New Media: The affects of networking and cluster co-location upon learning and innovation

A case study of Brighton and Hove

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Abstract

This thesis builds on the findings from previous research, where the conventional wisdom suggests that cluster co-location and networking have a positive affect upon small firm learning and innovation. The researcher perceived the need to test the efficacy of these findings with the claimed 'new-media' cluster in the city of Brighton and Hove.

A detailed analysis of the literature contributed to the development of a conceptual framework from which five propositions and 23 research questions were derived. The researcher's philosophical stance recognised the subjective nature of the social world and therefore a largely qualitative epistemology was followed. An interview instrument was designed and implemented through 17 new media owner-managers, and the findings were compiled, coded, analysed, and then compared to the previous research studies.

The analysis found some evidence of new media clustering, but it was clear that some of the key characteristics were missing, namely the co-location of customers and competitors, thus forming a hybrid cluster. The networking practices of the sample new media firms were found to be limited to working with complementary digital services suppliers and freelancers, while suppliers and key institutional agencies, although co-located, were not considered important networking partners. The paradox that arises is that customers are considered the most important networking partner but they are generally not co-located.

Learning and innovation are very important to the new media sample firms, because of the need to manage discontinuous technological and market changes. The hybrid nature of the cluster, however, and the limited networking practice of the respondent firms, limits the full potential for learning and innovation to occur. In addition, factors such as firm size and limited resources also dictate that most innovation is customer-driven and of an incremental rather than a radical nature. The thesis concludes that the conceptual framework is only partially proven and using Popper's (1964) falsification principle, the research propositions do not hold. From this, a series of recommendations are made concerning theory development, future research and professional practice, that should help enhance new media firms' ability to learn and innovate in the future.

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Chapter 1: Introduction

1.1 Background

Brighton and Hove (BH) is a city on the South coast, 70 miles from London and with a population of 255, 800 (ONS, 2001). It is a seaside resort with tourism, financial and business services as lead industries (Sussex Careers, 2003). Since 1995, BH has seen the growth of a new-media industry, which is commonly referred to as the 'BH new-media cluster' (Pratt, 1999; Kaplinsky *et al.*, 2003). The location has attracted a cosmopolitan and creative class (Pratt, 1999) with a high proportion of workers with creative and technical skills. This has been enhanced through the graduate output of the two local universities, Sussex and Brighton.

The new-media industry in BH is supported by its own dedicated trade agency, Wired Sussex (WS), which was started in 1995, financed by a Business Link scheme. The city also has three major providers of dedicated office space for new-media companies. The Brighton New-media Centre (BMC) has four city centre venues housing 55 new-media companies; Lighthouse has one city centre venue, while the Sussex Innovation Centre (SIC) is based in an outer suburb, on the campus of the University of Sussex. It houses a range of technology companies, but not all specialists in new-media.

The role of these institutional support agencies is referred to as potentially providing an 'institutional thickness' (Amin and Thrift 1995), where the number and quality of support organisations associated with a particular network can enhance its effectiveness. This is achieved by developing a sense of 'common purpose', with a common language, providing a 'social glue' that binds a cluster together. Wired Sussex is seen as exempla in this respect, with cloned versions being developed in Kent, Berkshire and Wessex (SEEDA, 2002).

To quantify precisely the number of new-media companies in BH is difficult, as new-media does not have a specific standard industrial code. The Wired Sussex database contained around 850 companies at the time of the fieldwork many of which, however, were not using digital technology as their core business strategy. An interview with Wired Sussex suggested that there were about 150 new-media companies in BH with less than 50 employees, although 90% of these were in fact micro businesses employing less than 10 people, whose core business was built around digital technology as opposed to analogue

technology (interview with C. Clemons, new-media consultant with Wired Sussex, 27.05.03).

1.2 Research Context

Four authors have done some research covering the Brighton Hove new-media cluster and its networking practices with varying degrees of depth (Tang, 1999; Pratt, 1999 Oakey *et al.*, 2000; Kaplinsky *et al.*, 2003). Tang (*ibid*), was the least convinced of the notion that BH was a networking new-media cluster, although she felt there was a sufficient number of firms located, that BH may qualify as a 'Silicon beach'. However, her data was collected in 1996 when new-media was still a fledgling industry. Oakey *et al.*, (*ibid*), did find some evidence of networking but the cluster benefits reported were less convincing. Pratt (*ibid*), was far more positive about new-media networking behaviours and the cluster's performance, although his main source of information was via the new-media stakeholders, Wired Sussex and the media centres, rather than the new-media firms themselves.

Kaplinsky *et al.* (2003) report that the majority of new-media firms are micro businesses and that there is an increased imperative to network with others to supplement competencies. The Brighton new-media cluster has a large number of small companies with less than 10 employees producing specialised products and services as part of a larger production chain (Tang, 1999; Wired Sussex, 2002; Braczyk *et al.*, 1999; Backlund and Sandberg, 2002). This profile is very similar to the profiles of the 'Italianate' industrial districts in Northern Italy, who through trust and institutional support networks, are able to remain small but provide specialist services, for example, ceramics (Piore and Sabel, 1984).

The main attraction of Brighton and Hove for new-media firms is said be access to the artistic and cultural sources of skilled labour (Pratt, 1999). In addition, active institutional bodies are instrumental in helping the industry to network and develop (Tang, 1999; Pratt, 1999). Staff are attracted to the city, which is sometimes known as 'London-by-the-sea', for its lifestyle and 'physic value' (Oakey *et al.*, 2000). A South East Economic Development Agency report (2002) confirms the importance of BH as an important location for new-media with 45% of all Cultural and Creative Industry (CCI) employment in East Sussex being located in the city. Of this, 60% of BH's CCI employment is in the Media and Digital sector. Associated with this strength is access to the two local

Universities, to potentially tap into their research and development programmes and/or to access their skilled graduate output, which is necessary for such a knowledge intensive industry (Keeble *et al.*, 1999).

Potential inhibitors for the BH cluster is likely to be the relatively small size of the local economy of 0.25 million people and the relatively few registered businesses, (8000 VAT registered, www. http://www.brighton-hove.gov.uk/, 2.09.04) thereby limiting potential demand. However, London is only fifty minutes away by train, and major European capitals easily accessible from Gatwick airport, which could compensate for the disadvantage of size. Pratt (1999), however, argues that being so close to London, the largest new-media cluster in the UK, could potentially stymie the development of the BH cluster, by drawing away important resources, such as knowledge workers. Other authors disagree, a study by Kaplinsky *et al.* (2003), suggests that proximity to London is seen by new-media firms as a positive attribute, allowing staff to enjoy the lifestyle benefits of living in Brighton but at the same time close enough to London, to visit key clients.

Marshall (1920) claimed that co-location would lead to economic externalities that could benefit all firms within the cluster. Being physically close to other companies allows for time, travel and other transactional cost savings. The role of organisations such as Wired Sussex enables the collective development of information databases, networking and training as well as brokering lower cost access to professional resources, at a lower cost, than an individual small firm could negotiate (Conway, 2003; Kaplinsky *et al.* 2003). These 'un-traded interdependencies' further benefit companies that co-locate and actively network (Storper, 1993), resulting in enhanced learning, particularly tacit and double loop learning (Chaston, 1999) and innovation, particularly product, services and processes(Rothwell, 1991a). These initial findings strongly suggest that there is an a priori case for BH to be a new-media networking cluster.

1.3 Thesis aims

The overall aim of this thesis is to determine whether BH is a new-media networking cluster that results in enhanced firm learning and innovation within the context of a learning and innovative region. The actual development of this aim began in late 2002, having completed two DBA 'working papers'. The first concerned industrial clusters (Conway, 2002a) where it became apparent to the researcher that BH might be an example of a new-media cluster, while a second working paper about small firm networking

(Conway, 2002b) suggested that knowledge-technology based small companies were more likely to network and from there, the germ of a research proposal grew.

A more substantive DBA project was then written (Conway, 2003) which involved a detailed literature review and research proposal. Using the small firm networking and cluster literature, it was apparent that there were particular beneficial learning outcomes (Dragoi, 1997; Keeble, 1999), and also useful innovation outcomes (Rothwell, 1991b; Romijn and Albu, 2002). From these findings, the following thesis propositions were then developed:

RP0 **'All** new-media firms that network and are located in a cluster will demonstrate positive learning and innovative outcomes' (Conway, 2003).

From this first proposition, a further four followed:

RP1 'All new-media firms in Brighton & Hove form a new-media cluster'

RP2 'All new-media firms in Brighton & Hove are active networkers'

RP3 'All new-media firms that network and are located in the Brighton & Hove cluster will demonstrate positive learning outcomes'.

RP4 'All new-media firms that network and are located in the Brighton & Hove cluster will demonstrate positive innovative outcomes'.

These propositions are represented within Figure 1.1, forming the initial conceptual framework for the thesis:

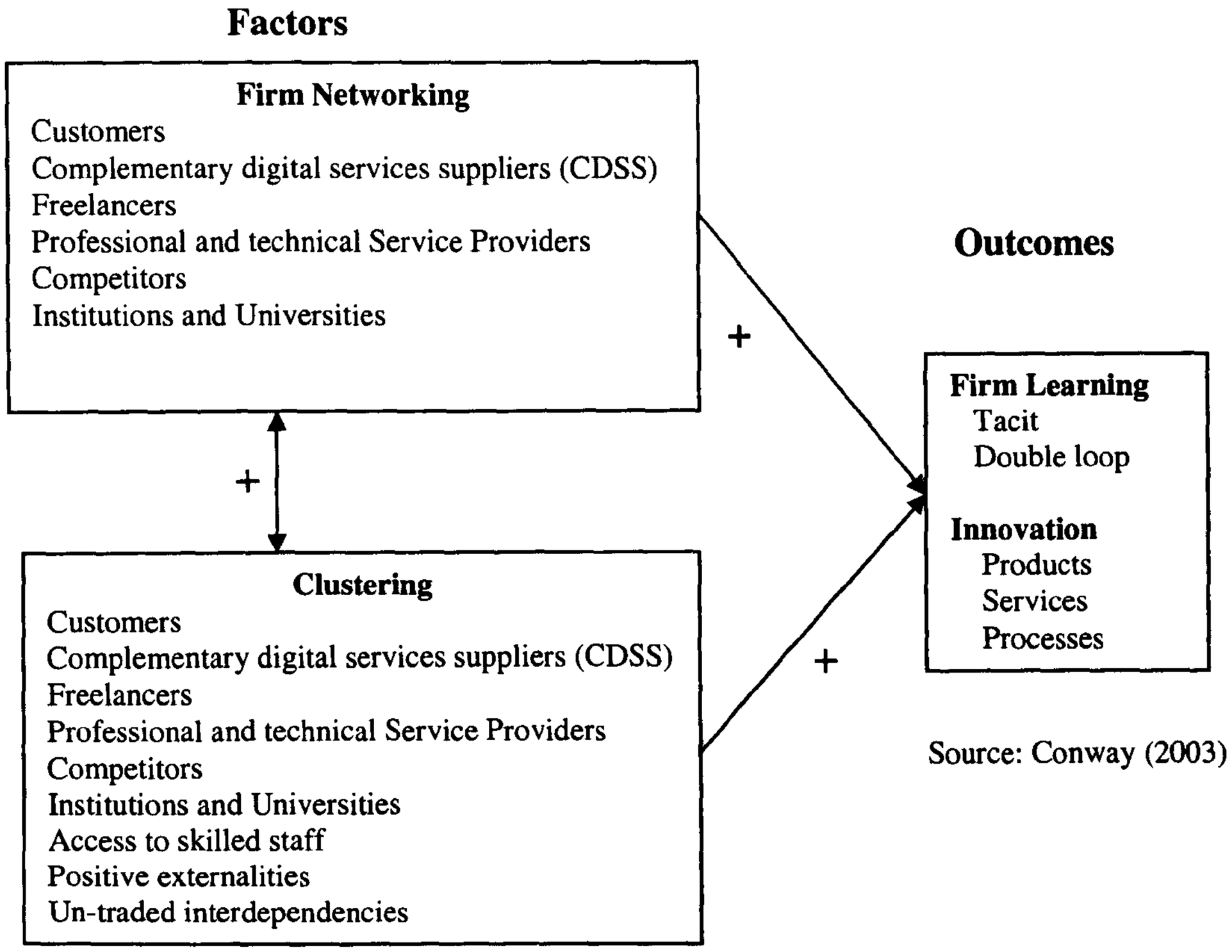

Figure 1.1 Schema of the original conceptual framework

From Figure 1.1 'firm networking' could potentially involve customers, competitors, and CDSS, (companies that provide related digital services e.g. graphic design, digital games, digital TV, digital film makers, 2D/3D animation, 3D visualisation and multimedia production). Firm networking can also involve professional business service providers for legal, finance and marketing advice and support, as well as technical service providers, such as Internet service providers (ISPs), telecommunications, hardware and software etc.

Its been estimated that there are 6450 people working in the new-media industry across the whole of Sussex of which 30% (1935) are freelancers of which a high proportion are said to be based in BH (BHCC, 2005). A particular characteristic of BH is the important role played by freelancers in supplementing the skills base of new-media companies, on a project by project basis (interview with C. Clemons, new-media consultant with Wired Sussex, 25.11.02), and are therefore a potentially important element of the cluster's learning and innovation capabilities.

Networking can also occur with institutional bodies, such as the two local universities, Wired Sussex, several media centres and other network providers, for example, Chambers of Commerce, etc. Networking has been attested as enhancing learning and innovation for

small knowledge/technology firms (Rothwell, 1991a,b; Lundvall and Johnson, 1994), and is indicated by the + symbol.

Clustering[1] refers to the possibility that if all these organisations are co-located in BH, a range of positive economic externalities can arise, for example, access to skilled staff (Marshall, 1920) and un-traded interdependencies, for example, trusting relationships (Storper, 1993) could develop. One particular benefit could be the additional enhancement of the networking capabilities of co-located firms (Porter, 1990). While active networking within the cluster can enhance the cluster benefits already mentioned, and is indicated by the double-headed arrow.

From the literature sources in (Conway, 2003) and in chapter two of this thesis, clustering, in synergy with networking, should have a positive affect upon firm learning and innovation (Keeble *et al.*, 1999; Asheim *et al.* 2003). The processes of networking within clusters can make an important contribution to a region's 'learning abilities' and thus its 'innovative capacity' (Landabaso *et al.* 1999). This will be particularly the case if the region has strong relational networks amongst stakeholder actors and is supported by regional institutions, universities and trade bodies, thus forming a 'learning region' (Florida, 1995; Morgan, 1997).

If networking in combination with cluster co-location does result in enhanced learning and innovation outcomes for new-media in BH, this will help confirm that the conceptual framework can be generalised from previous studies. If the findings do not offer this confirmation, this will also be useful as it can then either suggest a series of recommendations to rectify this or dismiss the conceptual framework as not being generalisable to the new-media sample in BH.

1.4 Structure of the thesis

The thesis has eight chapters and four appendices. The introduction has identified the key aims of the thesis, Chapter two provides a literature review, Chapter three explores the methodological issues that arose, Chapters four to seven, contain an analysis of the research findings and Chapter eight draws conclusions and offers recommendations.

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[1] See chapter 2 for a greater discussion of the literature.

Chapter two identifies the source literature from which the conceptual framework and research propositions were derived leading to 23 research questions, which were then later implemented in the fieldwork stage for this thesis. Chapter three provides a discussion of the methodological approach that was applied and the philosophic rationale that underpins the study. The sampling method and research instruments used are described, and the chapter concludes by highlighting the limitations of the research.

Chapter four begins a series of four analysis chapters. The chapter examines the responses of respondents to a range of research questions, seeking to establish whether they perceive BH as a cluster of new-media firms. Their responses are then matched to the conventional wisdom found in the literature as to whether the BH cluster has all the characteristics of an industrial cluster. The main conclusion of the chapter is that BH is a hybrid cluster because it lacks several of the required pre-requisite characteristics. Chapter five moved the analysis onto reviewing respondent replies to research questions concerning their networking behaviours. This was to help determine the extent and nature of their networking practices, as small knowledge-technology firms are hypothesised to use networking to supplement their resource base. A comparison of their replies and the findings from the literature review reveals that in practice the sample firms have a narrow networking base than would be expected.

Chapter six examines the level of importance of learning for new-media firms and to what extent cluster membership and networking enhance the capability for organisational learning. Although networking is considered important for the sample new-media firms, the hybrid nature of the cluster and their restricted networking practice may limit firm learning opportunities. Chapter seven reviews the level of importance of innovation for new-media firms and to what extent cluster membership and networking enhance the capabilities for small firm innovation. As innovation is considered important by the sample new-media firms, the hybrid nature of the cluster and their restricted networking practice, may also limit firm innovation opportunities.

In the final chapter, the research findings are compared to the conceptual framework and research propositions to establish to what degree there is evidence to support the initial thesis claims. This is then followed by a number of recommendations concerning professional practice for small new-media firms, their local support agencies recommendations and for further academic research into the study field. After the final chapter is a list of references that support all the sources indicated in the first eight chapters

this is followed by a series of appendices that evidence the implementation of the fieldwork phase of the thesis. How the thesis research questions were identified from the literature, is the key theme for the next chapter.

Chapter 2: Networks, Clusters and the New-Media Industry: A Literature Review

2.1 Introduction

The aim of this chapter is to discuss and critique the literature that underpins the conceptual framework and the five research propositions that were referred to in chapter one:

RP0 'All new-media firms that network and are located in a cluster will demonstrate positive learning and innovative outcomes'.

From this first proposition, a further four followed:

RP1 'All new-media firms in Brighton & Hove form a new-media cluster'.

RP2 'All new-media firms in Brighton & Hove are active networkers'.

RP3 'All new-media firms that network and are located in the Brighton & Hove cluster will demonstrate positive learning outcomes'.

RP4 'All new-media firms that network and are located in the Brighton & Hove cluster will demonstrate positive innovative outcomes'.

The above five stated research propositions are based upon a previous in-depth literature review as part of the doctoral submission process (unlike the submission process normally associated with a PhD programme). In addition this chapter will seek to highlight those authors from which the thesis research questions have been developed that will help answer the stated research propositions.

The DBA guidance notes also recommend that this chapter should:

> "...provide a concise but critical exploration of the academic themes...without being exhaustive...[as the]...relevant skills [literature reviewing and critical analysis] has already taken place...it is acceptable to use already submitted work as part of this and other sections of the submission" (DBA Student Handbook, April 2000).

To achieve the chapter's aim, the chapter is organised into four main sections, which seek to illustrate how previous research findings led to the development of the thesis research questions:

- Sections 2.2 – 2.2.6 will deal with the generic literature that supports the networking cluster domain, with an emphasis upon small firms. The

advantages/disadvantages of proximity and co-location are identified with a particular focus upon learning and the concept of the 'learning region' and innovation and the concept of a 'regional innovation system'. The section concludes with the theoretical and methodological limitations that can arise from co-location. The intention is to highlight the key issues rather than give an exhaustive account, as recommended above. The following sections go on to focus more upon new-media.

- Sections 2.3 - 2.3.3, evaluate the new-media cluster literature with the limitations highlighted from which four research questions are derived for research proposition one.
- Sections 2.3.4 – 2.3.7 reviews the small firm new-media networking literature, covering the advantages and critics of networking, from, which a further eight research questions are identified to help resolve research proposition two.
- The final two sections (2.4 and 2.5), reviews the literature on the new-media learning and innovation outcomes, that can arise from a networking cluster. Thus identifying the remaining 11 research questions, which are associated with research propositions three and four.

To summarise, the conventional literature suggests that regional learning (Florida, 1995; Morgan, 1997) and 'interactive innovation' (Asheim and Isaksen, 2003) are enhanced for small firms who are associated with an active networking cluster/industrial district (Marshall, 1920, Piore and Sabel, 1984; Porter, 1990). This literature, however, has its critics, who claim that it is theoretically weak (Lovering, 1999), that the claimed cost benefits do not always arise (Lublinsky, 2003), that clusters themselves can have inherent weaknesses (Uzzi, 1977), that proximity is no longer relevant because of information and communication technologies (Coyle, 1998 and Caincross, 1996), and that small firms in particular are not active networkers in their local cluster environment (Curran *et al.* 1994).

However, for small technology-knowledge based firms, there is evidence that they are active in networking clusters because of their particularly complex business environments. For these firms learning and innovation become key to maintaining competitive advantage (Rothwell, 1984; Keeble and Lawson, 1998; Kaplinsky, 2003), although again there are other authors who have not evidence such positive accounts for the role for networking and cluster membership (Jones and Beckinsdale, 1994; Vaux *et al.*, 1998).

This chapter concludes with four tables (2.5 – 2.8) that summarise and link the four key research propositions and their related research questions, against which, this author has posited the expected outcomes for each research question on the basis that Brighton and Hove new-media is an 'ideal type' of networking cluster (Smith, 1998).

The advantage of portraying the literature findings in this manner is that each of the four analysis chapters, which deal with their respective research proposition, can conclude with a comparison of the expected outcomes with the actual outcomes from the field research. Any confirmation and differences can then be noted their significance scrutinized, contributions to knowledge noted. Recommendations can then be made to new-media firms concerning best practice, to cluster and networking stakeholders in formulating policy, as well as to academics for future research in this domain.

2.2 The Networking Cluster Literature

The following subsection 2.2.1, will briefly overview the key authors in the area of the networking cluster domain. Sections 2.2.2 – 2.2.4 will examine the key claimed benefits/limitations for co-location and proximity, while sections 2.2.3 and 2.2.4 have a particular focus upon the learning and innovation. The section 2.2.5 concludes this sub-section with the main limitations within the literature and the concept of cluster. The accent will be upon the small firms' literature and finds that although the literature has identified an 'ideal type' in the form of the Porter cluster concept, the resulting follow-up literature has mixed findings in terms of its efficacy.

2.2.1 An Overview of the Networking Cluster Literature

Clusters are sometimes known as 'industrial districts' and are terms often used interchangeably, with some authors suggesting that they are sub-domains of each other (Rosenfeld, 1997; Peters and Hood, 2000; Gordon and McCann, 2000). The literature initially had a small firm emphasis (Marshall, 1890-1920) where firms in 'industrial districts' developed skills, expertise and innovation through the sharing of knowledge and firm specialisation as a result of agglomeration economies, positive externalities, technology transfer and knowledge spillovers. For example Marshall (1920, p.225) describes the process of skills learning as:

> "The mysteries of the trade become no mysteries; but are as it were in the air and children learn them unconsciously".

In addition, technology transfer is encouraged, if (*ibid*, p.225):

> "One man starts a new idea, it is taken up by others and combined with suggestions of their own; and thus it becomes a source of further new ideas".

The main criticism of Marshall's work is that he did not explain how or why industrial localisation starts, why in certain locations and not others or what the actual physical limits of local are (Martin and Sunley, 2003), (a problem that runs through most of the later literature sources).

A key reason for investigating cluster co-location is that the threat of globalisation can result in capital, labour and other factors of production being attracted out of an economy, particularly flowing away from Western to Third World countries (Markusen, 1996). In this respect Piore and Sabel (1984) enhanced the work of Marshall by introducing the additional ideas of social networking and specialised flexible production, as evidence in Northern Italy, as a way of maintaining competitive advantage in the home and international markets (Bellandi, 1989; Sforzi, 1989).

Social networking in Italian small firm industrial districts was found to provide a greater trust based environment (Harrison, 1992) for firms who co-locate. This occurred through the roles of friendships and kinship and positive interventions by local authorities (the supportive role of institutions was not an element of Marshall's free market industrial district model). Consequently, flexible and specialised production systems arose within this social and political setting, as small firms agreed to co-operate and specialise. This allowed firms within the network to produce higher quality goods to satisfy increasingly demanding customers, thus improving the possibility for growth or survival (Piore and Sabel, 1984).

A possible limitation of this work is its possible lack of generalisability from the Italian context of particular social structures (extended family) and political structures (often communistic during the 1980's) and institutional business welfare policies to the Anglo-Saxon context in the UK (Perry, 1999; Markusen, 1996; Baptista, 1996). Markusen (1996) evidence three additional types of industrial district where 'stickiness' to locality could arise but where there is less emphasis on family owned small firms and social and

cooperative flexible specialisation. Districts which are dominated by a public sector organisation (a university) a 'state anchored district', a district dominated by one or more large export orientated firms (Chicago automotive), a 'hub-spoke district and a district with branch plants of absent multinationals (business parks), a 'satellite industrial platform'.

However, the most influential writer in this field has been Porter, (1990; 1998). Porter also put less emphasis on small firms, social networking and flexible specialised production and instead emphasises the interaction of cooperation and competiton that derives competitive advantage. The Porter definition suggests relationships with a range of companies and stakeholders based upon mutual interests:

> "a cluster is a geographically proximate group of interconnected companies and associated institutions in a particular field, linked by commonalities and complementaries".

These 'links' (from 'linked' above) in the proximate environment could be vertical within the supply chain (suppliers and customers) or horizontal, with (related industries and even competitors). It also suggests that a cluster will contain other stakeholders who share these mutual interests such as universities and government agencies.

Porter maintains that such a cluster can achieve a competitive advantage for all its members even on a global scale if the customers are demanding quality and excellence and that competition encourages differentiation and innovation. In addition, that suppliers and related industries are attracted to locate in the cluster, providing goods and services and knowledge spillovers. Also that the cluster itself contains or attracts key resources, such as skilled staff, that can then manage and innovate new products and services.

2.2.2 The Benefits of proximity

One of the most important attributes of an industrial cluster is geographic proximity also referred to as co-location. This allows for reduced journey times, access to a greater range of resources for example skilled labour, and shared costs for public goods. Academic writers have referred to these benefits as; positive externalities, scale economies and agglomeration economies (Porter, 1990; Doeringer and Terkla, 1995; Nachum and Keeble, 1999; Gordon and McCann, 2000).

Co-location in a 'particular field' (from Porter's definition) also involves companies with commonalities and complementaries which suggests that suppliers, related industries, buyers and even competitors will have similar needs for research, information, markets, technologies, needs for specific assets, resource requirements and public goods. Co-location can potentially provide these at lower cost through greater choice, co-operation and networking (Porter, 1990; Doeringer and Terkla, 1995; Nachum and Keeble, 1999; Gordon and McCann, 2000).

Cluster co-location should make it easier to access customers, suppliers, competitors and other third parties resulting in networking and communications between these parties to be more time-cost efficient. These relationships are more likely to be long term and bonded (Ebers, 1997; Jarillo, 1995), with greater levels of trust generated (Lyons, 1994). This can result in peer-to-peer relations within a particular discipline developing, for example, sectoral and cluster professional associations, extended family, ethnic groupings, sports and social clubs and political environmental interest groups (Birley, 1984/91; Eisenhardt and Schoonhoven, 1996; Hakansson and Snehota, 1995; Lipparini and Sobrero, 1997; Perry, 2000).

Clusters can invariably attract in relevant labour pools with the right skills sets. This pooling of skilled staff is a particular important resource for technology-knowledge based industries as they represent the key factor of production. In addition the mobility of such labour can enhance the exchange of ideas and knowledge throughout the whole cluster (Camagni,1991; Krugman, 1991).

Transportation and transaction costs should be lower as travel, time and increased trust should produce lower costs (Lublinsky, 2003; Storper and Harrison, 1991). There are also un-traded benefits that can arise such as mutual co-operation, learning and resource sharing and are referred to as either embedded benefits or un-traded-interdependencies (Granovettor, 1985 and Storper, 1993 respectively). In addition the role of universities, research establishments, trade bodies and government support agencies can help cement and glue the cluster together and enhance learning and innovation, enhancing group norms, rules and agreed procedures, a form of 'institutional thickness' (Amin and Thrift, 1995).

Another characteristic of industrial clusters is the spatial clustering of specialised resources and the concentration of knowledge and skills that are complementary but heterogeneous (Piore and Sabel, 1994; Ebers, 1997; Perry, 2000), resulting in an enhanced potential for

regional learning and innovation (Cooke, 1995; Asheim and Asaksen, 2003). This complements the networking process because this enables firms, particularly small co-specialised firms, to share their resources more easily due to their proximity and association to shared technology and technological processes (for example, digital technologies in the Silicon Valley cluster).

Small firms, in particular, can benefit from co-location through the specialisation of production (Piore and Sabel, 1984) enabling these firms to gain a niche advantage. Several examples are demonstrated in the literature: from the cotton mills in the Midlands during the nineteenth century (Marshall, 1920), to the ceramics industry of the 1980's in Northern Italy (Piore and Sabel, 1984), to the IT industry of Silicon Valley in the early 1990's (Porter, 1990), and the software industry in Oxford and Cambridge during the late 1990's (Keeble *et al.*, 1999; Romijn and Albu, 2002).

The following two sections focus upon the benefits that should arise for learning and innovation within cluster formation.

2.2.2.1 Small firm networking clusters as 'learning regions'

Authors such as (Lundvall and Johnson, 1994; Florida 1995; Morgan, 1995; Keeble *et al.* 1998; MacKinnon *et al.* 2002) developed the concept of the 'learning region', which (Asheim, 1998, p.3) defined as:

> "representing the territorial and institutional embeddednesss of learning organisations and 'interactive learning'".

Clusters would play a contributing role in enhancing regional learning because of the knowledge spillovers and enhanced capturing and sharing of tacit knowledge, as a result of co-location, essential for knowledge based clusters to succeed (Pavitt, 1987). Morgan (1995) argues that with proximity and the formation of clusters a 'learning region' can form where public and private institutions would play a key role by integrating their services to encourage inter-firm learning that can enable the region itself to develop a competitive advantage. The role of local, regional and national government, universities and trade bodies is therefore key to the successful start of developing and enhancing a 'learning region', in the role of a "collective intelligence", to "spark" the process off (Landabaso, 1999).

For Brighton and Hove this has been partly achieved through SEEDA funding to Business Link to finance Wired Sussex, the trade body for new-media, to enhance networking, learning and innovation, in the Sussex wide region. The importance of region and locality was demonstrated by Malmberg (1996) using evidence from several industrial districts (for example, Silicon Valley), claiming that proximity results in greater levels of inter-firm interaction and co-operation thus resulting in knowledge sharing which can be further enhanced if supported by chambers of commerce and other formal providers. For Florida (1995) one key ingredient of a regional economy is the proximity of a skilled work force, which is particularly appertain to new-media, emphasising:

> "...the importance of a region's human infrastructure of knowledge workers who can apply their intelligence in production" (*ibid*, p. 532).

In terms of SME learning, Campagni (1995) argues that learning for such firms is the key to creating and sustaining competitive advantage particularly in an environment where new products and processes may be rapidly and easily imitated (new-media software). A particular problem for small firms is not having the resources to search the environment. They are unlikely to have a research and development department like larger firms because of diseconomies of scale and unpredictable and relatively short lifecycles of small firms. In such productive systems, information collection and accumulation of knowledge takes place in a socialised way outside each firm and finds its elements of continuity in the local labour market and in the network of local customers and supplier linkages between (Campagni, *ibid*).

What learning that usually takes place in small firms is 'single loop' learning (Argyris and Schon, 1978) which is based upon the internal experiences of trading and production approaches to efficiency. In markets where there is little technological or competitive change or threats, this approach may be quite suitable. However, single loop learning, comes with a cost, as one respondent commented in a study by Tell and Halila (2001, p.21):

> "We have never had any direct possibilities of obtaining stimulus from outside and one becomes a little self-absorbed".

If a firm operates in markets, where there are discontinuous changes occurring or where innovation is the key to competitive advantage(for example new-media) then the most

appropriate learning style would be 'double loop' learning (Senge 1990). Double loop learning involves new knowledge from external sources that can supplement 'single loop learning', resulting in new operational practices and innovations built upon a wider range of knowledge inputs and thus minimising myopic thinking. A good example of double loop learning is through networks that cross sectors. Different sectors (for example in horizontal activities) often have different production, innovation and administrative systems, which may for some firms transfer across sectors, providing previously unknown solutions (Dragoi, 2000). Chaston's (1999) research findings on organisational learning suggest that firms who network are more likely to use double loop learning styles and also have a more formalised knowledge management system, therefore, capturing, processing and analysing information for learning and knowledge transfer more effectively.

Marshall (1920; 1986: p. 115) was one of the first academic writers to recognise the importance of knowledge as a bi-product of co-location:

> "Knowledge is our most powerful engine of production; it enables us to subdue Nature and force her to satisfy our wants. Organisation aids knowledge; it has many forms. for example, that of a single firm, that of several firms in the same trade, that of various trades relatively to one another, and that of the state providing security to all and help for many. The distinction between private and public property in knowledge and organisation is of great and growing importance: in some respects of more importance than that between public and private property in material things".

Surely, Marshall was ahead of his time with respect to the rise of the 'learning region'.

Another important benefit of cluster co-location is the conducive affect on the transfer of tacit knowledge. Because the nature of tacit knowledge is more problematic in its transfer (Nonaka, 1991), the proximity within industrial districts lends itself to face-to-face interactions, providing a more effective way for such knowledge to transfer. This is particularly the case when such interactions are based around trust and mutual dependencies (Malmberg and Maskell 1997).

Camagni (1991) and Lorenz (1996) suggest that technology based inter-firm networking within a region can lead to processes of collective learning being developed. These processes involve sharing and developing administrative and technological expertise with

high levels of innovation being achieved, underpinned by trust and mutual sharing. These authors generally agree that it is mainly through transferring tacit knowledge that a district will fully develop its innovative potential. Firms, therefore, will need to have effective methods for identifying and translating tacit information into knowledge that is understood and can be applied within the firm itself (for example, research and development). The main way that Camagni (*ibid*) envisaged this would happen was through the mobility of specialised skilled labour, customer-supplier exchanges of technical information, imitation and reverse engineering, specialised service provision, tailored adaptions of technologies to local needs, and information exchange.

More specifically, Lorenz (1996) suggests that there are some preconditions for the above learning processes to work. A common language/rules of exchange needs to arise, to which the exchange of tacit knowledge can be understood, and then applied, which can then be affected through networks. It requires the sharing of in-house tacit knowledge, which is particularly difficult to transfer because of its particularity but may be achieved, either through the mobility of labour of team sharing. The final precondition is the setting up of an effective organisational and communication structure between the co-operating firms so that the processes of learning may arise. Other authors have also explored this idea with similar conclusions (Simmie 1997 and Morgan 1997) but stressing the role of third party institutions such as governmental, universities and research institutes. If we can accept the concept of regional learning, then common sense would suggest that the two approaches might be more effective as it brings together a greater number of potential useful resources.

Aspects of tacit knowledge were referred to by Storper (1993) as a potential 'relational asset' which is best exchanged on a face-to-face basis, or through routines, habits, norms, or conventions of communication and interaction. These 'un-traded interdependencies' can be characterised as informal flows of information and support between firms within a network. The concept is both a cause and a consequence of collaboration. It is a form of reciprocity - firms are willing to help each other without immediate prospect of gain. For example, neighbouring firms might offer one another advice or lend a piece of equipment. As ties become more complex, it is possible to obtain additional benefits, such as a reduction in transaction costs (that is, due to 'trust') and the exchange of tacit knowledge. This can contribute to collective learning and thus enhance the pool of knowledge contained within a network.

If these processes are supported by formal and informal institutions, a form of 'institutional thickness' can arise (Amin and Thrift 1995). The potential benefits of 'institutional thickness' include the establishment and reinforcement of a common language, behavioural norms and a progressive build-up of trust. This, in turn, fosters collaboration and the development of a capacity for collective learning (Keeble and Lawson 1998; Keeble *et al.* 2000; Lorenz 1996). Universities and publicly funded research bodies are said to make a positive contribution to the learning and innovative capabilities of co-located firms simply through knowledge spillovers, with a rate of return estimated at between 20% and 60% (Salter and Martin, 2001).

This is achieved through either, outsourcing research, faculty consulting, licensing university patents and hiring graduates and informal personal contact (Arundel and Geuna, 2001). Both institutional thickness and the resulting capacity for collective learning may be the product of many years of established practices, as in the City of London. These "relational assets" are said to have a direct impact on a cluster's competitive advantage insofar as they constitute part of the learning environment for firms and provide the access to resources such as information, knowledge, technology and skills.

2.2.2.2 Small Firm Innovation through Regional Networking Clusters

A useful starting point will be to define what is meant by' innovation, which a DTI report has concluded as:

> "Innovation is the successful exploitation of ideas, into new products, processes, services or business practices, and is a critical process for achieving the two complementary business goals of performance and growth, which in turn will help to close the productivity gap" (2003, p.8).

In the context of all small firms and new media in particular, the definition is assuming that such business goals are important to all owner mangers such that innovation is a primary objective.

To follow on from the previous section learning and innovation are interdependent processes (Landabaso, 1999), where according to (Lundvall, 1992), innovation is enhanced through 'interactive learning', commonly between producer and supplier or producer and client or producer and other local actors. Baptista and Swann (1998, p.538) demonstrated

that firms that cluster are more innovative, precisely because learning and innovation are interdependent:

> "One of the main reasons behind the existence and success of clusters is the pervasiveness of knowledge externalities or spillovers. It seems likely that spillovers, particularly those associated with new technological knowledge, tend to be geographically localised".

Asheim and Isaksen (2003) wrote about the benefits of developing a regional innovation system in which clusters could enhance regional innovation through the interplay of cluster actors and the resources attracted to the location, a form of 'interactive innovation'. Nauwelaers and Reid (1995) define a regional innovation system as:

> "the set of economic, political and institutional relationships occurring in a given geographical area which generates a collective learning process leading to the rapid diffusion of knowledge and best practice".

As with the learning region a key actor are the institutional players which according to Braczyk *et al.* (1998) act as a catalyst which encourages firms within the region to develop a common culture of innovation so that the diffusion of innovation is made more efficient. The key players for BH new-media are two Universities (region, national, international), Wired Sussex (Sussex wide) and several media centres (BH focussed) with a wide range of potential funds to support innovation[2].

In contrast, a national linear innovation model is seen as having a 'one size fits all', with a large firm bias and being:

> "...research based, sequential and technocratic" (Smith, 1994 in Asheim, 2001).

This model is R&D focussed which invariably is large scale sensitive, proving too expensive for small firms to develop

Figure 2.1 The linear science-push innovation model

[2] For example: Regional Innovation fund; European Regional Development Fund, Higher Education Innovation Fund, etc.

From figure 2.1, the model is linear in the sense that innovation proceeds from R&D to sales with little in the way of feedback loops that would otherwise inform R&D as to the effectiveness or changing needs of end users (Morgan, 1997).

However, as a result of new technologies such as computer aided design, computer aided manufacture, flexible manufacturing systems, sophisticated feedback loops from customers[3], profitable lower volume batch scale production is feasible for smaller firms. From these developments has arisen a more interactive model of innovation that can be sensitive at a local and regional level, less dependant upon a national level for economies of scale (Asheim, 2001).

