims are
defined and acted upon. In regard to health information, strong assumptions voiced at a PlaceToBe.Net committee meeting (2/7/2004), indicated the common impression that people already have that information available, if not locally then from national sources. Narrow definitions and understandings of health information focused on access to information about care and treatment became obvious. Revealed was the role of assumptions, limited understandings, expectations and definitions tied to interests and values that can constrain or enable access and quality. These issues determine availability of such online content and those complex relations will be uniquely documented below. Specifically the discussion will confirm complex relations between access and quality and the mediating role literacy has in relation to expert and lay knowledge and learning. The last will begin the discussion which follows evidence of how the partnership addressed these two key issues.

5.4.1 Literacy for Access and Use – computer, search and online health information

Literacy, at several levels, has been mentioned throughout this research. Introduced in chapter two, literacy of computers, search tools and methods were noted as fundamental to accessing online information. Related findings from a PlaceToBe.Net contracted Usability Study (2005) are discussed, below. The health information literacy of users accessing quality online content which includes its’ critical review, was also explored in chapter two. The two layers of literacy are revealed to have common features, based on a review of related literature in chapter two. However, these characteristics were not directly explored within the work of the PlaceToBe.Net. The partnership, during different committee discussions, recognized that the source, currency, accuracy and validity of information content were important. Studies encourage searchers to attend to and evaluate such detail but in practice little attention was given to them. Brief
mention was made that in the case of health information these factors were somewhat more critical than with other types of information.

The usability study by Walker and Light (2005) found that searchers failed to notice the source or site hosting information, nor did they attend to the author. Both confirm findings found to be common in similar usability studies on health information cited in the work of Flatley Brennan, (2000); Eysenbach, and Kohler, (2005); and Fox, (2006). The observation of a small number of individuals of varied age and backgrounds randomly selected but with previous search experience is not a good basis for generalizing findings. It does make evident gaps in literacy related to online searches. They are gaps typical of similar information environments and it may be useful for future research to look at trends in information literacy related to social demographics, across varied media. The Pew studies referenced in chapter two provide some indication of differences in search methods related to online ability. Internet expertise, high education and professional status, linked to high use, suggest learned skills are transferred to the online, information seeking, environment. It is a dynamic process involving informal learning and is worthy of future research.

Literacy of search methods and knowledge was raised at PlaceToBe.Net committee meetings when the Usability study (Walker & Light, 2005) revealed that searchers in the study were not recognizing results. This occurred in two forms. One involved search terms that failed, with the searcher not understanding the substitution of similar terms either by themselves or as an automated search engine feature. This exposes the role search terms and categories have as both enabling and constraining actors and structures at both a technical and social literacy level, a pattern discussed in chapter two. Terms and categories enable searches through classification yet the degree to which these reflect users or searchers own knowledge and experience indicates their agency value. If they do not match, then they constrain the efforts of those seeking access to information online. For example ‘social services’ is the eighth most
popular search term used on the local councils’ web site but will yield no results as content is not classified relevant to the term (meeting 12/05/2005).

The Manager of eGovernment acknowledged that it was difficult to know what searchers were looking for under such a general term, a situation relevant to health information. Contributing to the lack of knowledge was the practical situation of employees whose formal responsibilities or interest did not include a concern for the role and function of online information (Interview 2/8/5). From a strategic viewpoint, the Manager also noted the need and current mandate to promote seamless access to services through provision of good information reducing telephone enquiries. The last were found, according to the Manager to be problematic for the same reasons online information was constrained. When strategic planning, integrating organizational policy and practice in relation to online information goals is lacking there is little opportunity to make improvements that can be innovative. The example provided by the Manager of eGovernment, at the local Council, points to the potential of an information and communication strategy enabling provision and response to information inquiries, through integrated procedures and media, such as the telephone and Internet. With reduced costs from more efficient help lines and reception services long term benefits can accrue but are only recognized and made tangible if attention to benefits beyond the obvious organizational costs are measured to track economic savings. While this researcher would not recommend the discontinuation of important one to one contact, improvements to information services, are possible with a greater knowledge of information needs linked to methods of provision.

Another literacy concern involved the way search results were displayed. It is a research area increasingly addressed in the usability field as noted in Chapter two. In several cases, searchers failed to find relevant results among the top ten, displayed on the first page of results, and failed to move onto the next results page (meeting 2/5/5). Clicking, scrolling and moving to the next page were not intuitive although comparable to turning
the page of a book. Ranking seemed to be as confusing as it was helpful. Summaries were recognized as potentially helpful but seldom contained the most relevant information that would allow a quick determination of valuable links. The new technology environment required learning, developing expertise in a manner comparable to previous technological innovations such as newspapers, radio and television and their literacy evolution. The process requires time to integrate into social lifestyles and become common practice. That process is expedited by experience and learning involving technical but also social interactions which test, facilitate and make valid new ways of reading and interpreting the information landscape (Higgins et al, 2006; Kline et al, 2006; ).

Significant attention was given within the PlaceToBe.Net to the choice and design of a search engine solution during meetings and in the preparation of tender documents as well as in the initial work on a bespoke solution. Ease of use for partner organizations, providing information, was given substantial consideration in the original tender for a bespoke tool, based on the unique needs of individual partners, providing information. Similar ‘ease of use’, for users of information, was identified as a factor in the ultimate choice of the Google appliance and in its’ usability testing. With the pressure of nearly exhausted time and resources and constraints in knowledge of needs and utility, decisions appeared to be more pragmatic than judicious or reflective.

Usability testing, (Walker & Light, 2005), was acknowledged by the PlaceToBe.Net leadership, to have been designed to be expeditious, yielded unanticipated findings. Such findings are indicative of a testing environment sensitive to social as well as technical issues in contrast to Woolgar (1991) and Alrich (1995) whose work revealed internal bias in such testing, aligned to technological drives. A variety of lessons from PlaceToBe.Net testing held implications for literacy demonstrating relations to access and quality. Testing addressed questions related to understanding why the internet was used for information seeking. The question did not specify health information and those participating could search on any topic of their choice. A health topic was chosen by one of
the six searchers observed. Searches on transportation, parking and employment, fit with the broader definition, discussed in 5.2.12, inclusive of determinants of health. Parking at hospitals was a topic raised in the local media, at the time which implicates contextual issues into information interests and needs.

The testing revealed that it would “never occur to some (users) that there is information there” (meeting, 2/7/04). It was a point made in regard to the regional information site – ESCIS. The issue of knowing where to look was an access issue linked to branding and marketing, as a “matter of perceptions”, and ultimately to the presentation of information, as content online. The committee had previous awareness of this issue and had frequently mentioned the need for a marketing plan however, it required resources beyond the limitations of the project funding. The testing also revealed that users frequently do not distinguish particular websites and sources of content, especially when comfortable using a well known and favored search engine such as Google. The search environment, for non experts, was therefore produced by Google with the engine as simultaneous actor and structure exercising agency that mediates access, finds and quality, largely by default.

The PlaceToBe.Net usability testing demonstrated that online searchers of information require a range of skills and knowledge that are learned. While participants in the usability study left more knowledgeable; opportunities to learn and develop such expertise remain largely up to lay users themselves. Similar learning also enhances literacy pertaining to information quality and usefulness. Certain constraints or barriers to accessing quality ‘health’ information can be overcome with greater knowledge and understanding but if search engines do not find the desired information then outcomes remain less then successful. Varied constraints negotiating access and quality and therefore beneficial outcomes from online health information searches will be highlighted as this discussion moves to these topics.
5.4.2 Access

A detailed discussion in chapter two revealed access to be a complex phenomenon extending beyond the simplistic notion of the Digital Divide, with two actors - users and technology. The last involved structures largely understood by IT experts. Access came to be understood as an iterative pattern of technical and social interactions involving multiple actors and structures that determine constraints or enable access. An example, previously raised in relation to literacy, involved the use of search terms and classifications, as actors and structures, mediating whether a searcher can access information. Meta data and related methods of archiving and constructing databases and online content – the technical aspects, also have the power to mediate access at the micro level. Beyond the literacy of the user, at this level, evidence points to the importance of designers of technology who, in enabling content through such features, should be aware, or literate, of the value of finding and making use of online information. It is an awareness that moves attention from specialized micro functions to a more comprehensive view and understanding of the overall purpose and utility of the technology in a social environment.

The importance of such attention is evidenced through popular searches conducted on the local Council and other web sites. Detail provided by the Cities Manager of eGovernment indicated that people did not know specifically what they were looking for, what term to use, the best term(s), or even where to look (Interview 5/8/05). Even the most common search, for jobs, was seldom straightforward due to multiple terms and related design features. The situation was common to results from the Usability Study conducted by the PlaceToBeNet (Walker & Light, 2003). The study found many searchers accepted whatever term existed in a search box or looked to categories for a key term. The evidence points to the value of understanding the dynamics of varied users conducting a search and how
to facilitate the hunt with technical features such as terms and classifications.

Health information incorporates complex medical terminology with lay terms, understandings and descriptors. Thus an emphasis has been on classifications, categories and descriptors usually following traditional professional values and interests shaped by medicine (Eysenbach, 2001, 2003; Flatley Brennan, 2000). A majority of sites, for example follow disease specific pathways, a pattern identified in the ‘Health Information Mapping’ report (Benedict Taylors, 2003) for the PlaceToBe.Net and one profiled in many consumer health information reports. While such classifications and terms are useful to those with medical and health expertise they can limit access to valuable information for the lay public.

Promoting significant benefits for both users and providers is likely to involve action ensuring a degree of flexibility within lexicons. The adoption of semantic principles, linking searchers goals to results, could increase the relevancy of information content for users and be a logical course of action. From the view-point of health promotion and wellness such flexibility would be enabling for those whose health information needs do not fit disease specific pathways and who may require information bridging pathways.

Returning to literacy and moving from micro technology features to more macro socio-technical issues, involves information providers. What information and how it is provided determines access which also mediates quality of the content. Providers are central to such questions and, as a result, are found, in this research, to be just as important actors as hard and software technologies and informed access to ‘health’ information by users. At this level literacy helps ensure information value, its’ quality and even potential usefulness, are attended to. It is a middle ground that requires attention because, as this study indicates, access to the same information, located in many places and formats, does not increase access to quality information.
When considering whether the PlaceToBe.Net had increased access to quality community ‘health’ information, the Project Executive (PE), (interview 8/11/05) was quick to point out that quality was never a strong priority. It was “such a complex issue” (interview 8/11/05). He went on to say that “the PlaceToBe.Net could make a difference but not solve all the issues”. A similar sentiment was expressed by the Councils Manager of eGovernment who felt awareness of issues had been raised but was skeptical that “access had not likely been increased” (interview 5/8/5). Thus quality remained uncertain. Without adequate definitions of access and efforts to establish a base standard for quality it could be queried as to whether there was any quality. Responsibility for such standards and reviews remained with the provider and the user. The last led to a consideration of whether resources might have been better directed to content management rather than the technology solution. This skeptical reflection represents a context that from beginning to ending outcomes, struggled with defining what was meant by access to quality ‘health’ information. While this study reveals that learning and understanding increased and was made more valuable, in the shared partnership environment, a substantial gap remained between that new knowledge and being able to act on it.

Difficulties in understanding information provision (increasing that literacy level) are related to needs, “often personal and which people, themselves, are not knowledgeable of until a demand arises” (Interview 5/8/05). This understanding grew as a result of the partnership. It was also a situation the Manager of eGovernment had experience of. A parallel situation existed with organizational practices in the provision of information. Coultis in part one of the Omnibus Usage Study, noted that “services and information provided on the public access website was not always motivated by an organisational decision but rather on the availability of information and the level of interest in each department” (2003:4). This lack of internal knowledge, strategic planning and staff expertise within organizations has been mentioned previously in issues raised by both university and council web experts, during interviews. Less candid acknowledgements were made during meetings by two private sector
representatives, of organizational partners, who realized their difficulty in knowing what information to provide and how best to do it.