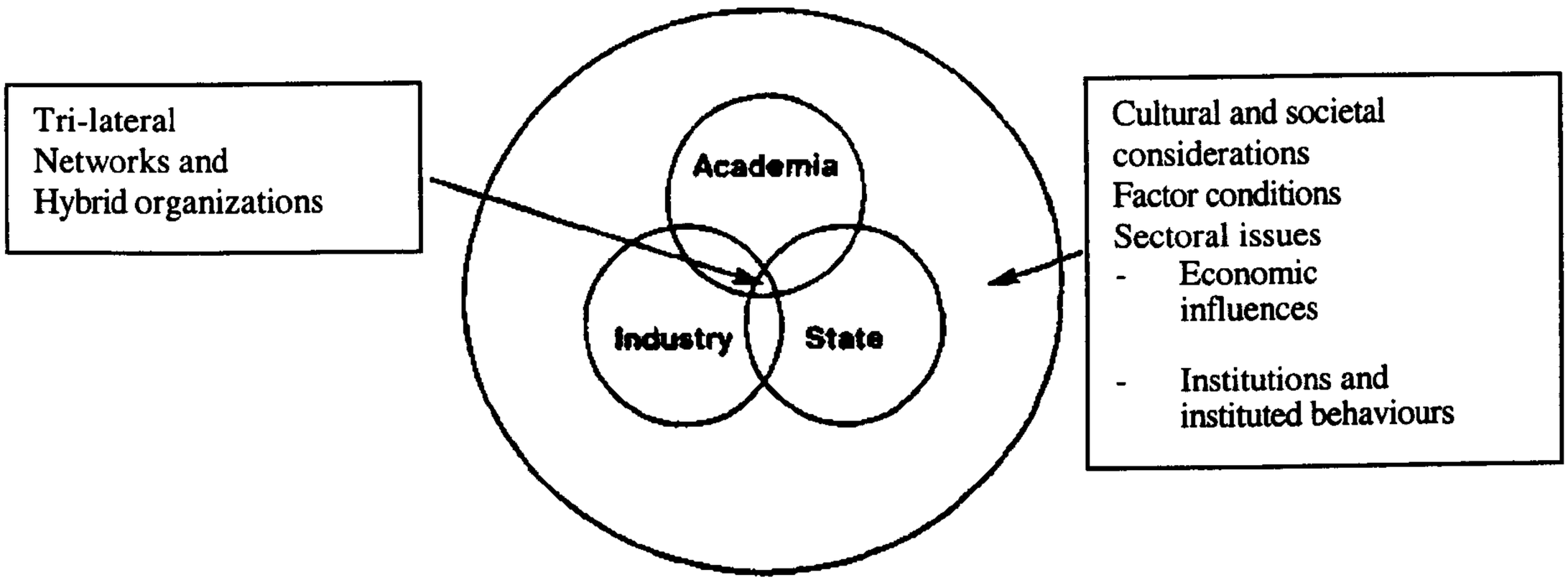

Figure 2.2 An interactive regional innovation systems model

Source: Adapted from Etzkowitz, H. and Leydesdorff, L. (2000) in Deakins and Freel (2003)

From figure 2.2, the model allows for firm innovation as part of a system of interactions of cultural, social and economic factors with other firms, academia and state agencies. The approach recognises the importance of locally inspired innovation (bottom-up) rather than the hegemonic 'top down', as well as the involvement of informal and social actor interactions (interactive), producing lower transactions costs, un-traded interdependancies, institutional thickness and tacit exchanges. As firm characteristics will vary from one region to the next due to different industry profiles, a regional innovation policy is more applicable, as it is more sensitive to these differences.

There is also the recognition that innovation is stimulated by co-operation, trust-relationships and place specific resources (Ashiem and Isaksen, 1997), which are all

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[3] For example, EPOS, EDI and loyalty cards linked via customers and suppliers

features of successful clusters. As most SME's cannot afford formal innovation research, the benefits of clustering with a supportive institutional framework, can help compensate for this weakness (Asheim and Isaksen, 2003). A regional innovation system is also more likely to be sensitive to the recognition that innovation diffusion is best achieved through local proximity within an industrial cluster, requiring an established knowledge based. From this, the diffusion of tacit knowledge and its subsequent use is learned through regular practice, imparted directly peer-to-peer, often on an informal face-to-face networked basis (Nelson and Winter, 1982; Pavitt, 1987).

For SME's, the lack of formal research facilities means that 'interactive learning' can best enhance its innovation abilities through cluster co-location and through 'inter-regional linkages facilitating the firm's access to different, though localised innovation capabilities' (Camagni, 1991, p.8). Small firms are increasingly seen as important engines of innovation, particularly incremental innovation, because of their niche role (Storey, 1994), although the degree to which they contribute to step-change innovation is debatable (Storey and Sykes, 1996). Also for smaller firms, Dosi (1988) suggests that as the innovation process is highly risky, the close proximity of other innovators, suppliers and related industries, allows for regional networking, through which uncertainty and risk can be reduced (Romijn and Albu, 2002; Tracey and Clark, 2003). If the networking is supported by an institutional infrastructure, (for example universities, government agencies and research organisations), this can then further cement and enhance the cluster, ('institutional-thickness') and its claimed for benefits (Amin and Thrift, 1995).

Rothwell (1991a), Christopoulos (1999) and Thomas (2000) report that small firms have certain advantages over larger ones in terms of being more flexible and responsive to customer needs and therefore potentially more innovative. However, they also suffer from restricted resources and greater vulnerability to new product failure. To counter this, small firms can collaborate and barter with other firms in a network, sharing information, resources and risk, enabling such companies to innovate more effectively, enhanced on the basis of trust forming relationships (Shaw, 1998).

Varaldo and Ferrucci (1996) found that in the Italian industrial districts networking leads to a shared technical language, thus permitting easier commercial relations. They also found evidence of rapid diffusion both of professional know-how and of product and process innovations among district firms. This can lead to a dynamic within the competitive environment, which results in a growth in local systems knowledge; technical

improvements in the utilisation of machinery, the realisation of new products, export strategies in a new market is quickly learned by the numerous local entrepreneurs. In this way, the innovative process becomes incremental and coherent with local expertise.

Cluster co-location can therefore play a key role in enabling small firms, in particular to access technical, informational and complementary resources to help develop not just incremental, but also radical innovations, new products and services (Lipparini and Sobrero, 1997). Several authors have suggested that when small firms actively interact within in their local environment, learning and innovation can be enhanced due to the efficiencies afforded by proximity (Cooke and Morgan, 1998 and Storper 1993).

As previously stated, institutions such as universities can also play a key role in supporting cluster-based firms. Keeble *et al.* (1999), using a study based around the technology cluster of Cambridge, reported that such pre-conditions do largely hold. The University has helped to bring technology firms together in an environment conducive to mutual trust and the development of exchange and common language and codes of engagement. The Cambridge cluster also contains a high number of company spin-offs, from either the university or from other firms in the region, whereby the start-up entrepreneur had previous managerial or technical experience thus enhancing the mobility of tacit knowledge. These start-ups when asked why they had located in the same region to their previous experience, rated (*ibid*, p.7) "informal local access to innovative people, ideas and technologies", as an important reason! Proximity allows firms to tap into skilled labour sources particularly from the universities. This aspect of proximity is particularly relevant when small technology firms generally cite that skill shortages are an inhibiting factor for innovation development (DTI 2001).

2.2.3 The limitations of proximity and co-location

By the late 1990's, social embeddedness and networking within cluster research had become mainstream (Baker, 1995; Padmore and Gibson 1997; Simmie and Sennett, 1999; Gordon and McCann, 2000; McDonald and Vertova, 2001). There are authors however, who have reservations concerning the degree of embeddedness, and had doubts concerning the real value of lowered transaction costs and agglomeration economies, or believe that ICT's, discount the need for local networking, and where small firms in particular, do not have the resources to network widely.

2.2.3.1 Economic benefits not always proven

Agglomeration economies are also claimed by most authors as a beneficial outcome of clustering co-location. However, Lublinski's (2003) study of clustered and non-clustered aeronautical firms could only find weak evidence of agglomeration advantages being realised:

> "Inter-firm linkages do not seem to be effective in the sense that agglomeration advantages are being generated and exploited".

The study did not fully explore the reasons why this might be but the author did hypothesise that it might be because this industry sources globally, for specialised inputs and, as a result, maybe less reliant on the need for face-to-face networking. Le Veen (1998) and Rosenfeld (1997) report that as a result of globalisation firms will source from overseas suppliers to take advantage of lower costs.

The importance of proximity and the lower transaction costs that can arise, may be offset in importance as a result of the increasing use of ICT technologies (for example, WAP phones, Internet, email and video conferencing). This could reduce the need for having face-to-face meetings with customers, suppliers and other third parties. This could equally apply to the workforce, who could in some sectors (such as new-media), work from home or even be based overseas. Caincross (1996) wrote about the 'death of distance', where ICT's can enable firms to communicate and network with others without location or temporal constraints. Coyle (1998) went onto develop the concept of the 'weightless economy', whereby IT companies in particular could use ICT's as a form of distribution channel direct to the client's computer, of software products and services, again without location or temporal constraints.

In addition to certain cost advantages not arising is the real possibility that the clustering of firms may actually increase certain factor-resource costs such as labour (through strengthened bargaining positions) to increased costs of housing for staff, obliging some to move out of area. The cost of land, factory and office rentals/leases may also increase, due to limited stock and increased demand, forcing firms on lower margins out of the cluster (DETR, 2000).

2.2.3.2 Exaggerated local embeddedness and un-traded interdependancies

Some authors have criticised the cluster literature because they believe there is little evidence that small firms are actually socially embedded. Curran *et al.* (1994) and Curran and Blackburn (1994) found that the owner-managers of small and medium size enterprises (SME's) had limited local networks, often lacked time to network beyond customers, and had low levels of use of social or family relationships for business purposes. They concluded that local embeddedness and un-traded interdependencies had been greatly exaggerated. Their research found that labour and customer-markets were often outside the local economy, suggesting the 'death of the local economy'.

Evidence from the Cardiff cluster of new-media firms, suggests that only a third of firms interviewed considered co-location itself to be important (Cook and Hughes, 1999). The detractors cited several disadvantages for co-location, such as too much competition and price discounting. Smaller firms in particularly felt insecure about networking or sharing information with larger firms, who with their larger 'asset stock' could then behave in an anti-competitive way against them.

Oakey *et al.* (2000) provides further corroboration with a study of the non-broadcast visual communication (NBVC) industry in the South East, which includes digitally based (video, internet, multimedia and conference production companies). They found that the majority of SME's had low proportions of purchases and sales occurring within their local area. However, for smaller companies, those with 2-4 employees, it was found that there was a significantly greater reliance on customers in the local market than for the larger smaller companies.

It's the author's belief that extended un-traded interdependencies is a rare phenomenon, with little evidence from any literature sources from the UK, that small firms regularly share their scarce physical and human resources. What might be shared are their 'disembodied assets' such as information and market knowledge (Asheim and Isaksen, 2003).

2.2.3.3 'Institutional thickness' is not always demonstrated

The role of co-located institutions does not guarantee Amin and Thrift's (1994) 'institutional thickness' advantages. Services offered by Business Link and other

networking agencies have been criticised for providing inadequate services for small firms. The delivery is sometimes short-term, adhoc or discriminatory, thus not providing the glue to cement together co-located firms (Westhead, 1995; Carson *et al.*, 1995; Romijn and Albu, 2002).

Although Romijin and Albu found positive relationships with the university and the local technology cluster, in the main these firms had prior connections with the university and so a historical path-dependent relationship was already in place. In practice the university examples of Oxford and Cambridge cited earlier may not be typical of many other universities.

Based upon this author's experience of working for several universities and with local industry, there appears to be a 'silo mentality' in many universities with an 'ivory tower' outlook to business (Etzkowitz *et al.* 2000). Thomas (2000, p.1222) claims that small companies in particular, "tend not to be well integrated into the academic, governmental, company networks" and that support structures should be targeted at such firms to overcome this problem.

2.2.3.4 Limitations of the learning networking cluster

In terms of local and regional learning, some authors claim evidence that these processes can lead to incestuous outomes. Amin and Cohendet (1999) citing the craft industries of Northern Italy argue that if an innovation were to develop outside of the district, there would be a strong likelihood that the constituent firms would be too engrossed in their local tacit knowledge to realise the opportunities.

Varaldo and Ferrucci (1996) state that if new ideas do not come directly from the same sector or originate from a local entrepreneur, the industrial district may reject them due to lack of familiarity or fear of a loss of control. They also evidence that during the late 1980's when a degree of decline affected the Italian industrial districts, there was less evidence of co-operation occurring as self interest and survival became the paramount strategy at the expense of others (Perry 2000).

Much is made in the cluster literature of the importance of tacit knowledge and that co-location can enhance its diffusion within the cluster actors. However, there is doubt in

some quarters as to what is actually meant by tacit knowledge and whether it has superior qualities over codified knowledge:

> 'Despite the numerous assertions that tacit knowledge is the key to business success, this remains an unsubstantiated and obscure proposition' (Martin and Sunley, 2003, p.25).

Martin and Sunley (*ibid*, p.25) comment that Porter has nothing to say about the internal mechanisms of the firm and is solely concerned with extracting competitive advantage through external linkages. This means that if tacit knowledge is embedded within firm 'routines, which guide a firm's innovativeness, Porter gives no explanation of how this can be externalised and diffused amongst cluster co-located actors.

2.2.3.5 Limitations of innovative networking clusters

Uzzi (1997) suggests that the close relations that can arise from social embeddedness can lead to inertia due to narrow ties where group thinking has developed leaving the industrial district open to global competition. Sull (1999, p.6) also found similar evidence for such inertia:

> "Conditions prevailing in the formative years of an industrial cluster leave their imprint on organisations within that cluster through shared cognitive models, organisational routines, social networks and norms, that these become institutionalised over time and ultimately constitute sources of inertia".

Although authors such as Cooke and Morgan (1998) forwarded evidence that the innovative abilities of small firms, is directly related to their level of embeddedness in their local networks, other authors have found contradictory findings. Hart and Simmie (1997) found that the majority of prize winners for innovation did not consider local markets to be useful, while Curran and Blackburn (1994) found that concerns over intellectual property rights was a disincentive to network.

A perverse limitation that can arise from a successful innovative cluster, is that such a cluster may have developed a technological pathway that locks in all participants resulting in the cluster falling into technological decline as it is overtaken by another cluster in another region employing more advance technological trajectories:

> "...a distinctive milieu acts as a hindrance, which solidifies old behavioural trends and blocks the influence of new technological developments ('entropic death', (Grabher, 1993; Sternberg, 2000).

An important weakness that is reported in the literature, although not necessarily a limitation of proximity, is that if small firms are less able to innovate radically, this can mean that they may become entrenched in a particular technological paradigm through the path-dependant routines that arise from incremental innovation. They can then run the risk of losing their competitive advantage when a new and superior technology over takes them, an issue that regional policy makers should account for when developing support strategies (Asheim and Isaksen, 2003).

Finally, there are authors who believe that the whole concept of learning and innovation clusters contributing to the development of a 'learning region', is a theoretically weak or methodologically unsound set of principles.

2.2.3.6 Theoretical limitations

At a theoretical level, several academics have severely criticised the whole premise of Porter and cluster theory. For Martin and Sunley (2003, p.11) the cluster concept is:

> "...vague and sufficiently indeterminate...accepted largely on faith".

These authors also criticise the way other authors use arbitrary statistical measures to identify cluster and then assume that they have demonstrated the existence of a fully functioning cluster, assuming that networking, agglomeration economies, un-traded interdependencies, and institutional thickness are naturally occurring.

Likewise, the whole concept of the 'learning region' has been heavily criticised by Lovering (1999) who defines it as the 'New Regionalism'. Lovering (*ibid*, p.384) explains that this concept is:

> 'a loose bundle of ideas, an accretion of notions, gathered together because they seem to resonate and point to broadly similar policy implications somewhere on the horizon'.

Lovering (*ibid*) goes on to argue that whether a region or cluster is innovative or competitive, is anomalous. Only 'commensurate firms' and 'commensurate markets' can be said to be competitive, in the sense that they can be measured and from which policy can be properly formulated. These and other possible weaknesses were noted and recorded in the thesis fieldwork phase, when they became evident, and are reported in the analysis chapters (chapters four to seven).

At a measurement level, cluster theory can also be criticised for the lack of clarity concerning the boundaries that are employed:

> "The obvious problem raised by these cluster definitions is the lack of clear boundaries, both industrial and geographical. At what level of industrial aggregation should a cluster be defined, and what range of related or associated industries and activities should be included" (Martin and Sunley, *ibid*, p.12).

The measure used by Oakey *et al.* (2000) for 'local market' was a 20-mile radius, a rather arbitrary figure. When the Oakey analysis looked at sales and purchases within the South East region itself, 80% of respondents reported this as their main source for sales and purchases, not the local market. An examination of a map of the South East suggests that the major new-media centres of Brighton, London, Guilford, Oxford and Cambridge are all within several hours of each other, which should allow for convenient face-to-face networking, thus potentially nullifying Oakey's key finding.

What the Oakey study confirms is the arbitrariness of how the spatial concentration of clusters is measured. For Porter (2000, p.16) the geographic scope of co-location can be quite wide, a locality, a city, a region:

> "The geographic scope of clusters relates to the distance over which informational, transactional, incentive and other efficiencies occur".

This caveat is rather open-ended and the actual physical distance can vary quite considerably from one cluster to the next (Le Veen, 1998). A complicating factor is that as a cluster evolves, its boundaries will probably change to reflect membership of new organisations and the linkages that are created and therefore policy will need to evolve to meet changing needs.

A particular criticism that this author has of the methodologies employed in the cluster literature, is the near lack of papers that actually involve interviewing small company owners, to discuss their thoughts and perspectives about networking, clusters, learning and innovation. Instead the focus is usually upon a confused range of firm sizes in different sectors (Hoffman *et al.*, 1999), using either quantitative approaches and government statistics or are theoretically hypothesised.

Another criticism of the 'learning region' literature is that the key papers are all conceptual (for example Lundvall, 1992/1994; Storper, 1993; Florida, 1995; Morgan, 1997) lacking sufficient empirical evidence to support the principles extolled. Claims have been made that regional development policies have contributed to the successful rejuvenation of Wales, but economic data analysed by Lovering (1999) suggests that the case for Wales being a 'learning region' with a successful 'regional innovation system' is unproven in terms of any actual benefit accruing. Of course these methodologies have value and it is hoped that the proposal of this author to focus upon the opinions and perceptions of owner managers, to these issues, to be an important contribution to the literature.

The main confusing aspect from looking at the literature by this researcher, is its contradictory nature, there are groups of authors who agree and disagree that small firms actually engage fully in networking, benefit from learning and innovation and or agree/disagree with the over-riding concepts of clusters, the 'learning region' and the development of a 'regional innovation system' (see table 2.1):

Networking benefits do not arise	**Cluster benefits do not arise**
▪ Networking is ad hoc not systematic ▪ Small firms lack the full resources to network (time, costs, people). ▪ Small firms lack the competency to network. ▪ Small firms do not recognise the importance for networking. ▪ Small firms wish to remain independent. ▪ There is no relationship with networking and learning with innovation outcomes. ▪ Poor methodologies and research philosophy.	• Small firms network but not locally • Small firms are not socially embedded. • Transactions costs are not realised. • Un-traded interdependancies do not arise • Agglomeration economies do not exist. • Externalities do not exist. • Diseconomies arise instead • One or several Porter actors are not co-located: o Customers, competitors, suppliers, related industries, key factor resource, institutions. • Although co-located one or several Porter actor outcomes are not realised: o Lack of Rivalry and demanding customers, degraded key factor, lack of sufficient intermediate and

	specialised services, poor quality institutions. • There is no relationship with proximity and learning with innovation outcomes. • Poor methodologies and research philosophy.

Table 2.1 Sources of contradictory literature findings

This author is therefore in agreement with Benneworth and Henry (2003) that this confusing academic environment may possibly be explained by the fact that clusters are heterogeneous and that to generalise across all sector clusters is problematic.

> "There is no singular unified cluster theory...there exists a portmanteau concept of clusters incorporating a diversity of perspectives and affording the possibility of a more holistic understanding with geography at its heart" (*ibid*, p17).

In conclusion what the fieldwork of this thesis attempts to question, is the concept of a networking cluster contributing to the development of a 'learning region' and 'interactive innovation' as an 'ideal type', because it is clear that the academic literature contains such contradictions that further confirmatory evidence is required.

On this basis, this author will still continue to use cluster concepts in spite of the criticisms, because industrial clusters are currently a popular aspect of regional industrial policy in the UK. Particularly as they are seen as potential drivers of skills and knowledge upgrading, resulting in greater levels of innovation and therefore enhanced competitive advantage (SEEDA, 2002; Cooke, 1995; Morgan, 1997; Asheim *et al.* 2003). There is also evidence (admittedly contradictory), that technology and knowledge cluster based firms are active networkers, who are keen to develop learning and innovation strategies. The following sections will focus more specifically upon new-media and the research questions that can be derived from the research propositions stated in chapter one.

2.3 The new-media cluster literature

In the new-media field the concept of clusters has become well established, where there appears to be general agreement to use the Porter (1990; 1998; 2000) definition of a cluster. This is presumably because he has been very influential within UK government cluster policy initiatives (DT1, 1999; Pratt, 1999; DETR, 2000; DCMS, 2001; DTI, 2001; DPA, 2000; Wired Sussex, 2002; Kaplinsky *et al.*, 2003). However, Porter and other authors, who use cluster concepts, have their critics, the main criticism being that the

benefits of co-location have been overly exaggerated (see next section). However, as the concept is commonly used by new-media authors, this author will use the concept and benefits of network clustering, as cited by Porter and other authors, as the basis for determining whether Brighton and Hove new-media, is a networking cluster.

This section, begins by defining 'new-media' and 'new-media clusters' and then explores the implications of co-location and proximity, identifying some of the key flaws in the theory. The literature derives four research questions that were later operationalised during the fieldwork, with the expressed intention of resolving the first research proposition:

RP1 'All new-media firms in Brighton & Hove form a new-media cluster'.

This section concludes with the recognition that there is a body of research evidence in support of new-media clusters, although there are a number of reservations and contradictions all of which are explored in the analysis chapter 4.

2.3.1 Defining new-media

To help set the context of the new-media industry, it will be helpful to examine what is meant by the term new-media. Various authors (see table 2.1) tend to mix this term with the terms: multimedia, digital media, and interactive media. Whichever term is used they are all based upon the use of digital technologies. New-media has a heritage from as far back as the 1970's when the 'games' industry began to develop on platforms such as Sinclair's ZX80, then came the use of CDROM interactive software and finally on-line interactive software via the Internet.

A major characteristic of the new-media industry is that the underlying digital technology is changing quickly and often in a discontinuous fashion with relatively short product life cycles. This places an important emphasis on learning and innovation as part of firm survival and growth strategies (Pratt, 1999). The new-media industry has become an important part of regional economic policy, as it is seen as the new engine for growth, employment, wealth creation and regional competitive advantage (Kinder and Molina, 1999).

Definitions	Comment
Kinder and Molina (1999) define multimedia as "new network technologies, which integrate various media available in a digitised format that can be accessed interactively".	Although digital technology has been around since the 1980's it is continually upgrading itself, to be faster, with more features at lower cost.
Egan and Saxenian (1999, p.14) define multimedia as 'a computing technology capable of simultaneously processing and delivering the range of previous media (text, sound, graphics and video) as a single experience'.	From the perspective of the user/consumer all, this can be now done from the comfort of one's living room at an affordable price, through either a personal computer, personal digital assistant or even the television. It also involves the concept of technology convergence with for example, some digital televisions containing not only interactive content, but also email and internet access.
Brail and Gertler (1999, p.99) define multimedia as,' the merging of traditional audio, visual, and print media through digitalisation in an interactive format'.	Interactive represents a major change of experience for the consumer/user, they can become more involved with the multi-media experience, as a two way process.
Hilbert *et al.* (1999) have identified three particular aspects of multimedia: 'interactive usage, integration of different media, treatment and storage on the basis of digital technologies'.	Storage in particular has become cheaper, smaller and portable, providing even more convenience.
Backlund and Sandberg (2002, p.87) define new-media as leading edge media as opposed to traditional media, involving the production of interactive multimedia content for CD ROM and the internet as core areas.	Although new-media may eventually replace traditional media, some of this replacement is being carried out by the traditional industries themselves.
Pratt (2000) new-media: those involved in developing tools and practices that exploit the WWW.	This definition was supplemented by stating that his research did not consider those firms who had bolted on this technology but was concerned only with those firms where exploiting the WWW was core to the business
Manovich (2003) New-media are the cultural objects, which use digital computer technology for distribution and exhibition.	To include: the Internet, web sites, computer multimedia, computer games, CD-ROMS, DVDs, virtual reality and computer generated special effects.

Table 2.2 New-media definitions

From Table 2.2, the term 'multimedia' has now become largely redundant, as it was originally associated with the introduction of CD-ROMs in the 1990. This format is not exclusive anymore so the term new-media is now the commonly accepted term, although

increasingly people prefer to use the term 'digital media' (Interviews with Wired Sussex, 25.11.02 and the Brighton Media Centre (BMC), 6.12.02).

An explanation for all these definitions is that they have their differences partly in response to the changing nature of the industry itself with new technologies, formats and features coming on stream usually in a discontinuous manner (Backlund and Sandberg, 2002). Manovich (2003) recognises that his definition will need to be revised on a regular basis, as other media become commonly distributed by computer for example, film, books and TV. Pratt (2000) believes that attempting a definition is thus too problematic and instead clarifies new-media in terms of its essential characteristics of being digital, interactive and allowing media convergence.

Although the researcher sympathises with the previous author's point of view, it is felt that it is possible to define this ever-changing multi-sector industry as follows:

> New-media: 'Are digitally based technologies that are constantly changing, resulting in the convergence of different combinations of media, providing seamless interactivity for the user' (Conway, 2003).

2.3.2 The new-media cluster

Authors who have written about new-media in Brighton and Hove appear convinced that it is a cluster and all make reference to Porter's definition of an industrial cluster (DTI, 2000; DPA, 2000; Wired Sussex, 2002; Pratt, 1999; Kaplinsky *et al.*, 2003).

Tang, (1999), however, questioned the level of networking practices of BH new-media firms and found them somewhat limited, and suggested that BH resembled a 'silicon beach' as opposed to the more famous new-media cluster in New York, which is referred to as 'Silicon alley'.

The Porter cluster includes relationships between buyers, sellers, competitors, suppliers, complementary suppliers, intermediaries, universities and other support agencies. The outcome from these relationships, according to Porter, is one of positive economic externalities, agglomerations and un-traded interdependencies, (see next section for further discussion) that can lead to enhanced innovation and learning, enabling the cluster as a whole, to gain a competitive advantage (Conway, 2002a).

There are several reported new-media clusters in the UK: Brighton, Cardiff, London including the M4/M11 corridors, Bristol, Oxford, Cambridge and Edinburgh. Most are major urban areas with a wide cross section of other industries, with several universities and other research institutions, providing either general or specific support (Tang, 1999; Cooke and Hughes, 1999; Kinder and Molina, 1999; Backlund and Sandberg, 1999).

In the South East, Brighton gets a prominent mention for its new-media cluster in the DTI (2001) report on clustering, however, it features as a subsection of the 'Software and Computer Services Cluster'. The SEEDA (2002) report identifies a greater range of clusters in the South East, although they are characterised by the more generic heading of the Media and Digital Industry, (see Table 2.3):

Brighton and Hove	Digital and new-media firms also some film production
Oxford	A major publishing cluster and digital media firms and organisations.
Guildford	Leisure software/games
Southampton / Maidstone Oxford/Isle of Wight Portsmouth	TV studios
Pinewood/Elstree	Film production companies

Table 2.3 Key media digital clusters in the South East: Source: Adapted from SEEDA (2002)

In a review of what proportion of the new-media industry is situated in city and urban areas, Backlund and Sandberg (1999, p.89) were able to demonstrate how significant these locations were as a percentage of all new-media firms in a particular country. For the USA: Los Angeles + San Francisco (40%), for the Netherlands: Amsterdam (40%), for the UK: London + Cambridge + Brighton (47%) and for Sweden: Stockholm (47%), (*ibid*).

Backlund and Sandberg also state that within many of these city-urban areas, new-media companies have arisen as an extension to the traditional industries and in particular, television and print publishing. This has been further demonstrated by the research findings of Tang (1999) where for example, Brighton's electronic publishing industry appears to have its origins in traditional print publishing. While, Swansea's new-media industry has spawned from traditional television broadcasting (Cooke and Hughes, 1999).

To what extent the sample firms relate to the term 'new-media cluster forms the first research question of the thesis:

RQ 1 To what extent do the sample firms relate to the term 'new-media cluster'?

The following section continues to explore the extent to, which BH is a cluster, by examining its ability to exploit the benefits that are said to arise from co-location.

2.3.3 New-media co-location benefits

Authors who have specifically written about new-media clusters tend to forward mixed findings concerning whether the generic benefits of co-location apply. In particular Tang (1999) found little evidence of networking while Kaplinsky *et al.* (2003) believed it was extensive, in line with policy reports from SEEDA and the DTI. Pratt (1999) felt that because of ICT's, the benefits for lower transportation costs may not be applicable but that the 'weightless economy' has still yet to be achieved.

However most authors agree that co-location with suitably qualified knowledge staff is seen as the key pre-requisite for new-media firms, because it is they who write and design the programmes, code and software that can be creative and innovative, which forms the core capability of new-media firms (Braczyk *et al.*, 1999; Sandberg, 1999). New-media companies therefore are largely founded upon human capital as opposed to physical or financial capital, from which they obtain their knowledge, experience, networking expertise and thus their competitive advantage (Pricewaterhouse, 2001). Whether all the benefits of co-location exist in BH, led to the setting of the following research questions:

RQ2 To what extent do new-media companies specifically co-locate in B&H for the purposes of networking and gaining other un-traded interdependencies?

RQ3 To what extent do new-media companies specifically co-locate geographically in BH for the purposes to gain positive economic externalities?

RQ4 To what extent do new-media companies co-locate geographically in B&H for the purposes of accessing skilled labour?

The next section reviews the small firm networking literature and the parallel and complementary role it can play within the cluster literature.

2.3.4 The new-media networking literature

This section begins by defining networking and explores why small firms may or may not benefit from networking. The literature derives eight research questions that were later operationalised during the fieldwork with the expressed intention of answering the second research proposition:

RP2 'All new-media firms in Brighton & Hove are active networkers'.

The section concludes that there is some evidence to support networking by small knowledge-technology intensive firms such as new-media. The results of the operationalisation of the eight research questions are discussed in chapter 5.

2.3.5 Networking definition

Since the early 1990's, several authors have argued that the terms network and networking had lost their precision due to the many research domains that had investigated this issue (Nohria and Eccles, 1992; Curran *et al.*, 1993). Shaw and Conway (2000, p.368) repeat this claim identifying the different research domains involved: 'transaction economics, industrial marketing, organisational behaviour, entrepreneurial marketing and small firm research.' The definition[4] that is used for this thesis is as follows:

> "Small–firm networks can be defined as the composite of the relationships in, which small firms are embedded, which serve to link or connect small firms to the environments in, which they exist and conduct their business" (Shaw and Conway, 2000: 369).

This definition has been chosen because of its broad interpretation that allows small firms to tap into as wide a range of potential sources from its environment, to help compensate for the disadvantages they face in comparison to larger firms.

The terminology is further confused by the inclusion of different actors using different terms to describe the network participants, (see Table 2.3):

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[4] see Conway, C. (2002b) for a more detailed discussion of network definitions.

AUTHORS	TYPOLOGY RANGE	
Ostgaard & Birley (1996)	Professional networks (All business contacts)	Social networks (family, friends, acquaintances)
Jenssen (2001)	Formal networks (All direct business contacts)	Social networks (All contacts outside of direct business contacts and involves 'patterns of lasting social relations'.
Carson *et al.*, (1995)	The entrepreneur's personal contact network (PCN) (includes business and social contacts that are maintained by the owner-manager on an interpersonal basis)	No dichotomy offered
Curran *et al.*, (1993)	Compulsory (government departments, banks, accountants)	Voluntary (Chambers of commerce etc)
Scott (1991)	Formal networks (contractual relations: strategic alliances, joint ventures)	Informal networks (Non-contractual,relations, private contacts)
Johannison (1998)	Business networks (Customers, managers, partners, business colleagues)	Social networks (family, friends)

Table 2.4 Dichotomy typologies of networking partners and forms

Aldrich *et al.*, (1987) when reviewing definitions such as those in Table 2.4, stated that making dichotomous distinctions is misleading, because it is possible for friends, family and acquaintances to be also business contacts and business contacts to be friends, therefore, the Carson (*ibid*) approach, seems the best fit from Table 2.4, as it includes all possibilities.

The process, by which networking can take place has been described as formal and informal channels (Steward and Conway, 1996). Formal channels involve the exchange of knowledge, information, or shared resources, through formally presented and published sources, while informal channels involve interpersonal contacts through informal meetings outside of boardroom style settings. These informal channels are seen as important sources for the exchange of sensitive information, the exchange of tacit information and innovation because trust is more likely to develop in informal and more open interpersonal meetings (Senker and Faulkner, 1996). This interpretation of the process of networking was found to be familiar to the new-media sample used in this study, and therefore, any references made to formal and informal networking in the later chapters of this thesis, are based upon the Steward and Conway interpretation.

2.3.6 Why do small firms network

The business environment is constantly changing and the opportunities and threats that arise will be problematic for small firms with few resources, resulting in greater levels of vulnerability to such outcomes (Aldrich and Zimmer, 1986; Szarka, 1990). Networking can allow small firms to cope more effectively with these external forces by potentially bringing more resources to bear, through pooling, information, learning and innovation factors (Aldrich and Zimmer, 1986; Birley *et al.*, 1991; Szarka, 1990; Carson *et al.*, 1995; Conway, 1997; Shaw 1997; Fuller-Love and Thomas, 2004). Networks can also result in greater levels of trust and cooperation arising, reducing the risk of any abuse within a network (Thorelli, 1986), reinforcing the benefits that arise through co-location, as mentioned in the previous section.

What is not necessarily agreed in the literature is to what extent all small firms apply themselves to all the potential networks that are available (Birley, 1984/91; Curran *et al.*, 1993; Dodd, 1997). Birley (1984) discovered that few firms made use of the formal sources of help, for example, accountants and lawyers, but relied more on the 'informal' networks of family and friends. Curran *et al.*, (1993), however, established that small firm owners did not always make use of their own family or friends in times of crisis, or lacked sufficient time to commit to extended networking commitments.

Curran and Blackburn (1994) found evidence that suggested small firm owners are only loosely connected to their local economy because the niche markets they serve go beyond the local. There was also a reticence to becoming too involved with local partners wishing instead to maintain their independence and autonomy that might be threatened if they became too embedded into the local economy (Curran and Blackburn, 1994; Shaw 1997).

Dodd (1997), after examining British household panel survey data, could not find strong evidence that small firm owners used the extended network potential of clubs and societies significantly more than their salaried counter parts. This contradicted Birley's, 1991 findings, creating an anomaly in the literature. This is also at odds with the findings of Johanisson *et al.*, (1994) who found evidence that small firm entrepreneurs used a wide range of different contacts and it is not clear from comparing the methodologies of both sets of researchers why this might be the case. If these firms are not fully embedded, then they may limit their ability to benefit from the benefits that are said to arise from networks.

To help determine the extent of new-media networks, the following research questions were set:

RQ5 To what extent do new-media companies engage in networking with customers and why is this done?

For a new-media cluster to work effectively, it particularly requires local access to clients who understand how digital technologies can replace or supplement traditional media. However, this requires a relatively sophisticated customer-market, which city locations are expected to provide (Backlund and Sandberg, 1999). Cities are also likely to have the advanced infrastructure that is required to support new-media, for example, broadband and mobile communications.

Hilbert *et al.*, (1999) also confirm that for a new-media cluster to be successful, the potential customers and clients of new-media need at least to recognise the advantages that digital technologies can provide, otherwise market penetration can be problematic. This was certainly a problem for 'OnDigital', the terrestrial digital broadcaster, who were unable to convince enough people to purchase the service, and the company later collapsed as a result.

As suppliers, competitors, complementary suppliers and freelancers are an important element of the proposed Brighton and Hove new-media cluster (Wired Sussex interview with C. Clemons, 25.11.02; Brighton Media Centre interview with Ian Elwick, 6.12.02.), the following research questions follow:

RQ6 To what extent do new-media companies engage in networking with suppliers and why is this done?

RQ7 To what extent do new-media companies engage in networking with competitors and why is this done?

RQ8 To what extent do new-media companies engage in networking with complementary digital services suppliers and why is this done?

RQ9 To what extent do new-media companies engage in networking with freelancers and why is this done?

2.3.7 New-media networking

In section 1.2 of this thesis, four authors were identified as having made reference to new-media networking, but only Pratt (1999, 2000) has discussed this in some detail through his experiences of interviewing new-media firms in New York. Networking events in New York are often referred to as 'cyber and suds'[5] events. These were considered to be informal events in bars and cafes where networking took place. The equivalent UK event was referred to as the 'First Tuesday' networking events:

> '...where alcohol proved a more successful matchmaking agent was at First Tuesday meetings...which gathered UK internet entrepreneurs, investors and engineers and told them to leave their business inhibitions at the door. Such events helped forge notable dot.coms, and place a stamp of exclusivity on UK neterati society' (http://news.bbc.co.uk/1/hi/business/1858039.stm, 1.5.03).

This idea was explored with the two key institutional supporters in BH, Wired Sussex and the Brighton Media Centre (Wired Sussex interview with C. Clemons, 25.11.02; Brighton Media Centre interview with Ian Elwick, 6.12.02.). The term is not now commonly used in BH, as the UK franchise, 'First Tuesday', folded in 2000, but new-media people in BH were familiar with the terms formal and informal-social networking.

Clemons (*ibid*) and Elwick (*ibid*) were also asked about the nature of formal and informal or social networking. Formal networking normally relates to a formal dress code event arranged by a third party or the firm itself, often involving the buyer-supplier dyad. These events are held in a range of settings, hotels, conference centres, business exhibitions or in a boardroom, usually with a direct sales objective. This is reminiscent of a sales or transaction based marketing approach, where the emphasis is on 'one-off 'sales transactions to maximise turnover
(Kotler, 1997).

Informal or social networking, however, infers a casual dress code event, arranged by a third party or the firm itself, involving a cross section of contacts, held in a bar, café, or at a cultural or sports event, with a relationship building objective. This approach is more associated with the relationship marketing literature where the emphasis is on maximising customer repurchase and the lifetime revenue value of the relationship (Christopher and Ballantyne, 1991).

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5 'cyber' refers to people and 'suds' to beer.

However, there is a body of literature that questions the need for firms to meet formally or informally because information and communication technologies (ICT) can enable firms to do this more cost effectively (Castells, 1996). Caincross (1996) wrote of the 'death of distance', where ICT's can enable firms to communicate and network with others without location or temporal constraints. Coyle (1998) went onto develop the concept of the 'weightless economy', whereby IT companies in particular could use ICT's as a form of distribution channel direct to the client's computer, of software products and services, again without location or temporal constraints.

Pratt (2000) agreed that this would equally be the case for new-media firms because they primarily produce software digital products and services, and the death of distance would apply. However, he was less convinced that the 'weightless economy' would be similarly applicable as software products would require branding and packaging and thus would have to be distributed using physical channels.

If any of these two concepts are applicable, this will have implications for one of the key outcomes of cluster theory, that co-location will encourage networks that are based around face-to-face meetings where relationships, exchange and trust can be enhanced (Lyons, 1994). This question, therefore, led to the following research question to be set:

RQ10 To what extent, and why, do new-media companies exhibit a preference for informal and face-to-face networking?

Small firm networking is often seen as the preserve of the owner-manager (Carson *et al.*, 1995). Carson (*ibid*) refers to entrepreneurs as making great use of their personal contact network (PCN) as their favoured networking approach. During the start-up phase, the PCN is normally family and friends but as the company matures, the PCN becomes more business-orientated. The problem that can arise here is that over-reliance on one person can easily restrict access to a wider network of opportunities (Christopoulos, 1999). This author recommends that small firms delegate networking responsibilities to overcome this potential limitation. From this recommendation, the following research question was formed:

RQ11 To what extent is networking delegated in new-media companies?

Finally, the networking literature suggests that if institutional intermediaries are engaged and supporting an industry cluster, then networking and the claimed benefits can be enhanced (Amin and Thrift, 1995). In BH is that there are a number of dedicated new-

media centres that offer bespoke services and flexible terms and conditions for office accommodation most of them are in the city centre, enhancing the possibilities of networking not just within the building but also with other media centres, as well as businesses in general. BH new-media has also been supported by Wired Sussex since 1995, providing a range of useful services, networking, web site intranet and training. The media centres and Wired Sussex have been cited as providing useful networking and support services to the BH new-media cluster in the academic literature (Pratt, 1999; Tang, 1999; Kaplinsky *et al.*, 2003).

The city has two local universities and a technology college that apart from providing graduate staff could provide a range of short courses, as well as potential research and consultancy expertise, an important feature of success for the Oxford and Cambridge IT clusters (Keeble *et al.*, 1999; Romijn and Albu, 2002). This supportive environment provides what Amin and Thrift (1995) referred to as 'institutional thickness'. The potential benefits of 'institutional thickness' include the establishment and reinforcement of a common language, behavioural norms, and a progressive build-up of trust. This, in turn, fosters collaboration and the development of a capacity for collective learning (Keeble and Lawson 1998). Even though these institutions are co-located, there are few strong linkages with the sample firms (see next chapter, section 5.7.2). This is likely to result in missed opportunities, as proximity to these bodies, according to (Sternberg, 1999), enhances linkages and agglomeration effects on firms in a region. From these sources the final research question for this section is derived:

RQ12 To what extent are institutional bodies perceived to be able to enhance new-media networking?

There is insufficient evidence from the current literature that BH new-media are active networkers while the small firm's literature concerning the extent of networking is contradictory. There is, however, more evidence to suggest that small knowledge-technology firms are more inclined to network. To what extent networking and co-location contribute to small firm learning, is explored in the following section.

2.4 New-media learning

This section begins by examining why learning is important to new-media firms and the role that networking might play. It then goes onto explore the importance of tacit

knowledge, double loop learning, and informal networking. The last two issues are concerned with the impact cluster co-location may have on learning and the supportive role that can be played by local institutions.

The literature derives six research questions that were later operationalised during the fieldwork with the expressed intention of answering the third research proposition:

RP3 'All new-media firms that network and are located in the Brighton & Hove cluster will demonstrate positive learning outcomes'.

The section concludes that there is evidence to support that a networking cluster can enhance the learning capabilities of small knowledge-technology intensive firms such as new-media. The results of the operationalisation of the six research questions are discussed in chapter 6.

2.4.1 The importance of learning for new-media

Campagni (1995) argues that learning for small firms is the key to creating and sustaining competitive advantage, particularly in environments where new products and processes might easily be imitated. This is certainly the case for the new-media environment (Pratt, 1999) and therefore forms the first research question to help determine how important new-media firms view learning:

RQ13 To what extent is learning important for new-media companies?

The small firms' literature suggests that networking plays an important role for small firm learning. This is because small firms do not have the internal resources to search the business environment for market information, business contacts, learn new skills, or improve firm problem solving (Dragoi, 1997; Penn *et al.*, 1998; Kailer and Scheff, 1999; Keeble *et al.*, 1999; Chaston, 1999; Tell and Halila 2001; Fuller-Love and Thomas, 2004).

Central to small firm learning is the owner-manager, whose development of business competencies, at different phases of the firm's evolvement is critical (Nelson and Gibb, 1996). In particular, successful firms will need to match customer needs with business competencies. This will require the owner-manager to have up to-date mutual knowledge of not just customer needs, but also the benefits that different suppliers may provide plus any other useful information that can be gained from other third parties. In other words, it

pays the owner-manager to be an active networker to maximise competitive advantage (Dragoi, 1997).

Braczyk *et al.*, (1998), who researched new-media, proposed that firms learn most from other firms, especially customers and suppliers. Firms are also gaining knowledge from universities, research institutes and technology centres (Cooke and Hughes, 1999). Lundvall and Johnson (1994) stress that the process of learning between firms and institutions involves, 'interactions' in the form of networking formally and informally, including signing research contracts, exchanges of personnel and the funding of scholarships at the universities.

Learning within the 'new and knowledge economy' is argued to be of a different form compared to learning in more traditional business environments (Castells, 1996; Pratt, 1999). In the past, learning was characterised as learning by doing. Today, however, and within the new-media economy, learning is further enriched through interacting, one of the core aspects of the new economy. Through interacting with individuals, teams and between companies, knowledge can be created, tested and communicated. It requires, however, a trust-based environment where mistakes are valued and not criticised and often requires frequent and informal meetings, all of which are enhanced through proximity, which can be further refined when institutionalised (Pratt, 1999). These issues suggest the next research question:

RQ14 To what extent is networking important for new-media learning?

There are different forms of learning that have different implications for a firm's ability to enhance its capabilities. Winter (1987) identifies two main forms of knowledge, 'articulable knowledge' and 'tacit knowledge'. Articulable or codified knowledge can be easily transferred from person to person through training, texts and observation and is in essence simple and independent from other learning and is also known as 'objective knowledge'. Tacit knowledge, however, is neither teachable nor observable in use because it is complex and an element within a system of knowledge that is also known as 'subjective knowledge'.

Tacit knowledge as a firm asset can sometimes be determined financially as many firms, particularly in high technology and high value added sectors, show a large gap difference in the stock market value of the firm and the book value of its tangible assets. This indicates the value of firms' intangible assets, most of which consist of the stocks of

knowledge, which the firm has built up or acquired (Barber, 1998). New-media services are based around either writing code and designing web sites, largely a tacit skill, or using proprietary software with little individual creative application, largely a codified skill.

Not everyone agrees that tacit knowledge is the hidden engine that drives creativity and innovation. Firstly, the examples given by Polyani (1962: inside Moingeon and Edmondson, 1996) of tacit knowledge, is one of riding a bicycle while Nonaka (1991) cites the secrets of learning from top chefs, hardly examples of tacit learning transfer in technology advanced industries. Amin and Condorcet (1999) claim that:

> '...despite the numerous claims that tacit knowledge is the key to business success, this remains an unsubstantiated and obscure proposition'.

The efficacy of firm learning can also be influenced by the sources of information and learning, whether they are internal sources that derive single loop learning, or external sources that derive double loop learning. Single loop learning is a common form of learning that does take place in small firms (Argyris and Schon, 1978), which is based upon largely internal experiences of trading and production approaches to efficiency. In markets where there is little technological or competitive change or threats, this approach might be quite suitable.

If a firm operates in markets, where there are discontinuous changes occurring, or where innovation is the key to competitive advantage, then the most appropriate learning style would be 'double loop' learning (Senge, 1990). Double loop learning involves new knowledge from external sources that can supplement 'single loop learning', resulting in new operational practices and innovations built upon a wider range of knowledge inputs and thus minimising myopic thinking. A good example of double loop learning is through networks that cross sectors. Different sectors may have different production, innovation and administrative systems, which may transfer across sectors, providing previously unknown solutions (Dragoi, 2000).

Chaston's (1999) research findings on organisational learning suggest that firms who network are more likely to use double loop learning styles and also have a more formalised knowledge management system, therefore, capturing, processing and analysing information for learning and knowledge transfer more effectively. As new-media firms are more subject to change and technological discontinuities, they need to be able to double loop learn so that they take into account the external and the internal environment. Double

loop learning has also been shown to enhance the transfer and management of tacit and codified knowledge. These abilities are enhanced through co-location in clusters and by networking (Marshall, 1920; Camagni, 1991; Amin and Thrift, 1995; Malmberg, 1996; Morgan, 1995; Simmie, 1997; Keeble and Lawson, 1998; Amin and Cohendet, 1999). Double loop learning, therefore, appears to be very important for industries faced by discontinuous change, which is the case for new-media, and, therefore, the following research question was deemed to be important:

RQ15 To what extent is tacit and double loop learning appropriate for new-media learning?

In the previous section, informal networking was proposed as a style of networking common in new-media and this formed RQ10. It would seem appropriate to explore this further as an additional research question with respect to learning:

RQ16 To what extent is informal or formal networking appropriate for new-media learning?

The cluster literature that was discussed in section 2.2.2, suggests that co-location will enhance networking with a range of actors, but does it lead to enhanced learning? This, therefore, forms the following research question:

RQ17 To what extent, and why, does cluster co-location enable positive learning outcomes?

Braczyk *et al.*, (1998) established that, increasingly, new-media firms are working closely with universities where often the entrepreneur is an ex-student or the company is a spin-off and the entrepreneur keeps in contact with his school. In the Brighton cluster, in particular, learning is supported through courses and research provided by both of the local universities, with varying levels of engagement. The other local institutions such as Wired Sussex, Brighton Media Centre, Sussex Innovation Centre, and Brighton Light House, also support learning by providing information, firm advisors, training, and financial angels (Tang 1999; Pratt 1999). Although these institutional actors claim to support new-media learning, how are they perceived in this role, by BH new-media firms? Hence the next research question:

RQ18 To what extent do the sample new-media firms perceive the institutional bodies' role, enhancing new-media learning?

Small firm learning is seen as very important, particularly for firms that operate in changeable technological markets such as new-media, and as such, co-location and networking are said to make a positive contribution. However, there is little direct literature concerning new-media learning through networking and co-location, and the thesis should, therefore, make a useful contribution to the literature. The next section, on innovation will seek to explore if there is a similar or different conclusion.

2.5 New-media innovation

This section begins by examining why innovation is important to new-media firms, it then goes onto explore the importance of networking in this process, then how concerns over IPR can stymie the diffusion of innovative ideas. The last two issues are concerned with the potential supportive role that can be played by local institutions and the impact cluster co-location may have on innovation.

The literature derives five research questions that were later operationalised during the fieldwork with the expressed intention of answering the fourth research proposition:

RP4 'All new-media firms that network and are located in the Brighton & Hove cluster will demonstrate positive innovative outcomes'.

The section concludes that there is evidence to support that a networking cluster can enhance the innovative capabilities of small knowledge-technology intensive firms such as new-media. The results of the operationalisation of the five research questions are discussed in chapter 7.

2.5.1 The importance of innovation for new-media

Innovation is recognised as important for all firms who wish to grow and diversify or even to survive (Freeman and Soete, 1997). What is characteristic for new-media is that it is knowledge and technology intensive. The technology itself and the knowledge that forms it, is changing rapidly within the new-media industry. As the previous section concluded, new-media technology is continually reinventing itself, and innovation theory would suggest that it is very important for firms to be continually innovating, to keep up with the changes (Rogers, 1983). This, therefore, suggests the following prime research question:

RQ19 To what extent is innovation important for new-media?

A number of authors have shown that small technology-knowledge firm networking has resulted in benefits for innovation and new product development, through the sharing of

information, the testing of ideas and joint research and development (Rothwell, 1991a; b; Shaw, 1998; Christopoulos, 1999; Thomas, 2000; Perren 2001). Whether this benefit arises from new-media networking is the focus of the next research question:

RQ20 To what extent is networking important for new-media innovation?

For small firms in general, protecting intellectual property is seen as problematic, because the costs in terms of time and legal enforcement may discourage patent registration (Rothwell, 1983; Kingston, 2001). This situation is further complicated for companies that produce software, such as new-media, as the ability to copy without permission has become endemic (Griffiths, 1999 in Blackurn, 2004: p.8).

The other difficulty for new-media firms is that they are largely supplying business-to-business (B2B) services. Computer services are seen as intangible and immaterial outputs that are problematic to patent. They are protected under copyright legislation but this does not give the same level of protection as a patent (Blackburn, 2001). Pratt (2000) makes the point that when software is standardised, packaged and branded, it replicates a tangible material object that can then be trade marked and possibly patentable. However, this presupposes that small and micro firms have the resources and the type of services that can be standardised and sold on a mass basis.

Although authors such as Varaldo and Ferrucci (*ibid*); Lipparini and Sobrero (1997); Cooke and Morgan (1998) and Storper (1993) have cited the benefits of co-location for the diffusion and sharing of new ideas the possible inability to protect intellectual property may inhibit such sharing, potentially undermining the incentive to co-locate or network, (Blackburn, 2001) hence the next research question:

RQ21 To what extent are concerns over IPR a limitation on the sharing of innovation?

Moore *et al.*, (1998) reported on the use of university-situated new-media centres in the USA and their particular role as agents of diffusion of innovation and technology. Founded around a consortium of universities and new-media firms, they identify new campuses for such locations and encourage the development of new-media incubators in which innovations are diffused within and without, where the university acts as the prime agent of diffusion. Rogers (1983) describes the main elements in the diffusion of new ideas as being an innovation, which is communicated through certain channels over time

among the members of a social system. Diffusion does not operate in a vacuum, and Rogers contends that:

> 'A common problem for many individuals and organisations is how to speed up the rate of diffusion of an innovation' (*ibid.* p.1).

Romijn and Albu (2002) found that technology companies in the Oxford and Berkshire areas played a supportive role in encouraging small firm innovations. One of their particular conclusions was the importance firms attributed to proximity with respect to working with universities, research institutions and suppliers in aiding the innovation process, resulting in a greater level of patented outcomes as opposed to those firms who did not report proximity benefits. Proximity is particularly stressed in association with step change innovations (*ibid*, p.4) "proximity matters....probably because radical innovations have many tacit elements, which can be best dealt with face to face". Proximity also allowed these firms to tap into skilled labour sources particularly from the universities. This aspect of proximity is particularly relevant when small technology firms in particular cite that skill shortages are an inhibiting factor for innovation development (DTI, 2001). Whether co-located institutions enhance new-media innovation within BH is the subject of the next research question:

RQ22 To what extent are the co-located institutions perceived to support innovation within new-media?

BH has a range of institutions apart from two universities (Wired Sussex; Brighton Media Centre; Sussex Innovation Centre; Brighton 'Light House') that claim to support new-media and presumably new-media innovation.

The literature evidence from the preceding paragraphs in this section, now leads onto the final research question, concerning the importance of co-location in the innovation process. This will be partly dependant upon the outcomes of the previous research questions set in this section and will also be dependant upon the success or otherwise of institutions implementing a regional innovation system in the UK for new-media.

RQ23 To what extent is cluster co-location important for new-media innovation?

Small firm innovation is seen as very important particularly for firms that operate in discontinuous technology markets, such as new-media and as such, co-location and networking are said to make a positive contribution. However, there is little direct

literature concerning new-media innovation through networking and co-location and therefore, the thesis findings should make a useful contribution to other scholarly work. Not all scholars, however, are happy to endorse the concept of clusters, and some question whether the stated benefits of a cluster actually arise (from section 2.2.3).

2.6 Summary and Conclusions

The aim of this chapter was to explore the literature that underpins the conceptual framework and the five research propositions that were identified in chapter one:

RP0 'All new-media firms that network and are located in a cluster will demonstrate positive learning and innovative outcomes'.

From this first proposition, a further four followed:

RP1 'All new-media firms in Brighton & Hove form a new-media cluster'.

RP2 'All new-media firms in Brighton & Hove are active networkers'.

RP3 'All new-media firms that network and are located in the Brighton & Hove cluster will demonstrate positive learning outcomes'.

RP4 'All new-media firms that network and are located in the Brighton & Hove cluster will demonstrate positive innovative outcomes'.

This literature review does suggest that for small knowledge/technology based firms (such as new-media), institutionally supported networking clusters can be conducive for agglomeration economies and un-traded interdependencies, which can then enhance small firm learning and innovation. These two particular outcomes are critical for small firms, to enable them to cope with the discontinuous changes that take place within the technology and markets they serve.

The generic networking cluster literature, however, does have its critics. Agglomeration economies and un-traded benefits are doubted, as is the claimed supportive role of local institutions. Clustering networks can also lead to group thinking so that new ideas, innovation and learning can become stymied. There is also evidence that small firms in general do not have the resources, the time or the personnel to fully exploit networking opportunities. Small firms may also resist cooperation and often specialise in niche markets for tactical reasons trying to ensure they are not dependant upon the local economy and the resultant concerns of price competition.

New communication technologies can also mean that firms become less reliant on being physically close to customers and other parties and therefore the need to reduce transportation costs is less apparent, while effective communications can still be maintained. New-media its-self, is about developing such technologies and so the reservations concerning the possible benefits of clustering and networking, need to be recognised. Firms however are still likely to need to have face-to-face meetings to exchange new ideas, develop trust, and build relationships.

To recap from chapter one the conceptual framework is predicated upon Brighton and Hove new-media as representing an 'ideal type' of new-media networking cluster with enhanced learning and innovation outcomes:

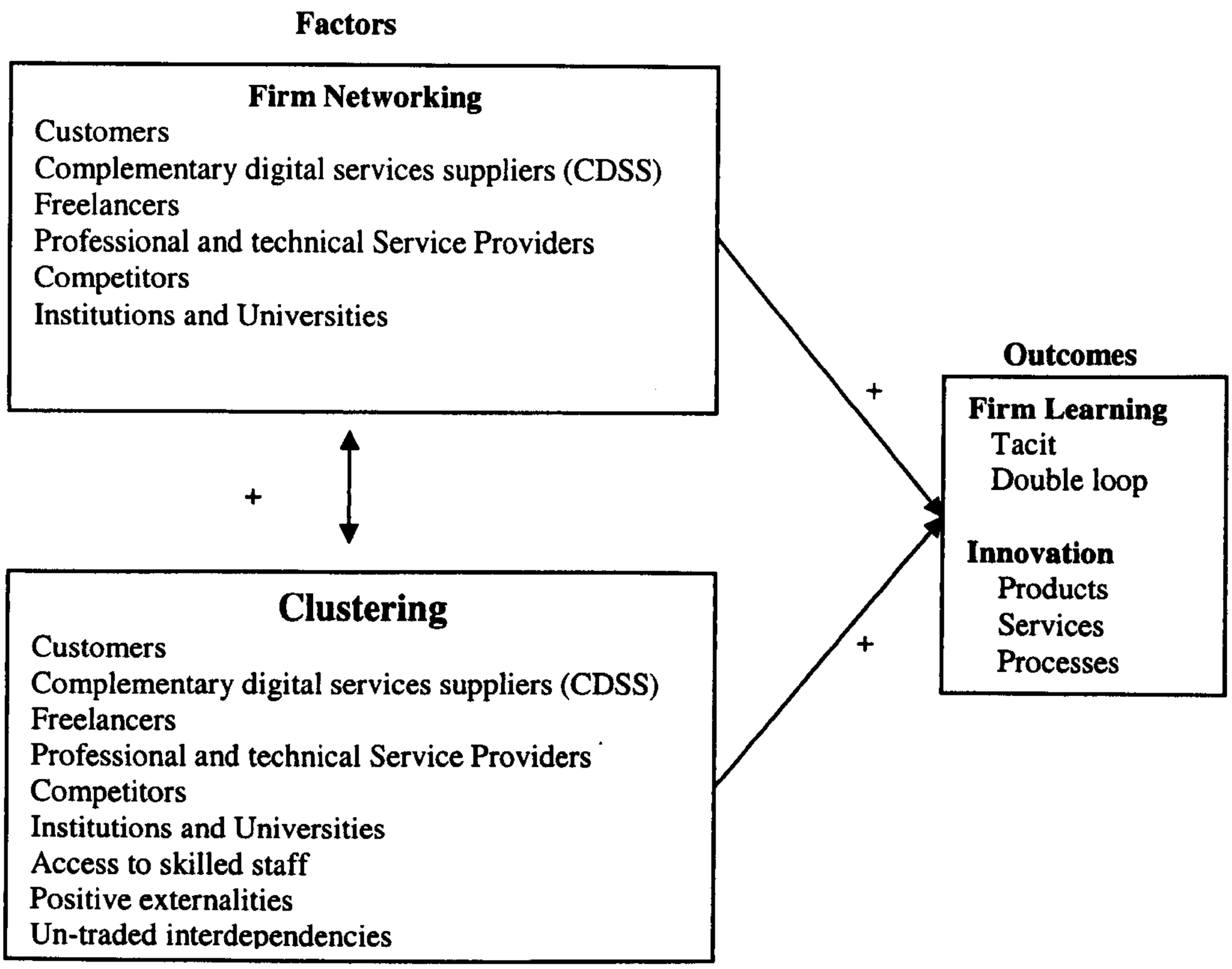


Figure 2.3 Schema of the original conceptual framework, adapted from Conway (2003).

For the following tables 2.5 to 2.8, the four research propositions are set out with their respective 23 research questions, which are derived from the relevant literature sources, discussed in sections 2.3 to 2.5.1. The expected outcomes are predicated on the basis that the networking cluster literature can be generalised to the Brighton and Hove cluster as if it represents an 'ideal type' (Smith, 1998). This is set within the context of BH being part of the 'learning region' in the South East where learning and innovation are additionally enhanced through the concept of a 'regional innovation system'.

Research proposition to be assessed in the field	**Expected Outcomes:**	**Relevant Representative literature**
RP1 'All new-media firms in Brighton & Hove form a new-media cluster'. The following research questions are based upon the findings of the literature review with a view of determining whether the research proposition holds:	These expected outcomes are predicated on the basis that Brighton and Hove is an 'ideal type' of new-media cluster.	Some of the literature resources are generic to the small firms domain and some specific to new-media. Only a sample of key authors are cited to ensure brevity.
RQ1 To what extent do the sample firms relate to the term 'new-media cluster'?	The sample firms agree with being categorised as a new-media cluster	Several authors write about a new-media cluster as a given (DTI, 2001; SEEDA, 2002; Backlund and Sandburg, 2002; Manovich, 2003) and in Brighton and Hove (Tang, 1999; Kaplinsky,2003).
RQ2 To what extent do new-media companies specifically co-locate in B&H for the purposes of networking and gaining other un-traded interdependencies?	The sample firms specifically co-located geographically for the purposes of networking and gaining un-traded interdependencies	The DTI and Kaplinsky reported regular networking, although Tang was less convinced.
RQ3 To what extent do new-media companies specifically co-locate geographically in BH for the purposes to gain positive economic externalities?	The sample firms specifically located for the purposes of gaining positive economic externalities.	Mixed findings across other cluster, Kaplinsky in favour while Lublinsky (2003) is more sceptical.
RQ4 To what extent do new-media companies co-locate geographically in B&H for the purposes of accessing skilled labour?	The sample firms specifically co-located geographically for the purposes of accessing skilled labour.	The earliest of authors such as Marshall (1920) and those that followed on have indicated that in general this is a key incentive for cluster behaviours. All authors who have commented upon Brighton and Hove indicate this is a particular attraction (Pratt, 1999, Tang, 1999, Kaplinsky, 2003).

Table 2.5 Expected outcome for research proposition one

Table 2.6 Expected outcome for research proposition two

Research proposition to be assessed in the field		**Expected Outcomes:**	**Relevant Representative literature**
RP2 'All new-media firms in Brighton & Hove are active networkers'. The following research questions are based upon the findings of the literature review with a view of determining whether the research proposition holds:		These expected outcomes are predicated on the basis that Brighton and Hove is an 'ideal type' of new-media cluster.	Some of the literature resources are generic to the small firms domain and some specific to new-media. Only a sample of key authors are cited to ensure brevity.
RQ5	To what extent do new-media companies engage in networking with customers and why is this done?	The sample firms actively network with customers for trade and un-traded benefits.	The consensus of the small firm literature is that networking with customers is essential (Birley, 1984 Shaw & Conway, 2000).
RQ6	To what extent do new-media companies engage in networking with suppliers and why is this done?	The sample firms actively network with suppliers for trade and un-traded benefits.	As above
RQ7	To what extent do new-media companies engage in networking with competitors and why is this done?	The sample firms actively network with competitors for trade and un-traded benefits.	This is more controversial as some authors have suggested that price and IPR considerations are problematic (Curran *et al.* 1984) while others suggest a degree of networking can be beneficial (Szarka, 1990; Shaw, 1997).
RQ8	To what extent do new-media companies engage in networking with complementary digital services suppliers (CDSS) and why is this done?	The sample firms actively network with complementary digital services suppliers for trade and un-traded benefits.	A CDSS is similar to Porter's (1990) concept of 'related industry' where networking can produce joint operations and knowledge spillovers.
RQ9	To what extent do new-media companies engage in networking with freelancers and why is this done?	The sample firms actively network with freelancers for trade and un-traded benefits.	Freelancers are an important characteristice of the new-media industries environment (DTI, 2001; SEEDA 2002).
RQ10	To what extent, and why, do new-media companies exhibit a preference for informal and face-to-face networking?	The sample firms will exhibit a preference for informal and face-to-face networking.	A small firms preference for informal networking Steward and Shaw (1996) while f2f helps build trust relations (Lyons, 1994) although virtual networking may become more prominent (Pratt, 2000).
RQ11	To what extent is networking delegated in new-media companies?	Networking is not delegated in new-media firms.	The importance of the owner-manager is stressed Carson (1995)
RQ12	To what extent are institutional bodies perceived to be able to enhance new-media networking?	Institutional bodies are seen to enhance new-media networking.	Within general cluster research this is cited as an important attractor to cluster (Amin and Thrift, 1995 particularly for Technology-Knowledge based firms, (Keeble, 1999) although for general SME's the picture is more mixed (Carson, 1995; Thomas, 2000).

Research proposition to be assessed in the field	Expected Outcomes:	Relevant Representative literature
RP3 'All new-media firms that network and are located in the Brighton & Hove cluster will demonstrate positive learning outcomes'. The following research questions are based upon the findings of the literature review with a view of determining whether the research proposition holds:	These expected outcomes are predicated on the basis that Brighton and Hove is an 'ideal type' of new-media cluster.	Some of the literature resources are generic to the small firms domain and some specific to new-media. Only a sample of key authors are cited to ensure brevity.
RQ13 To what extent is learning important for new-media companies?	Learning is very important for the sample firms.	Important for new-media Braczyk (1998).
RQ14 To what extent is networking important for new-media learning?	Networking is important for new-media learning for the sample firms	Morgan (1995) the 'learning region', Campagni (1995) small firm benefits, Pratt (1999) new-media.
RQ15 To what extent is tacit and double loop learning most appropriate for new-media?	Tacit learning is more appropriate for new-media learning. Double loop learning is most appropriate for new-media learning.	Tacit learning is particularly important in knowledge based industries (Nonaka, 1991; Malmberg and Maskell, 1997). While double loop learning is most appropriate for complex business environments (Senge, 1990; Keeble and Lawson, 1998).
RQ16 To what extent is informal or formal networking appropriate for new-media learning?	Informal networking is most appropriate for new-media learning.	Informal personal networking works best (Steward and Shaw, 1996)
RQ17 To what extent, and why, does cluster co-location enable positive learning outcomes?	Cluster co-location makes an important contribution to positive learning outcomes.	Mixed literature findings but the key supporters are (Malmberg, 1996; Morgan, 1995) while scepticism comes from (Lovering; 1999; Amin & Cohendet, 1999).
RQ18 To what extent do the sample new-media firms perceive the institutional bodies' role in enhancing new-media learning?	Institutional bodies are perceived as playing an important role in enhancing new-media learning.	The generic literature, Amin & Thrift (1995) for SME's the view is mixed.Thomas, (2000) negative, but positive for Technology-Knowledge based firms, (Morgan, 1994; Ashiem & Isaksen, 2003).

Table 2.67 Expected outcome for Research proposition three

Research proposition to be assessed in the field	**Expected Outcomes:**	**Relevant Representative literature**
RP4 'All new-media firms that network and are located in the Brighton & Hove cluster will demonstrate positive innovative outcomes'.	These expected outcomes are predicated on the basis that Brighton and Hove is an 'ideal type' of new-media cluster.	Some of the literature resources are generic to the small firms domain and some specific to new-media. Only a sample of key authors are cited to ensure brevity.
The following research questions are based upon the findings of the literature review with a view of determining whether the research proposition holds:		
RQ19 To what extent is innovation important for new-media?	Innovation is important for new-media, particularly incremental innovation.	Important for SME's (Ashiem & Isaksen, 2003), important for new-media (Kaplinsky, 2003).
RQ20 To what extent is networking important for new-media innovation?	Networking is important for new-media innovation.	It can be a useful particularly for technology SME's (De Propris, 2000) and new-media in particular (Braczyk, 1998).
RQ21 To what extent are concerns over IPR a limitation on the sharing of innovation?	Concerns over IPR are a limiting factor for sharing innovations.	For SME's (Blackburn, 2001) and for soft ware writers in particular (Griffiths, 1999).
RQ22 To what extent are the co-located institutions perceived to support innovation within new-media?	Co-located institutions are perceived as important in supporting new-media innovation.	The generic literature, Amin & Thrift (1995) for SME's the view is mixed.Thomas, (2000) negative, but positive for Technology-Knowledge based firms, (Keeble, 1999; Ashiem & Isaksen, 2003).
RQ23 To what extent is cluster co-location important for new-media innovation?	Cluster co-location is important for new-media innovation	For SME's (Varaldo and Ferrucci, 1996) for new-media (Braczyk, 1998).

Table 2.8 Expected outcome for Research proposition four

The methodology of how the conceptual framework, research propositions and research questions were evaluated is discussed in the following chapter.

Chapter 3: Methodology

3.1 Introduction

The aim of this chapter is to show how the chosen methodology is best suited to achieve the research agenda presented in chapter two. The chapter will be written in the first person style as a number of authors, suggest that the third person passive style can lead to a 'dull' read, lacking in a personal account of the various difficulties that always arise when carrying out any large research study (Silverman, 2000: p.235-236).

I chose the subject area of this thesis because of preliminary readings and research on the DBA programme. The new-media aspect was influenced by working within the university sector, developing modules for an MSc in Digital Television, while the networking aspect was influenced by my role in the local chamber of commerce.

The chapter argues that a qualitative methodology is the most appropriate for achieving the thesis's research aims in determining the efficacy of the conceptual framework and resulting research propositions. The epistemological approach is primarily 'phenomological' rather than 'positivist' as I recognise that the social world comprises people with subjective views and opinions rather than having absolute foundations. However, I do believe that research paradigms are on a continuum and that there is value in bridging methodologies (Gioia and Pitre, 1990) and to that extent a supporting quantitative element of data collection has also been used to support the qualitative findings (Miles and Huberman, 1994).

The following sections will begin with an explanation of the epistemological basis for the study, followed by the rationale for the research method used. This is followed by reviewing the key concepts that were identified and operationalised through a literature review, conceptual framework and resulting propositions and research questions. I shall then discuss each of the key stages of method development from; explaining the rationale for only interviewing firm owners and the multi-case approach, sampling, interview/questionnaire design, fieldwork, data coding, analysis, verification and ethical issues finishing with a discussion of the limitations of the research design.

3.2 The epistemological and methodological rationale

In choosing which research design and methodology to apply, different authors make different recommendations. Burrell and Morgan (1979) suggest that this decision is often predetermined by the researcher's current philosophic stance and is represented by two extreme incommensurable epistemologies positions, of either a positivistic or phenomenological nature. 'Positivists' view social phenomena as occurring objectively, which can be measured using the statistical tools of the natural scientists, from which facts are identified and causality and correlations can be determined. The role of the researcher is one of the independent outsider, who dispassionately collects and analyses data from which generalisations can be made.

The 'phenomenologists' on the other hand recognise that social phenomena are essentially relativistic, dependant upon context, attitude and opinion and therefore socially constructed and not objective. The researcher takes an insider approach by attempting to understand these relative perceptions and opinions as perceived by respondents because they are key influences on actual behaviour (Miles and Huberman, 1994). Van Maanen (1979) describes the research focus as one of describing, decoding or translating data to identify meaning rather than being concerned with frequency of social phenomena. The conclusion of these two positions is that the 'positivists' favour a 'quantitative approach, while the 'phenomenologists' favour a qualitative approach.

Easterby-Smith *et al* (1991) has identified five choices that a researcher must make before implementing a research study:

Researcher is independent	vs	Researcher is involved
Large samples	vs	Small numbers
Testing theories	vs	Generating theories
Experimental design	vs	Fieldwork methods
Verification	vs	Falsification

Figure 3.1 Key choices of research design Source: Easterby-Smith *et al* (1999, p.33)

As a relatively new researcher with a less predetermined bias with any particular philosophy, I found that on the one hand I wanted to be objective and to test theories of clusters *etc*, but on the other hand found that an experimental design and anonymous large

samples, was not the most appropriate approach to understanding the perceptions and motivations of my sample respondents.

I found myself agreeing with Silverman (1993) and Miles and Huberman (1994) who recommend that the research design and methodology should be based upon the research aims and questions in the first instance and not predetermined philosophic biases. As a result, the research questions from this thesis required a predominately qualitative approach, together with some quantitative elements be used. I also believe that the qualitative versus quantitative dichotomy is a false one, where instead a mixed methods approach can complement, enrich and triangulate results (Yin, 1994).

The qualitative approach allowed me to explore the perceptions and opinions of respondents, with respect to networking, cluster membership and the potential outcome for learning and innovation. I wanted to know in some detail respondent levels of motivation for networking, the benefits if any of being based in BH and their attitudes toward the local institutions, who according to the generic literature should play a vital role in supporting learning and innovation within the cluster and the region as a whole.

These 'why', 'how' and 'what' questions are particularly suited to a qualitative approach (Yin, 1994). In particular, I was looking for depth of answer, to understand the perceived reality of the subject's lived experience. This is in contrast to the quantitative approach of viewing the subject's world through aggregated numbers, by value, quantity and frequency. My views are best summed up by a quote from Denzin and Lincoln (2000, p.10):

> "Both qualitative and quantitative researchers are concerned with the individuals point of view. However, qualitative investigators think they can get closer to the actor's perspective through detailed interviewing and observation. They argue that quantitative researchers are seldom able to capture their subject's perspectives because they have to rely on more remote, inferential empirical methods and materials".

From past studies, the 'positivist' quantitative approach has been the most common methodology used in small firms' research (Curran and Blackburn 2000; Grant and Perren 2002). Although I am pragmatic about research design, there are concerns within the small firms' literature concerning the quantitative approach,' providing little understanding of

network relationships' (O'Donnell and Cummins, 1999, p.84) as they do not fully discover the motivations of the various actors in the network (Curran *et al.* 1993). O'Donnell and Cummins (1999) and Shaw (2000) have recommended the use of qualitative research tools, such as the in-depth unstructured face-to-face interview to overcome these weaknesses in research design. Grant and Perren (2000, p.196) make an appeal for small firm researchers to be more adventurous in their research designs and encourage:

> "...colleagues and the authors to step outside the hegemony of their 'normal' paradigm and to consider alternative paradigmatic positions".

It is therefore my belief that a qualitative approach for this particular study is more likely to illicit meaning and authentic insights, than an examination of a data-set print out from SPSS. However, I am not dogmatic about the qualitative versus quantitative debate and recognise that in other studies and contexts a quantitative approach maybe more appropriate. In other words there is no absolute method of enquiry, as there is:

> "...doubt that any discourse has a privileged place, any method or theory a universal and general claim to authorative knowledge" (Richardson, 1991).

In fact, I would go further and suggest that both techniques can be usefully combined, where one supports the other in providing an enhanced richness (Miles and Huberman, 1994), see Table 3.1:

Benefits of Combining Quantitative Data with Qualitative Data
• Can provide methodological triangulation • Can provide data triangulation • Enrich the findings • Count observations and show relative frequencies • Initiate new lines of thinking • Supply background information • Help identify the sample profile to be interviewed Source: Miles and Huberman (1994)

Table 3.1 The complementary benefits of combining qualitative and quantitative data

Having argued that this thesis fits primarily within a qualitative paradigm, it also contains not just in-depth interviews but also a supporting self-completion questionnaire as well as data from direct observation from attending three new-media networking events. The whole process was also supported by two industry expert interviews as well as guidance from an academic colleague with experience of interviewing the related games industry in Reading.

The precise roles of these complementary methods are shown in Table 3.2

Method Employed	**Contribution Made**
In-depth interview	The primary data collection method to determine motivations and perceptions.
Self Completion Questionnaire	Secondary data collection method, the questionnaire was distributed at the end of the in-depth interview. Used to supply supporting background information offering counts to determine relative frequencies. To enable triangulation and enrich the overall analysis.
Observation	Helped the design of in-depth interviews and self completion questionnaire. To inform the author of the nature of the industry, networking practices and the role of Wired Sussex.
Industry Expert Interviews	One completed with Wired Sussex and one with the Brighton Media Centre. These helped contextualise the new-media industry and confirm sample profiles and provide a sampling frame.
Academic Expert Interviews	Gave advice concerning qualitative research as applied to the industry. Advised and confirmed the validity of the self-completion questionnaire and in-depth interview designs.

Table 3.2 The roles contributed by complementary methodologies

The self-completed questionnaire contained eight questions, most of which had several parts that paralleled the in-depth interview questions. The responses from the questionnaire were therefore very helpful in providing hard evidence to support the

perceptions and opinions expressed by subjects from the in-depth interviews. This was usually done on the basis of giving counts of subject responses that then enabled greater interpretation of the in-depth interviews. For example, the fact that eight respondents used freelancers on a regular basis, with a further nine rarely using them only occasionally (see table 4.8), complemented the differing reasons given for using or not using freelancers in the in-depth interviews.