In reflecting upon the outcomes of the PlaceToBe.Net involving access and quality, a consultation process with many varied people involved, comparison by the PE of two pathways and outcomes. The rational was pragmatic with a process aiding rapid, tangible results. In a similar vein, the PE recognized that issues of access were related to the “disenfranchised and marginalised” (Interview 8/11/05). That could result in a “substantial piece of research that an academic could glean a lot of information from but takes significant time and resources” (Interview 8/11/05). In contrast, the PE perceived that ‘spidering’, implemented with the Google search appliance could quickly enhance both access and quality of online information and once the interests of current partners were satisfied, additional partners, including the community/voluntary sector, would expand resources available through the PlaceToBe.Net (Interview 8/11/05). The rational seems to allude to a contentious concept of whether quantity influences quality information.

With the implementation of the Google search appliance on several partner sites the time had arrived for discussion of partnership policy and procedural issues which would impact access and quality issues. That was the sentiment mutually expressed by organizational representatives at one of the last committee meetings which had low attendance but the most active participants. The intention was to consider issues particularly relevant to increasing the number of partners in the initiative. It was a point, strongly made by a private sector representative who realized the predominant interest had been in the technology and that time and resources were nearing exhaustion. It was a valuable perspective from an individual who had moved into a more senior role having once been responsible for promoting the development of information technologies.

Another viewpoint from a web designer, representative, suggested that greater choice in information was progress. Thus the access to quantity versus quality debate was informally raised (Interview 27/9/05). Chapter
four described how the PlaceToBe.Net settled for increasing access to existing information. No serious debate was given to the subject even though issues of risk related to quality and quantity (see chapter two) were raised by those with an interest in online content. Reflections offered by organizational representatives during interviews were much more revealing of interests and values held, if not openly discussed or debated during meetings.

For example a private sector representative extended the perspective to illustrate how information has come to be controlled, collected and collated, even edited in the case of television and newspapers for public consumption (interview 5/8/5). The resulting tradition, if not expectation, on the part of the user or audience is edited material. While unintentional the process can be recognized as making information users vulnerable, in an on-line environment where there is minimal editing, signposting or guidelines to assist the evaluation of content. As a result the issue was raised as to what obligation exists to design online information content that assists the user (interview 5/8/5). The point, strongly illustrated during the interview implied that such work could enhance access to quality ‘health’ information. The introduction of the Google search appliance, however, shifted attention at meetings to how it would manage such issues.

Access to quality information is mediated by potential searchers knowledge of where to look. The construction of the Google appliance was raised early in he partnership when the need to market and brand the site as accessible was identified. The situation confirmed that while the search appliance would increase the ability to search the partners information, efforts needed to be directed towards marketing and branding the site in order to increase usefulness (Interview 5/8/5). These issues, however, were seen as resolvable, in part, by the well valued Google brand. That value was reviewed in chapters two and four.

Attention during meetings was given to marketing and promoting access to the PlaceToBe.Net, but little was given to the fact that if certain material
remained restricted, particularly if only certain searchers, through greater expertise or subscriptions gain permission to access on the site, then barriers, or constraints to information access result. Such micro issues were again overshadowed by larger, often technical issues. However, the access issue becomes a particular concern when best evidence is sought for health studies utilizing online information which does not make clear what information is made available, to whom and under what conditions.

The decision by the PlaceToBe.Net to leave the criteria for provision up to individual information providers simply deferred responsibility that continued an established pattern. While the search engine was to be available to the general public for use, little consideration was given to public acknowledgement of what information was made available and under what circumstances other than to acknowledge the provision of information by the seven founding partners and other partners as they joined. It was an introductory summary in the fashion common to websites promoting access to special information resources and fit the description of such sites reported in the Health Information Mapping Study by Benedict-Taylor (2003). Attention was focused on the organization and aims rather than discussing the advantages of the search engine provided or acknowledging related limitations.

Little direct attention was given within contracted research to the identification of attributes of quality information or criteria through which it would be assessed. This is the next topic for discussion. Source and author were raised as a result of the Usability Study (Walker & Light, 2005). Currency was raised at different times. Previously illustrated was the fact that research found much health service information was frequently replicated (Benedict Taylor, 2003) and seldom monitored for currency or accuracy. Online resourced information often necessitated the use of the telephone to follow-up and access meaningful detail. Raised as an issue, it was not directly linked as bridging access and quality. Action on these issues as well as the dominance of private sector information

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28 Restrictions reduce democratic access constricting the body of knowledge upon which best practice, so important in health and medicine, is based. Briefly mentioned at P2B meeting it was too complex for the scope of the project.
and the prevalence of promotional and marketing information did not take place. The opportunity to do something new or different to address issues of varied concern to different organizational partners, discussed in chapter four, was lost.

Understanding and considering both the social and technical context of an ICT initiative can help ensure access is adequately considered. It is especially true with the recognition that access is a complex phenomenon extending beyond simplistic notions of the Digital Divide. Technology and related structural properties, as examined here, can constrain access. Asking key questions can clarify access goals, ensuring an understanding of information access for what purposes, for whom and for what. Action through processes of consultation and assessment are critical to addressing these questions of information need and purpose as well as user needs and purpose. With the more macro issues attended to micro factors such as the suitability of search terms and the flexibility of lexicons related to health information can be reviewed. At the macro level providers are central to questions of what information is made accessible and its’ quality making them just as important actors as the technologies. Quality is a mote factor without access. Both involve a literacy of computers, search technologies and ultimately the ability to judge and make use of online health information. There was little evidence of strategic information plans among the partners as information providers. Plans would help ensure factors and practices are fostered that ensure appropriate quality information is accessible, online. Concerns related to risks and the potential for litigation that currently constrain access to current health information and distract from more complex attention to quality issues can be addressed within such a plan. Lessons and learning here will become the basis for an original framework that can guide better practices including the development of such a plan. This framework is expected to be a significant contribution to knowledge, with the advantage of bridging research and practice thereby aiding transfer.
5.4.3 Quality

Apart from increasing access, a key aim of the PlaceToBe.Net was the quality of online, community ‘health’ information. Such attention gave quality the status of an actor. For example the constitutive and co-constructive influence of differing or common understandings of social norms, rules, practices and relations could be reasoned. The whole, as a systemic process, becomes constitutive with attention drawn to conscious, external and less conscious, internal processes which help form the concept of quality. In this duality of structure quality is representative of action or agency derived from interests and values that collectively shape quality.

Early in the PlaceToBe.Net, it might be expected efforts would be made to understand and define quality ‘health’ information. However, what was meant by quality emerged subsequent to the main focus on a technology solution. This was evident in the ‘Health Information Mapping’ study, commissioned to provide useful context and stimulus for the work by identifying local providers and patterns of provision of online health information. The work would further the PlaceToBe.Net’s understanding of issues and needs around improving online provision of information to local people” (Benedict-Taylor, 2003). The studies scope was broad, capturing a variety of evidence and captured a number of attributes of quality related to health information. The report did not comprehensively explore or attempt to define quality health information.

Attention was given to the lack of external or internal quality assurance processes or kite marking. A distinction was made in the same report between different standards for reviewing quality, based on type of health information and source. A dichotomy emerged in the example of information largely designed by experts, and used by similar experts and professional who are mandated to apply best evidence procedures to clinically-related information, for example. In comparison a more lay,
public/citizen information provider and user often has a different criteria. The dichotomy is an easy example of traditional top-down approach in the delivery of information. It implies a paternal, even patronizing approach linked to the prevention of harm and risk, described in 2.2.4 that can limit information resources.

The breadth of health information sources, detailed in the Benedict Taylor (2003) report in relation to diverse information providers and problematic access, revealed the potential for increasing the value of accessing such content when users exercise good appraisal skills. The report suggested that the PlaceToBe.Net could have a role in assisting “people in their use through enabling them to evaluate search results. For example in attending to the presentation of information, “one possibility might be to give a clear indication of the public, private or community/voluntary sector status of organisations in displaying search results” (Benedict-Taylor, 2003:16). It was a point that came up a number of times during discussions and while recognized as valid, it was left to the resolution of individual information providers/ partner organizations. In its public profile and marketing the PlaceToBe.Net introduces itself as a partnership of private and public organizations.

A common quality attribute, raised in chapter two, involves trust in information sources. The Health Information Mapping report (Benedict-Taylor, 2003:16) noted that, “people will have varying preferences for trusted sources and detailed categories of information provision and attributes implicated in trust issues such as subjective, political and marketing motives”. It is a finding supported by related literature, covered in chapter two. The PlaceToBe.Net found an expedient solution, drawing upon the credibility of the NHS and its provision of information. For example during the presentation of feedback from the research study the point was raised that the “NHS is recognized as symbolic of quality, is it not” (meeting10/2/04). In response to the point, made by an NHS employee, the Project Executive noted that the report (Health Information Mapping study) might have overlooked the NHS as a level of approval for health information. The existence of a variety of organizations offering
quality approval and kit marking, a process difficult to monitor and control was recognized in the discussion through a contribution made by this researcher, as a limited participant. The topic closed when the Project Executive noted that “quality is a murky area with stringent guidelines, limiting what can be done and that the local PCT is trying to do something” within the challenges faced by that organization. Five months later the impression was that the partnership was content with the NHS standard for information as valid and credible (2/7/04).

The subject of quality arose frequently during meetings but often as a supplementary concern to more macro issues of technology design, implementation, content, marketing and branding the PlaceToBe.Net. Consensus was gradually reached within the partnership that existing information was the focus, resulting in that content becoming a presumed example or measure of quality. The lack of overt action on the issue is reflected in the statement by a SCIP employee who acknowledged that, in relation to their organization and, it seemed the initiative, that it was “not our job to judge the quality of the information” (interview, 6/10/05). He was also not aware that the PlaceToBe.Net “was doing anything about the quality of health information” as the project was completing the implementation phase with founding partners involving a larger remit.

Based on the experience of the SCIP representative, working with the community voluntary sector, more information was viewed as better. He suggested that “Five different opinions are better than two and while there may be little scrutiny of facts, it does increase availability” (interview, 2005-10-06). The question becomes one of what to measure and how, he noted. While quality seemed to be linked to “some type of sanctioning of information or some form of transparency” (how information is found or not) there were, he noted, “no rules established, yet” (interview, 6/10/05). He also noted that while these issues continue to be discussed, much existing online information is not current, and a mechanism is needed to address that issue. He was not sure where SCIP stood on this. Overall he suggested that “quality was not well addressed” in the PlaceToBe.Net initiative (interview, 6/10/05).
In the concluding PlaceToBe.Net meetings, the issues of access and quality along with currency of information became part of a proposal for an ‘editor’ whose role it would be to assist in the implementation, with a sensitivity to information issues. It was a role that would have responded to the concern raised and mentioned earlier around who should publish health information. For example the point was made as to whether this was to be expected of hospitals and surgeries (meeting, 2/7/04; interview 5/8/05). Related concerns queried growing expectations on the part of those seeking information as well as those requiring standards and how the new information and communication medium fit with traditions of journalism when addressing such flows of information.

The ability to clearly identify the source of online health information is a primary factor in judging quality. Whether the sources and/or information provider is identified as public or private is indicative of the related mandate and a valuable clue for some online users. Providing such detail is one of the means to enhance trust in information sources. Recognizing that users are diverse with varied preferences will also aid appropriate information provision fostering quality and trust. The last is also attended to with increased transparency of search processes which aids knowledge of what is searched, how it is judged, ranked, or not, and presented as results. Such transparency may be more valuable than quality assurance standards such as kit marking which have been shown by to be of limited value (Flatley Brennan, 2000; Risk et al 2001; Fox, 2006). More information offers choice but requires the user to have access and related literacy skills to determine quality and usefulness. The ability to compare varied information increases opportunity to identify that which is meaningful. Attention to the currency and date of publication, increases the relevancy of information as a quality attribute. A guideline would recommend information and sites hosting it should demonstrate regular up-dating of their content. Practices around the value of an editorial role, signposting and other forms of sanctioning particular information could be addressed. Understanding that quality of online content is highly variable and related to user need as well third party assessment, extends current
knowledge and can aid practices related to quality. For example, consistency related to common search tools could potentially enhance understanding of their actual functions and clarify standards related to what information is made available online, for what purposes. Together it is a body of knowledge that is original in its insightful relationships offering the potential to enhance practice on the basis of research.