A common criticism of qualitative approaches is the difficulty in being able to generalise from the sample to the population. This is said to arise because of the relatively small sample size, a lack of apparent representativeness and a research design and analysis that can appear overly subjective. Much of this concern can be overcome through taking a rigorous approach to ensuring validity and reliability. Many authors have recommended that a range of checks and balances be applied (see section 3.10 on validity and reliability) to ensure that the findings are defensible (Silverman, 1993 and Miles and Huberman 1994)

Authors such as Yin (1994) state that the need to generalise from the particular, is a positivistic idea that has little relevance to the qualitativist, where all truth is ideographic in nature. Marshall and Ross (1989) contend that as the social world is in a continual state of flux, replication and generalisation are misplaced positivistic notions. Strauss and Corbin (1990, p251) contend that generalisations can only be made to specific:

> "sets of action/interaction pertaining to a phenomena....is generalisable to those specific situations only".

It is the intention of this thesis to examine whether generalisations taken from the literature can be applied into the claimed new-media cluster in BH.

To conclude this section, in relation to the preceding debate, my epistemological position may be labelled as 'pragmatic phenomenologist', which uses a 'mixed methods' approach.

3.3 Operationalisation of the key concepts

The overall approach that I took used a 'deductive - theory first' approach, followed up with iterative revisions (Miles and Huberman, 1994). The research began with a literature review that resulted in a conceptual framework and five research propositions being identified and reported in an earlier DBA submission (Conway, 2003). The overall

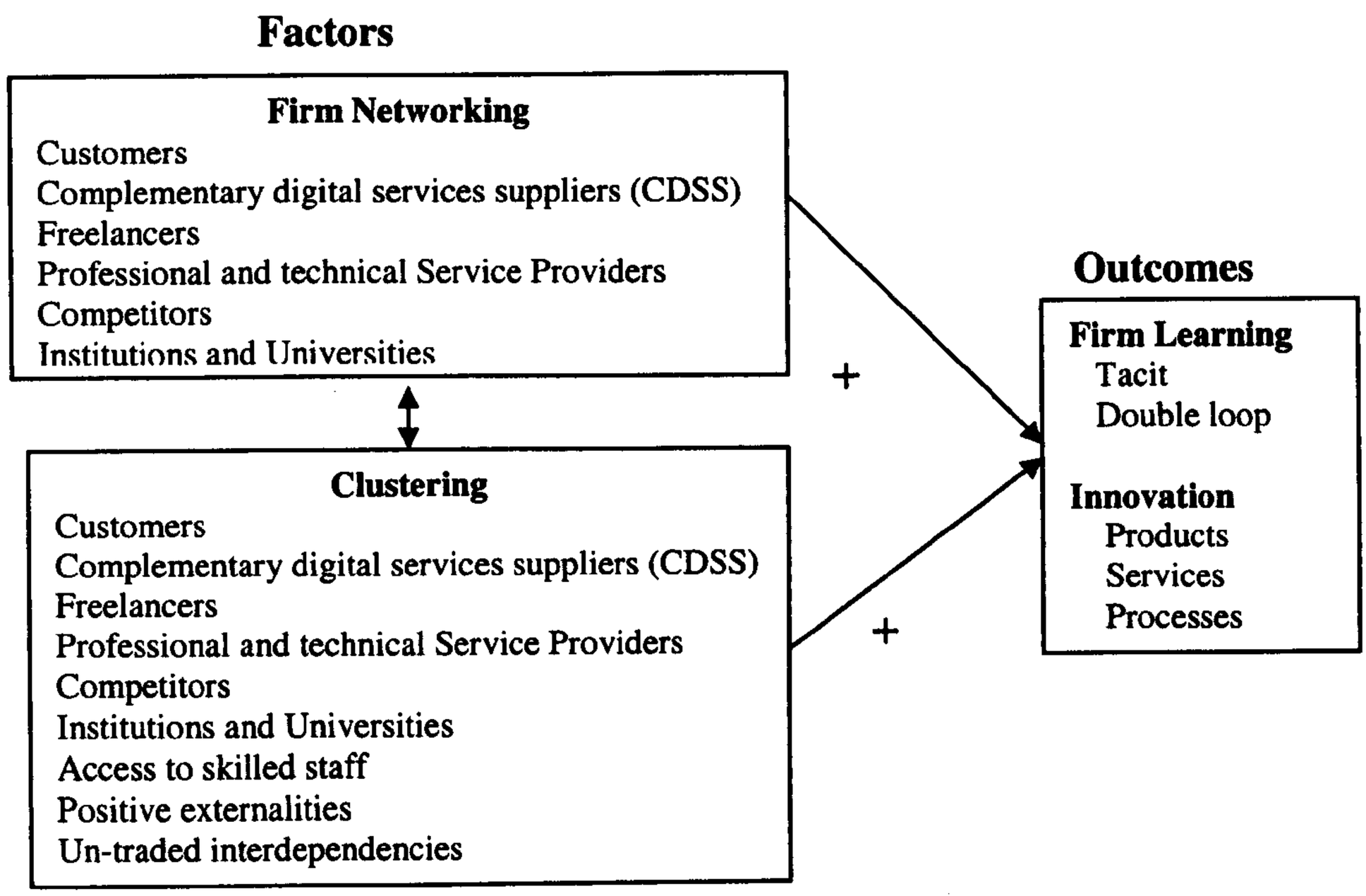
research aim was to determine whether the identified concepts of networking and clustering, positively impacted upon learning and innovation within the claimed new-media cluster of BH:

> "Evidence from my literature review, suggests that small knowledge-technology based firms, benefit from networking and industry clustering, resulting in positive outcomes for learning and innovation transfer" (Conway, 2003).

Therefore, the overall purpose of this study is to determine the veracity of theories associated with the above statement, where a theory according to Kerlinger (1973, p.9) is a:

> "...set of interrelated constructs (concepts), definitions and propositions that present a systematic view of the phenomenon by specifying relations among variables, with the purpose of explaining the phenomenon."

The following conceptual framework is therefore theory driven, based upon deductive literature findings. Figure 3.2, provides a diagrammatical exposition of the constructs and concepts involved:



Source: Conway, C. (2003) A proposal-research agenda & research design-methodology report, part submission for University Kingston DBA programme.

Figure 3.2 Schema of the original conceptual framework

Potential networking partners were identified from the literature, while for this industry, I was advised by Wired Sussex that freelancers were seen as particularly important. The measurement of networking practices was achieved through asking open-ended questions in the interviews followed up with specific questions in the self-completion questionnaire so that the nature and extent of networking could be determined.

Clustering refers to the possibility that all these organisations are co-located in BH from, which a range economic and un-traded benefits could arise. One particular benefit could be the additional enhancement of networking, which independently and in conjunction with co-location, learning and innovation outcomes is enhanced.

After the development of the conceptual framework, the following key research proposition was established:

RP0 'All new-media firms that network and are located in a cluster will demonstrate positive learning and innovative outcomes' (Conway, 2003).

This was followed by four component propositions (see chapter one). By using Popper's falsification principle, (Popper, 1963 in Curran and Blackburn 2001), I hope to demonstrate the veracity of the propositions, by requiring that 'all' new-media firms achieve the propositions' outcomes and, therefore, claim that the literature review findings can be generalised to new-media in BH. This would then be followed by a range of recommendations for professional practice and recommendations for further research and methodological enhancement.

Further exploration of the literature in chapter two of this thesis identified 23 research questions that are expected to satisfy the five research propositions. These were translated into an in-depth interview instrument and a self-completion questionnaire. The design of the questionnaire involved two interviews, one with Wired Sussex and one with the Brighton Media Centre in late 2002. The questionnaire design was also influenced by my attendance of three Wired Sussex networking events in Spring 2003. The final draft was then sent to an academic colleague with experience of researching digital mediums, in the beginning of May 2003. The sampling frame was based upon Wired Sussex's database and the final sample selection was drawn after taking advice from Wired Sussex, during a second meeting. Interviews took place during the summer of 2003 after which analysis using Nvivo followed. The final phase involved the writing up and was completed in October 2004.

The overall research process that was applied for this thesis is demonstrated in Figure 3.3:

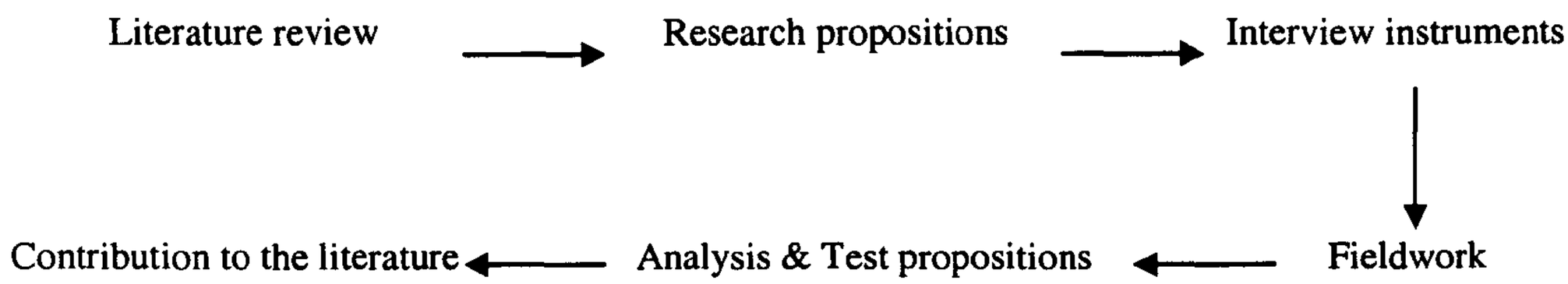


Figure 3.3 The research process

3.4 The rationale for using elite actor perceptions

Interviewing the managing director of a small firm enables the researcher to target the key decision maker and probably the only person who actually will do most of the firm's networking (Carson *et al.* 1995). One criticism of this approach[6] is that the perceptions and opinions of these actors could be ill informed and thereby an incorrect basis for analysis and future policy formation.

It should be stressed however, that it is the perceptions and attitudes of this key actor that will go on to influence actual behaviour. In the case of this study, the managing director's positive or negative perceptions will inevitably affect their motivation to network, with whom, what learning and innovation they are willing to exchange and how they will view approaches to or from Wired Sussex, the universities and any other institutions that are expected to implement a regional learning and innovation strategy. Even if some of the perceptions are not founded, they are still a reality to the subject and if that reality is shared (which they are) it should warrant further investigation, even though the sample size is not statistically significant.

3.5 The rationale for the multi-case study approach

I believe one way to overcome the problem of generalisability that was discussed in section 3.5, is by using a qualitative multi-case study research design. Yin (1989, p21) believes that case studies can offer what he terms, 'analytical generalisation':

"....case studies, like experiments are generalisable to theoretical propositions and to populations or universes. In this sense the case study like the experiment does

[6] See also section 3.7.2.1 for a discussion of sample representativeness

not represent a sample and the investigator's goal is to expand and generalise theories (analytical generalisations) and not to enumerate frequencies (statistical generalisations)".

I have used a multi-case study design using in-depth interviews, triangulated with past literature, a same participant quantitative questionnaire, participatory observation and interviews with local new-media expert opinion. This mix of qualitative and quantitative data will allow for a form of, methodological triangulation (Miles and Huberman, 1994; Yin, 1994 and Stake in Denzin and Lincoln, 2000):

> "The use of a mix of methods helps by ensuring that the weaknesses and blind spots of one approach are compensated by the strengths of one other approach. Confidence in the conclusions will be higher if different approaches have produced similar results (Denzin, 1970 in Curran and Blackburn, 2000, p.46).

The case study methodology has a strong pedigree within social science research (Huberman and Miles, 1994; Silverman, 1993; Yin 1994). Yin (1994, p.1) states that case studies have particular advantages over other forms of qualitative approaches, particularly where the, "how and the why questions are being posed. Also when the investigator has little control over events, and when the focus is on a contemporary phenomenon within some real-life context", all of which apply to my work, because new-media has only really established itself since 1995, with a relatively undeveloped academic literature.

The main advantage of the multi-case approach over the single case approach is that more cases give greater breadth allowing for similarities and contrasts to be potentially drawn. For small firms' studies, the multiple case study approach can make most sense, particularly where the decisions of the owner-manager are considered most critical (Curran and Blackburn 2000; Hakim, 2000). The downside of not using a single case approach is the potential for a lack of depth of information, with an over reliance on one particular 'elite' respondent, who may not have all the information that is required (Silverman, 1994). This thesis case study therefore sets its boundaries around a subjective perspective of the world, through its qualitative epistemology, with a focus upon the boundary of the entrepreneur and their particular needs and motivations as opposed to that of the 'milieu of social actors' (Perren and Ram, 2004).

3.6 Sampling

This was based upon a theoretical sampling approach, where theory guides data gathering (Silverman, 2000). Using similar sample profiles from the literature on small technology firm research and advice from expert opinion, the following sample characteristics were identified, see Table 3.3:

Theoretical Sampling Criteria
• The firm should have less than 50 employees, as this study is based upon exploring small firm[7] issues (Shaw and Conway, 2000) • The firm should provide either products or services to other businesses not consumers. This is to replicate the business profiles of previous studies (Keeble and Lawson, 1998). • Trading for a minimum of three years so that they have probably established themselves from a networking, learning and innovation perspective, rather than start-ups (Romijn and Albu, 2002). • Be located in BH to help determine whether location is a factor for firm clustering and in particular, I was interested in recruiting a proportion of companies based in the media centres as these were reputed to be locations of networking behaviours (Pratt 1999). • Interviews to be with either the MD or a founding director, as they will have the best overview and experience of the research questions under investigation (Hakim, 2000). • The companies should be new-media content developers, not analogue developers or those that combine both technologies as these types of firms often have different business models that will then confuse the findings if included (Pratt, 2000). The focus of the business should be web based as this represents the largest sub sector in BH new-media ("overwhelming", SEEDA, 2003, p.4),

Table 3.3 Theoretical sampling criteria

3.6.1 Sample Recruitment

[7] A DTI definition

There is only one widely recognised sampling frame that covers BH, and that is the Wired Sussex database of new-media companies (Pratt, 1999). Wired Sussex is a free membership trade organisation that focuses upon new-media. At the time of the study, Wired Sussex was claiming a database totalling over 850 companies (www.wiredsussex.org.uk, 20.05.03). However, there are several problems with the database as a potential sampling frame, as entry on the database is done by new-media companies themselves, with no checks made to determine their authenticity and claims made about their product-service provision.

The database also includes the whole spectrum of the new-media supply chain companies, as well as those companies whose core business is not necessarily digital technology but is an add-on, for example, those companies providing advertising services as their core business. A more detailed search of the database did filter out these firms and helped identify those firms whose core business was solely digital content based upon web solutions. An interview with Wired Sussex (27.05.03) helped confirm there were approximately 150 companies[8] in this category, which employed less than 50 people.

The next stage was to contact companies to determine if they would participate in the interviews. I was advised by Wired Sussex that contact is best done via email, as this was seen as the norm for the industry. Gaining contact names was not always feasible, as some companies do not give out the email addresses of the managing director but of 'info@xyx.com' instead, so some telephoning was necessary at this first stage.

Emails were progressively sent out with the header 'new-media research and chardonnay'. The content of the email introduced the study, with the assurance of anonymity, and a promise to send a copy of the finished executive summary and a bottle of chardonnay, to thank them for their time (see appendix D).

The bottle of Chardonnay was an interesting artefact to use, as it provided a source of amusement when telephoning for an appointment, acting as a useful icebreaker. Chardonnay was also chosen as an ironic device to appeal to what is supposed to be the lifestyle mindset of new-media owners. The popular press and earlier papers about new-

[8] This number compares well with an estimate from SEEDA (2003) that there are 203 companies of all sizes in BH that provide web based solutions.

media entrepreneurs suggested that they had a jet set lifestyle with profligate spending habits (BBC Internet Business News 2002, viewed 10.8.04; Pratt, 2000):

> 'The in-office lawn... It was meant to impart a relaxing atmosphere... There was an inflatable boardroom, which according to the list had cost £100,000...Chats over dry martinis replaced the traditional arid boardroom sessions...I found myself dancing face to face with Gisele, the Brazilian supermodel at a party in Paris' (BBC, 2002).

In practice this exaggerated profile was not the case, instead several respondents were in their early to late thirties with young families and did not necessarily live in BH, the exciting lifestyle of cafes and the regularly attendance of cultural events, a distant memory. The risk of offering a gift may have biased the reason for cooperation, but all respondents appeared to participate in the interview in a friendly and open manner with nearly all the interviews lasting around ninety minutes.

Half of my eventual sample replied by email suggesting dates to meet, a further quarter required a follow-up telephone call from, which an appointment was made; the remaining quarter was more difficult to recruit. They were too busy, not interested or continually away from the phone. They were eventually recruited by referral, where some complying respondents were asked to look at my sampling frame, and then asked if they knew of any of the managing directors, and would they be happy for me to contact them, using their name as a form of referral, a type of 'snowball' sampling strategy, (Miles and Huberman, 1994).

In total 17 companies were interviewed, progressively from the 22nd of July 2003 until the 5th of September 2003. After interviewing each company I noted the key themes and patterns that were coming through and after the fifteenth interview, there appeared to be little new information but having booked two more, these were, therefore, completed giving a total of 17 interviews. Eisenhardt (1989) recommends that cases should be added until "theoretical saturation" is reached and Lincoln and Guba (1985, p. 204) recommend sampling selection, "to the point of redundancy", which I feel has been achieved.

3.6.2 The sample profiles

The sample companies, are referred to throughout the thesis by a letter code to protect their anonymity. Each of the sample parameters from Table 3.4, are now discussed in more detail.

Firm	Location	Core Business	Interview	Interview Location	Job Title	No. of Staff	Regularly use Freelancers	Yrs
A	Central Media C	Web site design only	2003/8/29	Company office	MD	2	Y	10
B	Central Office	Web databases	2003/8/13	Company office	Snr Prog	15	N	20
C	Suburb House	Web Programming	2003/8/13	Home-office	MD	4	Y	13
D	Suburb Office	Web databases	2003/7/22	University	MD	4	N	5
E	Suburb House	Web databases	2003/7/30	Pub	MD	3	Y	4
F	Suburb House	Web site build	2003/8/19	Home-office	Brch Mgr	1 + 10	N	3
G	Central Office	Web Programming	2003/9/5	Company office	MD	5	N	9
H	Central Media C	Web site design only	2003/8/12	Company office	MD	3	Y	5
I	Suburb Office	Web Programming	2003/8/5	Company office	MD	4	N	3
J	Suburb House	Web Programming	2003/8/6	Pub	Tech Dir	8	N	3
K	Central Media C	Web Programming	2003/8/8	Company office	MD	6	Y	6
L	Central Media C	Web site build	2003/8/11	Company office	MD	3	Y	3
M	Central Office	Web Programming	2003/9/2	Café	MD	4	N	3
N	Central Media C	Web Programming	2003/8/15	Café	MD	14	Y	3
O	Suburb Media C	Web Programming	2003/8/19	Company office	MD	13	N	4
P	Suburb House	Web site build	2003/8/27	University	Sole Trader	1	Y	5
Q	Central Media C	Web Programming	2003/8/27	Company office	Chair	20	N	10

Table 3.4 Profiles of companies recruited

From Table 3.4, five of the companies were based in media centres in the centre of the city while a further one was located on a university campus in the outer suburbs of the city. Three were also located centrally but in office space shared with other companies that did not necessarily have a new-media background. The remaining seven were located in the suburbs of BH of, which five were based in private housing and two in offices. The

research findings suggest that that these location differences do have an affect upon a company's networking behaviour.

There are four core technology areas, all centred around digital technology:

- Web programming: These companies build web sites using their own code and not using proprietary software (eight companies).
- Web databases: These companies build databases for web applications using their own code not proprietary software (three companies).
- Web site build: These companies rely upon proprietary software (three companies).
- Web site design: These companies rely upon proprietary software (two companies).

This information was gleaned from talking with Wired Sussex initially, then from examining the web sites of these companies and finally from the interviews themselves. The main distinction to be drawn here is between those companies that write their own code, and those that instead use off-the-shelf software packages. The research findings suggest that these differences impact upon the markets served and levels of innovative activity.

Twelve of the participants were managing directors; one was the technical and founding director, one, the Chairman and founder, one, a branch manager of a Birmingham based company, one a senior programmer and one, a sole trader. All the companies have been trading for a minimum of three years, with one having traded for 20 years. The number of people employed including the participant ranged from a sole trader to a company employing 20 people. Seven of the companies used freelancers to supplement their work force, on a project-by-project basis, and these tended to be the smaller of the firms, while the remaining companies used freelancers on an occasional basis.

All the companies provided business-to-business web based services of, which four (B, D, L and N), also marketed a standardised product, and a fifth (O), had three products. A product in this industry is a software service that has been standardised onto a CDROM, packaged, branded and then sold with a manual, either through resellers or from the company's web site. However, in all cases, participants reported that their service provision accounted for the majority of their revenue streams[9].

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[9] No data was collected as to the actual proportions between product and service revenues.

3.6.3 Sample representativeness

It is my belief that the empirical findings from the 17 sample firms are representative for the following reasons. From the sample profile, Table 3.5, all the firms meet the theoretic sampling criteria set out in Table 3.4. The advantage of theoretic sampling is that this helps ensure that the sample is representative so that generalisation back to the literature findings can be maintained and, therefore, act as an indicator of validity and reliability.

A possible criticism is that the relatively small sample size of 17 may not have captured a representative range of opinions and views? Yin (1994, p.46) states that if 6-10 cases confirm the stated proposition then:

> "...this is compelling support for the initial set of propositions. If the cases are in some way contradictory, the initial propositions must be revised and re-tested with another set of cases. Again this logic is similar to the way scientists deal with contradictory experimental findings".

He goes onto to report that this process can develop (*ibid*, p.46):

> "...a rich theoretical framework. The theoretical framework later becomes the vehicle for generalising to new cases, again similar to the role played in cross-experiment designs".

It is also important to stress that sampling for a multi-case study methodology is not about mimicking the positivist approach to identifying inferential statistics and their confidence intervals. Sample size is therefore less of a critical issue for qualitative researchers. Eisenhardt (1989) recommends that cases should be added until "theoretical saturation" is reached and Lincoln and Guba (1985, p. 204) recommend sampling selection "to the point of redundancy". It was on the basis of these arguments, that I found, that after examining the 17cases on a progressive basis, there was no new evidence becoming evident and therefore finished with the current sample size.

From table 3.5 most firms had less than 10 employees (76% of the sample) and as such 'micro' firms represent the majority of companies in BH (interview with Wired Sussex on

the 25.11.02), provides further evidence of the sample's representativeness. This figure is also supported by Kaplinsky *et al.* (2003) who estimated that 80% of new-media firms were small firms (< 50 employees), while micro companies (<10 employees) represented 60% of all new media firms. On that basis, the sample selected reflects the distribution of new-media firms by size, and therefore are likely to be representative of the population as a whole, although this cannot be proved statistically.

Of course response bias can still arise and their forms are documented extensively in many literature sources (Oppenheim, 1992). The key ones that may affect this study are highlighted in Table 3.5:

Potential response bias arising from the study
• Reliance on elite respondent • Noisy interview environment • Fundamental attribution error • Self serving attribution error

Table 3.5 Respondent bias

The reliance on the managing director is an advantage and a disadvantage, discussion of which has already been covered in section 3.4.1.

Noisy atmosphere: Two of the interviews were done in a pub and two in a café, not the most conducive environments, although not untypical in small firm research, where interference and noise was a problem in one of those locations.

Fundamental attribution error (Rogoff *et al.* 2004): occurs when the subject blames someone else for a problem, for example the various institutional players, but not recognising the true causes of the issue. Self serving attribution error occurs when the subject blames some one else when they themselves are to blame, for example blaming Wired Sussex for organising poor networking events. However as the various criticisms made by respondents were commonly cited, corroboration does arise as a result.

3.7 Questionnaire design

The questions that were designed were based upon the research questions identified in the literature review and feedback from the interviews with Wired Sussex (C. Clemons, new-media consultant 25.11.02, see appendix E) and the Brighton Media Centre (I. Elwick, chief executive, 6.12.02, see appendix E). Berg (2001) recommends the use of expert opinion in helping to confirm the language used by an industry for example, use of the terms 'informal' and 'formal networking' by new-media firms and the contexts by, which new-media business is practiced, for example, the need to use freelancers. The final draft of the questionnaire was then sent to an academic colleague, with experience of exploring the related digital games industry, for his opinion concerning the questionnaire design (A. Grantham, (1.5.2003), from Kaplinsky and Grantham, 2003).

The questionnaire design was also influenced by my attending three monthly networking events, organised by Wired Sussex (27th March 03; 29th May 03; 26th June 03, see field notes in the appendix, A), as a participant observer. This was to gain an idea of the types of firms who attend and their reasons for attending. For ethical reasons, I did volunteer the reason for attending, and to avoid any possibility of bias, none of the companies I spoke to, were invited for interview.

From experience of carrying out in-depth interviews, I have found that a heavily structured questionnaire design and protocol, detracts from the ultimate goal of understanding the respondent's appreciation of their industry. Marshall and Rossman (1999: 108) liken the in-depth interview process as being:

> "...more like conversations than formal events with predetermined response categories. The researcher explores a few general topics to help uncover the participant's views but otherwise respects how the participant frames and structures the responses".

Berg (2001) suggests that there are three main forms of interview questionnaire design. I chose to follow the 'semi-standardised' form. This was because it lends itself to discussing general themes with follow up probes. The 'un-standardised' form is more suited to a theory last approach, where there are no known categories and the process is one of complete discovery. The 'standardised' interview lends itself to a quantitative design, of closed ended questions, where all categories of discussion have been already identified, and a standardised protocol is repeated with each interview.

I believe that the semi-standardised form of questionnaire design that was used, allowed for flexibility and recognised that I did not have all the categories to standardise completely, but I did have sufficient information from my literature sources to ask a range of questions that related to my proposed conceptual framework, rather than having a completely open ended, unstructured questionnaire. The semi-structured design used open-ended questions but with probes and reminders. The introductory question was concerned with why they started their business and this was followed by other warm up questions about the firm and its development. Questions then moved onto the focus of the study in terms of exploring the meaning of new-media, the reality of BH as a new-media cluster, their level of networking and what contribution this played in terms of their ability to learn and innovate[10].

One of the problems of using 'theory first' is that the interview and interviewer may bias the responses of the interviewee, by the way questions are phrased and by the absence of questions that may actually be relevant but, which the interviewee has little opportunity of answering (Strauss and Corbin, 1998). This was minimised in this study by not using a standardised series of set focussed and leading questions but instead were open ended with opportunities for the participant to feed through their thoughts and opinions about the areas discussed.

A problem that can arise even with semi-structured questionnaire/interviews is that questions may not be answered or topics not covered. To minimise this issue and to offer a degree of within-study triangulation (Miles and Huberman, 1994) a quantitative questionnaire was used, so that the counting of categories with simply frequencies could be determined (Silverman, 2000). The questionnaire[11] was in the form of a 'closed ended' design, and was given out after the interview, and contained a series of closed and multiple choice questions, for ease of analysis, that mirrored or extended the open ended questions of the interview.

3.8 The Interviews

The interviews were completed over a two-month period from July 22nd, 2003 to September 5th, 2003 by, which time 17 interviews had been carried out. The interviews were recorded on tape although one firm refused this option and notes were taken. Most

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10 see appendix B

11 see appendix C

interviews lasted approximately 90 minutes although one was constrained to 60 minutes due to time pressure for the respondent. Eleven of the interviews took place on company premises or their home/office; two took place at the University of Brighton, for the travel convenience of the respondent, while four took place in either a café or public house. This arose because the office space was too cramped or not wishing to interrupt workflows in what are usually open plan environments. In practice, these were not ideal locations, because of background noise but do reflect the circumstances that will arise from researching new-media micro companies.

After the first interview, it was transcribed by me, to help gain a greater sense of the themes and contexts arising, with the remaining interviews transcribed by a professional, but then checked by me for accuracy. Using a professional transcriber can have a slight disadvantage in that I was not fully engaging the data, but I was able to advise the transcriber of what to expect, in terms of language style, and as they specialise in working for the university sector, my confidence in the transcriptions are high.

3.9 Data coding and analysis

The transcribed interviews were then entered into Nvivo for coding and analysis. Coding was an iterative process, which involved highlighting text and coding to a named Nvivo 'tree parent node', which was based upon the conceptual framework and the interview questions from, which 'descriptive codes' were created (Miles and Huberman, 1994:57-58). Once all the transcripts had been coded, it became apparent that some interview data was unassigned and were, therefore, assigned an Nvivo 'free node', these were issues raised by the participants themselves.

The initial coding in the 'parent tree nodes' was then re-examined and text re-coded into 'tree child nodes' if there were differences of opinion, for example, agreed or disagreed with the term 'new-media' or where a category could be broken down into sub categories, for example,: innovation into product, process or service innovation. The final structure (see Table 3.6, below), resulted in six free nodes and three parent tree nodes, which included 14 child, and 13 sibling nodes.

FREE NODES	PARENT TREE NODES (P); CHILD NODES (C) WITH THE NUMBER OF SIBLINGS IN BRACKETS.
Freelancers Relationships Trust Why locate in BH Company size What is new-media	Why start the business (p) Core business (c) Competitive advantage (c) What are your main objective (c) Networking (p) Formal/Informal networking (c) For information (c) With whom (c) (10) Who is responsible (c) Virtual networking (c) IPR issues (c) For learning (c) For innovation (c) (3) BH new-media cluster (p) Customers (c) Competitors (c) Suppliers (c)

Table 3.6 Profiles of Nvivo nodes

The analysis became a process of reading through the nodes, looking for evidence that supported or did not support the research propositions, as well as looking for any alternatives that the participants had to offer. It was unusual to find any particular proposition being completely agreed or disagreed. In practice, there was a spread of views given around each proposition. The refining of some codes continued with redrafts of writing the thesis chapters, as issues and finer differences became clearer (*ibid*).

Nvivo, does not do the analysis for you but does allow for an efficient system of cutting and pasting of data, which otherwise would be a very complex process. There is quite a steep learning curve to using the software, and as I was largely self-taught, I am sure there are features that I did not use because of my ignorance. I am pleased I used Nvivo as opposed to a manual system, as it does give increased confidence in the analysis process, because of the efficiency of using a computer based system, although some authors suggest that computer data analysis can become 'too mechanistic' with a 'loss of context' arising (Dembkowski and Hanmer-Lloyd, 1995: 59-61).

Once the Nvivo analysis was completed, the results of the 'closed ended' style, questionnaire were incorporated, as were findings from the participatory observation and the interviews with Wired Sussex and the Brighton Media Centre. This enabled a degree of triangulation of results to occur that helped enhance the reliability and validity of the study.

3.10 Demonstrating validity and reliability

Both Curran and Blackburn (2001) and Silverman (1993) identify a number of ways that reliability and validity can be demonstrated and where applicable, are discussed as follows. For the face to face interviews, a level of reliability was obtained by pre-testing of the open and closed-ended questions through the expert opinion of Wired Sussex and the Brighton Media Centre and with the final draft going to an academic who had previously interviewed companies in the digital games industry (Kaplinsky and Grantham, 2003).

In terms of the coding of the open-ended questions, inter-rater reliability was applied by asking an academic colleague to check the proposed coding of answers. Consistency of coding can also be demonstrated using Nvivo, which is able to standardise and replicate the coding across all cases. During the observational study, reliability was more difficult to maintain, as note taking during a networking meeting would not be practical, however, at the end of the meeting, notes were written up[12] .

Validity can be affected by random error, where the case selected is not representative. Random error was minimised using theoretical sampling and advice from the expert opinion of Wired Sussex and the Brighton Media Centre. However a quarter of the cases were selected by using a 'snow ball' process and a degree of error could have arisen as a result of respondents recommending companies with similar or the same subjective views, thus over weighting certain shared opinions.

Validity can also be compromised because of either a type 1 or a type 2 error arising (Sekaran, 2000). A type 1 error occurs when a statement is believed to be true when in fact it is not. A type 2 error arises when a statement is rejected as false when in fact it is true. One of the major problems in quantitative approaches is making type 1 errors (Silverman, 1993). One of the major advantages of interviews is that the motivations of owner-mangers of new-media firms can be explored in depth to identify a fuller range of motivations for networking, thus potentially identifying other variables that a self-completion questionnaire is less likely to discover. Type 1 and type 2 errors can also be minimised by setting the proposition so that it has to be falsified rather than proved (Popper, 1963).

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[12] see appendix A

For the observational aspect of the study, validity is more problematic, as the observer is obliged to:

> "Rely exclusively on his or her own perceptions. They are, therefore, more susceptible to bias from their subjective interpretations of situations" (Adler and Adler, 1998, p.87).

This problem can be minimised by using several observers who then compare observations but this was not feasible for this study. The use of observation was chosen as a means of preparing for the fieldwork and to a small degree to triangulate findings of networking behaviours of new-media, from the interviews. Overall, the contribution of the observational field notes to the study findings was minimal, therefore, limiting potential bias.

Triangulation is a particularly useful way of improving validity by using several sources of information for comparative analysis. Triangulation according to Stake (2000, p.443) is a:

> "Process of using multiple perceptions to clarify meaning, verifying the repeatability of an observation or interpretation. But, acknowledging that no observations or interpretations are perfectly repeatable, triangulation serves also to clarify meaning by identifying different ways the phenomenon is being seen".

In the analysis, I used a combination of qualitative, quantitative and a small amount of observational data. Completing 17 interviews and cross comparing the responses is also a form of triangulation and, therefore, contributes to the validity of the study (Miles and Huberman, 1994; Yin, 1994). Finally, the findings themselves are grounded from sources in the literature, further enhancing confidence in the potential validity of the conceptual framework and research propositions.

3.11 The role of the researcher

I contacted and interviewed the sample respondents on the basis of working as a professional academic who was registered on a doctoral programme. I was also at the time a member of the executive committee of the local Chamber of Commerce, with the responsibility for organising chamber events, at which some networking would take place. This experience, and the general knowledge that I had of the local economy, new-media

and small business, was useful when interviewing the new-media owner-mangers, as I was able to give a credible account of the purpose of the interview and the industry context of new-media in BH.

I was not aware that any of the respondents that I interviewed were affected by the fact that I was an academic and a doctoral candidate. However, the interview process would not be part of the participants' natural world, and therefore a degree of influence will arise. This might be in the form of answering questions, based on what they thought I wanted to hear. They might also be critical of any third parties, if they believed this thesis might have some influence. This could be the case because when discussions moved onto commercial landlords, Wired Sussex and other institutional agencies, respondents were generally very critical.

As for my own preconceived perceptions and motivations, they were informed to a certain extent by the literature and my personal experiences of networking and meeting new-media firms and the two stakeholders, Wired Sussex and Brighton Media Centre, prior to the fieldwork beginning. Before the fieldwork began, my supervisor stressed that these preconceived ideas may unduly influence the research. To minimise this possibility, the questionnaire itself was designed to be relatively open-ended, and had been crossed checked by an academic and a practitioner. While my background as a professional market researcher has enabled me to develop the skill of minimising interviewer bias.

3.12 Ethical issues

For the case study interviews, privacy, confidentiality and anonymity was offered in the email correspondence and at the beginning of the interview, to help reassure respondents that participation would not result in any commercial or personal disadvantage.

The participant observation could have been ethically problematic, as initially I was not going to state the purpose of my attending the event, I then thought to change this to explaining my attendance if asked. I was concerned that if I was to make the statement voluntarily, I might then bias their attitude toward me, at the time I was also considering using these occasions for sample recruitment purposes. Christians (2000, p.139) states that ethical debate in the social sciences suggests that:

> "Researchers design different experiments free of active deception. But with ethical constructions exterior to the scientific enterprise, no unambiguous application is possible. Given that the search for knowledge is obligatory and deception is codified as morally unacceptable, in some situations both criteria cannot be satisfied. Within both psychology and medicine some information cannot be obtained without at least deception by omission".

It was pointed out to me in a DBA presentation, that there were still ethical dilemmas involved in my proposal, which I subsequently realised, and so volunteered the reason for my presence at the networking events, and used a different sample recruitment strategy. I, therefore, feel confident in claiming that my research methodology was ethically conducted, and meets the University of Kingston's standards and policies.

3.13 Limitations of the research method

To conclude, I do feel confident that validity and reliability within the research methodology and implementation are well established. However, with hindsight and self-reflection there are a number of limitations to the research design that need to be stated.

1. All my interviews were done over a relatively short period of time that left little time to self-reflect. A greater level of forward planning may have enabled more time for such consideration.

2. The time scale also meant that I was obliged to recruit my last quarter of respondents using a 'snow ball' approach, where more time may have allowed for all respondents to be recruited in a more purposeful way, although the sampling frame itself was theoretically derived.

3. Respondents were not asked, what previous experience they had of running a small new-media business, so those firms that were recruited with the minimum of three years trading history may in fact have a longer trading history, from which their networks were already formed, thus allowing them additional benefits that are not necessarily reported in this thesis. The problem that this potentially creates is that it will not be possible to make any claims about differences between ages of firms, which the thesis therefore does not do.

4. A level of respondent bias was identified in Table 3.5, although they are not considered to be of major concern.

The following chapters 4, 5, 6 and 7, discuss the findings from the implementation of this methodology, with the aim of verifying the conceptual framework and research propositions that were derived from the literature review chapter.

Chapter 4: The Brighton and Hove New-media Cluster

4.1 Introduction

The aim of this chapter is to examine to what extent BH is a new-media cluster, which enables the sample firms to benefit from positive economic externalities and un-traded interdependencies. This will be an important finding, as the key thesis proposition maintains that a new-media cluster will enhance networking opportunities that will contribute to positive learning and innovative outcomes for participant firms:

RP1 'All new-media firms in Brighton & Hove form a new-media cluster'

To help determine this issue, the chapter will address the following research questions that were derived from the literature review:

RQ1 To what extent do the sample firms relate to the term 'new-media' cluster?

RQ2 To what extent do new-media companies specifically co-locate in B&H for the purposes of networking and gaining other un-traded interdependencies?

RQ3 To what extent do new-media companies specifically co-locate geographically in BH for the purposes to gain positive economic externalities?

RQ4 To what extent do new-media companies co-locate geographically in B&H for the purposes of accessing skilled labour?

These four research questions are covered in the following three main sections. The first section, explores the perceived meanings of new-media and new-media cluster for the respondents, with the purpose of contextualizing their own lived reality, terms that are commonly used in the academic and policy literature. The definitions that are used in this chapter to compare with respondent perceptions are taken from the previous literature review chapter:

> "New-media are digitally based technologies that are constantly changing, resulting in the convergence of different combinations of media, providing seamless interactivity for the user" (Conway, 2003).