5.4.4 The link between Access and Quality

Evidence of the complex relationship between access and quality has been revealed in the study of the PlaceToBe.Net. Research commissioned by the PlaceToBe.Net attended primarily to issues of what existed or information usage (Benedict Taylor, 2003; Coutis 2003/4) without a specific look at access or comparative investigation of quality. In hindsight attributes related to both access and quality were noted in the various reports generated by the PlaceToBe.Net but more incidentally than through an intentional remit. In reflecting upon the source and report, the content delivered was often enhanced by the interests and experience of the author. This was particularly the case with the 'Health Information Mapping' study whose author had insight into the longer-term potential of the PlaceToBe.Net and insight as well as contested values and understandings related to quality and health information. Thus the Health Information Mapping report addressed gaps in the contemporary context and external trends and projects that could have significant impacts on the PlaceToBe.Net, should the partnership choose to attend to them.

Reflecting on the discussion in chapter two which situated the case study within current access and quality practices, the deduction is that the two issues are not discrete. A strategy attending to both, as interrelated, offers provides the potential for meaningful benefits. Such a process can help address key questions posed by Clement & Schade (1998:2) as; (1)
information access for what purposes, (2) for whom and (3) to what. Access is an enabling process and in practice, commonly comes after demonstrated value which encourages a search, particularly a targeted one.

Certain information was extremely common and found on multiple sites. Most common was service and organizational related health information that had limited value particularly when much was not regularly updated. That replication of the same information by multiple providers, on many sites (Benedict-Taylor, 2003), can be addressed as both one of access, limiting new and meaningful information and one which constrains quality. Limitations are perpetuated with a policy of publishing online only that which has been produced and reviewed in print. As a result, online access is not to anything new, different or that extends the public information base. It is a potential concern, made greater with trends limiting online access through required fees and subscriptions. This may place an economic value on new and valuable information but raises critical questions about accessibility to a comprehensive information base.

In order for the PlaceToBe.Net to take action on aims, information from research and shared flows, during meetings, help aid common knowledge which informs decisions and choices. Barriers exist to sharing information across partner organizations as well as more publicly. These constrain opportunities to address access and quality issues within any environment. A significant information constrain was seen in the lack of a mandate or strategy to collect and evaluate pertinent information such as web statistics. There would seem to be an inability to put into organizational practice mechanisms to gather, collect, collate and share data. There may for example, be interests and values which constrain information sharing. These could be internal to organizations and external to a partnership such as the PlaceToBe.Net. It is seen in the lack of understanding the importance of such practices by organizational officials. Constraints to addressing a broader informational agenda is seen when the goal to achieve economic reward from information dominates interests related to public aims and goals. In the future more questions will be
raised around the ownership of information and will need to be resolved. The last will impact concerns over responsibility for quality and how information is made use of. A more proactive and integrated approach to addressing access and quality can limit constraints and enable benefits. These attributes of information involve providers of information as well as the users and the enhanced understanding of their inter-relationship is an original contribution to current knowledge which will be further addressed in the conclusions.
6.0 The Context Shaping a Community ‘Health’ Information/Informatics Initiative.

Throughout the research study, one element of the sociotechnical partnership environment stood out. Learning that is both shared and discovered through lessons learned emerged as fundamental to constitutive agency and systemic relations that shape a community health information/informatics initiative. As a process learning functioned at conscious and less conscious levels, was visible and at times not noticeable. It permeated every aspect of the work. In doing so it cut across other factors, linking and supporting them as a form of infrastructure. Learning was central to understanding the context, to appreciating shared aims mediated by processes linked to resulting knowledge that shapes constructive outcomes. Learning was mediated by power and other cross-cutting modalities\(^\text{29}\) as influential agency in the sociotechnical environment. Learning and power were intimately influenced by understandings of social roles, rules, practices and relations. In combination they were formative of the sociotechnical context influencing agency and action. Revealed through this work is the value of a more balanced environment which can aid outcomes that are many, varied and appropriate, fitting the needs and attending to interests and values that, in turn, sustain the generation of such outcomes and multiple, mutual benefits.

In chapter five, key points in the formative work and development of the PlaceToBe.Net were reviewed within three stages as a generic means, to discuss context constitutive processes and outcomes. The separation assists in the analytical distinction of involved factors and processes. This framework was chosen

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\(^{29}\) Structuration recognizes modalities as cutting across concepts of agency, action and actors roles relative to understandings of social roles, norms, relations and practices. (Giddons, 1984; Stones, 2005)
based on emergent concepts and corresponding concepts yielded by the lens, of ST, ANT and the fields of community and health informatics. The stages do not represent a model and the purpose here is not to argue for one particular or ideal model. A variety of models exist across related fields of information technology and systems studies. It is the opinion of this researcher that a model implies a prescriptive formula which does not suit variable and complex information/technology environments. Studies, discussed in chapter two, for example, demonstrated that ICT situations are unique and therefore, not only require, but benefit from an individuated adaptation of any model or framework. It is a style of practice long championed by those active in CI particularly in the context of varied communities.

The three stages are purposeful, intended to provide a generic structure, guiding, distinguishing as well as linking empirical concepts in an exploration of their relation to practice. Practice reveals these stages are seldom distinct. Their boundaries are inter-related with systemic functioning. The challenge, then, is one of illustrating micro-level details that overlap through recursive processes which, in this research, offer the opportunity to understand macro shaping processes, particularly those related to interests and values of different partner organizations which influence the PlaceToBe.Net.

6.1 The Relevance of Context

The importance of context has been stressed throughout this study as critical for a number of reasons. First and fundamentally was the identification of actors and their relationships, recognized in action/agency relative to networks and structures. A basic understanding came from the application of Actor Network Theory discussed in 2.1 and 3.6. The ANT view was expanded when activity as agency was seen
as mediated by varied modalities portrayed by ST, (see 2.1 and 3.6). The result involved conscious and less conscious understandings of involved structures that were reiteratively shaped by actors within a particular context. Understandings involved interests and values informed by social rules, norms, practices and relations of these structures. They existed internal to organizations but also externally, through partnerships and varied networks. Thus understandings, interests and values were reflected in choices and decisions made within varied processes that contributed to the shape of the PlaceToBe.Net and technology.

PlaceToBe.Net interests and values pre-dated the partnership. They existed, internally, within each organization's environment, relative to their processes and goals as well as, externally, in outward-facing public strategies such as those involving networks or partnerships and the agency of staff/representatives. Individual and group reasons leading to organizational engagement and continuing participation, in the PlaceToBe.Net, were detailed in the fourth and fifth chapters with a generic discussion of how partnerships form and develop in chapter two. Such activity we learned in chapter three's discussion of Structuration Theory were reiteratively shaped by structural elements which, in turn, shaped varied structures through conscious and less conscious agency of actors. Within the broader context of a partnership, diverse actors and structural elements follow similar reflective and iterative patterns, including networks as often less formal, external structures of influence.
The example was discussed, in chapter four, of prior projects and initiatives whose activity helped establish a sense of common needs and interests sufficient for key organizations, involving related networks, to participate in the PlaceToBe.Net. Reasons for these individual organizations doing so recognized that shared experience, common interests, values and needs were precipitous to engagement, joint activity and critical to long term participation (see chapter two) promoting sustainability. That informality can result in less certainty and more variation in conscious and subconscious interpretations of involved social rules, norms, relations and practices. Less certainty can allow more testing of common understandings by participates. It is formative work that leadership can skillfully manage to achieve strong mutual learning and understandings from shared experience that builds common action and sustainable commitment to aims and goals.

Flows of information and communication, more obvious in established community networks and in the commissioning and utility of research documents, but equally important, as less tangible exchanges among individual relationships and informal collaborations that play precipitous and sustainable roles as well. The flows contribute to understandings of local, regional and international trends with such common or shared knowledge implicated in partnership engagement, participation and related action. Chapter two outlined such trends related to online community information, health information, health system change promoting the role of public information and related media relative to community ICTs. Meeting discussions revealed that both the 2020 Partnership and the NHS were faced with change related to the growth of online health information. The Council similarly was active in managing related change through, for example, the eGovernment mandate to provide accessible information on services as well as promote citizen participation and knowledge of planning and decision making. Fundamentally it was recognition of an opportunity to do something new and perhaps different, so difficult, if not impossible for organizations to achieve alone, that was found to be a strong force, enabling engagement and motivating participation. These goals also contributed to active
processes, discussed next, that authorized and allocated resources instrumental to constructive outcomes, as the third stage concluding the discussion, below.

While enabling characteristics have been recognized, those that constrain engagement and participation were also revealed as important in the shaping of the PlaceToBe.Net. Who and what were included or excluded were actions which operated at a number of levels influencing the formative context but also actions and processes mediating outcomes which will be discussed, respectively in 6.2 and 6.3. Chapters four and five noted the absence of the community/voluntary sector although it was indirectly represented through the experience of ‘third parties’ who had worked with them. The gap resulted in limitations such as knowing their needs, interests and values. These were represented on several occasions - quite forcefully - by those who thought they knew the sector. A committee meeting discussion reminded the partnership consciously of their current absence and to some extent, their previous involvements thus less conscious related understandings, interests and values were aroused. There was, however, no attempt to involve direct representation, leaving gaps and imprecise information which provides space for assumptions. Limited representation was justified on the basis that expansion of partner organizations was seen as a development following the satisfactory introduction of the search engine/tool.

The example reveals the complex interplay of a number of factors involving both conscious and unaware interpretations based on perceptions of social rules, norms, practices and relations within varied structures that impact actions. Such cognition mediates gaps in information, communication and understandings allowing space for assumptions. Ultimately the process mediates choices and decisions and can allow assumptions. Revealed is the lack of power yet significant legitimacy that results with gaps and the exclusion, for example of this sector. The voluntary/community sector had an uncertain, informal and quite subtle role when their concerns were expressed via external, third party interests, values and views within PlaceToBe.Net meetings. Such
public flows of information and communication gave some legitimacy and a degree of authority to the sectors interests and values but through an interpretation and agency, dominated by the interests and values of representatives formally included in the partnership.

Issues of inclusion and inclusion were also seen in a question, which arose early in the initiative, regarding whether appropriate experts were involved in the search engine committee meetings. The query represented the challenge between involvement of key organizations and that of significant expertise. While it was clear that the PlaceToBe.Net succeeded in the engagement of key community organizations this research documents substantial gaps in their actual support. Constraints reducing participation were detailed in chapter five as were measures taken by the leadership to make up for the loss. Resulting gaps in shared learning and knowledge necessary for shared support of common action/agency were noted but the discussion did not deal with other compensatory actions that the leadership might have taken. Supplementing informal, communications outside of meetings, for example, with more formal information through reports and minutes could have fostered comparative or complimentary learning and common knowledge. Such actions, however, would be contingent upon a number of contextual factors enabling such action. In the case of the PlaceToBe.Net, it had a tight timeframe and limited resources which restrict opportunities to enact such contingencies (Harris & Day, 1996; Gurstein, 1996). Thus information and communication flows were limited, excusing supplementary modes such as the distribution of minutes and briefs. The situation also increased dependence upon those with more information and communication sources as well as the authority and resources that promote their domination, legitimation and power. In this case the leadership and key organizations such as SCIP, the Council and the NHS. It was a situation that was a result of actions not necessarily intentional or conscious but influenced by restrictions related to time, space, authority and resources. Thus information and communication flows had a fundamental structural influence related to exclusion or inclusion of mutual knowledge and learning.
Inclusion and exclusion was an issue raised in chapter five when it was recognized that each organizational partner had a client group or audience likely to be representative of potential PlaceToBe.Net users. While a number of meeting discussions and research studies attempted to determine who users might be and identify their needs, there was no formal acknowledgement of this internal knowledge which could have been formally shared. The situation was not a deliberate protection of valued, internal information and knowledge (although it might be in other contexts) but revealed gaps within the organizations themselves. The example is a significant one, portraying unconscious limitations, not necessarily recognized, related to internal information constraints with structural impacts on partnership work. The situation was similar regarding inclusion or exclusion of detail and common or shared learning and knowledge relative to key definitions such as community, health, health information, needs, users, technology quality and access. The role of definitions was described in 2.3 and in relation to the PlaceToBe.Net in chapter four and five. While clarifying definitions along with aims and objectives, interests and values that aid engagement and participation became important within the formative context where their role is instrumental within processes determining outcomes. The last will be described in 6.2.