> "A cluster is a geographically proximate group of interconnected companies, and associated institutions in a particular field, linked by commonalities and complementaries" (Porter, 1990, p.16).

The second section, examines the degree to which members of the supply chain and other intermediaries are actually co-located in BH. The final section, examines the reasons why respondents located their business in BH and whether this provides further evidence that they do derive benefits from co-locating in a fully functioning Porter cluster. This is followed by a summary that explores the expected and observed outcomes for each of the research questions and integrates the literature findings from chapter two.

The chapter concludes, that in reality, BH new-media does not fully function as a Porter cluster, but does have some cluster characteristics that enables positive economic externalities and un-traded interdependencies to partially arise.

4.2 Perceptions of the terminology

Participants were asked to comment upon the terms 'new-media' and 'new-media cluster', terms largely favoured by the academic and policy communities (see section 4.6 for references). For each term, there are three main respondent perspectives: First, that the terms are recognised as their lived reality. Second, there is partial agreement that the terms are relevant and third, that the terms do not represent their realised experiences.

LEVEL OF AGREEMENT	NEW-MEDIA
Agreement	DJ
Partial agreement	GMN
No agreement	ABCEFHIKLOPQ

Table 4.1 Level of agreement with the term new-media, by case

It is clear from Table 4.1, that many of the participants were not happy with the term new-media, as a way of defining their business, there was some partial agreement but with reservations, while only two firms had no qualms calling themselves new-media companies.

4.2.1 There is a new-media

From Table 4.1, companies D and J were happy to refer to themselves as new-media companies. Company J; saw new-media in terms of the technical medium, the Internet, by which pictures, text, data, voice etc were transmitted:

> "To me actually it means literally anything that is delivered via the Internet... services that can migrate...that was delivered by an older mechanism or an older infrastructure...that is the new-media effectively" (Company J).

Company D, provides database and ISP services, and they felt new-media was a term that did reflect the fact that the technology was constantly changing and, therefore, renewing itself, particularly as this company provided the infrastructure for a cross section of new-media firms, and seeing how application and needs were always changing.

Although company G, had reservations concerning some of the negative aspects of the term 'new-media', they did believe it differentiated itself from 'old media'. 'Old media' is a one way medium, of print and broadcast, as opposed to the interactive nature of new-media. 'New-media' is a two-way medium of communication, via a screen device, be that a personal computer (PC), mobile phone, a personal digital assistant (PDA) or television (TV), features that are not possible with 'old' analogue technology.

4.2.2 There is no new-media

The main criticisms were that the technology was either: not new anymore, missed new market opportunities, represents poor quality, involves a low skills base or creates a false dichotomy between 'new' and 'old or having a general negative perception (Table 4.2 below):

REASON FOR DISAGREEMENT	CASE EXAMPLE
Not new anymore, a cliché, still requires traditional accounting and other business practices.	"...it is not that new, when its been around for 10 years" (Company A).
The term can miss potential new market sectors, as they may perceive this 'new technology' as not being applicable to them.	"...the term is likely to miss its opportunities to reach non-technology markets in terms of clients, users and employees" (Company Q).
Represents poor quality because of either naïve clients or exploitative supplier power.	"...there was the boom and the boom has left either a lot of people high and dry, or with a nasty taste in their mouths, and there was obviously a

	lot of greed involved …it is just like estate agents, when you get a boom, they are out there to make a killing, and obviously in new-media there are plenty of agencies, doing very poor work for far too much money" (Company G).
Involves a low skills base, with low barriers of entry.	"New-media equals design and PR, using proprietary software….not serious programming or coding" (Company I).
A false dichotomy as the technology is now ubiquitous.	"…if you look at a newspaper production office, which must be close to old media, they are all on computers, so there is no old media, in fact there never was any old media seeing as the fact that we still use paper. It is new-media when it is printed on a new computer is it?" (Company C).
General negative perception arising from the late 1990's of profligate spending, stock market boom, government investment and then subsequent crash.	"New-media is associated with the dot.com crash and government grant chasing" (Company E).

Table 4.2 Reasons for disagreement by case example

Although company M did not disagree with the term 'new-media' they felt, however that such a company would need to have expertise across a wide range of applications from web design on the one hand to digital TV on the other and, therefore, felt that the term would not apply to them. This was because they focused upon web site designs using proprietary software, as opposed to a full service provider developing their own code.

These participants did agree that they were involved in media technology; it was the 'new' tag and its implications and image, which they disagreed. That is why it is not anomalous for most of them to agree, that BH was at least a partial 'media' cluster (see Table 4.2).

4.2.3 Alternative terms

Several participants offered alternate ways of describing new-media or their business:

ALTERNATIVES	• CONSULTING & PROBLEM SOLVING • MARKETING SERVICES • DIGITAL MEDIA • CREATIVE MEDIA

Table 4.3 Alternative terms for new-media

From Table 4.3, company F described his organisation in terms of the service provided, which in this case, was one of 'consultation' and 'problem solving' for clients:

> "Because it is more about what we do, we are not sort of decorators, we do not just do something that looks pretty, its got reasons, that needs to achieve something for our clients" (Company F).

Company K prefers to think of itself as a marketing company, rather than as a new-media company:

> "..I go out and I tell people, we are not a new-media company, we are a marketing company that delivers IT web solutions" (Company K).

Company E, felt that digital media was a better explanation, as the term 'new-media' is now associated with the dot.com crash and government grant chasing, while another company described the medium as 'digital media' because of its convergence capabilities:

> "...Because it tells you what you are doing, if it is in digits we do it...video...sound... pictures... text...code...its all converging. Yes, that is what we do; let your digits do the talking" (Company C).

Because creativity is at the heart of providing client solutions, company H preferred to describe themselves as being part of the 'creative media':

> "I suppose creative media more than new-media because the end goal is still the same [creating client solutions]; all these tools are tools to move forward to achieving the client's goals" (Company H).

Although these firms recognised the term new-media, they all felt it missed the reality of their industry. The term new-media is poorly perceived by the sample firms, which suggest that future academic and practitioner writers should review their use of terms, otherwise they risk alienating this important stakeholder.

4.2.4 Brighton and Hove is a new-media cluster

Respondents were then asked to comment upon the term new-media cluster, and whether they felt BH was such a place.

LEVEL OF AGREEMENT	NEW-MEDIA CLUSTER
Agreement	LNO
Partial agreement	BCDEGHIJMQ
No agreement	AFKP

Table 4.4 Level of agreement with the term new-media cluster, by case

From Table 4.4 the majority of respondents agreed that BH was at least a partial new-media cluster, while companies LNO were able to agree fully with the notion. Company L; felt it was something real and tangible, which gave a sense of membership:

> "It is definitely a real thing... it just represents the sheer number of small businesses and freelancers, working in our industry...it is something that we definitely feel a part of and feel is out there" (Company L).

For company N the physical convenience of co-location is emphasized with networking and support benefits, particularly from being based in a central media centre:

> "I think it is a relevant term, I think we do feel part of it. For us the experience is the physical location in and around the [media centre X], where a lot of companies are based and as a result of that we have built networks with people like Y and Z [names of two local companies]...and the role of Wired Sussex has probably been in networking, in getting us to communicate" (Company N).

Company O is able trace back the historical roots of the cluster to a more general pool of creativity, which is essential for the development of new-media:

> "I think it definitely exists...there are a lot of new-media companies in Brighton... there has always been a lot of design companies in Brighton so I think it probably grew out of that...the whole creative thing...the culture of Brighton suits that, and I think companies who come down to Brighton to purchase those types of services feel that it all fits...Brighton is a good place to be to do that" (Company O).

These three companies are emphasising a sense of belonging, networking, creativity and culture that can be attractive features for new-media companies.

4.2.5 Brighton and Hove is a partial cluster

A range of reasons was given, as to why BH was a partial cluster:

REASONS FOR PARTIAL CLUSTER	CASE EXAMPLES
Few direct local competitors	Companies, D, I, and M, serve niche markets, so while they agreed that BH had many new-media companies they were not perceived as direct competitors because they were specialists.
Physical limitations to the geographic area of BH	"It is because of the small size of Brighton...we have the sea on one side, the Downs on the other. There is very limited capacity for building new industrial bases here" (Company Q).
The cluster is limited by a lack of a coordinated strategy.	"....but what we are not doing is we are not embracing a lot of the assets and the change that is taking place within the city and creating some form of cohesive and unified approach to, I do not know, creating a more economic outlook from that.... What I think we lack in BH is a vision based on what we already have, what we have, what resides here and what output we could grow and develop" (Company Q).
A location of human capital, ideas and discussion with supportive agencies.	Although company C was scathing about the concept of cluster the participant did suggest that in practice, BH does have a "critical mass of intellectual discussion", that companies do network with each other, which is sometimes enhanced by the role of 'Wired Sussex' (Company C). Company Q and others mentioned the benefit of the high level of graduate retention from the two local universities.
A location only of complementary, professional and technical suppliers	Most firms agreed that BH did have an abundance of local suppliers although they did not all necessarily network or buy in these local services.

Table 4.5 Reasons why Brighton and Hove is a partial cluster

From Table 4.5, participants were able to cite aspects of cluster characteristics while recognizing that this did not represent a cluster in the full sense of having the co-location of competitors, customers, suppliers, and labour and support institutions, simultaneously. However, they did identify some aspects of clustering to be evident, for example, BH is seen as a good location for complementary suppliers, staff and freelancers with few claiming to have many competitors or customers in BH (see following sections).

4.2.6 Brighton and Hove is not a new-media cluster

Several firms felt that BH was not a cluster for the following reasons, (see Table 4.6):

WHY BH IS NOT A CLUSTER	• Only has a statistical meaning. • The BH industry is too young. • It is a community of friends not a cluster.

Table 4.6 Why Brighton and Hove is not a cluster

One firm suggested that the term cluster was largely a statistical exercise with little practical application:

> "It is a statistical thing; it does not mean anything other than that, I mean statistically if you were to dot, dots on a map of England, you would find a cluster around BH, so does it mean anything statistically? Yes, does it mean anything else? No" (Company C).

The suggestion is that although there is evidence of a grouping of companies there is little benefit deriving from that, unlike the economic and un-traded benefits said to be reported by academics and policy makers (see section 4.6 for evidence).

Company E, also felt that the term 'cluster' over emphasised the development of new-media in BH:

> "I think actually that the industry here is too young, it sounds a bit pompous to me" (Company E).

As the BH new-media industry only began in the mid 1990's, this participant makes a good point, that BH lacks sufficient maturity to have developed into a fully-fledged cluster.

Company A, had no understanding of the term 'cluster' but did relate the idea of community:

> "... what it means is that I have a lot of friends in this area (Brighton) who have got their own little companies who I talk to, I go for coffee with and we share ideas, so

I suppose you could say to that extent, , we are a little community, but that is about it" (Company A).

In many respects, this respondent is describing an attribute of a cluster in terms of the un-traded benefits that can arise through co-location but places no significance upon this outcome.

As with the term new-media, the sample respondents are not fully happy with the terminology that is used to describe their industry. The following sections, seek to establish in more detail as to whether the component parts of a cluster are actually in place in BH, namely co-located customers, competitors, labour, suppliers, and support agencies.

4.3 The Brighton and Hove cluster in terms of its supply chain

The objective of this section is to determine the importance of proximity and the degree of co-location of new-media with other members of the supply chain in BH. The findings suggest that the cluster does not fully conform to the Porter (1990) ideal.

When locating or starting-up in Brighton & Hove, what was the level of importance of the following?	Never	Rarely	Sometimes	Always
Proximity of complementary digital services suppliers (CDSS)		OB	LKJHFEDC	PINMAGQ
Proximity to customers	A	PKEGI	ONMLJHDCQ	FB
Proximity to local suppliers	M	PONLKEDBAIQ	JHFCG	
Proximity to Competitors	KA	POMFEDBGIQ	JHC	NL
Proximity of a workforce with relevant skills		F	PA	ONMLKJHEDCBGIQ

Table 4.7 The importance of proximity and co-location, by case

The evidence from the questionnaire, Table 4.7, indicates that proximity and co-location to a work force with relevant skills is 'always' seen as important for the majority of respondents and to a lesser extent for CDSS while proximity to competitors and local suppliers is 'rarely' seen as important. Proximity to customers is largely seen as

'sometimes' important and suggests that co-location is not the key factor as found in the chapter reviewing past academic literature, (see following sections for related findings).

4.3.1 Skilled workforce and freelancers

BH was seen by all respondents as an excellent location for the recruitment of staff, graduates and freelancers and ties in with the previous finding that proximity to a skilled work force is 'always' considered important. The two universities were seen as an important source of new staff and the employment of students on short-term contracts was common amongst the respondents.

All the companies contacted felt that BH was a good source of freelancers, with eight using them on a regular basis and the remaining companies using them occasionally, (see Table 4.8):

	COMPANY
Use regularly	ACEHKLNP
Use occasionally	BDFGIJMOQ

Table 4.8 Use of freelancers, by case

Local freelancers are used as an important adjunct to the management of projects; they can provide specialist skills and aid the minimisation of overheads, so that firms can more easily cope with fluctuating demand, which is characteristic of the industry. The attraction of freelancers to the city has historical roots, as it has always been a centre for creatives and partly because BH was seen as, an ideal place to live for lifestyle benefits (Company F).

For company D, using freelancers allows the firm to cope with the changing size of contracts, relying on a hard core of full time staff, which is then supplemented by freelancers as and when demanded by different client jobs:

> "Extensively, [the use of freelancers]...as and when the projects come up, it is a very fluctuating market ... we would not have survived to be honest with you [without the use of freelancers] and its allowed us to get a wide degree of experience" (Company D).

4.3.2 Complementary digital services suppliers (CDSS)

From Table 4.7, and interview findings, BH was largely seen as a good location for CDSS where a degree of cooperation and cross-fertilization can occur. Company H felt that the city has a strong grouping of complementary suppliers for outsourcing potential, and as an alternate source of new ideas:

> "...because there is a close proximity of companies it will attract possible companies for outsourcing... there is always the influx of new blood...you cannot help but keep abreast of trends whether it is fashion or technical trends" (Company H).

Company J felt that the cluster allowed firms the potential to tap into a wide range of expertise within a very convenient geographic location:

> "...there are a lot of companies with a very wide ranging set of skills... there just seem to always be somebody who knows absolutely everything about this new thing, [the Internet] or is developing it. You do not need to go anywhere else to find somebody who knows a lot about that one thing" (Company J).

Greater detail concerning the level of networking with CDSS can be found in the following chapter on networking.

4.3.3 Customers

From Table 4.9, few respondents reported having a sizable customer base in BH and ties in with the previous finding, that proximity is not considered always important. The majority of potential local clients were cited as being too small, with corresponding budgets, or with low technical or quality assurance requirements. Some respondents cited that the niche markets they served needed a regional if not a national market place to be successful.

COMPANY	% CUSTOMER SALES TURNOVER IN BH	COMPETITORS
A	0	Anywhere in UK/Niche
B	<10	Some/Anywhere UK/Niche
C	30	Overseas/Niche
D	10	Niche/Anywhere in UK

E	Minority	Some
F	50	Major
G	5-10	Some
H	10	Niche Company
I	20	Some/Niche Company
J	30	Some/Anywhere/Niche
K	0	Some/Niche Company
L	50	Major
M	Not Known	Not Known
N	10	Some/London/Niche
O	5	London/Anywhere/Niche
P	70	Major
Q	3-5	Niche Company

Table 4.9 Customer turnover and competitor location, by case

There are three companies, F, L and P that have at least 50% of their sales turnover from BH clients. These three firms use proprietary software, designing simple flat rather than dynamic web sites, and tended to service smaller unsophisticated cost conscious clients, where BH has a large small business community:

> "Brighton does have a strong base of small companies to whom I provide a dedicated service particularly for those firms that feel unsure about new-media" (Company P).

Having a large local customer base is usually cited as an important indicator of evidence of an industry cluster. Yet the majority of respondents could only report low levels of turnover coming from local clients. London, the South East, national or even international clients, is usually cited as more important.

Company A, claimed to have no clients in BH. Their geographic spread was suggested to be from London to America, or anywhere. When probed, it was suggested that about half of their clients were London or South East based. The respondent later explained that she was able to mange these distant clients quite effectively on a virtual basis with little need to meet her on a regular basis.

Company B, and others had a similar situation where their large clients were based anywhere in the UK or overseas but did have the majority of their smaller clients based in BH. Being based in BH was seen as an advantage in that respect, as word of mouth contact and close proximity enabled the firm to win this business relatively easily.

However, the low level of local clients in BH was because they were usually very small micro companies, with low budgets, and unsophisticated internet needs:

> "I think you would probably find plenty of new-media work here, [meaning BH] but it is of the budget variety that those local companies are likely to be better served by going to independent freelancers who can do the planning, design build in two to three weeks and anything beyond that then they are looking for a small two man outfit, but it is like any industry, you get what you pay for" (Company G).

Company O, could only cite 5% of turnover coming from local companies, with 80% coming from four very large clients based in the London region. BH was seen as a good base to keep overheads low, while still tapping into quality labour resources, thus being able to provide good quality services to large companies at a competitive price. The respondent indicated that BH was largely a market place for low value, less technically demanding projects and thus accounted for only a small proportion of turnover.

Another reason why BH was not a significant customer location was that five companies, D, H, I, K and Q, claim to serve niche markets or have niche services, where geographic location is not of prime importance:

> "Apart from [X], they are the only customer we have that does not involve some kind of travel...you can only find so many utilities that a small area will have, so by necessity we are looking outwards to other ones across the whole length of the UK" (Company D).

It is clear that BH is not a major source of new-media clients, an important pre-requisite for a cluster to be successful, according to literature sources (Porter, 1990).

4.3.4 Competitors

When questioned about the location of their competitors, only a few believed they had many locally based. Many spoke of operating in niches, while suggesting, with others, that competition was either international, nationwide or located outside of BH, in other regions, where their main clients were based, for example, London. These findings are similar to the previous section, but now proximity is seen as 'rarely' important with respect to competitors.

COMPANY	% SALES TURNOVER IN BH	COMPETITORS IN BH
A	0	Anywhere in UK
B	<10	Some/Anywhere in UK
C	30	Overseas
D	?	Niche/Anywhere in UK
E	Minority	Some
F	50	Major
G	5-10	Some
H	10	Niche Company
I	20	Some/Niche Company
J	30	Some/Anywhere
K	0	Some/Niche Company
L	50	Major
M	?	Niche company
N	10	Some/London
O	5	London/Anywhere
P	70	Major
Q	3-5	Niche Company

Table 4.10 Customer turnover and competitor location, by case

From Table 4.10, only companies F, L and P claimed that BH was a major location for their direct competitors. All had BH as a major client base as well, and as they were largely targeting small companies with simple web needs, at competitive prices, they are faced with a large number of competitors:

> "...they are congregating into the Brighton and Hove units [new-media centres] and some working from home" (Company P).

Company A, and others stated that their competitors were:

> "All over the place, they are not all based in Brighton" (Company A).

Others emphasised the importance of London as an important source of competitors:

> "I mean there are some [in Brighton]...generally they are either from London or elsewhere" (Company B).

Company C, even cited overseas as a major source of competition:

> "Our direct competitors live in India, Ukraine, China....our competitors are the people who match us on price, quality and delivery. There are very few people in Brighton who could match us on price, quality and delivery, in all three" (Company C).

Company H, with several other respondents, could not identify many local competitors believing that they were too specialised, providing niche services to discrete market sectors:

> "I think because we have specialised in one market at the moment [illustration]... we find that we have been quite successful in focusing on this niche" (Company H).

As with customers, competitors are not co-located for most of the sample firms, another pre-requisite of a Porter cluster that does not exist in BH.

4.3.5 Suppliers

Respondents were asked about whether they sourced locally for their supplies. As most of these companies are knowledge intensive companies, sources of skilled labour are the main input. The remaining elements of the supply chain to the company are largely limited to suppliers of hardware, software, telecommunications infrastructure and professional business services, which are normally purchased through resellers, rather than directly from the national or international company.

Company B, was happy to work with local suppliers, as this gave the advantage of easier communications, while he would not rule out using suppliers from another region:

> "...if you are going to be talking about partners that are actually helping us develop something, then we'll find the best person for the job that we could possibly know. Obviously we know a lot of people locally and sometimes that happens but it is not to say that we will not go outside and find other people" (Company B).

Company E, although suggesting a degree of loyalty to local companies, it was clear that economic and technical issues are imperative:

> "....day to day business supplies we use local people but for industry specific supplies we do not. We go with the best price and the best service" (Company E).

Whether they purchase locally was reported as largely determined by quality, service and price rather than co-location being the important factor. This logic was also largely

applied to the local providers of professional services, which are plentiful in BH (see chapter five).

Many firms report that their main customer and competitor base is outside of BH, often located in London. Although there is a strong supplier base in BH, price and quality of service, override the advantage of co-location. The main cluster benefit is access to a pool of knowledge workers and networking with complementary suppliers. It is clear that BH lacks two essential elements of a Porter cluster, namely co-located customers and competitors. The next section, goes onto examine whether BH has co-located support agencies, another important element for a cluster.

4.4 Institutional agencies

The objective of this section is to determine the level awareness of the local institutional agencies that exist in BH, as these agencies purport to support BH new-media and are an important element of cluster theory as reported in the literature review chapter. The respondents were asked about, which institutional agencies were co-located in BH and all had heard of, or had dealings with the following agencies: Wired Sussex, Lighthouse, Brighton Media Centre, Sussex Innovation Centre, and the two local universities. The level of contact with these agencies is reserved for the following chapter on networking.

Wired Sussex is a networking, training and advice provider, dedicated to new-media and the creative media in BH. It is largely funded by the Small Business Service programme, 'Business Link' and, therefore, is a quasi-government body. There are two local universities in BH; Brighton and Sussex. They are seen as important suppliers of IT and a range of other graduate disciplines that are employed by new-media firms. A number of the respondents were graduates from these two universities as well as employing students for placement projects.

The Brighton Media Centre, Lighthouse and Sussex Innovation Centre are quasi-public bodies who provide accommodation and infrastructure support, largely for new-media and creative firms. Office accommodation is also sourced in standard office blocs or in private residences, either centrally based or in the suburbs of BH.

	CENTRAL LOCATION	SUBURB LOCATION
Media centre office	AHKLMNQ	O
Normal office	BG	DEI
Residential office		CFJP

Table 4.11 office type and location, by case

From Table 4.11, there are seven companies located centrally within a new-media centre with a further two centrally located companies in normal office accommodation. There are eight companies based in the suburbs of, which four are located in private residence. The sample shows a split between being located centrally and housed in a dedicated service environment. Those located in the suburbs will not have the same level of convenience of co-location with other media companies and the traded and un-traded benefits that could arise. As to whether being located in dedicated premises is beneficial is discussed in the chapter on networking but the overall impression is that there is little additional benefit.

New-media firms can join a range of networking organisations in BH. For example, the chambers of commerce, the Federation of Small Businesses and smaller breakfast clubs. There is also in BH two informal grass-roots groups, Skills Swap (http://www.skillswap.org/) and Silicon beach (http://www.silicon-beach.com/) that provide training and social events.

In addition, there is a major virtual networking source, the Brighton New-media List (BNML, http://www.brightonnewmedia.org/). The list deals with a range of subjects, from technical issues, social events, general off topic discussions as well as job seekers and vacancy announcements. BH's new-media appears to have good institutional support, but subsequent chapters will demonstrate that the experience and perception of the respondent firms is very mixed.

There appears to a wide range of support agencies but as will be discussed in the next chapter their level of participation with BH new-media is problematic. The next section, seeks further confirmatory evidence as to whether BH is a place to co-locate because of its potential cluster properties.

4.5 Brighton and Hove as a place to locate or start a new-media business

Respondents were asked about their reasons for locating or starting a business in BH with the intention of triangulating the responses to determine whether there were any 'un-traded interdependencies' or positive economic externalities reported as reasons for being based in BH.

4.5.1 The initial location of respondents

From Table 4.12, eight of the respondents were already based in BH before starting their business. They were either a long-term resident or a local graduate, or both, so it is difficult to argue that they made a choice to locate to BH, because it was already their home, however, they did decide to stay, and so their responses do have value.

RESIDENT	RESIDENT AND LOCAL GRADUATE	LOCAL GRADUATE	OUT OF AREA
BDP	CE	JMO	AFGHIKLNQ

Table 4.12 Initial cause for locating in Brighton and Hove, by case

Six of these eight respondents started their business in 1999 or before (see Table 3.1), a period that saw the main growth and development of BH as a centre for new-media. Therefore, there was a happy coincidence for these firms that their hometown was an important new-media location but also a great place for those who appreciate a quality lifestyle:

> "At the time I left university, I got a job very quickly down here. I did a contract when I finished my degree, I start working here and I had a girlfriend at the time…started playing sports…and then it is very difficult to live anywhere else" (Company M).

Nine respondents were not initially based in BH, and had relocated to BH for the following headline reasons:

LOCATING COMPANY	MAIN REASON FOR LOCATING
Company A	Because partner got a job in BH
Company F	Because sister lived in BH
Company G	Lifestyle
Company H	A location of new-media companies
Company I	Lower costs but good infrastructure
Company K	A compromise location between the founding directors for logistical reasons
Company L	Moved to BH to be with friends
Company N	Media centre infrastructure
Company Q	To locate into a media centre

Table 4.13 Reason for re-locating to Brighton and Hove, by case

From Table 4.13, it is clear that the headline reason for locating to BH was an equal mix of rational and emotional reasons. The findings from this section, suggests that respondents who stayed after university, or were long-term residents, or relocated, was for 'physic' rather than for rational economic reasons.

4.5.2 The advantages of being based in Brighton and Hove

Respondents were then asked to give examples of the advantages and disadvantages of being based in BH, to establish whether they remained because of perceived co-location benefits. A range of advantages were cited from the lifestyle benefits, to the supply of knowledge workers, beneficial competition, as a centre of gravity, for networking purposes and the overall positive image of being in BH with its creative atmosphere.

ADVANTAGE	CASE EXAMPLE
Lifestyle: This was frequently mentioned as a major benefit for being based in the city with its cafes, bars, the beach and outdoor lifestyle.	"....it is about having a work/life balance, enjoying life and family life and home life as much as work and being able to take the both seriously. It is work hard, play hard kind of scenario whereas I think in London it is more orientated at the work hard, work hard, work hard and play a little bit" (Company G).
Access to knowledge workers: either as full time staff or as freelancers. While not all firms use freelancers, they do provide a useful resource to many firms so that they can manage fluctuating demand. While the two universities provide a good source of graduates.	"...we get a lot of emails from different freelancers saying , we have heard about you or know one of the other freelancers that works with you, and we can just say OK can you just pop into the office because we are centrally located" (Company L). "...we felt that we would be able to get graduates from the universities here, get a really good team of programmers together and the salaries, overheads are not so high, we can sell in at a

	better rate and still make the same profit, someone in London is making" (Company O).
Competition: While competition was only an issue for a few of the respondents interviewed, one of these firms actually felt it was beneficial to have a number of local competitors:	"I do think it is really good having so many competitors locally because if you can cut it round here, and getting the business in, then you know you are doing alright" (Company E).
A centre of gravity for new-media: The city is seen as a major centre for new-media firms within, which firms can tap into a range of benefits. This is complemented by a dedicated support institution, Wired Sussex, as well as several new-media-friendly office providers such as Brighton Media Centre, Lighthouse and the Sussex Innovation Centre, all of whom provide broadband and a range of office services for companies with different needs.	"...it perhaps just makes us more aware because we are, I feel we are right in the thick of it here so it just presents itself perhaps a little bit more so we can go out and find whether it is on-line. I feel that we are more in tune with market trends" (Company H).
Networking opportunities: Because of the convenience of co-location.	"I think the visible closeness and informal networking as a result of visible closeness is very positive...we have been able to share experiences and compare notes and learn from each other...nick each others ideas <laughs>and that was very much where Wired Sussex has been successful in its informal networking involvement" (Company N).
The Brighton image and atmosphere: Several firms felt that the city had a very positive reputation as a new-media centre and as a place of creativity:	"It is good, its got a very positive image by people outside...people like coming here from London, it is not difficult to get people to come here...Brighton has got a very positive image" (Company K). "...it has a certain je ne sais quoi about Brighton...I have noticed that in Britain there are probably three other towns that have a similar air to Brighton and they are Bristol, Liverpool, Edinburgh. They have a similar sort of frisson in them that make you want to do things and have a sort of forward looking rather than I'll sit here on my backside" (Company C).

Table 4.14 The advantages of being based in Brighton and Hove

From Table 4.14, an advantage for being based in BH was not an economic or an un-traded benefit but a 'physic' one instead. Access to knowledge workers whether full time staff or freelancers was the most important economic benefit to all the firms questioned, where for a lower salary level, firms could still employ quality people offering a cost advantage over London competitors. The remaining benefits were largely resulting from un-traded interdependencies from support from agencies, convenient networking opportunities with complementary digital technology suppliers, and the general atmosphere of creativity that is important for new-media ideas to flourish.

4.5.3 The disadvantages of being based in Brighton and Hove

The disadvantages ranged from BH being perceived as the low quality end of the market, the negative impact of competition on profitability, the physical distance from clients in London, the inflating costs of office space, a shortage of management and marketing skills and the lack of affordable housing for key workers.

DISADVANTAGES	CASE EXAMPLE
Negative perception of new-media: Having a Brighton new-media image can have its negative perceptions such as those ascribed during the dot.com boom of profligate spending and over-hyped technology where BH is seen as the cheap low quality end of the market:	"I do not particularly want to be pigeon-holed with sort of the other media companies. Because we are really not that, we are more of a programming company…they are very much less into programming" (Company O).
Competition: For the few respondents who felt the city had a lot of competitors, the potential negative impact can result in having to compete on price, which then can have a knock-on affect upon profitability:	"…there is a lot of competition for a lot of work and I suppose … we have to compete on price, which has been difficult in a way" (Company F).
Distance from Clients: As many firms have the majority of their clients, beyond BH, with London being the prime location, some London clients prefer to work only with London new-media agencies, so that face-to-face meetings are more convenient:	"Some clients (London based) choose to work with people in London…because they are around the corner and they could see them regularly and not worry about it whereas in our circumstances we would have to travel and on a reality level it makes no difference whatsoever but the perceptions from some clients is it does, so location can be a stumbling block" (Company G).
Costs and unsuitable office accommodation: BH does have a general problem of not having a sufficient range of affordable office space that also serves the needs of new-media firms. There are several dedicated new-media centres in the city with the relevant technical infrastructure but these locations have seen a rise in costs and are perceived to offer insufficient support [see chapter five).	"I mean the costs of rent are actually becoming prohibitive. A building like this is fine for a three person outfit, it does not make huge amounts of sense if you have many personnel…we have just split this in half we used to have the whole top floor, which cost us with data about 85 grand a year…, which is a lot for a small business" (Company Q).
Shortage of management, marketing and sales skills: Most of the respondents have come from a non commercial background and have learned the craft of managing a company through trial and error:	"Managerial but also marketing and sales skills, access to those is a problem as there is a real shortage, where London salaries attract the best people away from Brighton" (Company N).
Lack of affordable housing: BH in recent years has become a very popular place to live, with many people coming to the city to retire as well as an increasing number of London workers relocating, which has then driven up housing costs:	"You cannot get new workers into this town unless you give them a flat. Now as a clever thing we have, or I have bought flats up for our workers" (Company C).
Parking and transportation	Several respondents commented on the difficulty in parking in BH. This issue it will discourage others coming into the city centre for any spontaneous networking events. East to West communications are well known to be poor for travel purposes, limiting firms' abilities to expand their businesses in those directions, often preferring instead to go up to London.

Table 4.15 The disadvantages of being based in Brighton and Hove

From Table 4.15, few of the participants had many complaints to make about BH, as quality of life was a key compensation. Most respondents have the majority of their clients outside of BH, which must increase their transaction and transportation costs and reduce the potential benefits from un-traded interdependencies that can arise from convenient face-to-face networking. Competition is largely seen in a negative light by the very small firms who target the price sensitive segments, while the shortage of management and business skills could be addressed through training and mentoring programmes.

Increasing costs and unsuitable office accommodation are partly explained by the popularity of BH, and partly because of the geographic reasons, that limit planning permission for new building programmes that will give a greater range of suitable office space. Although, BH does not have all the pre-requisite elements of a Porter cluster, plus the disadvantages for being based in BH, firms are still attracted to the city.

4.6 Relevance to research proposition one and underpinning literature

The aim of this chapter is to determine to what extent BH is a new-media cluster, thus providing evidence to determine the validity of research proposition one.

Research proposition to be assessed	**Expected Outcomes:**	**Observed Outcomes**
RP1 'All new-media firms in Brighton & Hove form a new-media cluster'. The following research questions are based upon the findings of the literature review with a view of determining whether the research proposition holds:	These expected outcomes are predicated on the basis that Brighton and Hove is an 'ideal type' of new-media cluster.	Observed outcomes are based upon the preceding analysis of the field work with the 17 sample companies. The findings are compare to the expected outcomes and then categorised as to whether there is a: Good Match Partial Match No Match
RQ1 To what extent do the sample firms relate to the term 'new-media cluster'?	The sample firms agree with being categorised as a new-media cluster	Partial Match: There is a very mixed response to the use of the term new-media, some positive some negative with many unhappy with the tag 'new'. Few could evidence a cluster in terms of customers and competitors, although they did recognise a cluster in terms of CDSS, workforce/freelancers. Suppliers and institutions are seen as clustered although they did not work closely with them.
RQ2 To what extent do new-media companies specifically co-locate in B&H for the purposes of networking and gaining other un-traded interdependencies?	The sample firms specifically co-located geographically for the purposes of networking and gaining un-traded interdependencies	Partial Match: Few firms cited that they specifically co-located for networking purposes, particularly as just under 50% of the sample were already based in Brighton before starting their company. Un-traded interdependancies are only evident with CDSS. While networking with customers was important for all firms only 3 firms were dependant upon customers in the local market. Lifestyle and cultural life are important reasons to locate or stay and BH and is seen as a positive postcode for new-media sales-marketing.
RQ3 To what extent do new-media companies specifically co-locate geographically in BH for the purposes to gain positive economic externalities?	The sample firms specifically located for the purposes of gaining positive economic externalities.	Partial Match: BH was not always cited for economic benefits but for 'physic' or current residence reasons, although access lower labour costs was seen as important, however the costs of scarce office space and poor transportation outside of the city were seen negatively.
RQ4 To what extent do new-media companies co-locate geographically in B&H for the purposes of accessing skilled labour?	The sample firms specifically co-located geographically for the purposes of accessing skilled labour.	Good Match: Accessing sources of skilled staff and freelancers is a major benefit.

Table 4.16 Expected and Observed key findings

This chapter section will explore the implications of whether the expected outcomes of the BH cluster representing an 'ideal type' are actually observed (Table 4.16). This will be done by comparing the underlying literature with the observed outcomes. The implications

of any discrepancies that arise from the expected and observed outcomes from table 4.16 will be discussed, clarifying where practice deviates from expectation, with an account of why this might be. From table 4.16 it can be seen that only one of the expected outcomes (for RQ4) was actually observed for BH while the remaining research questions, derived mixed findings (a partial match) , suggesting that BH does not conform to the 'ideal type' and therefore that research proposition one does not hold.

4.6.1 Matching expected and observed outcomes for RQ1

To what extent do the sample firms relate to the term 'new-media' cluster?

This research question will be dealt with in two parts, how the respondents perceived the term new-media and then how they perceived the concept of new-media cluster.

4.6.1.1 New-Media

There is a mixed result from comparing the expected with the observed outcomes with respect to the term new-media, due to the diversity of respondent opinions about what is new-media, diversity, not uncommon amongst academics. The main implication for future researchers is the need to be careful not to submit their own subjective views onto respondents but instead seek to explore attitudes and opinions before drawing any conclusions.

It is quite clear that the majority of the respondents were critical of the term 'new-media'. Some rejected it because the term has become dated and the technologies were always changing, issues raised by (Backlund and Sandberg, 2002). Few firms felt at ease with the term new-media and even then had similar reservations to those who were more strongly in disagreement.

The dichotomy between 'new and old' was seen as being false with several respondents reporting that it is all just the same media now. Where so called 'old media' such as print are increasingly likely to use new-media to complete a print run or in addition have a new-media version, which is web based, of the published old media version (see www.FT.com as an example). This viewpoint was reinforced by industry expert Colin Barker, editor in chief of Computing, a weekly IT newspaper, who said:

> "...the electronic version [of Computing magazine] has not cannibalized the hard copy and that there really is no such thing as new-media anymore" (a Wired Sussex presentation, 29.05.03).

There, may however, be some defence for differentiating 'old' and 'new' in the sense that companies from the traditional media tend to be larger maturer organisations, whereas 'new-media' firms tend to be small and relatively youthful organisations, operating on different financial business models, making generalisations problematic across both forms (Pratt, 1999 and Oakey *et al.*, 2000). Using the term 'digital media' may overcome the problems associated with the terms 'old' and 'new'. Several firms felt this was a more specific way to describe their business, as new-media was too imprecise and was the preferred term used by the two local stakeholders (Clemons, 25.11.02; Elwick, 6.12.02). Digital media is recognising that the underlying technology is based upon 0's and 1's and that this can by applied to a wide range of industry applications that are becoming integrated (TV, mobile phones, Personal Digital Assistants (PDA's) etc) and where customer interactivity is an important element.

Several respondents also commented upon the term being synonymous either with the negative aspects of marketing and public relations or with poor management and weak business models, that contributed to the dot.com downfall (BBC Internet Business News 2002, viewed 10.8.04; Pratt, 2000). Others felt that 'new-media' was more associated with web site design, using proprietary software products, and having little to do with advanced design and technology, where firms wrote their own code.

Probably the most insightful response came from the recognition that new-media was a technology actually based upon exploiting creativity more effectively. This may explain why organisations such as SEEDA (2002) preferred not to use the term new-media, but to have a general classification of 'digital and media' as a sub-sector of the Creative and Cultural Industries (CCI).

4.6.1.2 The New-Media Cluster

There is a mixed result when comparing expected with observed outcomes of whether BH is perceived to be a new-media cluster. This arose because not all expected actors of a cluster are actually co-located or if they are, there is little relationship with them. The main implication for researchers is to be wary of just using statistical and quantitative

methods for identifying clusters, they should in addition use qualitative techniques to explore whether co-located relationships and the benefits of co-location actually exist?