These interrelated processes and concepts have long-term, iterative impacts that can be usefully represented as cyclical processes in diagrams such as the one below. In this case study they are processes bounded by internal interests and values related to individual organizational needs and goals, often private, yet influenced by external, public, social trends and government mandates and policy. The aims, goals and outcomes of a partnership, external to involved organizations and related sectors, are also reflected in these processes. For example access to community ‘health’ information was a partnership aim reflecting internal interests and values of organizational partners as well as more public interests and values seen in online trends and related policy directives with national and local or community implications.
The relation of actors and networks was detailed in chapter two as the typical terrain of Actor Network Theory. The discussion noted the contribution of Structuration Theory, developing complex concepts of varied structures relative to networks with differential understandings by actors who exercise agency that reciprocally influences structures. This duality is the basis for factors that cut across more linear or directive relationships, thereby mediating processes and outcomes. Engagement and participation were detailed in 2.2.3 and chapters four and five relative to the role of modalities interpreting the structural duality of power and resources in relation to conscious and less aware understandings of rules, norms, relations and practices. Thus relationships are transient and transitional in time and space, a phenomenon difficult to illustrate in a diagram.

In the cyclical diagram used here, concentric circles represent different dimensions (actors, structures, networks) and levels of activities (internal, external and flows). Their reflexive and iterative nature is seen as cyclical activity that is dynamic and transformative over time and space. Circles within circles represent different activities or dimensions but are not concrete, bounded layers or pathways, and are as likely to extend beyond the circle of a single action (process or stage), as to remain internally bounded. Any one activity or dimension is not contingent upon another but is relational with the potential for quite subtle (unconscious, unrecognized) influences. Actors, agency and structures are differentially bounded within a mandated initiative with varied dimensions that are also externally influenced. Thus the diagrams circles are penetrated with cross cutting modalities, the power involved with flows of information, communication, related networks and structures, for example.

The diagram below provides a useful aid to capture and transfer knowledge of micro factors and concepts impacting more macro processes in the formation and management of a community ‘health’ information/informatics initiative. However, specific issues must be described with the diagram providing an abstract aid. For example the
role of partners’ interests and values related to PlaceToBe.Net aims of increasing access to quality ‘health’ information were implicated in decision-making and choices. These can be traced, as the study reveals, relative to internal and external dimensions and conscious and less conscious understandings of social rules, norms, practices and relations and implicated flows of information and communication.

Figure 15. (Original in colour)

Many of the initiating contextual factors, described here, have been referenced in varied bodies of knowledge across disciplines such as community and international development, health promotion and healthy communities initiatives, noted in chapter two. They are often found as minor research considerations in IT or IS studies. An in-depth understanding of the importance of a broad formative context, typical of
partnerships, in relation to the contribution and establishment of common interests and values, represented in identified needs, choices, decisions, actions and eventual outcomes remains unique. The value of such knowledge is recognized in this work as an aid in the transfer of research to practice. Recognition of dynamic, interrelated phenomenon as well as the development of knowledge that can be acted upon to build capacity related to such partnerships results from such a broad understanding. Resulting capacity can be exercised to balance the interests of varied actors, explore the basis of knowledge and assumptions related to structural influences and micro and macro factors framing decisions. In this research those decisions had particular impact on the key issues of access to quality community ‘health’ information and it is these processes that are attended to next, in the second or middle stage of an evolving initiative.

6.2 Mediating Processes in an Evolving Initiative

The agency of processes mediate choice, decisions and options in active planning and design relative to the management and evolution of an initiative such as the PlaceToBe.Net. It is a dynamic that constrains or enables aspects of engagement and participation, diverse and shared interests and values related to collaboration and

Figure 16
(Original in colour)
learning. From the previously developed understanding of context, the importance of participating organizational partners became clear. Their agency was central to mediating processes and is explored here.

Understanding the role of partner interests and values related to Choices and decisions made in the PlaceToBe.Net was assisted by the lens of Structuration and ANT. The previous chapter mentioned how consistent and longer term participation provides a strong context for sharing interests, developing shared understanding as well as learning which acknowledges interests and values at individual and more private, internal organizational levels and within a more public and external, partnership.

The dynamic of internal, external dimensions of interests and values continues beyond contextual events of engagement and participation. They have a dynamic role within the agency of mediating processes. Evidence provided in 6.1 revealed how related constraints or enabling factors impact decisions and options, influencing aspects of access and quality. As a result an understanding emerges of how technological determinism, for example, can impact the design and structural operation of metadata, intentionally or unintentionally, constraining access and related quality of information, online.

Conversely the role of social determinism is seen when the authority and resources of particular partners is unquestioningly assumed. Assumptions are revealed as linked to less conscious and conscious interpretations of social rules, norms, practices and relations related to varied structures operating in or influencing the context of the partnership. In reflecting upon the PlaceToBe.Net processes a representative (interview, 5/10/05) acknowledged their own dissociation due to values and interests held from private business. However, with that recognition they engaged in a manner, understanding of differences when setting priorities and actions. That understanding also moderated a desire for more clarity in initial aims and goals, as mentioned, and allowed the toleration of what was
perceived as slow and inadequate action to clarify the role of research and information necessary to aid decisions and planning (5/10/05).

Supporting the value of clarity at the start, a second key representative made clear it was not intended as negative criticism of the leadership (interview, 5/8/05). In this example the value of reflective insight was seen when the partner representative noted agency was directed towards a “number of hoops – most bureaucratic in nature” and related to external funding and management of the PlaceToBe.Net. Also acknowledged was the value that would have resulted from a greater understanding of online ‘health’ information needs, a process which the partnership could help with, as “it is their nature to question and monitor” (5/8/05). “While the initiative had been driven to this point, there was now a chance to look at some things – an iterative process” 5/8/05).

However, the first interviewee revealed an impression that decisions were often brought to the committee for confirmation and support rather than advice, guidance or contributions (5/10/05). There was also concern about how the partnership would expand and the conditions under which new organizations would join, such as the quality of information provided. The example cited, reflected competition between differing newspaper formats and remits with concern over one which was less journalistic. It focused on the sale of products and services and therefore offered information of questionable value. The example revealed tensions related to private sector competition but one not likely to remain exclusive to economic drives as public and non-profit organizations increasingly have competitive interests, many related to cost recovery and financial sustainability. Universities for example compete for students, funding and sponsorship while they and other public sector organizations recognize the value of information in relation to research and development. The example also revealed gaps in common understandings resulting from unresolved questions about what information has value for whom, when and where. When principals of journalism and editing, operate as structures along with technical ones involving meta data and categorization; how information is mediated and presented online, for
consumption by an uncertain public, are critical process issues influencing quality and access.

Constraints become visible in relation to both access and quality. Consensus was informal but uncontested that the PlaceToBe.Net would attend to existing information. The decision came after a choice to go with the well known branded, Google, search (engine) appliance. Resolved by this decision were the design, adoption and management of technologies and online information content across disparate sources. The decision also followed limited discussion of what constituted access as well as quality information. Attention was directed to existing information content, that already available electronically and in print. Thus access was to the same old information and quality was left to the providers of information. Several proclamations were made at meetings that the NHS was a benchmark for quality. The main pronouncement had come from an NHS staff person, who attended two meetings. It was uncontested leaving related options unexplored. The added acknowledgment of practice, if not policy, that what the NHS published electronically was previously vetted in print, established an uncontested process as a measure for the PlaceToBe.Net.

The lack of defining what was meant by quality was not the only example of an implicit, if not explicit, recognition of expertise over lay knowledge. In the example above, of quality, expertise remains internal to organizations with the agency of related processes occurring top-down. While critical to how quality was defined these processes also impact how technology is shaped. For example expertise was highly valued in the original proposal for a bespoke search engine and was valued in the development of a detailed tender document. That document anticipated design and implementation in consultation with partner organizations but it was a lengthy and difficult process that consumed the bulk of PlaceToBe.Net resources without significant tangible outcomes. The Google appliance resolved concerns over suitable and appropriate functions while resolving issues of promotion and marketing through its brand recognition as a well known, accepted and valued technology. Recognized by lay users, the
brand helped overcome constraints. Users were included who would not necessarily have recognized or attempted to use other forms of search engines/tools, particularly those which required expert search literacy.

With the pressure of nearly exhausted time and resources as well as constraints related to knowledge of needs and the use of 'health' information, decisions became more pragmatic than judicious or reflective. This reduced the role of learning and literacy within the functioning of the partnership as well as to good practices for ongoing committee involvement in the PlaceToBe.Net. Knowledge and understanding and related flows of information and communication reduced the complex, giving way to perceptions of more straight forward issues that could be pragmatically agreed upon, achieving some consensus promoting action. It was a reduction to simplistic processes enabled by innate understandings based on conscious and less conscious interpretations of relevant social norms, rules, practices and relations. While active participation within the processes determining PlaceToBe.Net decisions and options allowed for a degree of common or shared understanding, unless there was formal acknowledgement of understandings revealing related beliefs, interests and values than assumptions and less conscious, less shared knowledge persevered. Thus, the example of knowing what was quality information when informal definitions and understandings relegated it to an issue determined by individual organizations. The informal decision was based on the example of an expert organization whose interests, values or actions was not openly and formally examined but were accepted implicitly as an acceptable standard. Evidence that options were possible such as supporting interactive health information user groups went unexplored and had such a possibly not been raised within a contracted research document (Benedict Taylor, 2003 ) or in regard to the third sector (meeting 2/7/2004), such options may never have been consciously acknowledged. The reasons for such subjectivity in attending either consciously or not to issues and options are many. Pragmatic issues of time and resources are most obvious and usually formally acknowledged. Less visible or obvious are controversial issues that risk heightened
tensions with contests, for example, over expert knowledge. Such risks threaten the stability of the partnership and processes delivering outcomes.

In the case of the PlaceToBe.Net and its variable attention to health information there was obvious concern over managing controversial issues of what constituted its’ quality. It may have constrained concerted attention to health information. The perception, conscious or not, that the NHS was a significant partner holding substantial power (authoritative and allocative of resources) was a likely constrain to a more objective and open exploration of what quality health information was within the context of the PlaceToBe.Net. Yet the involvement of the NHS, upon reflection, was marginal with the inconsistent attendance of web experts who brought interests and values that concentrated on technical issues usually without a similar knowledge of social implications. An exception was described in chapter four. It was a standard of participation that was confirmed when NHS staff stated they were unavailable for interviews, citing that the technical staff were satisfied that the search appliance had been implemented. Nothing further could be offered in regard to the PlaceToBe.Net. Revealed in this example is the dominance on a less aware level of technical determinism and gaps that would allow mutual learning of the implicated social context critical to constitutive processes constructing valuable outcomes.

The diagram below attempts to capture the different dimensions (actors, structures, networks) and levels of activities (internal, external and flows) related to mediating processes of decision making. It is deliberately similar to the diagram detailing context using concentric circles to represent dynamic cyclical activity that is transformative over time and space and demonstrative of the reflexive and iterative nature of systemic process relations. No pathways are labeled as they are not concrete but permeate related activities and processes of agency recognizing systemic relations.
The issue of time and space relative to decision-making is not easily represented. Chapter two made the point that where decisions made early, they frequently have long-term implications (Schular, 1996; Gurstein, 2000). The decision of who was included as organizational partners had implications for decision-making related to issues of access and quality, for example. Previous discussions have linked engagement, participation, resources and support to appropriate definitions, common aims and shared agency constitutive of outcomes. It becomes obvious, then, that the interests and values of particular organizational partners will hold power and legitimation more than for others especially relative to those with third party representation such as the volunteer/community sector and users populations. The related process of co-construction or inscription, introduced in chapter two, is a further example of involved...
processes, informed by the diagram. The related ease with which issues of quality were allocated to expert organizational partners or left to the individual facility of partner organizations further exemplifies subtle, interrelated processes that have long-term implications.