The literature critics of the weak methodological approaches used by some academics (Lovering, 1999; Martin and Sunley, 2003) is reflected by comments made by the sample respondents, some of whom believed that the concept of BH being a new-media cluster is pretentious statistical exercise. This over-inflates the importance of BH, and they could only agree that BH had a labour and CDSS base. Some of the longer established firms talked instead of a 'community' of new-media firms that was experienced in the early days of the industry's development in BH. This has parallels to a study of new-media in New York, where there was a sense of an 'affinity group associated with lifestyle, music, aesthetics, decor and clothing' (Pratt, 2000, p.432).

For those respondents who did agree that BH was a cluster of new-media companies, they were usually only able to identify it in partial terms. It was described either as a cluster of CDSS, or as a source of skilled staff, or as a useful location for networking and support institutions, with far less emphasis on BH being a place for competitors and customers.

Competitors were generally not considered to be co-located, because respondents claimed they were practicing a differentiated niche technology strategy (porter, 1986), for example coding specialised web databases that distanced themselves technically, from potential local competitors (Curran and Blackburn, 1994 and Curran *et al.*, 2000). However, literature sources would suggest that not having co-located competitors can be a disadvantage because they will be less able to monitor competitor activities, new product and service characteristics and their costs and service provision. These activities can enable firms to benchmark themselves against competitors (Malmberg and Maskell, 2002) and identify best practice, which they can either replicate or try to exceed (see section 5.81 for RQ7 for related discussion).

Customers were also, not perceived to be co-located because locally, there was insufficient demand for such differentiated (more expensive) web services (see section 5.81 for RQ5 for related discussion). The apparent unimportance of the local market place in terms of customers and competitors concurs with earlier findings by Oakey *et al.* (2000) of the related 'non-broadcast visual communications' (NBVC) industry and from the generic small firms literature (Curran and Blackburn, 1994). In addition some of the respondents claimed that they practiced a niche marketing strategy (Kotler, 1997), targeting particular

market segments, for example one firm cited the utility companies as their main target market and they can be located anywhere in the UK. These latter authors explain that another benefit of having a niche strategy is that it enables them to be less dependant upon the local economy and thus independent of any down turns that may arise locally.

Co-location with upstream elements of the supply chain were also reported as not an important consideration for locating or remaining in BH. This is largely because new-media firms use digital channels rather than physical channels to distribute their services (SEEDA, 2003). However, respondents were able to report the importance of downstream actors for locating or remaining in BH, principally a skilled work force and freelancers[13] as well as a large number of CDSS. Access to a skilled work force is seen as essential within the literature sources, particularly for knowledge-based clusters such as new-media (further discussion in RQ4). While a cluster of CDSS potentially enables firms to tap into learning and innovation that is more likely to be novel and radical. These firms are not seen as direct competitors, because they serve different markets or use different digital technologies (Kaplinsky *et al.* 2003).

However, general office suppliers although reported to be co-located do not feature highly as an important aspect of location choice. The city also contains a large number of professional and technical service providers, who have responded to the development of the new-media industry, by offering specialist services and infrastructure to the cluster. For example, accountancy, legal advice, ISP's and telecoms infrastructure services (the Wired Sussex database, www.wiredsussex.org.uk, 26.06.04), but again do not feature as a particular reason for staying or co-location in BH, the main reason being that these relations are governed by market rather than co-operative/social relationships (see section 5.81 for RQ6 for greater discussion).

For the three respondents where the local market for clients and competitors was more apparent, they tended to be the smaller or newer companies who used proprietary software, rather than writing their own code. They were the companies that specialised in clients where price was the key issue and where demanding technical and quality assurance was not a particular requirement. This market is the most competitive, because of the lower technical entry barriers and these companies were more likely report that BH did have a cluster containing customers and competitors.

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[13] *Estimates suggest that the majority of skilled new-media employees (6450) and freelacers (30% of 6450 = 1935) in Sussex are based in BH (BHCC, 2005).*

BH in theory looks very promising from an 'institutional thickness' perspective (Amin and Thrift, 1995), as eight of the sample firms are based in media centres, where flexible contracts and installed infrastructure are in place.. There are two local universities, potentially providing a stream of qualified graduates and potential research support (Keeble and Lawson, 1998). There is also a local trade body 'Wired Sussex' who claim to provide dedicated services, (Pratt, 1999). Unfortunately none of these institutional actors featured highly as a reason to locate or stay in BH (more on this in chapters 5-7).

Finally, one interesting observation from one respondent firm was the recognition of the practical limitations to the geographical location of BH, bounded by the English Channel to the South and the planning restrictions contained within the Sussex Downs to the north and within the city itself. This suggests that BH will be unlike the other clusters of Oxford or London and will, therefore, remain as a hybrid rather than a fully-fledged new-media cluster (Pratt, 1999). This is an interesting point because the concept of clusters has been particularly criticised for lacking sufficient geographic boundaries, (Martin and Sunley, (2003). The physical and legal restrictions that are faced by BH should be a strong indicator that to call it a cluster will always be problematic because its long term viability to become a more fully fledged cluster are probably limited and would simply remain as a 'silicon beach' (Tang, 1999).

4.6.2 Matching expected and observed outcomes for RQ2

To what extent do new-media companies specifically co-locate in B&H for the purposes of networking and gaining other un-traded interdependencies?

There is no full match between expected and observed outcomes for this research question. Eight of the sample firms are based in Brighton for the simple reason that the respondent was either a resident or a graduate at one of the universities and wanted to stay on. They and some of the firms that relocated to BH were attracted by the lifestyle, environment and culture of the city. Oakey *et al.*, (2000) wrote of the 'physic value' of certain locations being an attractive motivator for new-media staff to locate or re-locate.

Although most firms network regularly with clients, most clients are not based in BH, therefore, co-location is not an important issue with this networking partner, therefore, networking opportunities were not a major element in the decision to relocate or stay in BH. The main significant local networking partners are the CDSS and as several firms in

the sample, claim to be niche specialists, they do not feel particularly threatened by networking with these companies. CDSS firms offer a diversity of digital technologies ranging from digital film, digital TV, digital games, animation, multimedia production, digital simulation, database and web design (www.wiredsussex.org.uk, 26.06.04). This potential cross-fertilization of technologies and ideas can offer the sample firms, the opportunity to joint partner, learn and enhance their innovative capability, the reality of which are explored in chapters 6-7.

As we have seen from RQ1 BH is not seen as a location for networking with competitors or suppliers as many firms claim to be niche companies with target markets in London. This finding has resonances with the conclusions from (Curran and Blackburn, 1994) who announced the 'death of the local economy' and that social embeddedness was over rated.

The social or informal networking that is sometimes associated with new-media, is a common aspect of the lifestyle associated with cafes, bars and cultural venues as meeting places for networking and socializing and where work and play can become inseparable. In the USA, networking events are referred to as the 'cyber-suds' culture, a networking event, which involves people (cybers) and beer (suds) (Pratt, 2000). This culture to a certain extent has been replicated in BH with its numerous bars and cafes and Wired Sussex use this formulae as part of their monthly networking events, that were observed by the researcher, as part of the research methodology for this thesis.

This form of informal networking can create what some researchers refer to as the 'industrial atmosphere' (Marshall, 1920) or as a 'buzz' of information, gossip, news and market intelligence, that can help enhance learning (Bathelt *et al.* 2004). In BH the 'buzz' can be added to virtually, via a local electronic network called the Brighton New Media List (BNML), which carries buzz like information but is also used to solve technical problems and as a job listing (http://www.brightonnewmedia.org/). However, several of the respondents that were interviewed were in their early to late 30's with family household responsibilities, where their lifestyle exploits of earlier years were now but a distant memory and the 'cyber-suds' culture was less applicable.

An interlinked un-traded advantage of being located in BH is the general reputation as a new-media centre, having an atmosphere of creativity and technical expertise, that one respondent indicated played an indirect role in influencing creativity in the city. When this is coupled with a beach and countryside environment, the lifestyle 'physic value', helps

attract and retain new media companies and a skilled workforce (Oakey *et al.* 2000). This adds up to BH gaining a certain kudos that even some clients appreciate when appointing a new-media company based in BH, expecting to receive a creative and maybe quirky or unusual web service solution (Kaplinsky *et al.*, 2003).

In terms of Storper's (1993) un-traded interdependancies the sharing of ideas and resources for no direct commercial gain and the lower transaction costs that can arise because of trust based relations is only really evident with CDSS (largely based upon exchanging tacit learning). This benefit may also arise with customers but as they are not co-located in BH, such sharing of resources is logistically problematic. For the three companies who are dependant upon local customers, their business model is based upon low prices and standardised software services, they do not report any un-traded benefits and as such are unlikely to arise.

Although the expected and observed outcomes do not fully match, the physic and emotional reasons for location may prove to be one of BH's biggest assets. Physic value and emotional reasons should therefore not be dismissed or be seen as less important attractors for locating or staying in BH if they succeed in doing this, as this is still making an important contribution to the local and regional economy. The analysis also reveals that Physic value and ambiance of the city were important contributors to creativity. This is a core element for any new-media cluster's competitive advantage (Pratt, 1999) plus it maybe an important contributory reason for attracting freelancers and retaining skilled graduates, even at the sacrifice of higher earnings in London.

4.6.3 Matching expected and observed outcomes for RQ3

RQ3 To what extent do new-media companies specifically co-locate geographically in BH for the purposes to gain positive economic externalities?

There is no full match between expected and observed outcomes for this research question. Several respondents did give economic reasons for locating to BH, such as lower costs in terms of rents and staff salaries, compared to London, which are reported to be 25% higher on average (www.escapehatchmedia.co.uk, 1/5/01). Agglomeration affects (Marshall, 1920) are also apparent in BH in terms of a wide range of services to new media being available (Wired Sussex's database), however, few firms cited this as an important reason to locate or stay.

However, a number of respondents reported economic diseconomies arising as a result of demand exceeding supply of suitable office accommodation and subsequent increases in rental and lease costs. The overall popularity of BH has meant, staff housing costs have increased as has the problem of city congestion and resultant problems with partking for staff and for visiting clients. A number of respondents based in the suburbs of BH, have located there because of lower expenses, or had relocated from the city centre, to avoid increasing rental and leasehold costs. These findings contrast with those of Kaplinsky *et al.* (2003) who only evidenced positive economic externalities for BH but do fall in line with concerns expressed by other reports that clusters in general can result in increasing costs (DETR, 2000).

These cost and time savings that can be made by moving out to a suburban residence or office could undermine the whole concept of a central location of new-media firms and all the synergies and benefits that are said to derive from clustering. Company Q is a good example of a mature company that in its start-up days appreciated the benefits of central co-location, but now the firm has evolved and established itself, economic issues are beginning to outweigh the proximity benefits and is considering moving out of its media centre location.

However, it was recognised that BH is centred well for communications in terms of getting to work by foot, scooter or bus. Links up to London, where many firms had the majority of their clients was usually only sixty minutes away by train. However, there is inefficient East - West communications, from Brighton along the coast to Hasting (East) and along the coast to Portsmouth (West), which have been cited as representing a disadvantage for all firms based in BH (Brighton and Hove Chamber of Commerce meeting with Laurence Robertson MP, 9.06.04).

Any development of a cluster policy should account for these cost implications, particularly for start-up firms who are most financially vulnerable. As for scarce office space and poor communications, any systematic planning for cluster development will need to account for these problems arising and where possible support and invest in infrastructure services. The problem for BH is that many areas have listed building status, which means new builds or building conversions have very restrictive planning regulations. In addition, BH is problematic geographic location, impossible to expand, North or South of the city limits.

4.6.4 Matching expected and observed outcomes for RQ4

RQ4: To what extent do new-media companies co-locate geographically in B&H for the purposes of accessing skilled labour?

Here, expected and observed are in full agreement for research question 4, which should not be a great surprise as most authors agree that accessing a skilled workforce is key for a knowledge intensive industry such as new-media. This is probably the strongest incentive to co-locate or stay in BH, to access full time staff, part time students or freelancers. They represent an important pre-requisite for the development of new-media because of the need to employ creative and IT literate staff (Sandberg, 1999; Braczyk *et al.*, 1999 and Pricewaterhouse, 2001). This is enhanced by the provision of graduates from the two universities with whom new-media firms could also recruit. However, the interview analysis at this stage, suggests that the respondents see the universities as sources of new staff only, rather than as a research and training partner.

One particular aspect of the BH skilled labour market is a pool of freelancers of whom 8 respondent firms use on a regular basis. They provide a range of benefits to each firm, from saved overhead costs, to new ideas as well as the potential for the transfer of skills as a result of having worked for other firms in the cluster, a mobility benefit (Camagni, 1991; Krugman, 1991). However not all respondent firms were happy to use freelancers, instead preferring to invest in their own staff, develop project team skills and maintain staff loyalty. Freelancers were sometimes seen as a potential risk by moving onto other firms taking with them confidential and commercial information, issues not raised by previous authors.

To support the learning needs of new-media staff and freelancers, Wired Sussex and Lighthouse provide a range of short courses for new-media professionals. There are also two grass-roots organisations, Skills Swap and Silicon Beach, who provide evening workshops coupled with networking events. This provision potentially enables learning, knowledge and ideas to circulate within BH, enhancing the overall knowledge base of the cluster itself. At undergraduate and postgraduate level, generic courses are available, aimed at developing computing and programming skills of students. Although, one respondent was critical of the courses on offer suggesting that their silo mentality meant they were not able to provide the cross-disciplinary course content that new media requires (see chapter five for further discussion).

One firm highlighted the difficulty for BH's new-media industry, to be able to recruit good management, marketing and sales people, skills shortages that were also highlighted in a survey by Wired Sussex (www.wiredsussex.com, 30.9.04). This is seen as less of an issue in London where larger salaries attract this scarce skills set for marketers. Therefore, London can be a threat to the development of BH's new-media industry. The recent new-media recession has seen larger companies such as Victoria Reel, retrench away from Brighton back to London, thus drawing talent and resources away, thus potentially 'stymie' the BH cluster, a concern expressed by (Pratt, 1999).

Although the resident pool of skilled staff must be a major strength for the BH cluster, higher salaries in London or abroad may result in a 'brain drain' of expertise if company owners become complacent or if the city authorities do not help maintain the character and physic quality of the city. Another potential concern is the cost of housing which has London prices but not corresponding London salaries which again may result in drawing younger talent away from the city. Finally skills upgrading and professional development will have implications for on the job training as well as formal provision by local training providers, there is some doubt that the university sector in particular is meeting this challenge.

4.7 Comparison with other clusters

At this point of the analysis, it would be useful to make comparisons with other clusters in the UK. A report for the Department of the Environment, Transport and Regions (DETR, 2000) has identified nine critical success factors that underpin the development of six UK clusters (see Table 8.3). The critical cluster factors were developed from an earlier report by the DTI (1999), examining specifically the biotechnology cluster. Because of the preceding analysis, it is possible for the researcher to take these nine critical success factors and apply them to the BH new-media hybrid cluster (second column in Table 8.3):

CRITICAL FACTOR	BH NEW-MEDIA	ELECTRONICS/ COMMS	BUSINESS SERVICES	BIO-TECH	SOFT-WARE	OFFSHORE ENGINEERING	MOTOR SPORTS
Strong science base	x	√	x	√	√ / x	√ / x	√
Entrepreneurial culture	?	√	x	√	√	√	√
Growing company base	√	√	√	√	√		√
Ability to attract key staff	√	√	√	√	√	√	√
Premises and infrastructure	x /√	√	√	√	√	√	√
Business support services and large companies in related industries	x / x	√	√	√	√	√	√
Skilled workforce	√	√	√	√	√	√	√
Effective networks between companies	x	x	x	√	√	√ / x	√
Supportive policy environment	√ / x	√	√	√	√	√	√

Source: Adapted from Planning for Clusters DETR (2000) and Biotechnology Clusters DTI (1999)

Table 4.17 Critical cluster factors

From Table 8.3, it is clear that before you include the BH cluster there is a degree of difference within the existing clusters concerning the nine critical success factors. These differences are explained in the DETR (p. 31-32) report as arising because these clusters are:

> '...highly individualistic and emerge through the unique interplay of a variety of factors...each of the six clusters has developed in a unique manner...the importance of these factors varies strongly. Consequently, no single model of cluster development can be formulated'.

However, there are also a number of commonly shared critical factors: a supportive policy environment, skilled workforce, business support services, large related companies, premises and infrastructure. BH compares poorly on many of these critical factors, except for having a skilled work force. Networking is not strongly associated with most of the clusters, yet is supposedly a key element of cluster theory; however, no explanation is given for this in the report. The DETR report concluded that, as networks were important

to the biotechnology and the software cluster and was forming in the food cluster, that the DTI should continue to encourage their formation in the remaining clusters for the apparent benefits they can bring.

4.8 Conclusions

There was little agreement about how well the term 'new-media' defines the industry and there was limited expression supporting the concept of a 'new-media cluster', most participants, however, did recognise the terms, and they all had something to say about their meaning.

Pratt (2000) concluded that the term new-media was unsatisfactory preferring instead to refer to the qualities of new-media of, interactivity, change and creativity. In terms of the definition of new-media used in this thesis, it would appear that apart from the tag 'new', the definition is largely agreed by the respondent firms:

> "New-media are digitally based technologies that are constantly changing, resulting in the convergence of different combinations of media, providing seamless interactivity for the user" (Conway, 2003).

The term new-media and new-media cluster will continue to be used throughout the rest of this thesis to ensure continuity with the supporting academic, practitioner and policy literature, where these terms are still commonly used (DTI, 2001; www.wiredsussex.org.uk, 26.06.04; Kaplinsky *et al.*, 2003).

In many respects, the notion that respondents chose BH as a place to locate their company for networking or un-traded benefit is largely misleading because many respondents were already based in BH while for those firms that did locate from another location; 'physic' or emotional reasons often played an important role. The sample firms however, have stayed on in BH and they do cite a number of networking relationships and un-traded benefits because of co-location, such as the co-location with CDSS, knowledge workers and the resultant creative atmosphere that arises in BH.

However, there is little evidence of networking with competitors and customers as many firms report them to be located elsewhere. Suppliers of technical and professional services are co-located but that proximity is not considered more important than price or quality of

service and, therefore, networking with these potential partners is apparently weak, a finding that is reinforced in the next chapter. There is evidence of a support infrastructure via media centres, networking and training agencies as well as two local universities, as they are co-located. However, they do not feature highly at this stage of the analysis, as being important influencers.

One particular area of concern is the apparent over-reliance upon niche market and or differentiated technology strategies. Although they may enable the sample firms to avoid intense local competition, the medium term risks lock-in to particular differentiated features that may become redundant (Ansoff, 1957), or that the niche market customers shift purchasing elsewhere or an economic down turn depresses demand (Abratt, 1993).

Overall, the findings suggest that in terms of the Porter definition, BH does not largely fulfil the criteria:

> "A cluster is a geographically proximate group of interconnected companies and associated institutions in a particular field, linked by commonalities and complementaries" (Porter, 1990, p.16).

BH should instead be categorised as a hybrid cluster containing some but not all of the Porter features. Tang (1999) referred to BH as a 'silicon beach' suggesting that it has some way to go before becoming a fully formed cluster. The implications of this can be considerable, as the cluster literature, would suggest that BH will not fully benefit from a range of positive economic externalities and un-traded benefits. This will particularly be the case as customers, suppliers, competitors and institutional agencies are not all in place, and networking (Granovettor, 1985; Porter, 1990; Storper, 1993; Doeringer and Terkla, 1995; Nachum and Keeble, 1999; Gordon and McCann, 2000).

Although, BH appears to be a hybrid cluster and, therefore, may not be able to reap its full competitive advantage, as anticipated by cluster authors, many of the sample firms appear to have overcome this disadvantage by either writing their own code or practicing a niche business strategy, enabling them to tap into more profitable markets outside of BH.

In terms of the research propositions in this thesis, these implications are more pronounced. This is because BH new-media might be less able to develop its networking, learning and knowledge capabilities, because the cluster is not fully formed. Literature

sources have suggested that you need a fully formed cluster to exploit learning outcomes (Marshall, 1920; Camagni, 1991; Amin and Thrift, 1995; Malmberg, 1996; Morgan, 1995; Simmie, 1997; Keeble and Lawson, 1998; Amin and Cohendet, 1999).

Likewise, the same might be true for the BH hybrid cluster, to exploit fully its innovative capabilities, which the following literature would also infer to be problematic (Rothwell, 1991b; Storper, 1993; Varaldo and Ferrucci, 1996; Cooke and Morgan, 1998; Shaw, 1998; Keeble *et al.*, 1999; Neeley and Hii, 1999; De Propris, 2000; Thomas, 2000; Romijn and Albu, 2002).

The above conclusions would suggest doubt concerning the research proposition that:

RP1 'All new-media firms in Brighton & Hove form a new-media cluster'

These findings will, therefore, also affect the rationale for the conceptual framework. From Figure 4.1, the revised factors with a (-) symbol, indicates that this factor is not significant in BH, for all the sample firms.

Original Factors	**Revised Factors**
Clustering	**Clustering**
Customers	Customers (-)
Complementary Digital Suppliers	CDSS (2)
Freelancers	Freelancers (3)
Professional/Service Providers	Professional/Service Providers (x)
Competitors	Competitors (-)
Institutions and Universities	Institutions and Universities (x)
Access to skilled staff	Access to skilled staff (1)
Positive externalities	Positive externalities (?)
Un-traded interdependencies	Un-traded interdependencies (?)
	The 'physic' value of BH (4)

Figure 4.1 Original and revised cluster factors existing in Brighton and Hove

The (x) symbol indicates that the factor is present in BH for all sample firms, but their proximity is not considered important. The (?) symbol suggests that these factors are not fully realised in BH because of the hybrid nature of the cluster.

The remaining factors, are in place in BH, and are ranked ordered[14] in terms of their importance for being co-located. 'Physic' value is an additional factor that is not explicit

[14] These rankings are interpretated by the researcher from the responses given by the sample firms

within the original list of factors, but was reported as an important issue by the sample respondents and is included in the ranking. The next chapter will explore this issue further, from the perspective of new-media networking, to help determine, to what extent the research propositions and conceptual framework can be demonstrated.

Chapter 5: New-media networking in Brighton and Hove

5.1 Introduction

The aim of this chapter is to explore to what extent new-media networking takes place in BH, and the potential outcomes that can arise, bearing in mind the hybrid nature of the cluster. The findings of this chapter will have an important impact upon the thesis research propositions, as to whether new-media networking will contribute to positive learning and innovation outcomes:

RP2 'All new-media firms in Brighton & Hove are active networkers'

To help determine this issue the chapter will address the following research questions that were derived from the literature review chapter:

RQ5 To what extent do new-media companies engage in networking with customers and why is this done?

RQ6 To what extent do new-media companies engage in networking with suppliers and why is this done?

RQ7 To what extent do new-media companies engage in networking with competitors and why is this done?

RQ8 To what extent do new-media companies engage in networking with complementary digital services suppliers (CDSS) and why is this done?

RQ9 To what extent do new-media companies engage in networking with freelancers and why is this done?

RQ10 To what extent, and why, do new-media companies exhibit a preference for informal and face-to-face networking?

RQ11 To what extent is networking delegated in new-media companies?

RQ12 To what extent are institutional bodies perceived to be able to enhance new-media networking?

From the literature review chapter the following definition of a network will be used:

> "Small–firm networks can be defined as the composite of the relationships in, which small firms are embedded, which serve to link or connect small firms to the

environments in, which they exist and conduct their business" (Shaw and Conway, 2000: 369).

Using this definition throughout the thesis enables the responses from respondents to be contextualised and situated within the academic literature. The process of networking involves the exchange of information, ideas or shared resources. This can be done in a formal way, through networking via networking agencies such as a chamber of commerce, and or informally/socially, via cafes, bars, sports or cultural events.

The chapter is in five main sections. The first, deals with how important respondents perceive networking to be. The second explores the different modes of networking actually employed. The third section identifies the barriers to networking that inhibit its practice, the fourth section, identifies with whom the sample firms network, and the benefits derived. The final section is a summary that explores the expected and observed outcomes for each of the research questions and integrates the literature findings from chapter two. The chapter conclusion is that networking in BH is limited, thus potentially degrading the BH hybrid cluster from fully exploiting its learning and innovation capabilities.

5.2 The importance of networking

In this section, networking is viewed from a number of different perspectives by the sample firms; as a source of clients and revenue, learning and market information. For company G, networking was seen primarily as a source of sales revenue, where the emphasis was on working with clients for future sales and referrals:

> "Obviously you network with the prime reason to generate new business, the ideal network is that you shake someone's hand and they then want a £100,000 website next week and you just happen to be standing there and you get on like a house on fire" (Company G).

Another benefit from networking with others is that it can result in firm learning, identifying key market actors and building a local or even a national profile:

> "...to keep abreast of what other companies are doing and how other companies, even approach networking...how their professional front is, just knowing who's

> who and researching it afterwards and just keeping things ticking over...keeping your profile there I suppose to the local community" (Company H).

BH is not a major location for customers and competitors and, therefore, networking in the local area is more limited compared to networking opportunities in London. However, BH is a good location for networking with complementary digital service suppliers (CDSS) and, therefore, a useful source of complementary skills and information and knowledge sharing.

A word of warning came from company P and others who indicated that networking can detract from the business of doing business:

> "...I think networking is fine but there does come a time when you have to just do it, do the work and you can talk around it and you can talk about it and you can increase your knowledge and you can make contacts and perhaps find some customers through it, but you would not substitute for doing it" (Company P).

This emphasis suggests that networking is ultimately no substitute for the practice of business, which in this industry is about applying creativity to customer product-service solutions. It is the quality of the product-service solutions, which will either win or lose new business clients. The next section, seeks to explore the modes by, which networking takes place as new-media has a reputation for using its own technology as a complement to meeting people face-to-face (Castells, 1996).

5.3 Modes of networking

The 'closed ended' questionnaire, as described in the methodology chapter, was used to confirm and ascertain, which networking modes take place.

From your experience, how does networking take place that involves the exchange of information, ideas or shared resources?	Never	Rarely	Sometimes	Regularly
Via Internet (e-mail/newsgroups etc)	F	MKQ	IPECBGL	ONJHDA
Video Conferencing	NMLKHI FCBG	POJEAQ	D	
Sharing premises	JEIG	LDCA	POMKFBQNH	
Telephone	F		ILKCB	GPONMJHED AQ
Face to Face				PONMLKJHFE DCBAQGI
Via cafes during working hours	KFE	MHDO	IPNJCBQ	LAG
Socially via leisure or cultural events out of working hours		LO	NKFEDQ	PGIMJHCBA
Via Formal Networking Events		MC	NHFAGP	IOLKJEDQB
Other: Exhibitions			D	

Table 5.1 Modes of networking, by case

From Table 5.1, it is clear that participants practice a range of networking modes, that involves the exchange of information, ideas or shared resources and are discussed in the following sub-sections.

5.3.1 Formal and informal (social) networking

From Table 5.1, formal networking was practiced by most respondents on a regular basis and from the interviews was largely seen as useful for information gathering and as a selling opportunity while informal or social networking was explained to be more efficient in terms of generating trust and genuine reciprocation of ideas and shared resources.

Formal network organisers such as chambers of commerce often lacked sufficient knowledge of the industry to be able to organise an event that attracts the right people. Even Wired Sussex was seen as not being very effective as it appears to attract the wrong mix of companies, who are, direct competitors rather than complementary suppliers or customers.

Because informal networking has a strong social element, people are relaxed, open and more ready to engage in reciprocated exchanges:

> "...I think it is a lot easier informal networking and I think you could be a lot more creative with people, I think people can spin off ideas and I think you can sometimes get to the 'nitty gritty' a lot quicker" (Company H).

An important outcome from social networking is the greater development of trust that then allows for greater reciprocation between parties that can lead to more business:

> "...formal networking is based around selling, while social networking is more relaxed, people let their guard down the emphasis is about finding out more information about what people are doing...more about developing trust and developing relationship, which a formal event is not likely to encourage....this industry is very much trust and referral based...word of mouth is probably the biggest source of new business" (Company I).

Social networking is seen as being a more genuine occasion for mutual reciprocation whereas formal networking can become a cynical exercise for the hard sell:

> "...everyone knows the reason everyone's there and it is just a lot of falseness to me, I mean just everybody is trying to be nice, just to get some business" (Company M).

This next respondent was happier doing business on the golf course:

> "It is not drilled down someone's throat the reason you are there, you are there to play golf. I mean a golf day is obviously some sort of networking but they are existing customers or perhaps trying to get new ones. I would rather sell the way we work, which is let someone either hear about us or see what we do but not continuously pushing it" (Company M).

Informal or social networking can also be seen to more suitable for the more senior or more accomplished manager as the social skills that are required are of a higher order than those required at formal networking events where direct selling is the main agenda:

> "I would say from my observation, the more senior the person in an organisation or the more sophisticated or relaxed and comfortable and confident the character, the more advantage they get out of the social networking" (Company P).

One of the benefits of informal networking with friends in the industry is that they sub-contract work to each other on a freelance basis or pass work on if they are either too busy or is outside of their skill set. They meet rarely as a large group, most meetings are bi-lateral over coffee, otherwise, the telephone or email is used:

> "...we have a Christmas knees up <laughs> , occasionally we'll get together and it'll be around Christmas but we have lots of very short meetings" (Company A).

5.3.2 Face-to-face and virtual networking

Face-to-face networking is practiced by all respondents and is considered to be essential with other methods of networking seen as complementary rather than as alternatives. From Table 5.1, few sample firms use video conferencing, even though all respondents had broadband technology but probably the explanation is that not all their clients have broadband or compatible technology.

While all the companies contacted use some form of virtual networking, there was one firm, who often used it as an alternative to face-to-face networking:

> "...every time I tweak a design, I do not have to go up there with my portfolio and say this is what I have done, I can just fire it down the Internet at them and say this is the change I have made is this what you wanted, and it can come back within five minutes a yes or a no" (Company A).

However, this and other respondents did recognise that there were disadvantages to using this technology:

> "... because it is easier for people to look at it and change it they do <laughs> the client is always right, or they think they are always right and I have to say yes or give them a good reason why they are not right and sometimes I find they change things because they can be changed. I have had people who have asked me to move things one pixel to the left that is fairly common" (Company A).

Some virtual relationships work very well with clients but others will always need to meet on a face-to-face basis:

> "We have worked with people for years but never met them <laughs> and we have a good rapport and it does work well and they are happy they know they can get what they want from us and it is quick and it is easy but equally there are some people that they need that extra reinforcement almost, I would not like to be without either really" (company H).

For others, virtual networking was largely seen as a source of technical help or a source for recruiting a freelancer to help on a temporary basis. A common virtual source used is the Brighton new-media list (BNML):

> "...it might be an odd technical question...it is usually on recruitment, we might have an immediate need for someone who can write a specific type of language and it is very useful, usually we will get a good response from the BNML" (Company G).

The main problem cited with using virtual networking is the high noise to value ratio:

> "The disadvantage of the BNML is just the huge amount of noise on there; it is like 50 to 100 emails a day coming in most of it just chatter...or something totally off topic" (Company L).

5.3.3 The false dichotomies

Some companies felt that formal and informal networking could create a false dichotomy. Networking can come in all forms either sequentially or even in parallel:

> "There is no difference. Any formal or informal networking has to have a big social element to it, even if you sit down and buy a coffee or whatever, you would not just go and meet someone and sit in a room, and that would be a meeting" (company J).

Also, to say that face-to-face and virtual networking, are competing alternatives is equally banal. Table 5.1, demonstrates none of the modes of networking are used exclusively by any respondent. Although, some firms make greater use of one form of networking. For example, company A uses virtual networking for her day-to-day communications with

clients, while using face-to-face networking in the introductory phase of working with a new client.

5.4 Responsibility for networking

Sample firms that delegate face-to-face networking	B, D, I, Q
Sample firms where networking is the responsibility of one person (MD)	A, C, E, F, G, H, J, K, L, M, N, O, P

Table 5.2 Levels of networking delegation

From table 5.2 it is clear that delegation of networking responsibility is quite limited, although most firms encouraged their staff to use virtual networks. For some firms there is recognition that networking is best done by the director with the most suited skill set:

> "I am just better at going out and meeting strangers" (Company H).

Other companies will have more than one person involved, where the directors would attend depending upon the specialism of the event:

> "One person tends to cover the client commercial lunches and dinners, and one colleague, technical networks" (Company I).

For some firms virtual networking was usually done by all of the staff who had particular technical interests:

> "...the developers do their own type of networking so they spend a lot of time informally talking on web forums with other like-minded people" (Company D).

5.5 Barriers to networking

As over half, the firms are not based in central Brighton, but in the suburbs, there is not the immediacy and convenience available to go out after work, for informal networking purposes, to the cafes, pubs and bars.

Several respondents reported that either they, and or their fellow directors did not live in BH, and have to travel out into the region, to get home. This would have practical limitations upon their networking opportunities, to attend impromptu meetings after office hours. A number of firms, where the directors had family commitments required that they return home after work rather than engage in out of hours networking:

> "...when we started out we were pubbing and clubbing our socks off and we did meet people like that. I think the older you get the harder it is to meet people socially because of family commitments" (Company G).

However, this last perspective is tempered if not married with children:

> "...one of the big things about Brighton is that people do have a very active social life and I think that is mainly because people tend to get married later and have kids later and that is a very strong theme within Brighton and, therefore, it means that people are still maintaining a large number of outside the house activities and that is one of the good things about BH" (Company J).

Not having the time to network was an important limiting factor so unless the occasion could be seen to have a very direct positive impact, the priority for time, would have to remain on running the business. This can be particularly true for those that perceive informal networking, as not having a direct sales outcome:

> "Well, it is nice is not it? [social networking] do it if you have got time, but I do not think you would get any business benefit" (Company O).

Having established the importance, modes and limitations of networking, the next section, examines who the new-media firms networking partners are.

5.6 Networking within the supply chain

With whom do you network for the exchange of information, ideas or shared resources?	Never	Rarely	Sometimes	Regularly
Direct Competitors	M	ODBINQ	APJHECG	FLK
Customers			F	EPONMLKJH DCBAGQI
Suppliers		N	POMLKJHFED BAGQIC	
Complementary digital based service providers but not direct competitors		POMK	ECIF	DLNJHBAGQ

Table 5.3 Networking within the supply chain, by case

Although Table 5.3 is a measure of frequency rather than the quality of network relationship, it is clear that networking with customers for an exchange of information, ideas or to share resources is done on a regular basis by most firms, although because the majority of firms' customers are not based in BH, regular face-to-face networking must be problematic. This is less of a problem for those firms that 'regularly' network with CDSS, as they are largely co-located in BH.

There is no 'regular' networking with suppliers, although they are largely co-located, while the companies that network 'regularly' with competitors have some or a major number of competitors co-located in BH (from Table 4.10).

5.6.1 Customers

As was reported in the previous chapter, most of the firms interviewed indicated that their sales turnover and customer base was largely beyond BH with some, having clients overseas (see Table 4.9). This must place restrictions on the ease and flexibility of physically networking because of the time involved, thus placing a greater reliance on email, telephone and formal methods of networking.

Company A, professed to use virtual means of networking as an alternative to face-to-face networking but even then recognised the importance of some direct interaction:

> "I find with some clients, that if you are not sat there working in front of them they think you are not doing their job for them" (Company A).

Networking with clients was seen by some as an important way to keep in contact with the changing needs of clients and in some cases to develop jointly, products and services:

> "Networking with clients is about relationships, keeping ourselves up to date about their needs and we do this through a variety of means but meeting face-to-face is preferable" (Company C).

Keeping close to customers was seen as important to most company's sales strategy as most business comes from word of mouth and referral from satisfied clients:

> "...for us maintaining customer relationships is the key factor so we just make sure that we really look after our customers and really stay in touch with them" (Company L).

The word relationship was mentioned by several other firms where networking can be applied to enhance the possibility of long-term relationships, which is beneficial to both parties:

> "...my client that runs a shopping centre... has giving me a whole spreadsheet of all the centre names and managers and their contact details...her attitude is it is in her interest for my company to do well because she likes working with me and she also wants us to be around for the next 10 years to carry on the servicing" (Company E).

Another benefit from maintaining a close relationship with clients is that over time their new-media needs are more likely to become more complex reaching across many more operations of a firm:

> "...as the technology and our business has matured, you find yourself working instead on one little website, you start integrating with many different aspects of a company and their business...whereas three years ago you would have had a much more a finite remit now people want to get more of their business on-line" (Company K).

By building, a web site that can help a company with a wider range of its business functions this has resulted in company K finding that they can now add in a consultancy service and actually advise clients how to run their businesses with these new technologies. One firm appears to have developed the idea of reciprocating relationships where client relations has led to mutual selling of each others product-service range as a form of joint marketing:

> "...we'll sell something of theirs and they will sell something of ours and that'll be great piggybacking" (Company J).

5.6.2 Competitors

The previous chapter evidenced that BH was not seen as a particular location for direct competitors particularly where the firm was implementing a niche business strategy (see Table 4.10). The main implication of this was that there was, therefore, very little opportunity to network locally with competitors whilst networking outside of BH would not be as practicable. Competitors, however, can be useful source of information about labour rates, technologies and markets, although some firms are concerned that networking with competitors will negatively affect their own competitive advantage, however, one company was happy to network, if it was reciprocated:

> "...you say what you want to say, give away as much as you want to give away and some people are very enclosed and proprietary and others are far more open and, and I do not think that those who are proprietary tend to be more successful than those who are not" (Company Q).

Company K felt that the level of competition in BH was limited because the company served a particular niche market, utility companies. In fact, the company were quite keen to network with indirect competitors because this could result in joint efforts, allowing the firm to market diversity.

Company G and F, stated that they did have a high degree of competition in BH and yet were both willing to meet with competitors. Company G in particular took a rather positive view, where competitors could become 'collaborators', if the relationship is reciprocated and not exploitative. Meeting with other new-media companies can,

therefore, enable the company to keep in contact with what is going on and also help 'keep an eye' on the competition:

> "I am very happy to meet local new-media companies just to see what people are up to, what technologies are getting them turned on, what clients they might have won" (Company G).

BH is a major location of competitors for company L, but this was not seen as a particular threat, because the local market for small clients is large and, therefore, an exchange of useful information can arise between both parties:

> "One guy we met recently and we were talking about budgets for website projects and he just could not believe how little we were charging so straight away we just started quoting higher prices and found that it didn't really make much difference" (Company L).

The main problem for the remaining firms, who do have direct competitors in BH, for not networking 'regularly' with competitors, is that the competitive threat was perceived sufficient to deter close contact.

5.6.3 Complementary digital services suppliers

The previous chapter did offer evidence that networking within BH, with CDSS was quite common. Company H and others mentioned that sometimes clients require different parties to be involved in the development of a project. It can also come about through the need to outsource to other firms, those parts of a contract where the company does not have the in-house skills and vice a versa. This example highlights the importance of CDSS. BH was seen as a major location for CDSS and working with these providers was quite commonly cited:

> "I think very much in the new-media field [networking with CDSS], with joint working on projects or trying to do things together. Things that a small company could not necessarily tackle, there is a lot of outsourcing or trying to find relationships with other companies who 'I can give you this business' and they go 'Well, I could give you that business and let us see whether we can work together on that side of things'" (Company J).