The examples cited here have as a common origin the original intent of the PlaceToBe.Net to do something new and perhaps different. Analysis of those factors and processes that constrain or enable such goals are found within the relations portrayed by the diagram and at a more micro level within the Structuration diagrams introduced in chapter five. The relation of contextual factors relative to the agency of processes and eventual constructive outcomes will continue to reveal the dynamic relations that can enable or constrain something new, different or maintain the same old.

6.3 Constitutive Outcomes

Ultimately, the aims of the PlaceToBe.Net involve constitutive processes with the agency of actors, relative to related structures, with the intention of achieving deliverables and outcomes. Understood from the discussion of emergent evidence and related theoretical concepts was the importance of context and processes that mediate actions and agency which are constructive of outcomes. This summative discussion, characterized as the third stage, reveals once again the interrelationship of these illustrative stages with common mediating modalities. The discussion goes one step further to address issues related to sustainability.
The PlaceToBe.Net aims, central to engagement and the formation of the partnership, influenced participation and processes determining options and decision making. Aims become a measure of whether outcomes are found successful. In reflecting upon the PlaceToBe.Net there was a general consensus, summarized by the manager of eGovernment, that they didn’t “really see any other way the project could have evolved or taken shape as the work was – leading edge” (interview 5/8/05). Other interviewees when reflecting upon the PlaceToBe.Net Similar expressed similar considerations. Commonly used metaphors included reference to the chicken or the egg and the horse before after the cart indicated a common curiosity about the challenges of process and tangible outcomes. The necessity and perhaps value of going through a ‘messy’ process was an evocative summary also offered by the eGovernment Manager and early champion of the PlaceToBe.Net. The mediating activity of learning
and shared experience has been highlighted in relation to context and processes of decision-making. Their accumulated agency results in outcomes or deliverables from which, the value of benefits and success can be deduced.

The search appliance, as an outcome, is an example demonstrating the inter-relationship of actors, structures and mediators or modalities. Over the three years of PlaceToBe.Net development organizational representatives had developed a common understanding of the value of search technology. Reflecting on the initiative and the role of search tools the Manager of eGovernment (5/8/05) suggested it may have been a process of the ‘tail wagging the dog’. During that time the technology progressed, making a bespoke development less necessary. During the pivotal meeting (01/2005), an expedient comparison between the original bespoke tool under development and the new, generic Google appliance found the appliance met most of the requirements identified in the bespoke remit. When it was pointed out that there were significant differences between the adaptation and implementation of the two tools, particularly for the longer-term sustainability of the PlaceToBe.Net committee discussion slowed. It was a critical point and upon reflection represented the culmination of multiple social and technical factors mediated by conscious or less conscious knowledge, interests and values informing choices and decisions that shape PlaceToBe.Net outcomes. Opportunities for further committee discussion including possible options, however, evaporated as a pathway in the shape of the Google appliance presented an easy and credible solution, related to its popularity and familiarity.

Prior to that pivotal committee meeting (01/2005) an informal agreement had been reached to purchase and support the implementation of the Google appliance. Such a process was indicative of assumptions based on both conscious and less conscious understandings of involved social rules, norms, relations and practices. While in this case there was sufficient shared understanding by key champions of the PlaceToBe.Net to enable informal agency, it was an internal knowledge not shared with
all partner representatives. Related flows of information and communication facilitated agency, resulting in positive actions, but it was an expedient process aiding rapid results in the short-term. The outcomes satisfied partners who eventually experienced enhanced search capacity for specified electronic information. Funders and sponsors also saw tangible outcomes.

The bespoke solution involved partner consultations on needs and expectations thereby addressing social concerns advocated in Community Informatics practices. Technology had a strong formative role leading the solution in a deterministic manner with the support of the heavy participation of web experts. In the final outcome consultations were limited to technical aspects of implementation leaving issues of access and quality as secondary concerns devolved to the discretion of individual partner organizations. Shared interests and values that enhance common agency and collaboration fundamental to a partnership were weakened by limited action on key issues. Similar inaction also left aims apart from the technical solution minimally addressed.

Building supportive links between local information providers (Walker, 2003) was another PlaceToBe.Net aim. It matched a suggestion from an organizational representative to establish a network of those interested in addressing online health information issues. Both involved longer-term goals that were constrained and not actively pursued within the PlaceToBe.Net.

With the launch and exhaustion of funds and resources PlaceToBe.Net committee meetings were discontinued just when interest had begun to turn to more social issues, for example policy and procedure related to continued expansion of the initiative. The opportunity to act on a suggestion fostering a network supporting on-going action related to health information as well as exploring aspects of quality and access involving editorial issues
Conclusion

My study revealed a need to better attend to the sociotechnological dynamics of a ‘health’ information/informatics initiative in order to address issues of access and quality. The weighing and balancing of dynamic and complex elements, often transient, is inherent to any ICT project but made more so with a diverse partnership. In the emergent framework presented in this conclusion, a guide to such initiatives is offered, in a manner sensitive and responsive to contextual factors and issues that mediate within processes critical to the agency of informed decision-making, and constitutive of outcomes.

A multi-dimensional environment involving dynamic interrelationships was revealed highlighting micro and macro factors. The research recognized and preserved complexity. It was a response to the second chapter’s discussion involving the consequences of limited approaches to ICT studies when they fail to attend to less concrete or well defined processes and patterns. Such an approach is one that risks being criticized for abstraction, a criticism made of Structuration theory, noted in chapter three. To reduce abstraction, the analytical process was enhanced with detailed concepts valued for their ability to provide insight into relations not easily captured as tangible or observable. Through recognizing both conscious and less conscious influences indicated through observable systemic relations and transformations and exercised by actors relative to structures, insight was gained into social factors that mediate critical processes. By its very nature however, the process remains somewhat abstract. Learning and shared knowledge allow individuals and groups to both independently and collaboratively engage in decisions linked to social (partnership) action. The proposed framework monitors such dynamic influences, managing the potential for added value.

Concepts from ST continue to provide a foundation for discussion and illustration, informed by actor network theory and emerging health and
Community informatics fields. The Structuration process, illustrated by Giddens (1979) and later Stones (2005) in a layered model, is recognized as a cyclical process with modalities serving a mediating function within the reiterative agency of actors and structures. While arrows, in the original model - shown on pages 126, 145 and 171 - indicate the mediating flows of interaction; the layered, linear presentation may inadvertently reinforce traditional patterns of technological determinism when technology is seen to lead, as a 'progressive' process, dependent upon consecutive events. Such a limited interpretation constrains any intention to portray a dynamic that moves not only back and forth but also across key processes and factors, highlighting inter-relational influences. The choice here is to portray processes in a cyclical diagram, indicating interrelationships, influencing one another across micro and macro contexts. In doing so, the research straddles concepts and relations at both abstract (usually macro) and more concrete (often micro) levels.

Development of this framework was influenced by Clement and Shades' (2002) work on a universal approach to access. The move to a cyclical representation contrasts somewhat with their layered diagram but holds the same intention to present key stages through which a multi-partner project or initiative moves and the relevant processes and factors which operate reiteratively influencing related systems and ultimately shaping outcomes. Here the social and technical are not separated but are viewed as interrelated and mutually constructive. Lines, therefore, do not represent hard edged pathways. Instead they indicate direction, the flow of agency be it human or nonhuman activity, associated with structures that inform other processes.

Complexity increases with factors that cut across primary processes. These correspond to Giddens' (1984) notion of 'Modalities' but are increasingly characterized as mediating factors. Primary attention, in this study, has been on the exercise of power, authoritative or allocative of

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30 My comments here allude to earlier points assumptive in the manner of technological determinism, implicitly viewing technology as the primary, singular agent of change and part of a linear normative path.
resources that enable or constrain agency. Micro influences of power include social rules, norms, relations and practices that mediate choices and decisions related to participation and both short and long-term outcomes.

The ‘Access Rainbow’ (Clement & Shade, 2002) offered a valuable prototype to move forward the illustrative discussion and project of the doctorate research. The model is situated within a strong descriptive framework promoting transfer to practice which are limited but intended goals of this chapter. In the previous chapter, three related stages with separate diagrams capture and summarize evidence related to (1) context, (2) mediating processes and (3) constructive outcomes. They continue as useful tools, aiding continued discussion and the transfer of related knowledge useful to enhancing practice. Evidence of comparative practice in relation to PlaceToBe.Net activities has been provided. This chapter moves discussion toward a framework aiding knowledge and its transfer to practice.

7.1 Framing Context Enabling Agency

Learned through this study has been the value of understanding reiterative and reciprocal actor and structure roles and the influence of mediation via related modalities. Relative to context, key concepts were revealed. Practice, as a result, can be enhanced through a greater knowledge and understanding of:

- Internal & External Actors Structures and Networks
- Engagement
- Participation
- Flows of information and communication
The first three are the most tangible of the factors. They are easier to monitor, measure and manage in an initiative. Less tangible are important micro factors in processes identified here as:

- Shared experience, learning and
- Interests & Values
- Which shape common Definitions, Aims and Objectives
- Contextual influences (modalities) related to what is public & external or private & internal
- Modalities such as power (authoritative and allocative) that constrain or enable agency
- Inclusion & Exclusion of human and non human actor, network and structural dimensions related to all of the above

Power, recognized as a primary mediating force, is a key modality within ST. It is recognized as influencing and shaping sociotechnological elements of the PlaceToBe.Net. As a modality, it cuts across more discrete concepts allowing patterns to be revealed and analysis illustrating inter-relationships. Power and its relation to authority and allocation are influenced by varied actor’s understandings of social norms relative to roles, rules practices and relations. Power is discussed within and across three stages to aid analytical discussion, and illustrate how these elements are influential at micro and macro levels. As a result, relationships are illustrated at varied and multiple levels, acknowledging the environment as a dynamic one.

Tangible aspects of power involve the influence of authority and the allocation of resources. Less clear are perceptions and interpretations formed from contextual experience with structures and related social rules, norms, practices and relationships, interpreted consciously and less consciously. As a result, who is involved in an initiative as a formal partner or other less formal affiliate has significant implications. In the case of the PlaceToBe.Net, each partner brought significant authority through their status and potential resources such as technical expertise and time. Perceptions among partners of authority and resource potential were
influenced on conscious or less conscious levels and impacted on participation and commitment. The process was reiterative, encouraging or discouraging continued participation and the degree to which information in the form of experience but also involved in learning was shared. Thus engagement, participation, information sharing and common learning are inter-related and iteratively mediated by flows of information and communication. While such patterns of interaction may be better understood, there is little consistency as varied modalities interact to impact processes. They include interpretive schemes involving conscious and less conscious understandings as well as the influence of the two aspects of power. These elements and processes impact action on agency, mediating choices and the recognition of options, decisions, and outcomes.

Examples were seen in the PlaceToBe.Net when individual partner organizations appeared to guard valuable, internal information. Non-disclosure constrained the exploration of relevant issues, choices and alternatives. Evidence from the case study revealed how internal organizational processes which may have benefited from a better understanding of tools and issues related to information sharing and search processes failed to be influenced by the partnership. Interviews and PlaceToBe.Net meeting discussions revealed the desire of several participants that participation might have a return impact on representatives’ own organizations providing an impetus for transformation internally. It was an unanticipated, often implicit desire for reciprocal benefits that could easily have been missed except for observations of interests and values shaping the initiative. The dynamic of impacts and potential benefits at internal organizational and external PlaceToBe.Net levels are mediated by similar modalities that inform the proposed framework. The model below brings together the three stages and acting as a pie-shaped piece of a larger diagram, is an amalgam of the three individual ones in the previous chapter. This slice illustrates modalities and mediating factors moving recursively across stages and key conceptual components. That dynamic interactive
movement is at the core of sociotechnological shaping and when attended to becomes a conscious tool guiding an initiative.

Relative to the partnership, one partner representative adopted the search appliance creating a customized, internal solution although faced with a
number of barriers that normally would constrain such innovation. It was an example of a positive outcome from an internal situation found to be common, particularly to larger organizational partners where gaps in knowledge and understanding constrain authority and resources, internally, and as a result limit participation externally within innovative partnerships such as the PlaceToBe.Net. The context offered opportunities for innovation and attracted engagement with the recognition of mutual benefits that supported commitment and participation. Thus ‘Re:search’ was created against enormous odds and was showcased at the launch of the PlaceToBe.Net. Operating internally, it provided a unique tool providing access to diverse information across discrete departments and disciplines. In contrast, the other university partner withdrew to develop an independent search engine thereby preserving control over its information resources and intentionally or not protecting them from external use and influence.

Both outcomes resulted from common processes and factors in the PlaceToBe.Net partnership but their engagement and participation contrasted. The differences reviewed in chapter four showed variation in the knowledge and commitment of senior authority figures that in both cases limited support for engagement and ongoing participation in the partnership. Individual resolve by one representative along with demonstrated knowledge and commitment by significant authority figures was the differential, enabling a more independent, internally situated, outcome. Tangible results, provided by the Re:search adaptation, may have informally enabled sustained support for the wider implementation of the PlaceToBe.Net search solution. Expert, representative involvement however, did not return to the earlier level.

The challenges, as well as benefits, of wide interest and support within organization partners extend to the role of networks, of human and non-human actors. Operating as less formal structures, networks enabled the formative interest and broad, ongoing support for the PlaceToBe.Net. This agency was based on understandings of power and related social, political and resource implications, recognized at conscious and less
conscious levels. Interpretations of related rules, norms, practices and relations mediated structures and through action established and confirmed common aims and objectives through shared information and knowledge related to learning processes.

Aims are co-constructed through the adoption of definitions, mediated by the independent, internal, cultures of partner-organizations and by shared understandings within the partnership. External influences involve less formal networks as well as relevant trends in policy and practice, seen for example, in NHS directives for greater choice and information that involve formal structures. As a result, the interpretation of relevant rules, norms, practices and relations varies between numerous informal or formal structures. It would not be unusual, as a result, for NHS staff, operating within highly formalized structures and faced with the uncertainty of organizational change to have concerns related to protecting, even restricting information and professional agency and adhere to relatively rigid interpretations restrictive of interests and participation. In contrast, an expert, situated within a somewhat less rigid environment and used to some degree of independent work, might interpret the influences of structures as more flexible, providing opportunity for innovation.

Such interpretations also pertain to the role of definitions within partnerships such as the PlaceToBe.Net. Construction and use of definitions invoke interests, values and varied forms of learning. All are implicated in agency, involving actions related to aims and expected outcomes. What questions are asked and addressed, what research or studies are undertaken and how resulting information and knowledge is communicated, or made use of, enables or constrains processes that shape outcomes. Interaction, overlap and iteration characterize these processes which Structuration helps to reveal. Results determine what is included or excluded in the formative stage establishing the context, influencing planning (choices, options) and decision-making. Clarity in aims is important to establish early as it is a process iteratively tied to aspects of engagement, participation, shared experience and learning,
related to interests and values and the potential for common action and agency.

Resolving questions with regard to information users and providers, needs, content and use holds a number of potential benefits. One is a better fit, or application and use of technology which determines how technology and content is shaped and therefore what health information is made available, and to whom, at the community level. Chapter four revealed a predominant interest in a search engine, as the information system solution desired by the PlaceToBe.Net to “improve access to and the quality of public and community information” (Riches & Walker, 2002). The focus on technology overshadowed complimentary aims that included “building supportive links between local information providers” (Walker, 2003). Aims also included building and supporting such an information solution which alludes to some form of sustainability within the initiative.

The extent to which these aims were shared among organizational partners and their representatives participating in meetings, either enabled or constrained related agency. The focus on health information nearly alienated one University representative who felt it was outside their expertise. Later, with the shared discussion of a broad definition, the representative recognized not only unique expertise within the internal University structure but acted upon it to develop an innovative adoption of the PlaceToBe.Net search appliance.

Earlier in this chapter, the example of one University pursuing its own internal solution was mentioned. A change in the staff representative to the PlaceToBe.Net and the related lack of early engagement and participation at meetings indicated constrained support. While authority figures remained interested there was no indication of efforts enabling representatives to participate. Information and communication flows were therefore difficult to maintain. In contrast, the other University offered authoritative support at the highest level and in the efforts of an expert representative. That expert’s participation at meetings, however, was constrained by internal flows of communication and information that failed
to enable similar support from authorities in middle management. Their actions restricted the expert’s attendance at meetings. Recognition of this constraint along with overriding interest in participation, resulted in PlaceToBe.Net leadership engaging in independent flows of information and communication, external to meetings, enabling ongoing involvement and eventually a unique adaptation of the search appliance. A less recognized result was the exclusion of other organizational representatives from the detail and learning involved in that adoption. While a pragmatic strategy it may have had unanticipated consequences reducing the common and shared environment and corresponding opportunity for relevant experimental learning. A momentum for involved, shared learning and implementation seemed to have been lost by the time the Google Appliance was ready for general use.

Clearly there are advantages to understanding the dynamics of Structuration forces that mediate formative, contextual processes (see figure 17 on p364 and the table below) in community ‘health’ information/informatics initiatives. After the review, below, attention turns to similar dynamics that mediate processes as agency and action moving from the formative contextual factors to the construction and delivery of outcomes.

Context Enabling Agency

Internal & External Actors, Structures and Networks

The context is made up of many and varied actors (human and nonhuman) and structures including networks that operate internal to an initiative or externally or both. Tangible actors with agency include organizations internal to the PlaceToBe.Net (partners) and external to it. Their proximity alters participation impacting their influence and formative agency related to aims and ultimately outcomes. For example national, regional and international trends were discussed as actors with structural or network influence.
Context Enabling Agency

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<td>Actors</td>
<td>Human &amp; Non-human</td>
<td>Structures</td>
<td>Formal &amp; Informal</td>
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<td>The three are not discrete – taking part in one or more roles - and in doing so exercising transformative agency.</td>
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**Project / Initiative**

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**Examples**

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<td>National, Regional &amp; International policy -trends</td>
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<td>Representatives of Organizations</td>
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<td>Organizations</td>
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<td>- mandates, interests, values</td>
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<td>(shared and public or individual and often private)</td>
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<td>Third Sector</td>
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<td>Project Aims &amp; Objectives</td>
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<td>Information Providers</td>
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<td>Information Users</td>
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<td>Questions asked or not</td>
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<td>Information collected &amp; disseminated</td>
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<td>Decisions / choices</td>
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<td>Technology</td>
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<td>- software, internet, literacy</td>
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<td>Search Engine</td>
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**Figure 20**

Varied structures influence projects, initiatives and partnerships such as the PlaceToBe.Net through their interpretation by a variety of actors/agents. Networks tend to be less formal than structures resulting in less certain interpretations by actors allowing flexibility that opens opportunities for questions, research and analysis that may otherwise have been deemed understood. It is a dynamic that this research raises as a query for future research into multi-partner decision-making processes. That flexible room to reflect, question or be critical is central to interpretation processes, the modalities of ‘sense making’ in Structuration. Interpretation at conscious or less conscious levels by actors, of rules, norms, practices and relations relative to experience with varied structures mediate and help shape the context enabling or constraining choices, options and decisions, relations portrayed in the next table. Ultimately, modalities mediate agency and its power which construct...
outcomes, the last table. A quick review and reminder of processes that are more tangible in linking context to mediating processes is a valuable reminder of the complex interrelations of the three conceptual stages.

**Engagement and Participation**
Consistent and long-term participation provides a strong context for sharing interests, developing shared understanding as well as learning that acknowledges interests and values at individual and more private, internal organizational levels and within the more public and external, evolving partnership.

**Flows of Information and Communication**
What questions are asked and how they are answered, whether research is conducted, reports disseminated and acted upon and how definitions are formed and used all involve flows of information and communication that ultimately mediate formation, mediating processes and outcomes of an initiative such as the PlaceToBe.Net.

**Aims and Objectives**
Formative processes are instrumental to shared understanding and commitment promoting determined agency on mutual aims and expected outcomes. Micro processes, including shared experience, learning, interests and values, cut across key processes influencing definitions, aims and objectives through the dual influence of power.
7.2 Mediating Processes Enabling or Constraining Choices, Options and Decision-making

Substantial attention has been given to the role of varied factors and modalities that mediate agency, witnessed in the PlaceToBe.Net partnership. Attention was directed to the exercise of power, authoritative and allocative with interconnected factors that enable or constrain agency relative to actors and structures. Particular attention continues to be given to the dynamics involved with increasing access and or quality of 'health' information. Practice related to determining choices, identifying alternatives, options and making decisions can potentially be enhanced through an understanding and knowledge of:

- The agency of power, authoritative and allocative
- The role of cross cutting modalities, influencing agency relative to actors and structures
- The role of both conscious and less conscious interpretations of social norms, rules, practices and relations relative to actors and structures and the exercise of power
- Factors operating within processes that enable or constrain choices and decision-making
- Information and Communication Flows that enable or constrain processes such as facilitating learning, common goals and decision-making
- Agency and processes that mediate inclusion or exclusion; for example the determination of expert or lay knowledge
- Conscious and unaware mediation of processes are associated with perceptions that, in this study, have emerged as related dualities that help determine what was considered inclusive, exclusive, internal or external, expert rather than lay, or private versus public

Ideally, aims are confirmed in the formative, contextual stage of an initiative. The process involves decisions, choices and the weighing of options relative to interests and values brought to the initiative by varied partners. How the primary focus of the PlaceToBe.Net, to increase access
to quality community ‘health’ information, was acted upon, reveals interests and values, and particularly those which when shared, facilitate common action. Agency related to health, as an initial focus, indicated a commitment to that focus. Similarly, the participation of partner organizations and their relative involvement in that focus reveals individual actions and values relative to other partners and the partnership, itself. These relations were contingent upon issues of power interpreted at conscious and less aware levels by participants and thereby reiteratively shape structures, mediating agency.

The role of PlaceToBe.Net definitions provides effective examples of these cyclical, systemic, relations. Definitions related to health, access and quality, search tools, notions of community and users were discussed in chapters four and five, relative to background issues introduced in chapter two. Constraints limiting definitions were seen in restrictions of time and resources as well as participation common to what Community Informatics conceives as a ‘project culture’ (Harris, 1996, Day et al, 2002). The involvement of diverse partner organizations, crossing public and private sectors, engaging in shared learning, enabled common understandings of key definitions and was seen as resulting in an expanded view of health, as one such example. While there were opportunities to explore limited definitions and new understandings developed, the pressure of finite time and resources from external funders as well as internal, partner organizations expectations, constrained agency resulting in pragmatic activities. Such varied pressures also constrained opportunities to confirm common definitions, understandings and to explore related agency and outcomes which might have identified options and alternatives and attributes of sustainability. The last will be the subject of 7.3.

The exploration and confirmation of definitions was also impacted by perceptions of expertise situated, for example, with the NHS partner organization and less obviously with the experience of established information brokers such as the newspaper and Universities. Their authority and expertise both enabled and constrained related agency. The
last enabled the implementation of search technology and contributed to how information would be made public as electronic content. Issues such as the importance of accurate dating of electronic content were identified that would address currency, enhancing credibility. The significance of this attribute of quality to health information was an important revelation for those participating. While identified from a combination of assessment, shared experiences and learning, among organizational representatives, the ability to act on and resolve such issues was situated in the shared agency of actors and structures involved in implementing the search appliance as well as within the technology itself. The opportunity to ensure good practices, shared as a partnership with principles guiding and enhancing access and quality elapsed with the end of committee meetings and individual organizational implementation of the technology.