Tapping into other company's skill sets appears to be an important incentive to work with others. Interestingly for company A, the company with a nearly virtual strategy when dealing with customers, is an active networker with CDSS, accessing their skill sets and mutual problem sharing. While for company L, who lacks sufficient design skills, working with a CDSS has been successful:

> "...we have just recently been getting going with a design company...they've come down here for lunch so we have started to get to know each other ...we have had about three different projects that we are working on with them, so it is slowly building up over time, and we have had a chance to prove we can deliver, then hopefully there will be more work" (Company L).

Some companies indicated that collaborating with CDSS enabled them to then bid for larger contracts. For company D, because of its small size (five employees), competing for larger contracts such as £250,000 + and particularly governmental ones, usually involves quite strict requirements, and having strong financial backing is seen as essential:

> "...the qualification that you need to get into that bid stage seems to be a lot more strict and the first thing they tend to look at is your financial status, which for any new company is likely to be huge problem and we always thought that joining forces with somebody else who did not have the skills but who could provide the financial backing, they would welcome" (Company D).

Collaboration can also enable firms to enter markets that are new to a company. For example, company D, worked with a telemetry technology based firm to develop systems for in-car navigation system that was a completely new market to company D.

5.6.4 Suppliers

The previous chapter revealed that suppliers of technical and professional services to new-media firms were co-located in BH but that the respondents felt that proximity and networking was not generally important or a high priority, giving precedence instead to price and service quality:

> "....for day to day business supplies we use local people [for the proximity convenience] but for industry specific supplies we do not. We go with the best price and the best service" (Company G).

As with other companies, company G, was also unable to report any significant networking arrangements with suppliers:

> "...we have very few suppliers...the beauty of new-media is that you create it, there are no costs other than your day to day overheads, we do not have to have warehouses full of stuff, and so there are few suppliers" (Company G).

In the past company G, worked with suppliers such as Macromedia working on software development so that the company was able to access the latest software packages, free of charge. The main disadvantage was the time consuming obligation to trial the software. This takes up valuable time that the firm decided they could not afford, and so prefer to purchase directly, software products and concentrate on developing the software for their own purposes.

Company I, as with several other companies that profess a niche business strategy, and write their own code did not wish to become dependent upon third parties:

> "...we are too specialist and 'bespokey', also we would not wish to become reliant on a third party with respect to our clients and then something goes wrong" (Company I).

This chapter section, suggests that networking within BH is quite limited and that the main networking partner is customers, but they are for most companies not co-located. The following section looks at the remaining key potential networking partners to determine the extent that networking actually takes place.

5.7 Networking with freelancers and institutional agencies

With Whom do you network for the exchange of information, ideas or shared resources?	Never	Rarely	Sometimes	Regularly
Freelancers		GIJM	BDFOQ	ACEHKLNP
Universities	LJHF	PKAG	BEICOND	Q
Wired Sussex	PB	OMHC AGI	KJFE	NLQD
Within a media centre (The following are based in a media centre: AHKLNOQ)	A	KLO	HNQ	

Table 5.4 Networking with freelancers and institutional agencies, by case.

From the previous chapter there was strong evidence of co-location and networking with freelancers and this is confirmed in Table 5.4. The preceding chapter also evidenced the co-location of a number of institutional support agencies, but it was unclear to what extent the respondents made use of their services, Table 5.4, and subsequent analysis in this chapter section, suggests that the relationship with these bodies is problematic.

5.7.1 Freelancers

There is a large freelancer community in BH which was seen by a number of companies in the sample as a contributory factor for locating in BH (see Tables 4.7; 4.8; 4.14). From Table 5.4, there are a large number of companies that use freelancers, either 'regularly' or 'sometimes'. Company A, uses freelancers as an important source of skilled labour to help meet fluctuating demand without the overhead burden of employing someone full time. In particular, specialist freelancers will be employed, such as animators to help fill particular skills gaps, while the respondent herself will act as a freelancer for her peers and visa versa, creating a pool of people that know each other very well and can be trusted.

Company K, uses freelancers to fill skills gaps that can arise when entering new markets, that require a range of skills and experiences that are not all in-house, which freelancers can complement:

> "...its allowed us to get into wide degree of experience and when ever stuff comes up we cannot manage it, we can bring people in to do it" (Company K).

Using freelancers can enable firms to learn new processes, which the freelancer can offer, because of having worked for other firms:

> "...we have got a couple of freelancers. Our information architect in particular she used to work at X [a large local company], so she is providing that input of how a big PLC client produce documentation etc... that helps us to go forward if we can pick out the good bits about what they do" (Company L).

Company C, goes further afield in its use of freelancers, subcontracting out to programmers in Eastern Europe, with whom lower pay rates can be offered, but who have comparable skills, to UK programmers:

> "...some years back we realised that globalisation of our industry was taking place and back in 1998 we started losing big, to places where they could set up an offshore office so we invested in the Ukraine and we have a team of up to 15 programmers working there" (Company C).

Company E, has experienced that freelancers can play an important role in the creative design process because of the alternate perspective they can sometimes bring to a client project:

> "...we might actually bring in a freelancer just to kick-start some ideas or to challenge the ideas we have had" (Company E).

One positive outcome of the dot.com recession has been a surfeit of good quality freelancers looking for work, so that the company has had little problem finding the right people, for the projects they have bid:

> "...there is a huge amount of talent out there desperately looking for work and so we know that all we have to do is just go out there and sell and we know we have got enough people around us to be able to deliver" (Company L).

Some companies such as company I, do their entire specialist coding in-house, and have found it difficult to find people who can offer this as a freelance service:

"...the coding is very innovative and it is difficult to find people with cutting edge skills" (company I).

Company G, and others have a more reserved approach to using freelancers preferring instead to employ full time staff:

"The preference is that you get more buy in, and you build up a relationship and you get to know each other strengths etc, whereas freelancers, you cannot guarantee that they are going to be there when you need them and so you might build up a rapport but they are busy on someone else's contract" (Company G).

Another reason for having reservations about using freelancers is that some firms wish to keep all new developments in-house so that IPR is protected, and firms do not become dependant upon freelancers for source code or clients relations. Company M, suggested that freelancers can be problematic to employ and if allowed to take on a core element of a project, may use this as a lever to control the project to their advantage, therefore, their use is kept to a minimum:

"So we are not held to ransom by a mob of freelancers" (Company M).

5.7.2 Universities

There was little evidence from the sample of any firms working closely with any of the two Brighton based universities. Several however use university contacts to recruit students as full time employees. Company O, for example, is an ex employee of one of the universities and, as a result, still uses his contacts to 'cherry pick' and recruit some of the best graduates to work for his firm:

"I go back to the lecturers and I say "who shall I employ, who's really, really good and coming out of the programme"? I have got a couple of PhD's as a result" (Company O).

Other firms are using students on short and long placements either to supplement their workforce numbers or to groom as potential full time employees. Although the experience of using students is somewhat mixed:

> "... the guy we have got from university (X); he actually knew very little, he has picked it up very quickly so it could have been a nightmare" (Company M).

When it came to discussing how the university and the company could cooperate, the respondent was largely unaware of what the university could offer apart from a good library. The respondent went onto report that conversations that he had with the placement student and the need to give him additional help, suggested that what is taught at university (X) is not very relevant to the real world of new-media:

> "When I sat there with him he learnt more here in four days than he has in two years but in real world stuff" (Company M).

The perception of universities being out of date was confirmed by another firm after attending a one-day university symposium:

> "They were telling us about stuff that was five years old" (Company C).

Several companies have viewed the two universities as potential clients although the experience of tendering for contracts has resulted for one firm having a negative perception:

> "...they put a project out to tender and were incredibly rude, egotistical...I have never come across a circumstance like it in all 10 years of business, I have never met anyone who treated us with such shameful distain" (Company G).

The respondent went onto to reflect about the philosophic position the university appeared to take to business:

> "I think they are just so locked into their institutionalised way of talking to people and criticising people's work that they just treated us like a bunch of students rather than industry professionals" (Company G).

Several respondents simply reported that had not perceived a need to contact or work with the two universities, which presumes also that the universities have made little effort to contact these firms to engage them in some form of future relationship:

> "Just never had the need...I suppose because we have been very focused in the work we have been doing, we have not been able to think, 'well actually their projects might be useful'" (Company H).

This is even more ironic when many of the people interviewed were graduates themselves and more specifically were often graduates of the two local universities. Only one respondent reported doing joint research with one of the universities (Company Q) and only one reported employing a university lecturer on a consultancy basis (Company B). Company Q, was also the only respondent who claimed to meet with the senior university staff responsible for business support.

A main concern expressed by respondent Q, was the perceived departmentalisation of taught subjects, which from a new-media perspective should be integrated, because of the converging nature of the new-media industry and the subsequent synergies that could be released in the universities:

> "I despair of these organisations because they just do not understand how, the longer that they keep new-media technologies and communications technologies as a separate sector, missed opportunities occur" (Company Q).

The respondent indicated that the future could become very positive, if greater joint working could develop between the universities and local new-media firms:

> "That is what I would like to see the universities work in some sort of unified form to really develop the intellectual and the skills capabilities of this city because you would be limited by the amount we can do in terms of attracting either manufacturing or financial institutions to the city, what we can do is develop our intellectual capabilities and sell them nationally" (Company Q).

5.7.3 The media centres

Seven of the 17 firms interviewed are based in dedicated office locations (see Table 5.4) with other new-media firms. All are centrally located in the heart of Brighton apart from

company O, which is located on a university campus. Most firms, such as company A, rent their own office space, while very small companies such as company L, rent two desks in a shared office. All the media centres offer forwarding and reception services for firms who do not wish to locate there but wish to exploit this service and the postal address halo (as is the case for company F).

Most firms commented upon the flexibility of locating in a media centre in terms of short-term rents, options to upgrade or downsize as well as access to broadband and other infrastructure services:

> "The location is very good, having other people of a like mind around you in the building where you can just nip out and network within the building...it has a social benefit that you could use...there are people in similar situations that you can have a chat with, there is a communal kitchen... It puts people in the same boat...you've got the same problems, the same issues you need to resolve, the same hurdles of running a business" (Company K).

However, several firms reported that these advantages are dwindling, and the temptation to move to the suburbs, or further afield, has increased:

> "...the reasons for being here are dwindling all the time to be honest with you. It was a good price, good location and it was fully serviced within the cost. That is all changing and people really do not like it, you would get a lot of antagonism in the building, you probably will not find many people who have got a positive word to say about [media centre X], (Company K).

What was surprising was that many of these media centre based firms have not fully engaged in networking with other firms within the media centres. Company A, for example, suggested that working in the centre was similar to the anonymity that often exists when living in a block of flats. Where conversations with other firms are occasionally exchanged on arriving and departing but otherwise there were no long term relationships established. The respondent was aware that some networking events had been organised by the media centre itself but had not attended, the main reason being lack of time:

> "It is probably my own fault I should have networked <laughs> but I have just been a bit busy" (Company A).

Company H and others report that as far as they were aware their media centre had not organised any networking events. Some networking was, therefore, organised but was largely constrained to those companies that were based on the same floor.

Company Q has been based in media centre (Y) for at least 7 years with its own office space, it provides for a convenient location but has no impact upon the company's, information, learning or innovation abilities:

> "...the notion of some form of dynamic community residing in (Y) I think is a romantic one, it is not" (Company Q).

Company F, was once based in media centre (Y) but has subsequently moved out to the suburbs, having purchased a flat, this has enabled him to save rental monies but still maintain a presence at the media centre through their reception services package.

The main disadvantage in moving away is experiencing a degree of social isolation, however, when he was based there he did not engage in any of the social networking. No particular reason given except that during working hours he was busy and in the evenings would go home to the family.

The relatively poor reports from most of the respondents appears to have become more widely known outside of the media centres where company C, who is not a resident believes that (Y) calling themselves a media centre is misleading because from his experience they did nothing for new-media except as being a landlord:

> "It (media centre Y) doesn't do anything for new-media so, therefore, what can I say to them? Good luck to you, hope your profits keep up. If they were to say 'what should the media centre do? It would be to actually be a media centre as opposed to a landlord" (company C).

Company Q was a little more sympathetic to the proprietors in the sense that issues like networking should be the responsibility of the tenants to organise however, this was then barbed with the following comment:

"I do not think it is the role of landlords to get involved, they just need to simply provide good landlord services, which is the thing that they seem reluctant to do, they want to be seen to be more charitable, altruistic, doing us all a great big favour when actually they are not, they are charging us a lot of money and what they need really is to focus on the business of being landlords" (Company Q).

5.7.4 Networking brokers

There are a number of networking conduits in BH. The principal one cited by respondents was Wired Sussex (WS), which is a dedicated resource aimed specifically at new-media firms and is the focus of this section. WS, organise monthly early evening networking events, usually in a bar or a closed off section of a restaurant. There is free food and drinks on offer, which on occasion can be quite generous. There is usually an invited speaker to address a particular new-media theme followed by a question and answer session. Wired Sussex also run subsidized workshops and provide an in-depth web site with many resources and company resource database.

While all the firms spoken to have heard of WS, few were regular attendees of their networking events and few were supportive of WS because of their mixed experiences of having attended. Company A has only attended one WS event and was disappointed in terms of the people that were there, such as writers and musicians. This was because when discussion about new-media arose, they were unable to make any useful contribution, and so the respondent has never attended subsequently:

"I was talking to them about the stuff that I did and it was totally above their heads and they were not interested at all and so it kind of put me off a bit. But they were interesting people but I felt like I was more at a party, where I'd just met somebody who was into something else" (Company A).

Initial impressions are important and WS seems to have mismanaged this, with several companies only attended once:

"...we actually went once to Wired Sussex, to see what they can do for us, we would like to increase our turnover and business and networking was a rather important point and the only sensible suggestion I got out of them was that perhaps we should play golf <laughs>, that is true, I have got witnesses" (Company C).

Where concerns about competitors are important, WS was seen by some to only bring together other competitors rather than potential customers and thereby not producing a productive use of time:

> "...it was always quite an odd thing to do because it was just people who did exactly the same thing as you <laughs> and it was a bit dull really" (Company E).

The respondent went onto complain that the events only seemed to attract technical or creative people rather than people with business orientation:

> "At the end of the day if the commercial people aren't selling the projects, then you have not got anything to do ...we are all running bloody businesses it is not just sitting around playing with mice and software" (*ibid*).

Company G, was also critical of WS because of their apparent lack of interest:

> "...in hard times you expect them to help, they've never phoned me up and said how can we help you, you are a new-media company... what would be great is if they came to visit us, come and see what we are doing, let us show what we are working on, excite you about this, we are doing this, and then at least someone at Wired Sussex is aware of who and what we are doing" (Company G).

In contrast, a few respondents were impressed with WS particularly when WS subsequently had become a paying client. However, when it comes to WS training and formal networking events, these respondents do not attend:

> "I have seen them advertised and stuff, never fancied it, most of the cases" (Company B).

Not all companies complained about WS. Company F, reported attending an evening where there was a diversity of people networking and it was seen as a positive attribute to the event where useful information and learning could be gleaned. Company D, attends WS events 'sometimes' and has found them beneficial:

> "I think purely meeting other owner managers is one useful thing, equally it allows us to gauge how much people know about the technologies we use within our

product because we have been, we have adopted what we think are open standards in the web world" (Company D).

Company J, also thought WS did a good job:

"I think Wired Sussex has got a lot of credit to them...in which people [from new-media firms], could recognise that they belonged to such a thing [a new-media cluster], (Company J).

5.7.5 Networking with other third parties

With whom do you network for the exchange of information, ideas or shared resources?	Never	Rarely	Sometimes	Regularly
Banks	ONMLJ FG	PKHDB I	ECAQ	
Lawyers	PMLK HEBG	ONJFD AI	CQ	
Marketing & PR agencies etc	PCBAG	OJFQI	NMLKHD	E
Accountants	NB	POLKJ HFEGI	MCAQ	D
FSB-Brighton & or Brighton & Hove Chamber of Commerce & or Sussex Enterprise	OKJG	MLHB	FEDCAQIP N	
Family & Friends		OHCQI	NMKFEG	PLJDBA

Table 5.5 Networking with other third parties, by case

From Table 5.5, there is little evidence of 'regular' networking with other third parties apart from 'friends and family'. Due to time constraints, it was not the remit of the study to explore these dyadic relationships but to concentrate upon supply chain members as they are highlighted by Porter (1990) as the key cluster relationships.

The reason for reporting this finding is to offer more evidence of the apparent lack of social embeddedness of the sample of firms interviewed. From earlier chapters, it was established that these third parties are well represented in BH as providing services to new-media firms, but that the firms themselves were more concerned about fees and the quality of the service rather than proximity. Overall, there is mixed evidence concerning networking with institutional and other third part actors. This must prove problematic for

the theoretical basis of networks and will have consequences for the thesis's key research objectives, which are covered in the following two sections.

5.8 Relevance to research proposition two and underpinning literature

The aim of this chapter is to determine to what extent new-media firms in BH are

Table 5.6 Expected and observed key outcomes

Research proposition to be assessed		Expected Outcomes:	Observed Outcomes
RP2 'All new-media firms in Brighton & Hove are active networkers'. The following research questions are based upon the findings of the literature review with a view of determining whether the research proposition holds:		These expected outcomes are predicated on the basis that Brighton and Hove is an 'ideal type' of new-media cluster.	Observed outcomes are based upon the precedin analysis of the field work with the 17 sampl companies. The findings are compare to the expecte outcomes and then categorised as to whether there i a: Good Match Partial Match No Match
RQ5	To what extent do new-media companies engage in networking with customers and why is this done?	The sample firms actively network with customers for trade and un-traded benefits.	Good Match: Networking is most common witl customers but that most customers are not based i the local economy, apart from three sample firm who sell to small local firms, proprietary pric sensitive services.
RQ6	To what extent do new-media companies engage in networking with suppliers and why is this done?	The sample firms actively network with suppliers for trade and un-traded benefits.	No Match: Networking regularly is not common witl suppliers, even though they are co-located as price o quality of service are the pre-requisites.
RQ7	To what extent do new-media companies engage in networking with competitors and why is this done?	The sample firms actively network with competitors for trade and un-traded benefits.	Partial Match: Networking is not common as mos companies claim their competitors are not base locally, unless they are competing against either non niche or price competitive players.
RQ8	To what extent do new-media companies engage in networking with complementary digital services suppliers (CDSS) and why is this done?	The sample firms actively network with complementary digital services suppliers for trade and un-traded benefits.	Good Match: Networking is common at a local leve for trade and un-traded benefits.
RQ9	To what extent do new-media companies engage in networking with freelancers and why is this done?	The sample firms actively network with freelancers for trade and un-traded benefits.	Partial Match: At least 8 sample firms us freelancers on a regular basis, although some prefe to develop internal staff or recruit only full timers.
RQ10	To what extent, and why, do new-media companies exhibit a preference for informal and face-to-face networking?	The sample firms will exhibit a preference for informal networking.	Good Match: The majority of firms believe tha informal and f2f networking is more beneficial.
RQ11	To what extent is networking delegated in new-media companies?	Networking is not delegated in new-media firms.	Partial Match: Many do not delegate although a fev do where commercial and technical networking, an often delegated between directors.
RQ12	To what extent are institutional bodies perceived to be able to enhance new-media networking?	Institutional bodies are seen to enhance new-media networking.	No Match: The institutional bodies, trade body media centres and universities are not seen a enhancing new-media networking

active networkers, thus providing evidence to determine the validity of research proposition two. This chapter section will explore the implications of whether the expected outcomes of BH representing an 'ideal type' are actually observed (Table 5.6), this will be done by examining the underlying literature that supports the observed

outcomes, clarifying where practice deviates from expectations with an account of why this might be.

From table 5.6 it can be seen that three of the expected outcomes (for RQ5, 8, 10) were actually observed for BH while research questions (7; 9; 11), derived mixed findings, with research questions (6, 12) having no match, suggesting that BH does not conform to the 'ideal type' and therefore that research proposition two does not hold.

As there are a larger number of research questions in this chapter, networking relationships will be discussed first, covering research questions 5 – 9, the implications of which will be covered in the last paragraph of the sub-section. This will be followed by an examination of the research questions covering different networking forms, research question 10 and finally the two last sub-sections will examine research questions 11 and 12 separately.

5.8.1 Matching expected and observed outcomes with potential networking partners (RQ's 5 – 9)

RQ5 To what extent do new-media companies engage in networking with customers and why is this done?

The expected and observed outcomes match, although customers are usually not co-located in BH. There is a general recognition amongst the sample firms that for sales and marketing to be successful, networking with clients and understanding their changing needs is important in being able to recognise what is the most relevant product-service solution, from which innovatory services may derive. This role for networking confirms earlier findings from the small firm's literature (Carson *et al.*, 1995; Shaw, 1997 and Perry, 1999).

For new-media firms, networking with clients that are co-located in city centres, who have sophisticated (Porter, 1990) web based needs are important for stimulating the growth of a new-media cluster (Backlund and Sandberg, 1999). Although the majority of respondents say they network with their customers on a regular basis, many state that the majority of their clients are not actually based in BH, because most local firms are too small (BHCC, 2005[15]) lacking the corresponding sophistication and budget for more elaborate web based

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[15] *BH has approximately 8500 VAT registered companies of which the majority are SME's, with only 30 major employees, the largest being American Express, who employ around 4000 people.*

solutions. Not having city based clients must therefore curtail many of the advantages that are claimed for co-location (see relevant authors in section 2.2.2) and may put BH new-media firms at some disadvantage, particularly when compared to London based new-media firms (Pratt, 1999) who are often competing for the same client.

However a major way that BH new-media companies can minimise this issue is through the use of ICT technologies (Castells, 1996). Web sites have moved on from just being sources of service information, and have become important database repositories, and communication channels via intranets and extranets, to fully-fledged e-commerce or e-business mediums (Conway and Perks, 2003). Projects can be developed at any location and then sent electronically to the client, requiring less regular face-to-face contact. The use of virtual communications means that the local market does not need to be so important for new-media firms, a point raised by Castells, (1996) or even for any type of firm that is reasonably IT aware (Caincross, 1998; Coyle, 1998).

However, the need to have face-to-face meetings will still be important for developing innovative customer solutions (Romijn and Albu, 2002) or for the transfer of tacit knowledge (Malmberg and Maskell, 1997). Therefore, by combining face-to-face meetings with ICT communications, BH new-media firms are able to establish long-term networking relationships, helping to ensure that they remain the preferred supplier. If the service provided is excellent then the company also increases its chances of referral, and this approach can be a cost effective means of increasing revenue and profitability, a benefit that arises from relationship marketing (Christopher and Ballantyne, 1991).

RQ6 To what extent do new-media companies engage in networking with suppliers and why is this done?

Apart from some firms reporting the usefulness of networking with suppliers during the start-up phase of the firm, this networking partner was not considered by most firms to be an important aspect of their networking strategy. This is particularly the case for those companies that write their own code, because their main resource input, is their knowledge workers. A further explanation is that usually new-media firms have little need to deal with a complex supply chain, requiring the purchase of intermediate products (Romijn and Albu, 2002), instead all they normally require is an office with broadband, PC's and

programming software, which are normally sourced on a price-quality basis from national companies. They deal directly with the client in most cases (see figure 5.1), as they have the key skill sets in-house of, coders, programmers and web designers and either email work, as attachments or remotely upload web sites directly after the client has trialled it.

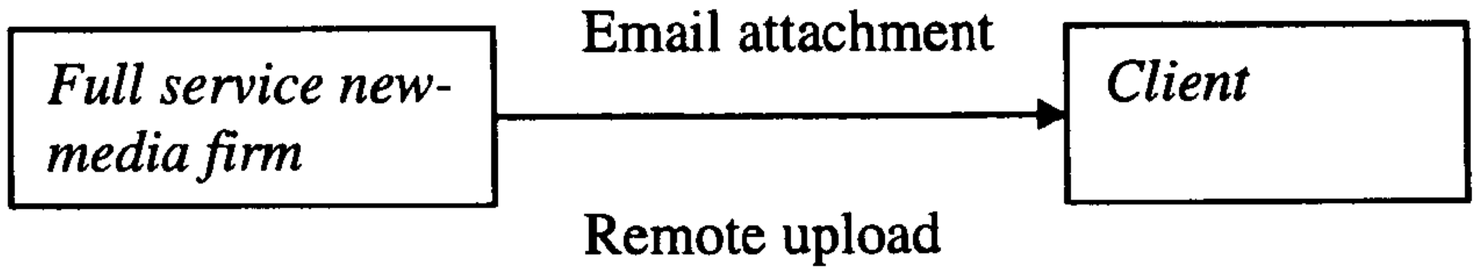

Figure 5.1 Full service new-media firm supply chain

There were four such sample firms that had this arrangement, see table 5.4, although, they did use freelancers on a 'rarely' basis.

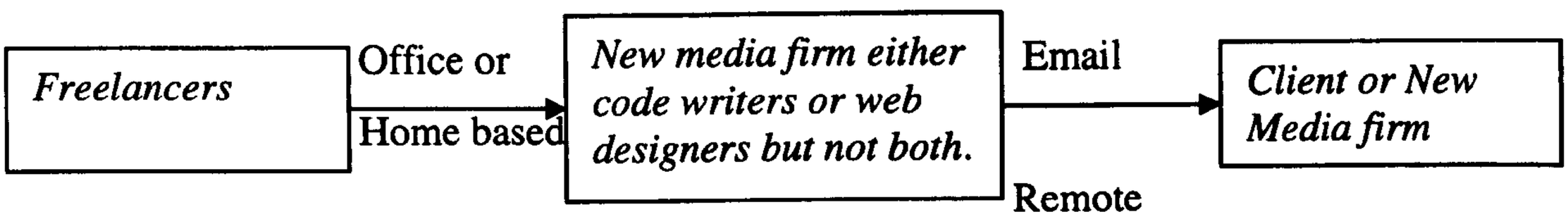

Figure 5.2 Part service new-media firm supply chain

From figure 5.2, this example shows either a new media firm that has coding skills but not design skills or the other way round. From the sample respondents, five firms used freelancers on a 'sometimes' basis and eight firms used them 'regularly'. The overall implication of this finding is that the 'production process' is quite limited in its extent, for BH new media. This means that the claimed benefits for flexible specialisation as promulgated by (Piore and Sabel, 1984) are less apparent, apart from the use of freelancers by some of the respondent firms, either to fill a skills gap or simply to be an extra pair of hands.

Two other authors, Oakey *et al.* (2000) and Lublinsky (2003), conclude from their research that purchasing locally is not a common feature. Oakey gives no explanation while Lublinsky claims that the aeronautical cluster he was investigating, source their suppliers globally rather than locally, but this was to access specialised intermediate products, which is not the case for new-media.

Only two of the respondent companies admitted to having a strong relationship with their suppliers. One realised technical benefits that were useful to the firm, while another company worked with their supplier to cross sell their mutual product range. The

dismissal by the remaining firms of networking with suppliers may suggest myopic thinking on their behalf, or as they often claimed, lacked sufficient resources to prioritise them. The worrying concern with this attitude is that suppliers are reported in the literature as an important potential of complementary knowledge (for example fresh ideas, market information, learning and innovation resources) (Cohendet and Llerena, 1997), thus enabling firms to minimise the possibility of 'cognitive lock-in' and path dependant innovation (Levitt and March, 1996 in Hudson, 1999).

RQ7 To what extent do new-media companies engage in networking with competitors and why is this done?

There is little evidence of networking regularly with their competitors, because many firms claim to be following niche business strategies (Curran *et al.*, 1993), so that their actual competitors can be located anywhere in the UK [16], making regular networking impracticable. Firms are also concerned about IPR issues as well as being faced by price competition, similar to findings in the literature review (Blackburn, 2001; Cook and Hughes, 1999). However, for the three firms who do have a sizeable competitor base in BH, they appear happy to meet with their peers and exchange general market information, although any higher-level strategic information is likely to be withheld for competition concerns.

RQ8 To what extent do new-media companies engage in networking with complementary digital services suppliers and why is this done?

There is more evidence for local networking with complementary digital services suppliers, particularly as they are co-located. These firms are not generally seen as a threat and can be good sources for partnership, information, learning and innovation. Any abuse of this trust network is normally kept in check by the implicit threat to the company's local reputation thus minimising opportunistic behaviour (Williamson, 1999). Overall this should be a major source of un-traded interdependancies, as well as learning and innovation for new-media (Storper, 1993; Morgan, 1995; Campagni, 1995) particularly as networking with other actors within the BH cluster are so limited.

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[16] Often reported to be in London where many of their clients as based

As these firms operate with complementary technologies, the possibilities for knowledge spillover and novel problem solving should minimise the disadvantages of cognitive proximity (Hudson, 1999) and thereby enhance double loop learning (Keeble eta al. 1999), 'interactive innovation' (Asheim, 1999) and improve the potential of the 'learning region' (Cooke, 2002) in which the cluster resides.

RQ9 To what extent do new-media companies engage in networking with freelancers and why is this done?

While nearly all the companies have worked with freelancers, there are at least four perspectives about this relationship. There is the enthusiastic use of freelancers for their skills, experience and knowledge of how other companies operate. They can also be useful in managing fluctuating demand with a minimum impact on overheads, advantages that are confirmed by the managing director of the Brighton Media Centre (interview with Ian Ellwick, 6.12.02). This form of 'project working' is common within new-media in the UK as well as in the USA (Christopherson, 2002). This is particularly true for the smaller firms, who invariably have to pitch for work with the consequent uncertainly of work flows so that at times the company operates on its core staff and then at other times may have to recruit several freelancers for the life of the project.

Freelancers can also become an important conduit of learning and innovation, particularly through their mobility within the cluster to diffuse their experiences of working on a diverse range of projects and technologies (Camagni,1991; Krugman, 1991). This can have the overall effect of leveraging up the learning and innovation capabilities of parts of a region (Asheim and Isaksen, 2003).

A second perspective is a tied relationship with one or two known and trusted freelancers, who are given work that is secondary to the core of the business. Thirdly, some firms try not to use freelancers because they wished to build up their own employees in terms of team building or wishing to ensure that all IPR skills are kept in-house, a concern previously identified by (Tang, 1999). Finally, a number of respondents did not want to use freelancers and then become dependent upon them, thus losing aspects of the firm's independence. This may apply to other applications of networking and or the sharing of IPR, and has been recognised in the small firm's literature, as a potential problem (Curran and Blackburn, 1994; Shaw, 1997).

Out of the five key potential networking relationships only networking with CDSS (RQ8) gives an exact match between expected and observed outcomes. This is because they are not only co-located but can prove to be a useful conduit of learning and do not necessarily represent a direct competitive threat. The general motivation for networking was seen by some respondents in quite a narrow perspective, as being only part of the company's sales and marketing strategy, a key finding found by (Ebers1997; Dennis 2000). Time and other resource constraints therefore meant that they concentrated their networking effort largely on clients (Curran *et al.*, 2000) while only a few of the sample respondents viewed networking as a more general opportunity to meet and exchange information with a wider range of actors.

What came as a particular surprise to this author was that there was no match between expected and observed outcomes for networking with suppliers (RQ6), particularly as they are co-located. This appears to come about because suppliers are perceived only in trading terms rather than as a source of un-traded interdependencies, where price and service are instead the key decision criteria. It may also come about because the supply chain for new-media is very short, all that is required to deliver a service is an office (not always), internet infrastructure, some hardware and software, much of which can be purchased in a standardised form from internet sources.

The remaining research questions in this category (customers RQ5; competitors RQ7; freelancers RQ9) all have mixed findings with respect to whether there is a match between expected and observed outcomes. This is not ideal as far as networking and 'learning region' theory is concerned as this would suggest that the learning and innovation potential is degraded. Ironically, inference from the critics of cluster theory, would suggest that the BH cluster will be less likely to suffer from inertia and group thinking and may actually learn and be more innovative, as these firms are exposed to a wider range of external influences (Sull, 1999; Uzzi, 1997, Hudson, 1999).

According to literature sources, firms that network effectively, particularly at a social level are said to be 'socially embedded' into the local economy (Granovettor, 1985). Grabher (1993) commented that such embedded relationships are more likely to lead to a repeated series of transactions, resulting in greater cost-revenue efficiency, which for a small firm can be beneficial. However, as we have seen from the preceding paragraphs, the level of embeddedness if quite limited (largely CDSS only), therefore the claim that 'social

embeddedness is 'greatly exaggerated' must ring true for the new-media cluster in BH (Curran and Blackburn, 1994)

One other missed opportunity within the sample firms interviewed was that there was little apparent evidence of joint working or collaborating with other firms. Only one firm indicated that this was done as a way of gearing resources for jointly approaching potential clients. This approach can enable small firms to compete for larger contracts, , because the increased size and complementary skill set can help reassure potential clients (Kanter, 1994; Donckels and Lambrecht, 1997; Huggins, 2000; Johannisson, 2000), or joint working can result in sharing the cost of resources required for new product development (Gulati, 1998).

5.8.2 Matching expected and observed outcomes with different forms of networking

RQ10 To what extent, and why, do new-media companies exhibit a preference for informal and face-to-face networking?

Research question 10 has a complete match between expected and observed outcomes. Although there was an overall preference for informal and face-to-face networking, formal and virtual networking was also commonly practiced. This research question will now be dealt with in two parts, first the preference for informal networking will be discussed and then that of face-to-face networking.

5.8.2.1 Informal networking

The split between formal and informal networking is seen by some firms, as an artificial dichotomy, suggesting instead that both are incorporated, serving a useful function for their organisation. However, a small group of the sample respondents appear quite opposed to formal networking, because of its perceived emphasis on dress codes and selling, attracting a particular type of aggressive personality, couched in a false friendliness. Dragoi (2000) refers to this as the 'sales discourse', which is often counterproductive, resulting in rejection and poor reputation. Formal networks were seen however, as a way of establishing your name and company in the early days of the company's development, and useful in providing initial contacts in terms of clients and working partners (Carson *et al.*, 1995).

Informal or social networking is seen as being more open and relaxed, where 'people can let their guard down', and thereby are more open to sales messages, information or skills exchange. Informal and social networking was more likely to occur over time, with a select group of peers and clients, where friendships are formed, so that news, information and product-service developments could be discussed in confidence, in a reciprocating way, without fear of a competitive threat. This has been referred to as the entrepreneur's personal contact network (PCN) (*ibid*). The resulting exchange of tacit knowledge and double loop learning is in line with what previous literature sources have predicated (Malmberg and Maskell, 1997; Keeble and Lawson, 1998).

Informal networking was also perceived as being more fun with a strong association with the younger single professional, where the city's vibrant lifestyle of pubs, cafes and clubs was a suitable attraction for the creative nature of new-media people. In the USA this informal form of networking was referred to as 'cyber' and 'suds' (Pratt, 2000), which to a certain extent is a feature of new-media networking in BH and was confirmed in an interview with the managing director of the Brighton Media Centre (interview with Ian Ellwick, 6.12.02).

Informal networking is also akin to social relationships being developed where according to Siberian (1996: p33):

> 'Entrepreneurs came to see social relationships and even gossip as a crucial aspect of their businesses'.

This 'buzz' (Bathelt *et al.*, 2004) of information and learning can play an important role in reinforcing the culture, relationships, norms and institutional rules that help substantiate the' institutional thickness' that helps cement the actors of a cluster together (Amin and Thrift, 1995). However, for the older or more established firms, whose owners were married with families, or who lived outside of BH, this lifestyle aspect of networking was less prominent. This older generation were really the first to develop new media in the mid 1990's and therefore the original premise that new-media owners were all young single professionals living in city centres and all socially networking which galvanised their creative abilities (Pratt,2000) is now less evident. How this demographic/lifestyle profile will affect the future development of these firms has yet to be explored (a topic for future research).

Several respondents indicated that trust was an important outcome of informal and social networking. For Krackhardt and Hanson (1993), trust is essential in terms of feeling secure with sharing sensitive information, which is more likely to arise through social networks because people are more likely to relax and be open, thus reducing the costs of opportunistic behaviour (Williamson, 1999). IPR within new-media can be difficult to protect, often only relying on copyright law, so trust, therefore, is paramount when sharing sensitive information with others, as programming code can be relatively easy to replicate (Tang, 1999; Backlund and Sandberg, 2002).

5.8.2.2 Face-to-face networking

Face-to-face networking was practiced by all respondents and was seen as the preferable method of meeting with third parties as opposed to virtual networking. DPA (2000) specifically comments upon the importance of this for networking in BH, and was seen as most successful when done informally. Other authors have claimed that face-to-face networking is the most successful way of transferring knowledge and generating innovative solutions because the tacit aspects require a physical presence for this to be effectively transferred (Romijn and Albu, 2002; Malmberg and Maskell 1997). Face-to-face networking is recognised by the respondents as playing an essential role in the early phases of working with clients, because the technologies involved require a high degree of educational input for the more naïve client.

Only one company felt that virtual networking was an essential part of their communications. However, all the firms contacted made extensive use of virtual communication technologies, by being able to email attachments of work in progress, for signing off, to uploading the completed project without necessarily having to physically meet the client, resulting in travel and time cost savings. This may explain why it is quite feasible for new-media firms to be less dependant upon physical co-location with clients, and allows firms to market themselves more easily outside of the local economy (Castell, 1996).

The concepts and ideas of Caincross (1998) and Coyle (1998) of the 'death of distance' and the 'weightless economy', respectively, are certainly applicable to the new-media industry. However, Pratt (2000) was less convinced with the arguments supporting the 'weightless economy', suggesting that software products will require boxes, support

literature and branding, but as the majority of the companies interviewed, were service providers this reservation is less relevant.

There will always be clients who are more conservative and might be suspicious of virtual communications, thus requiring the reassurance of regular physical contact to confirm that their contract is being completed effectively. Most respondents felt that virtual networking was complementary to face-to-face networking (Malmberg and Maskell, 1997; Romijn and Albu, 2002), while all felt that it was unlikely to replace traditional forms of networking, apart from the day-to-day communication needs between firms, which tends to undermine the long term claims made by Caincross (*ibid*) and Coyle (*ibid*). Virtual networking also has its disadvantages. Clients can become more demanding and international clients requiring extended office hours, issues not particularly cited in the literature. Several respondents claimed that their organisation were not active virtual networkers, because of a lack of time or personnel to scan through forums which often had a high noise to usefulness ratios (for example the BNML).