NHS expertise within the PlaceToBe.Net, was perceived as the primary authority on issues of quality health information and related access issues. Their involvement enables recognition of the importance of quality information at public and community levels as well as the complexity of its provision and use. However, the last was equally well a constraint when risks and contentious definitions and understandings were revealed but no agency taken to resolve concerns in a manner aiding the partnership in the long-term. Devolution may have been the result of conscious and less conscious rationing within a context mutually understood to have short-term goals and resources. Power seen in the exercise of authority and allotted resources holds greater persuasion. Expertise and resources recognized, informally, in the NHS without formal critical discourse may have contributed to pragmatic agency rather than more difficult and resource intensive, innovative action.

Described in this research has been a variety of evidence related to conscious processes informing decision-making processes that include the identification of choices and options. Equally important is the revelation of a significant amount of less conscious, less critical or sceptical agency that influences these processes. Thus the limitations resulting from expert organizations’ involvement when partnership
expectations fail to materialized. These reasons were noted in chapter five. The lack of solid participation limited valuable debate, particularly of contentious issues which could have made a difference. Opportunity to identify something new or different was constrained. The withdrawal, as active participants, of organizational representatives also was an indication, conscious or not, of limited support and authority invested in the PlaceToBe.Net.

The impact of less aware agency and potential for conjecture is seen in the limited role of the seven organizations whose formative partnership value was implicitly linked to their varied expertise in the community relative to information resources. Such expertise and practical involvement is valued in the field of Community Informatics as helping to ensure links to important communities, as audiences, and potential users, thereby ensuring aims, goals and outcomes are meaningful to such target groups. Each partner worked with clients or consumers as citizens using services, yet there was little recognition of this internal expertise which could inform definitions of users and one or more communities in the PlaceToBe.Net. Without a more definitive understanding of potential users and their needs and interests decisions are made on limited evidence allowing room for conjecture and assumptions.

The influence of conscious and less conscious mediation is particularly significant when the partnership dealt with issues of access and quality ‘health’ information. A more micro exploration of power and interpretive processes revealed intricate relationships that provide space for conjecture and assumptive agency, particularly in the context of a tight project agenda. Over time and with experience, more concrete and common understandings develop, employing interpretive schemes, recognizing power capacities and normative expectations. The last involve knowledge of internal structures, specific context and its contours or shape, for example. This is what Stones (2005) identified as ‘conjecturally specific’ interpretations which contrast somewhat with ‘general dispositional understandings. The last attend to more external, less formal knowledge and understandings which accordingly are
transposable. There is room within such interpretive schemes for the subjective as well as the objective and that which is consciously acknowledged or not.

The PlaceToBe.Net partnership undertook difficult and complex aims related to access and quality. With limited exploration of access and quality particularly in relation to the initial focus of health, their definition, understanding, and role remained uncertain. Complexity and contested understandings and relevance of the two attributes were likely unanticipated by partners focused on a search engine solution to PlaceToBe.Net aims.

Pressures of limited time and resources were forces that pragmatically directed attention to experts with existing knowledge and practices. The bulk of PlaceToBe.Net resources were depleted on the bespoke search tool. While the issues of quality and access were briefly considered relative to technical functionality, the potential for assessment of related partner issues ended with the decision to purchase the Google appliance. Implications from that decision included a lost of assessment and limited consultations to issues related to the choice of a generic search engine, described in chapter four. These were not necessarily consciously weighed factors in that decision process. Related knowledge and understandings fell into Stones (2005) notion of the ‘general dispositional’ characterized by uncertainty and transition that differed among individual partner representatives due to the lack of shared discussion and exploration which by default lead to a lack of agency or exercise of power in the decision-making process. Power driving the decision was more conscious, ‘conjecturally specific’ understandings which, for example, perceived the NHS as the primary expert on quality health information and more technology focused partners, such as SCIP, as key experts on access.

An easy dependence upon such experts is demonstrative of social determinism when the relationship goes uncritically questioned. Similarly the role of technology in enabling access to information and therefore
access through a search engine and quality through greater information resources (quantity) reflects technological determinism. The role of conscious but especially less aware interpretations and knowledge formation is central to the prevalence of such determinism. Such determinism intentionally or unintentionally limits choice when there is a lack of: definition or understanding of issues, little exploration of alternatives or options, and unexpected or unintentional opportunities are not taken advantage of.

Conscious and less aware mediations of processes are associated with perceptions that have emerged in this study, to be captured as a series of related dualities. Mediation therefore determines what was considered inclusive, exclusive, internal or external, expert rather than lay, or private versus public. As a result patterns can be identified and with enhanced understandings processes can be managed more effectively. The result of a process not sensitive to, or critical of conscious and less conscious, 'conjecturally specific' and 'general dispositional' characteristics, was a lack of awareness. This led to poorly balanced information and learning that can constrain decisions. In this project though, it did enable agency leading to quick outcomes.

The participation of public and private partners resulted in diverse as well as common interests and values that influenced decision-making processes. When health information became a focus and quality along with access were revealed as contentious issues, the opportunity arose to explore issues, across such diversity, in a manner encouraging a level of shared learning and understanding supportive of long term and sustainable collaboration. Such relations, involving the duality of actors and structures creates agency, constitutive of outcomes and deliverables relative to PlaceToBe.Net aims. It is the topic of the concluding chapter section 7.3.

This research revealed constraints as well as enabling powers linked to dualistic modalities (mediating forces), including the conscious and less conscious interpretation of social rules, norms, relations and practices and
the exercise of power. A particular challenge within partnerships involves achieving engagement and participation that ensures action while moderating tensions among varied interests, values and related, contested definitions and practices that can constrain related agency. Pressures of finite resources, particularly funds and time, can lead to pragmatic action, maximizing tangible outcomes while minimizing factors which could compromise such results. Dealing with tensions, however, enables information and communication flows, increasing shared experience, learning and understanding, instrumental to developing common interests, values, aims, actions and eventual outcomes. Resolving such contentious issues promotes balance within processes that mediate decisions. Achieving balance is challenging. It requires active leadership with a strong understanding of such processes, able to engage in critical reflection with the intention to manage varied processes shaping an initiative. A framework can be useful to guide practice.

Framework of Mediating Processes Enabling or Constraining Choices, Options and Decision-Making.

Power, whether authoritative or allocative of resources, is revealed as a primary modality cutting across and mediating the multiple dynamic processes that cumulatively shape a community health information/informatics initiative.
### Cross cutting modalities

Influence agency relative to actors and structures in recursive and iterative processes involving structural duality.

**Conscious and Less Conscious Interpretations** establish ideas of social norms, rules, practices and relations relative to varied structures actors that mediate agency and the related exercise of power.
Decision-Making Processes Involve the Determination of Options and Choices that are enabled or constrained by varied factors including modalities mediating processes.

Information and Communication Flows aid processes, facilitates shared experience and learning, common goals and informed decision-making.

Inclusion or Exclusion of partners, representing relevant communities of users and information providers, participation, key questions, definitions, informative research, the accreditation of lay and expert knowledge and the dissemination of information relate to interests and values inform agency shaping outcomes.

7.3 Enabling Outcomes

Outcomes from the PlaceToBe.Net exhibit the results of context and processes instrumental to that work. Key processes, at the macro level, were grouped into three key stages for discussion. Operating across these processes are Modalities. As mediators, their functionality existed at relatively micro, abstract, levels compared to more macro processes shaping PlaceToBe.Net aims, work and outcomes. The abstract nature of the modalities was revealed in relation to conscious and less aware interpretations of varied structural influences which recursively influence actors and action – the duality of Structuration. This complex and dynamic interplay of actors, structures and agency determined the exercise of power through mediating modalities. It becomes a conceptualization that informs and expands understandings of social and technological determinants which shape initiatives including the PlaceToBe.Net. In this dissertation the application of Structuration was informed by the valuable
conception of actors as human and non-human, but Actor Network Theories narrow focus on dualistic, network relationships revealed limitations that a focus on structural relations enhanced. Structuration highlights a more dynamic, interactive and recursive cycle consisting of interrelationships that shape one another. These numerous relations are brought together, in this final section, to better understand how such interactions mediate and shape outcomes of initiatives such as the PlaceToBe.Net.

Outcomes from initiatives such as the PlaceToBe.Net partnership are the result of identified aims that initiate and direct agency through resources of authority and action, in formative processes, relative to contextual factors. Thus context and processes have formative and instrumental roles, constitutive of outcomes. They are difficult to measure except against intended aims. Short and longer-term outcomes result with the last form associated with greater sustainability. Raised as an important subject during early committee discussions, attention to sustainability faded as the initiative matured and ongoing resources and support remained limited.

This study has made clear the role context has in establishing aims as well as creating prerequisites supportive of action and outcomes. They are summarized in 7.1. The discussion in 7.2 offers a revealing analysis of how processes mediate outcomes. Combined, a more comprehensive understanding of micro and macro factors and abstract phenomena has developed, that can inform future practice.

Eight organizations were formal partners in the PlaceToBe.Net when committee meetings ended in 2005. The original seven were joined by an eighth private, business partner, Wired Sussex. A similar firm which two years earlier had been contracted to complete the ‘Health Information Mapping’ study (Benedict Taylor, 2003) did not become a member. The original, enthusiastic, author/researcher moved into a position with the NHS, but others continued to support the study. The University of Sussex was the only organizational partner, contracted to complete a key
research study, ‘The ICT Usage Omnibus Study’ (Coultis, 2003). The University, unlike the previous example, continued as a partner but was not an active participant with involvement marginal. Other organizational partners provided authoritative support through senior officials, sanctioning participation, with many contributing expertise during meetings and informally through external support and resources ranging from financial accounting to assistance in the purchase of the software and related technical support. The last was also purchased from a private business partner whose managers were keen participants. The process of contracting or purchasing services played an interesting role, parallel to reciprocal exchanges which traditionally strength participation in partnerships.

Revealed as a result were public and private dimensions of the partnership. The combination reflected a growing, international trend where joint projects are advanced through a match in goals, resources and expertise. From the beginning the combination appeared to be a pragmatic arrangement, determined to obtain efficient and effective results. Contrasting interests and values within the partnership could have been disruptive with contentious values and understandings. However, the comments of a senior organization representative were insightful. While indicating frustration with a lack of clarity surrounding aims and core information the representative acknowledged a level of patience unique to the less business oriented approach of the PlaceToBe.Net partnership. Such patience was a tactful approach since her organization had been pivotal to a false start for the initiative.

Lessons learned from experience with the voluntary/community sector were mentioned earlier as included in decision processes through the experience and participation of representatives especially SCIP staff. Discussion had focused on the sectors inclusion, as partners, but no formal efforts were taken prior to the conclusion of formal committee meetings. Reasons likely involved an integral understanding that the PlaceToBe.Net had to take a pragmatic approach and this sector was not resourced sufficiently to take a viable role within a demanding partnership.
Additional partners were expected to join, as the PlaceToBe.Net site, offering use of the search appliance, across the partner sites, became popular and valued. Branding and promotion was raised on several occasions and, as chapter four and five explained, was both a conscious and less conscious factor in the choice made to implement the well known and popular, Google Search Appliance. The case for why other partners should join the PlaceToBe.Net was never made formal, beyond the technological advantage, a common, search engine offered.

The same can be said for why users, identified as the local community, should make use of the PlaceToBe.Net site and search appliance. Once again issues of inclusion and exclusion relate to how they, the audience and users were identified and defined. Previously presented evidence revealed gaps that perpetuated limited knowledge and missed opportunities to learn about, identify and define potential users. Without a strong knowledge and understanding of users and potential partners, both potential information providers and the efforts of the PlaceToBe.Net were constrained. Achieving modest aims let alone doing something new, different or innovative became problematic without adequate information, knowledge and understandings that could have been shared in the partnership. That sharing was critical to developing common understandings, values and interests that aid agency, enhancing participation and meaningful outcomes. That agency, in turn, would have been fundamental to processes acting on aims and enabling related opportunities that potentially allow the achievement of something new and different.

Similar limitations in the exploration, understanding and establishment of common definitions, related to access and quality in the provision of community health information, constrained action on those key issues. Just as a general understanding developed that the two issues were complex and interrelated, particularly in relation to health information, PlaceToBe.Net resources and work, concluded. Partner representatives had new knowledge of the issues but one, not formally addressed as a
common partnership concern. Knowledge remained privately formed through conscious and less conscious understandings and as a result may or may not be shared in public realms involving similar concerns or interests or internal to their partner organizations.

Without partnership action, related agency was informally divulged to individual organizational partners – their representatives -where internal, sometimes private interests, values and understandings would be likely to guide action. Whether new knowledge from the partnership would transfer was problematic particularly when shared partner experiences, discussed in chapter four and five, had revealed internal organizational constraints which several partner representatives were anxious to influence by way of their external participation in the PlaceToBe.Net. At the same time partner representatives recognized the PlaceToBe.Net provided an opportunity to do something not achievable by individual organizations. The two goals represent interests and values related to internal and external organizational practices as well as those of the representatives.

Apart from formal PlaceToBe.Net aims, the less formal goals, interests and values, found with partners, created multiple expectations competing for attention and resources. A stronger commitment to health information and related access and quality issues might have unified action beyond the implementation of a search technology. Matching technology aims with relevant social goals balance determinant forces. Such a balance would be reflected in processes such as decision-making involving the identification of choices and options. Longer-term aims would also be enabling, aiding a more sustainable approach to the partnership.
Enabling Constructive Outcomes

Accumulation of context, mediating processes and the construction of outcomes
Constitutive of processes, related to aims and context, outcomes reflect the benefits, or not, of these relations. Clarity and appropriateness of aims benefit from needs assessment, consultations and research that enhance definitions, reducing tensions and contested concepts or bodies of knowledge and levels of expertise. These processes rely on the flow of information and communication which aid the sharing of experience, common learning and dissemination of resultant knowledge for common understanding.

Deliverables and Outcomes
Processes are constitutive of outcomes. Less obvious or aware and at times unconscious factors have a mediating role. Recognizing complexity and ambiguity in processes, such as decision-making, aids the management of projects or initiatives promoting balance and the monitoring of conjecture. The last involves the appropriate flow of information and communication and forces such as social and technological determinism and can be a powerful political force.

Sustainability
The culmination of activities determines short or long-term outcomes providing a simple indication of sustainability. More complex are processes designed and supported to enhance long term aims, goals and resources. Examples include nurturing common aims and expectations and related to accomplishing such are shared experiences, learning and the development of communities of interest or action.
This doctoral thesis has concentrated on identifying key conceptual issues as a basis for a framework guiding practice related to a community health information/informatics initiative. Revealed have been factors that remain intangible or difficult to observe and measure. It is acknowledged that abstract activity remains. Resulting patterns show relations and interrelationships that are recognized as transient and less than straightforward. The framework acknowledges processes and influences that can be understood, monitored and to some extent managed even when less than conscious and straightforward. Time, resources and authority linked to the agency of power were realized as major mediators, shaping processes. Sufficient agency dependent upon power, authority, support
and resources; involving knowledge and the enactment of good practices is required for aims to be established and processes to be constructive of varied and beneficial outcomes. Pragmatic agency can become either a necessity or an excuse not to engage in more resource consuming, complex work. Traditional judgements focus on outcomes and these will evidence either comprehensive or simplistic processes tied to formative agency.

This research has enhanced understandings of key processes and factors that mediate related action. It has brought together unique bodies of knowledge and comparable concepts to investigate complex phenomena in-situ. Particularly valuable is the relationship between less aware even unconscious interpretations of structural experiences that have a recursive shaping influence and can unintentionally aid less critical, assumptive decision-making processes. It is one of the more important original contributions to knowledge this thesis provides. Revealed also were a number of areas where future research will be important to increase understanding of community partnerships and processes that shape local health information/informatics initiatives.
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The table below begins to summarize these relations as a reference guide for practice. As discussion continues the table can be revisited for concise details.

**Emergent Framework; a complement to Chapter Seven**

<table>
<thead>
<tr>
<th>MEDIATING PROCESS OR MODALITY</th>
<th>ELEMENT – ACTOR Structure, A</th>
<th>AGENCY</th>
<th>OUTCOME TECHNOLOGY</th>
<th>OUTCOME INITIATIVE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diverse Participants</td>
<td>Representatives with varied Interests &amp; Values</td>
<td>Engagement, Participation, -regular and sustained - (flows information &amp; communication)</td>
<td>Varied and/or balance of considerations</td>
<td>Varied and/or balance of considerations</td>
</tr>
<tr>
<td>Flow of Information &amp; Communication (dissemination)</td>
<td>Documents Meetings Discussion Choices</td>
<td>Kept private, limited sharing or made public &amp; widely</td>
<td>- Balance interests &amp; values as well as forms of determinism - Viability,</td>
<td>- Balance interests &amp; values as well as forms of determinism - Viability,</td>
</tr>
</tbody>
</table>
| Options/Alternatives Networks | shared | - Diversity of useful benefits  
| - Sustainable Integration and expansion | - Diversity & appropriate aims, objectives & benefits  
| - Sustainable partnership |

| Knowledge & Understanding | Lay Expert | Both forms have proportions that are Overt & conscious and Implicit & less aware (unconscious, assumptive)  
| Degree of Common & Shared understanding. | Balance of Interests & Values  
| Influence Common or Shared Knowledge & Understandings  
| Balance of considerations influence shape & ‘fit’ | Balance of Interests & Values  
| Influence Common or Shared Knowledge & Understandings  
| Influence innovation and constituent communities (who benefits & who misses out) |

| Allocation of Support & Resources | Formal  
| Informal | Formal & Overt action  
| Informal & Less Tangible & Obvious | Balance of Interests and Values that influence options, alternatives and aims for multiple or varied benefits and  
| Varied and diverse support & resources aiding appropriate aims and objectives,  
<p>| longevity, sustainability, |</p>
<table>
<thead>
<tr>
<th>Aims &amp; objectives</th>
<th>action Knowledge &amp; shared learning, understanding</th>
<th>consideration of diverse users &amp;/or providers.</th>
<th>innovation and varied benefits.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Public Interests and Values Or Private Interests and Values</td>
<td>Representation of Interests &amp; Values</td>
<td>Engagement and participation</td>
<td>- philosophy &amp; practice representing interests &amp; values such as ‘do no harm’, goals with ‘public interest’</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- transparency</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Open meetings, unrestricted, open discussion</td>
<td></td>
</tr>
<tr>
<td>New &amp; Shared knowledge, New &amp; Shared Learning Dissemination Common Understanding or Fragmented Understanding</td>
<td>Collaborative Action</td>
<td>Degree of Innovation (something new/different)</td>
<td>Something new with new Technology Or Some old with new technology Limited adoptions</td>
</tr>
<tr>
<td></td>
<td>Fragmented Action Short-term Action Long-Term Action</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### New & Shared Knowledge, New & Shared Learning Dissemination Common Understanding or Fragmented Understanding

#### Degree of Innovation

- **Something new with new Technology**
- **Or**
- **Some old with new technology**
- **Limited adoptions**

#### Representation of Interests & Values

- **Engagement and participation**
- **- transparency**
- **Open meetings, unrestricted, open discussion**

#### Innovation and varied benefits.

- **- philosophy & practice representing interests & values such as ‘do no harm’, goals with ‘public interest’**
| Shared Learning through common and shared experiences | Learning, obtain new knowledge, understanding | Action with common aims goals and degree of consensus. | Well weighed choices, considerations, decisions | Comprehensive assessment of needs, options, alternatives. Influences what and who is included or excluded |
Appendix Two

Interview Topic Guide - Improving Community Health Information:
The Case of the Place To Be.Net

Greetings:

Expectations for interview session:

I hope to speak with representatives of all of the organizational partners involved in the Place To Be. It is a chance for me to ask a number of questions but also for you to address what you have an interest in. You can chose not to answer any questions should you wish. I hope we can finish within the hour.

Review the Information Sheet and Consent Form.

I would like to assure you that what you share with me will be respected and kept confidential. If you desire, I can provide you with a copy of the transcript of our session.

1. Involvement:

1. Perhaps we could start off by generally getting a feel for how you have experienced the P2B initiative.

   1.1 How did you become involved with the Place to Be initiative?
   1.2 What is your understanding of the P2B initiative?
   1.3 Is the partnership base important for the P2B and if so, how is it important?
      1.3.1 Are the partners those you would expect to be involved?
      1.3.2 Are there others who should be part of the project?
   1.4 What outcomes or results, if any, were expected from being a partner in the P2B?

2. Placetobe Goals and Objectives:

   2.1 What do you see as the purpose, goals or aims of the P2B?
   2.2 Looking at the Place to Be aims - How have these aims (goals) been managed?
The Summary position paper of February 2003 noted the Place To Be  “Aims were:

- To improve the quality of information available to local people
- To build supportive links between local information providers
- To build and support information systems which help provide better access to high quality information”

2.3 The first aim is ‘to improve quality information available to local people’ What actions, or efforts took place to make progress in respect to this aim?

2.3.1 What factors were identified that contributed to quality health information?
2.3.2 Did the understanding of quality information change during the project? If so how did it change?
2.3.3 With each partner holding varied information resources, did that impact the way quality was viewed or acted upon?
2.3.4 Were factors such as timeliness, accuracy, source, the depth or breadth of information, best evidence, novel/new or non-repetitive information and usefulness considered?

2.4 What attempts were made to find out local information needs?

2.5 How did health information come to be a focus for the P2B and why?

2.5.1 Has this focus, on health, changed at all?
2.5.2 Has it been a useful focus?

3.0 Given the second aim of the P2B ‘to support links between local information providers’, how has the P2B partnership gone about achieving this aim, particularly with respect to the health area?

3.1 What kind of health information does your organization provide?
3.2 What is your understanding of how the electronic information held by your organization relates to the P2B goals and objectives?
3.3 What would you like to see result from a partnership of information providers?

4 Technology Aspects of The Place To Be.Net

4.1 Looking at the third aim of the P2B initiative “to build and support information systems which help provide better access to high quality information - how did the search engine become a strong focus of the P2B initiative?”

4.1.1 Were other options explored?

4.1.2 Why was it seen as the best way to achieve the goals?
4.2 Will access issues be well addressed through this strategy?
4.3 Are there additional access issues that need to be addressed?
4.4 In relation to community health information how likely is it that the P2B search engine strategy will help increase access?
   4.4.1 Will it increase the quality of health information?

5. Impact and the Future

5.1 How do you see the future, (the long-term sustainability) of the P2B?
5.2 What would be a solid indication of success for the P2B initiative?
5.3 How does your organization’s information needs (both provision and use) relate to the P2B project?
5.4 Has there been an impact on the information goals, strategies of your organization as a result of involvement in the P2B project?

6. Interview Summary and Conclusion:

6.1 Do you have any questions or anything you would like to add in regard to the P2B initiative?
6.2 Are there any other comments you would like to make at this time?
6.3 Would you like a copy of the interview transcript?
Letter of Invitation to Participant: Place To Be Partner Representatives and P2B Observers.

Improving Community Health Information; The Case of the Place To Be.

Mr/Ms

Health Information is acknowledged as important to promoting wellness as well as the prevention and management of illness. The search for health information continues to be one of the top three uses of the internet by the general public. However, much remains to be understood about both the provision and use of electronic health information. This is particularly true of health information with local or community relevance.

The research I am doing looks at on how a group of seven, community-based, organizations engage in a partnership with the aim of increasing, quality, community health, information. While the Place To Be, (P2B) partnership has a broader information remit, I am particularly interested in how health information will be acted upon. I am interested in speaking with representatives of the P2B partner organizations, in order to better understand how they experience the initiative.

As a P2B partner representative, involved with the initiative, I hope you will consider participating in this research. It would involve at least one interview, lasting about one hour. You may be asked for a second interview, in the late summer. If you would like to know more, please read the enclosed Information Sheet. You can then decide for yourself if you would like to take part. The Information Sheet explains more about the research and what will be expected of you if you do decide to take part. My contact information along with that of my Research Supervisors is also provided, should you wish to clarify any concerns you have.

Thank you for taking the time to read this material. I very much hope you will decide to take part in the study. If you do, please complete and return the confirmation sheet, provided.

Your interest is greatly appreciated.

Sincerely;

Jayne Cardno,
PhD, Research Student
CMIS
University of Brighton