Although informal and face-to-face networking, are preferred over formal and virtual networking, most respondents see them as beneficial and complementary for learning and innovation exchange. Formal networking is done less often and is often associated with information exchange concerning generic market information rather than an exchange of sensitive information such as technical processes. The use of virtual networking is largely by necessity, particularly with clients who are usually not co-located. It is this lack of co-location which must prove a limiting factor for the theories of the 'learning region' and 'interactive innovation' to be fulfilled, as the more spontaneous nature and feature of informal and face-to-face networking will occur less frequently. However, it has been suggested by some authors that permanent geographic proximity is not always necessary for benefits to arise (Hudson, 1999), however, this dispute in the literature has yet to be fully resolved empirically.

5.8.3 Matching expected and observed outcomes for the delegation of networking (Research Question 11)

RQ11 To what extent is networking delegated in new-media companies?

There is no full match for this particular research question as some of the sample companies do have limited delegation for networking responsibilities, although the

majority have only one person specialising in face-to-face networking (thirteen of the seventeen firms, see table 5.2). Having only one person involved is usually indicative of the small size of the firm, but has the disadvantage of focussing only upon the entrepreneur's PCN, and ignores the networks that may exist within the firm, of other partners, senior managers or staff (Dubini and Aldrich, 1991; Christopoulos, 1999).

However, four firms do employ a greater range of directors to be involved in networking, often one specialises in commercial networks and another in technical networks. Christopoulos, (1999) suggests that this specialisation can be an effective way for small firms to compensate for their size by accessing information, learning and innovation from a range of sources that would otherwise be untapped by just the owner manager (Szarka, 1990; Perrow, 1992; Shaw, 1997).

Responsibility for virtual networking was usually with the technical director or employees with coding and programming expertise. The main function was to exchange technical information, pose technical problems and for someone to provide a relevant solution. Virtual networking can complement face-to-face networking and the BNML, is a good example, which serves as a technical and social forum through which people can then meet up on an informal networking basis.

As a result of minimal delegation, some firms will have difficulty to prioritise networking with a larger number of actors, because of a lack of time, and personnel with the right networking skills. The owner manager, therefore, has to concentrate on important clients, findings, similar to those of (Curran *et al.*,1993). This limiting factor is difficult to resolve for very small firms, although time management courses, greater exploration of delegation by the larger smaller firms and the use of agents and ironically ICTs could be possible ways forward.

5.8.4 Matching expected and observed outcomes for the role of institutional Bodies (Research question 12)

RQ 12: To what extent are institutional bodies perceived to be able to enhance new-media networking?

There was no match between expected and observed outcomes for research question 12, yet literature sources would suggest that these bodies are an essential element for the

development of the 'learning region' (Florida, 1995; Morgan, 1997) and the 'interative innovation' that should arise (Asheim and Isaksen, 2003).

A number of networking brokers were identified and the most commonly cited was Wired Sussex (WS), an organisation that specialises in supporting new-media firms. They organise weekly networking events as well as training sessions and have an in-depth web site aimed at providing information services, database, employment, investment news and advice. Most of the firms interviewed, had been along to at least one WS networking event with several others having attended WS organised short courses.

However the reaction to WS services was mixed with the overall message being quite negative. A common criticism is that the networking events themselves were largely populated by freelancers looking for work, staff programmers looking to change jobs or people with generalist technical backgrounds with few senior people attending. Secondly, that the attendees were all looking for clients rather than networking to find suppliers. Thirdly, that the events themselves were either poorly organised with non-relevant themes or had poor quality speakers. Many respondents suggested that because of this, they have not attended again after one or two visits. This researcher was able to partly substantiate the weak role played by Wired Sussex, having observed the networking events first hand and found them to be quite limiting (see appendix A). Westhead (1995), Oakley (1999) and Romijn and Albu (2002) have found similar responses to the provision of support services to small firms. Their evidence suggests that one major problem in this provision, is the use of advisors who do not have the relevant industry or small business experience.

The literature also suggests the important role that universities can play in the development of clusters, the 'learning region' and 'interactive innovation' (Keeble and Lawson, 1998; Romijn and Albu, 2002, Ashiem and Isaksen, 2003). Yet most of the companies interviewed had few dealings with either of the two universities, lack of time and perceived need were cited. They also could not recollect the two universities proactively contacting them, findings confirmed in previous papers covering this industry (Kaplinsky *et al.*, 2003). Ironically, a number of the respondents were graduates of the two universities or had fellow directors or employees who were local graduates. Many saw the universities as good sources of employees or students for employment placements, and as mentioned earlier, it is the knowledge workers, which are the key pre-requisite for the success of new-media (Sandberg, 1999; Braczyk *et al.*, 1999 and Pricewaterhouse, 2001).

There was little evidence of respondents having attended university-based short courses, while only one respondent was able to cite a joint research programme. There were also concerns over the universities not having the latest technology, or having the practical experience, adequate training, research or consultancy skills. These findings are common in research papers covering other related industries, such software development, where universities are often too slow to react to dynamic technological developments (Backlund and Sandberg, 2002). Overall the universities contribute very little apart from providing generic graduating students, this minimal role was even recognised by SEEDA (2003) where the universities were not seen as actively supporting the transfer of knowledge and technology to the new media cluster.

Both Tang (1999) and Pratt (1999) have reported upon the role of the media centres and Wired Sussex in BH, but only described the services they offer, rather than assessing them from the user perspective. Likewise SEEDA (2003) was complimentary of Wired Sussex but did not state the basis for this conclusion? However, the respondents in this study were largely very critical of Wired Sussex and the three media centres: Brighton Media Centre, Lighthouse and Sussex Innovation Centre. Apart from complaints about ever-increasing costs, the centre owners do not appear to organise networking events and the level of networking within the centres are reported to be nearly non-existent. This is a disappointing finding, although arguably the media companies themselves are equally to blame. The main benefit that the media centres do appear to offer, are largely economic (agglomeration like economies) with flexible accommodation and payment terms, so that start-ups can have a desk in a shared office, to renting a whole office, if the company grows in size.

Interviews with Wired Sussex and the Brighton Media Centre (BMC) prior to the field work suggested that from their perspective their organisations provided good channels for networking behaviours, although the BMC did admit that they did not have the resources to directly get involved themselves in encouraging networking behaviour (Clemons, 25.11.02; Elwick, 6.12.02). The only obvious explanation is that either the sample firms just do not realise the benefits that can arise from working with these institutions and or the institutions themselves are not sensitive to the needs of new-media. In either case both parties need to educate each other of their respective needs and services so that a closer match can be made and thereby enhance the possibility for institutional thickness to occur.

As a result of the new-media interviews, it became clear that there were at least two grass-roots organisations in BH that provide information, training and networking events, Silicon Beach and Skills Swap. However, the majority of respondents had never heard of these organisations. The main ways in, which their training and networking services are marketed is through the BNML and word of mouth, and they tend to be subscribed to by programmers and coders rather than the managing directors, where the noise to usefulness ratio is reported as a disincentive for senior people.

Overall as there was no match between the expected and observed outcomes, theories concerning institutional thickness (Amin and Thrift, 1995) the 'learning region' (Flordia,1995; Morgan, 1997) and ' 'interactive innovation'' (Asheim and Isaksen, 2003), may not be fully realised and therefore the potential for learning and innovation degraded, concerns that have been expressed in other contexts and markets (Lovering, 1999).

5.9 Conclusions

Tang (1999), Pratt (1999), Oakey *et al.*, (2000) and Kaplinsky (2003) have all examined the networking practices of the BH new-media cluster. Tang suggests that Brighton had little evidence of networking or cluster benefits arising, but that it may qualify as a 'Silicon beach'. Oakey *et al.*, (*ibid*) did find some evidence of networking but the cluster benefits reported was less convincing. Pratt was more positive about both networking and clusters, but his main source of information was the institutional agencies in Brighton rather than new-media firms themselves. Kaplinsky, (2003) however was the most enthusiastic, claiming evidence that new-media networking was common and beneficial for learning and innovation and that Wired Sussex were at the forefront of running successful networking events (SEEDA, 2003).

The findings of this study suggest that networking within BH is quite limited to working with CDSS and freelancers while networking beyond BH largely involves working with more distant clients. These findings are problematic for the proposed conceptual framework and research propositions because of the limited networking. This means that new-media firms in BH have fewer opportunities to tap into a range of other resources that may enhance their learning and innovation capabilities. The above conclusions would suggest doubt concerning the research proposition that:

RP2 'All new-media firms in Brighton & Hove are active networkers'

This will also influence the original conceptual framework, (see Figure 5.3):

Original Factors	**Revised Factors**
Firm Networking	**Firm Networking**
Customers	Customers (y)
CDSS	CDSS (1)
Freelancers	Freelancers (2)
Professional/Technical Service Providers	Professional/Technical Service Providers (x)
Competitors	Competitors (z)
Institutions and Universities	Institutions and Universities (x)

Figure 5.3 Original and revised networking factors existing in Brighton and Hove

In the revised factors, the (x) symbol indicates that the factor is present in BH for all firms but networking is not common. The (y) symbol is a factor of networking but outside of BH while the (z) symbol is a factor largely outside of BH with whom networking is not common. The remaining factors are common networking parties in BH and are ranked ordered[17] in terms of their relative importance to the whole of the sample firms.

If these findings are then coupled with those of the previous chapter, that BH is a hybrid cluster, it can be seen that these two key potential influences upon learning and innovation, are potentially degraded. The following two chapters will seek to determine to what degree learning and innovation does take place within this more limited framework.

[17] These rankings are interpretated by the researcher from the responses given by the sample firms.

Chapter 6: Learning outcomes from networking and cluster co-location

6.1 Introduction

The aim of this chapter is to explore the degree to which networking and cluster co-location impacts upon learning outcomes. In particular, it is to test the following two research propositions:

RP3 'All new-media firms that network and are located in the Brighton & Hove cluster will demonstrate positive learning outcomes'.

We know from the preceding two chapters that BH is a hybrid cluster and that the networking practices of the sample firms are restricted. To help achieve the chapter aim, the following research questions were derived from the literature review chapter:

RQ13 To what extent is learning important for new-media companies?

RQ14 To what extent is networking important for new-media learning?

RQ15 To what extent is tacit and double loop learning most appropriate for new-media?

RQ16 To what extent is informal or formal networking appropriate for new-media learning?

RQ17 To what extent, and why, does cluster co-location enable positive learning outcomes?

RQ18 To what extent do the sample new-media firms perceive the institutional bodies' role in enhancing new-media learning?

The chapter is in seven major sections. The first begins by examining the importance of learning for new-media firms and is followed by reviewing the role of networking in acquiring learning. The third section looks at the types of learning outcomes that can arise and the fourth section, the implications of cluster co-location upon learning. The remaining sections review the implications for transferring tacit and codified learning for new-media firms and identifies from whom, network learning takes place. This is followed by a summary that explores the expected and observed outcomes for each of the research questions and integrates the literature findings from chapter two. The chapter conclusion is that networking and co-location do contribute to organisational learning, but that the full potential for such learning is inhibited because of the hybrid nature of the cluster and the limited networking practices of the sample firms.

6.2 The Importance of learning

Because the new-media industry is characterised by rapid technological and business environment change. Learning was seen as an important way for new-media to meet these challenges:

> "Because you'd fall by the wayside in no time [if the firm did not learn]...but that means having a very open-minded ability to learn at any given point in time, because a client might come to you for a website and then they might turn around and go 'can you do WML' [wireless mark-up language], etc" (Company G).

Learning is also seen as a lifelong requirement because 'change' will always be endemic:

> "I think that if you ever reach the stage where you think you do not need to learn anymore, then you should go home and stick your head in the oven <laughs>. Whatever your role in the business is, you can always learn from other people" (Company E).

This next respondent strongly emphasised the importance of learning for himself:

> "I would say the main reason why I am in business, why I am in new-media is because I am on a mission to learn. If I did not learn anything new for every day then I would very quickly get bored" (Company G).

The respondent for company J saw their role as managing director as one of problem solver, resolving issues across the whole technical and business skill set. Making mistakes is a normal part of running any business and is an important part of the learning process for the firm. Experience has taught the firm and its employees to think through the consequences and potential outcomes of decisions and actions that are proposed, and then learn from this:

> "I encourage all our staff to think, "Make sure what the worst thing can happen? Make sure that you can deal with that as a plan for the best". Expect the best, play for the worst, and make sure you can deal with what actually does happen in those two things" (Company J).

Because learning is seen as key to competitive advantage, company O, lays great store in recruiting people who have the right attitude with respect to learning:

> "The whole IT industry is about the learning curve. I look at what their learning curve is going to be and that they have a real genuine interest in what they are doing. Technology is changing all the time and you've got to be prepared to point stuff out on the Internet, and get your head around, this is why I actually prefer to take on people who have a more traditional computer science degree where they have learnt a lot of the basic principals" (Company O).

As learning is perceived to be very important for new-media firms, the next section, explores the degree to, which networking can support learning.

6.3 The importance of networking for learning

In the questionnaire, respondents were asked about what impact networking had on a range of learning facilitators, (see Table 6.1):

Does your networking impact upon any of these, learning facilitators?	Never	Rarely	Sometimes	Regularly	Do not Know
Encourages Performance or Gap Analysis between firms		MJFC	POLKBI	NHEDAGQ (7)	
Agreeing and discussing metrics between firms	L	ONMJHEB	IKDCQ	AG (2)	PF
Sharing lessons between Firms/even Mistakes		OKJ	QPNMLHECIB	DAG (3)	F
Sharing Knowledge either Technical or Commercial		F	POKEB	NMILHDQC AGJ (11)	

Table 6.1 The impact of networking upon learning facilitators, by case

Networking as a way of sharing knowledge about technical or commercial issues was conducted 'regularly' and 'sometimes' by the majority of respondents and to a lesser extent this was the case for encouraging performance and gap analysis between firms. There appears to be less enthusiasm for networking that impact upon 'metrics' or the sharing of lessons and mistakes that have occurred.

Decision-making in the firm will always involve uncertainties and this can be reduced by gathering more information and learning new skills. However, this can be very time

consuming and can delay important decision taking. Networking can help shortcut this process by seeking out information as a form of marketing research:

> "Networking does allow that environment where you can say, "If this was available what would you think about it? Would you buy that?"...networking allows you to sort of tap into quite a lot of what people would think and then to make sure that we have got the right product and the right price early on ... I have found networking has added certain things that we thought we should do and things we should not. I have talked to people about a new idea technically a great idea, but nobody wants it, nobody needs it, let us not waste any more time on it." (Company J).

It is very difficult, particularly for many of the very small micro firms to be able to develop a very wide skill set. Networking, therefore, enables these firms to extend their skill sets by either working together on a client project or by reciprocating technical and marketing information to each other:

> "You cannot be a master of everything so other people specialise in different areas so that is another good reason to feed off each other" (Company A).

New-media is characterised as a creative industry, where creativity is not conveniently gained from a book or self-taught. Most people need the help of a guide to be trained in the arts of creativity:

> "...we are all designers in one way or another and you need somebody to guide you at some point. Also on the design side of things you cannot hold your screen up to your book and say is this right <laughs>" (Company A).

6.3.1 Information and learning outcomes

From Table 6.2, respondents seek to achieve a range of information and learning outcomes from their networking but in particular are keen to understand their customers' needs as well as information about the activities of their competitors.

What information & learning do you wish to access when networking?	Never	Rarely	Sometimes	Regularly
The needs of current and new customers			MB	PONLKJHFED CAGIQ (15)
Technology Developments		N	OLKJHFB	GIQPMEDCA (9)
Local Business News		H	PONMKJDBAL	FECGIQ (6)
Information about Competitors		O	PMJBI	GNLKHFEDC AQ (11)
Find new Staff with particular skills		POMKJF DCB	EI	NLHAGQ (6)
Find new Investors/sources of grants	POLEA	MJHFCB GI	NKDQ (4)	
Changes in Regulations	L	PNKHFE DBQGI	OMJCA (5)	
How to Improve Operations		KB	PMJHECI	OGQNLFDA (8)
Improve Management & Personal Skills		OB	PMKJHDCAI	GNLFEQ (6)
Identify new suppliers with either lower costs or new products	KB	NGIQ	POLJEDC	MHFA (4)
Discover who can be trusted			PKHDCBI	GOQNMLJFE A (10)
Learn new technical skills		ONJF	MLKEDCBI	GQPHA (5)

Table 6.2 Information and learning outcomes from networking, by case

To a lesser extent, information and learning about technological developments is important because this can be a rapidly changing issue, while discovering who can and cannot be trusted is also seen as important. For those firms who are more dependent upon the local market for their clients and customers, information about the local market place is considered important.

In terms of skills learning, the majority of firms are 'sometimes' looking to improve these, however, there are only four companies that are 'rarely' accessing this benefit while networking. There is a mixed view concerning the benefits of networking in 'finding new staff' with particular skills, while overall, nearly all firms felt networking was beneficial in accessing management skills, an issue raised in this chapter, where there is a particular skills shortage in BH.

Networking to source new suppliers with either keener prices or new products are sought-after, although in the previous chapter on networking, these suppliers do not need to be BH

located, because price and quality of service take precedence over location. Finally, just knowing who to trust and what can be shared, can have important implications in terms of future relations, partnership and joint developments.

6.3.2 Learning from informal networking

From the interviews, it was clear that informal networking was seen as the preferred way of accessing knowledge and learning because of the friendships and the subsequent presumption that a high level of trust exists:

> "Amongst us we are very willing to share information. We are willing to help each other out because we are friends and we are all in the same boat together" (Company A).

The respondent added an interesting caveat concerning what would happen if someone were to abuse the trust involved in sharing information:

> "...if somebody did that [abuse information], then the people would get to know pretty quick and what would be the advantage of everybody saying, 'oh so and so did that really nasty thing to so and so...reputation's everything to us and before we got our reputation that we have built up, I would not dream of doing something nasty to somebody else because it is going to damage me in the long run and all of us think that way" (Company A).

Not all companies felt that networking particularly useful from a learning perspective. Company I, has had little need to network with other third parties apart from clients. This was because the nature of their services is bespoke and specialised and secondly, because of its company policy not to become dependant upon third parties for its core business competencies.

6.4 Cluster co-location and learning

We know from chapter four, that BH is a hybrid cluster where co-location is largely limited to CDSS and freelancers. However, company K, felt that being based in the centre of the city with many other media companies close by offered convenience, whereby

people could meet quite informally in the local cafes and bars in a relaxed atmosphere with people that were trusted:

> "You do not have to physically go too far to actually speak to someone face to face, in the many local cafes where you can relax and discuss issues" (Company K).

In terms of learning from others and sharing information company B, felt that this is a common aspect of life in B&H at a non-management programmer level, and is largely done informally in the pub, bar or café. This sharing of information and problem solving has the attribute of helping to create standards and uniformity so that it has the potential for software systems to be compatible with each other rather than leading to technical conflicts. However, the respondent was aware that others consider sharing technical solutions as contradictory to protecting intellectual property rights and the resultant potential loss of competitive advantage. Company C felt that in terms of sharing information, the BH new-media community was reticent to do this:

> "Not really useful information [the network sharing of information]. They will give you a gist of where they are getting their work, they will certainly mention their best clients out of pride, <laughs> they will even mention their current client, just to show you that they are doing something but in the main they do not want to give anything away in case it gives them a disadvantage commercially" (Company C).

For company P, sharing information, while networking does happen in BH but detailed sharing with direct competitors is likely to result in more competition and lower prices:

> "I am not being cynical but I do not think people share information that they want to keep for themselves. It is a kind of 'kidology' involved with all of this. You have to put on a face when you go into networking, you put on a networking face and 'oh, of course I can share everything, the best way of competing is by sharing'. Of course we all know it is not true" (Company P).

6.5 Tacit and codified learning transfer

From the preceding literature review chapter, it was determined that the transfer of learning within new-media is particularly of a tacit nature, because it involves skills of creativity

that are problematic to codify. The literature suggests that tacit learning can be transferred effectively using networking. However, the interviews with the sample firms also suggest that networking is also useful even when learning can be codified.

Textbooks and computer manuals can be used to learn about codified knowledge but the time cost is a limiting factor while networking and sharing with others has a big advantage:

> "Have you seen the size of the computer manual <laughs>...when you are up against it, he could have easily read that computer manual but it is quicker to do it on the phone when it is already in someone's head and they can do it within two minutes when it would take you two minutes to find it in the index" (Company A).

If someone in the new-media community is known for their expertise and there is a trusting relationship then it is preferable to hear it from the 'horse's mouth':

> "It is a lot quicker sometimes to go to the horse's mouth; we do it with each other all the time. You will also do it on the phone because someone, a designer, who you will ring up and say 'bloody hell mate', how do you do this? It is much more a personal approach with us" (Company B).

Developing market knowledge is akin to tacit knowledge because reading a book about a particular industry will not give the full understanding of its myriad needs. For example, company D, were very knowledgeable about the telecommunications industry, but they knew very little about the pharmaceutical industry and although they have a quality product, market entry had been problematic. This was because they lacked the knowledge and experience of working with that industry, a tacit knowledge, that a textbook will not resolve:

> "We were going into pharmaceutical companies and saying that we have got this thing that you must be crying out for, and they will say, 'well, what do you know about the pharmaceutical world? Oh crickey, I am sure there must be some use for it regardless of understanding the business?" (Company D).

Credibility is an important issue here, which the company did not have. Prior to meeting the potential client, discussing with others, who have such market knowledge, would have been useful. It also suggests that gaining this information from a book would still not be

persuasive as potential clients will want to have real life examples given to them or expect the firm to have associated partners with such experience, hence the usefulness of networking.

Although all firms engaged in some form of networking for learning purposes some place greater stress on transferring learning and knowledge internally and or using texts and the Internet, allowing them a degree of independence from others:

> "We each teach ourselves and help each other so we do not rely on others, while the main resource is the internet an amazing learning resource, I mean you can find it all on line." (Company G).

However, when it comes to managerial skills, the respondent has recognised this as an area of weakness that is difficult to supplement with texts and the Internet and has recently signed up to a mentoring programme being organised by the regional chamber of commerce. Similarly, Company L, also saw the process of transferring skills, particularly technical skills, as being quite possible through textbooks and web based tutorials. The same is not necessarily the case with respect to commercial business skills but the company has staff who have taken formal courses in marketing and, when coupled with books and experience, feel the company is developing a progressive modern strategy.

Learning from books is an important source for company O, and around the office, it was clear that they had invested heavily in many texts. When pressed, the respondent did also recognise the importance of learning by doing, particularly as programming is similar to a craft:

> "You learn more by doing. I mean you certainly look at other peoples' code and so on, because you have to work with other peoples' code, it is quite a personal, almost private, thing, programming, in that you are very much in your own sort of world when you do it" (Company O).

Learning from others within the firm does also happen, but in a naturalistic setting rather than formally expecting set sessions where skills are transferred. The company employs a mix of experienced programmers as well as programmers fresh out of university and by employing people with the right attitude to learning the company has largely seen a

successful progression in the skills set of its employees because of its cultural emphasis on learning:

> "There is an element of transferring skills, I think people are encouraged to produce code at a very high standard because of the environment they are in and to constantly think about what they are doing, and because it is more of a cultural thing we have built within the company to do that and because of the procedures that are in place" (Company O).

Company K uses a combination of internal and external sources of learning to tackle new client projects. Learning is initially seen as an in-house process, through team sharing and books. If they take on a project that has aspects that require further learning, they will use a combination of team working and books, then use freelancers, and networking, to achieve the required learning to fulfil the contract. Having established that networking can be a helpful conduit for learning and in particular, the transfer of tacit learning, the following section, identifies which particular actors within the supply chain play an important part in network learning.

6.6 Networking and learning within the supply chain

From chapter five, we know that networking with others is largely limited to customers, CDSS and freelancers, with only a minimal amount of networking arising from other sources, this section seeks to explore how this might affect firm learning.

6.6.1 Customers

Company L gave a useful example of how one client conversation changed the whole way the company organises its relationships with other clients, so that the firm is now more likely to be market and customer driven:

> "In terms of our processes, the methodology we use now, is called a user-centred design, which means that when you are building something that people interact with, you put the people who are going to be using a website, you put them right at the heart of your process and so everything is all about understanding what it is that the user needs, and then building something around that. And that all stemmed from one conversation" (Company L).

Companies do much of their learning via customer projects, either having to learn new technical approaches and solutions and or learning about how to market and project-manage a new client sector. Company B, cited an NHS contract that was their first foray into the public sector that resulted in a very steep learning curve, but was resolved by working closely with the client and learning how to apply their procedures and processes into a database format. This experience has now allowed the firm to begin competing for work with other NHS trusts and, therefore, enable the firm to diversify its market base.

Clients in particular are an important part of the learning process for company I, as these relationships were based upon a continuous relationship building strategy. Technical and business skills that are developed are then transferred to new clients and can also be the basis of going back to previous clients to say, 'we can now do this for you'. Working on client projects is a constant learning experience for the directors of company M, particularly with respect to enhancing and honing their technical skills base:

> "...you can pick up things really quickly but you are still going in there not really knowing, we have learnt an awful lot I mean in the last year I have refreshed all of my computer skills, networking, viruses, all those sort of things, web design in particular" (Company M).

This firm, therefore, has used its client base to develop its expertise, whether these clients would be happy to know that the service being provided was initially based upon ad-hoc knowledge is uncertain. The fact that the company has only been going for three years, it might be expected that their technical skills base will be more limited and may explain their need to specialise on small-inexperienced technology user firms.

6.6.2 Competitors

Although networking and the sharing of learning and software development are important for many of the sample firms, there is a concern that the uncontrolled communication of these key competencies will lead to 'commercial suicide':

> "...we do not particularly share our technical skills liberally unless someone pays us to, because it is quite hard especially when you are developing a product, you cannot start saying 'well we did it this way', because actually that is commercial

> suicide, because others can pick up on that idea, or that solution, and say 'bloody hell, it is a bit easier than I thought' and make it 10 times cheaper" (Company B).

Company E suggested that the sharing of some skills and knowledge were less susceptible to competitive threat, where technical skills are commonly shared while creative skills, which capture IPR, are not:

> "Not on the technical side [no restrictions on sharing], on the creative side they seem to be really competitive, some of them are a lot more precious... designers tend to be 'creatives', and tend to be more personality and business driven" (Company E).

Creativity is at the heart of competitive advantage for many firms in the new-media industry, so being protective of that process makes commercial sense. Sharing with competitors was largely problematic during the late 1990's when the dot.com bubble burst and the business environment became very competitive. However, company G, now believes that, as that pressure has reduced, sharing, even with competitors may increase:

> "...we have had good sit-downs with company X and gone, "where are you going?" and brain-dumped to each other. I have got relationships with other people who run new-media companies who we do compare, but there is obviously a little bit of testosterone jiggling around there and you might bend the truth a little to pump yourself" (Company G).

For company K, working with competitors and exchanging skill sets has been done, but when probed, these companies tended to be operating in different market sectors. The respondent cited an example of joint sharing of 'code' in the development of a contact management system with another company that co-habited the same office building. It was evident that this was based upon a prior trusting relationship having been established.

6.6.3 Complementary digital services suppliers

Learning from CDSS has often enabled firms to understand or resolve issues, problems or learn about particular functions of a piece of software that had not been appreciated before:

> "I wanted to get a particular kind of animated file from one animation package into another animation package, which I was learning as new and I could not get it to work so literally I picked up the phone to [X] and he said, you need to save it as a different format and that was the thing that got me off the hook" (Company A).

This mutual working together encourages reciprocation:

> "...we were both on two different jobs but we collaborated, we helped each other out and that is the way we work...we are happy to do each other favours" (Company A).

Specialising and becoming expert in one particular field is a common feature within the sample firms, relying on other parties, to share and work with one another, on a complementary basis. Networking with CDSS can also help a firm gain the tacit knowledge and understanding of another industry. Company D, has recognised that by seeking out complementary suppliers who target other industries, they could enter new markets by combining their technical skills with their partner's market knowledge:

> "I'd be happy to work with somebody on a joint bid if they have that knowledge of the pharmaceutical industry and I'd provide the technical skills" (Company D).

For company A, sharing information about clients is more limited due to confidentiality, however, if clients are known to be defaulters, then there is little hesitation for this to be circulated unofficially.

6.6.4 Suppliers

From the previous chapters it has already been established that networking with suppliers is limited to some of those companies that use proprietary software. Company E, has a tie-in with a major software house, whereby new products that are coming up to market launch are sent out to them as software testers to debug and test for suitability and usability. In this way the company gets to learn and up-date their technical skills by working closely with an important software supplier:

> "They are very impressed with [a work colleague's] work, therefore, we're allowed to be a Macromedia tester, which paid for that subscription" (Company E).

6.6.5 Freelancers

For company A, working particularly with freelancers has often enabled the firm to understand or resolve issues, problems or learn about particular functions of a piece of software that the firm has not appreciated before:

> "...you are always against something that you've never come across before in that you know this particular package, this computer package can do xyz or you think it might do but somebody within the group will know that this is the way to do it" (Company A).

Company K, use freelancers to fill the skills gaps that can arise from new client projects, while company E, use freelancers to bring an alternate perspective to a particular client project. One of the positive outcomes of the dot.com bust is that BH has a large number of well-qualified freelancers with a wide range of skills for micro companies to tap into because they had been made redundant:

> "the upside of the dot.com bust is there is a massive amount of talent out there desperately looking for work and so we know that all we have to do is just go out there and sell and we know we have got enough people around us to be able to deliver" (Company L).

Although one might imagine that freelancers might hold back with parting with their intellectual knowledge, the respondent felt this was usually not the case:

> "If you ask them their opinion on something they are happy to tell you all they know because it proves their worth, it proves they are knowledgeable" (Company L).

It is clear that learning largely takes place amongst a narrow range of actors, where the key actor, the customer is not co-located in BH, which must make the transference of learning more complicated even though new-media are adept at using virtual networks for their communication needs.

6.7 The role of institutional agencies

From the previous two chapters it was clear that local institutions play only a minor role in terms of facilitating networking within the BH cluster for this sample of firms. The majority of sample firms do not attend Wired Sussex events, the two universities are only seen as a provider of technical staff, while the media centres are perceived to be managed with a landlord mentality, with little networking encouragement.

This minimal involvement with local institutions was explained in section 5.7, as arising from a perception that they lacked an understanding of the industry, running a small business, or was self-serving. However, it was also concluded that the sample companies themselves could be at fault, because they were either, not proactive, lacked sufficient time, were unaware of the services on offer, or wished to be self-sufficient and independent.

A minority of companies mentioned an involvement with two grass-roots organisations, Skills Swap and Silicon Beach, who both provide informal opportunities to meet and share ideas and arrange talks by local experts, into the technical and commercial challenges for new-media:

> "The advantages are that it has just been prominent people within the industry often talking about their story, how they got there, so sometimes it is quite inspirational. They had one where a lawyer who specialises in new-media law, talking about many of the issues that were directly applicable. We made a load of notes straight away adding things to our standard terms and conditions" (Company L).

There was mixed awareness of these two organisations and most of the respondents that had heard about them, had not attended, partly because of time, or were seen to be for junior staff or because the events themselves had been poorly marketed. Overall, it is clear that because of the hybrid nature of the cluster and the restricted networking behaviours of the sample firms, the potential to exploit fully learning opportunities must be degraded according to the implications of the conventional wisdom of the cluster and networking literature. The following section, will explore these findings with the literature sources for further confirmation of this possibility.

6.8 Relevance to research proposition three and underpinning literature

Research proposition to be assessed in the field	Expected Outcomes:	Observed Outcomes
RP3 'All new-media firms that network and are located in the Brighton & Hove cluster will demonstrate positive learning outcomes'. The following research questions are based upon the findings of the literature review with a view of determining whether the research proposition holds:	These expected outcomes are predicated on the basis that Brighton and Hove is an 'ideal type' of new-media cluster.	Observed outcomes are based upon the preceding analysis of the field work with the 17 sample companies. The findings are compare to the expected outcomes and then categorised as to whether there is a: Good Match Partial Match No Match
RQ13 To what extent is learning important for new-media companies?	Learning is very important for the sample firms.	Good Match: Learning is recognised by the sample respondents as an important pre-requisite for business success because of the ever-changing business environment.
RQ14 To what extent is networking important for new-media learning?	Networking is important for new-media learning for the sample firms	Partial Match: Networking can be an efficient means of acquiring information and learning transfer, but there are restricted networking/learning opportunities in BH.
RQ15 To what extent is tacit and double loop learning most appropriate for new-media?	Tacit learning is more appropriate for new-media learning. Double loop learning is most appropriate for new-media learning.	Good Match: Creativity is a tacit skill that is best transferred person to person rather than from a codified source. 'Double loop' is particularly relevant because of the ever-changing business environment.
RQ16 To what extent is informal or formal networking appropriate for new-media learning?	Informal networking is most appropriate for new-media learning.	Good Match: Informal networking is seen a good source of secure and trusted sources of information and learning and is a particular useful source of double loop and tacit learning transfer.
RQ17 To what extent, and why, does cluster co-location enable positive learning outcomes?	Cluster co-location makes an important contribution to positive learning outcomes.	Partial Match: Only CDSS is a commonly agreed important co-located source for learning, although freelancers are also important for those that use them. However, suppliers, competitors and customers are not important sources locally, although customers play an important role but outside the cluster.
RQ18 To what extent do the sample new-media firms perceive the institutional bodies' role, enhancing new-media learning?	Institutional bodies are perceived as playing an important role in enhancing new-media learning.	No Match: The institutional bodies, the universities, media centres and trade body are not perceived as playing an important role in enhancing learning.

Table 6.3 Summary of expected and observed key findings

The aim of this chapter is to determine to what extent the learning within new-media firms in BH benefits from networking and cluster membership, thus providing evidence to determine the validity of research proposition three. This chapter section will explore the

implications of whether the expected outcomes of BH representing an 'ideal type' are actually observed (Table 6.3), this will be done by examining the underlying literature that supports the observed outcomes. The implications of any discrepancies that arise from the expected and observed outcomes from table 6.3 are then discussed, clarifying where practice deviates from expectation with an account of why this might be.

From table 6.3 it can be seen that three of the expected outcomes (RQ13; 15; 16) were actually observed for BH while for research questions 14 and 17, there were mixed findings, with research question 18 having no match, suggesting that BH does not conform to the 'ideal type' and therefore that research proposition three does not hold. As the first five research questions have a complete match, they will be dealt with first under the same sub-heading.

6.8.1 Research questions that have an exact match between observed and expected outcomes (Research questions 13 – 16)

RQ13. To what extent is learning important for new-media companies?

Respondents report that learning is a pre-requisite for this industry because the technologies and market applications are continually changing. Therefore, learning needs to be a continual process, where networking can play a contributory role (Campagni, 1995). This learning needs to go beyond simple single loop learning, based upon internal resources and experiences, and instead access external sources of information and knowledge, so that double loop learning can take place (Argyris and Schon, 1978; Senge 1999; Tell and Halila, 2001).

Networking can provide the possibility of double loop learning at relatively low cost, as it involves networking across technologies and / or other market sectors. As new-media technologies are already converging across mediums in other industries, for example, TV, computing, film and music, it is important to network with a diverse range of actors, so that they are more likely to keep up-to-date and be aware of the potential of these technologies, in their own markets (Pratt, 1999). This is why networking with CDSS can be helpful, because their different technologies, markets and issues, may have resulted in product-service solutions, not considered by the new-media firms themselves (Chaston, 1999; Dragoi, 2000).

However, not all firms actively networked for information or skills purposes, placing less reliance on networking and more upon delegated learning to the individual. Some firms used team-based projects, where employees could learn from each other and, then by networking with a freelancer, bring in additional skills and experience that can then be transferred. Others preferred to gain their information needs from the Internet and their skills training from books, placing an emphasis on recruiting the right people who were self-learning-motivated. Some firms allowed staff to specialise in particular technical or commercial areas, as well specialising in niche markets, so that they perceived themselves to be less reliant on outside assistance, enabling them to maintain their independence, a finding made in the small firms' literature (Curran and Blackburn, 1994).

RQ14 To what extent is networking important for new-media learning?

According to Lundvall and Johnson (1994) there are four forms of 'economically relevant

Forms of knowledge	**Knowledge arising from the learning outcomes of networking** (N = 17)	**Regularly**	**occasionally**	**Rarely**
Know what: facts	**Frequency of reply**	**No.**	**No.**	**No.**
	• Information about competitors.	11	5	1
	• Local business news.	6	10	1
	• The needs of current customers.	15	2	0
	• Changes in regulations[18]	0	5	11
	• Technological developments	9	7	1
Know why: principles and theory	• Encourages performance or gap analysis between firms.	6	6	4
	• Agreeing and discussing metrics between firms[19].	2	5	7
	• Sharing lessons between firms/even mistakes[20].	3	10	3
	• Sharing knowledge either technical or commercial.	11	5	1
Know who: social relations	• Discover who can be trusted.	10	7	
	• Identify new suppliers with either lower costs or new products[21].	4	7	4
	• Find new investors/sources of grants[22].	0	4	8
	• Find new staff with particular skills.	6	2	9
	• New customers needs	15	2	
Know how: skills (codified and tacit)	• Learn new technical skills.	5	8	4
	• Improve management & personal skills.	6	9	2
	• How to improve operations.	8	7	2

Table 6.4 Forms of knowledge and learning outcomes from networking

[18] One candidate replied 'never'
[19] Two respondents answered 'Do not know' and one answered 'never'
[20] One respondent answered 'Do not know'
[21] Two respondents replied 'never'
[22] Five respondents replied 'never'

knowledge' that arise from learning (see table 6.4). The findings from tables 6.1 and 6.2 have been amalgamated and matched to this taxonomy and from table 6.4 it is clear that for each form of knowledge, learning does provide at least one element that most respondents capture from regular networking. Although respondents were not ask to match learning outcomes with network actors, we do know from tables 5.6, 5.3 and 5.4 with which actors networking occurs regularly and when combined with the qualitative feedback we can determine that most learning is done with customers, CDSS and freelancers[23].

'Know' how knowledge is largely gained from learning from CDSS and freelancers and appears to offer a useful short-cut to improving technical skills, simply by phoning, emailing or having a solution demonstrated, while in addition some technical skills can be picked up from books and interactive web sites or vendor technical phone help-lines. However, personal contact with some one you know, mutually depend upon, and trust is more likely to aid the transfer of tacit and codified knowledge (Malmberg and Maskell 1997) and can be far more helpful and certainly faster than reading a manual. However, in practice only 8 companies did aspects of skills learning on a regular basis (table 6.4), although this increases to

'Know why' knowledge is largely gained from learning from CDSS and is mainly concerned with benchmarking and identifying best practice. It does require exchanging confidential information and is often done on an informal basis with a trusted partner thus minimising opportunistic behaviour (Williamson, 1995), although interestingly the sharing of the most sensitive information is less frequent ('Agreeing and discussing metrics between firms'), this may suggest that only very close and trusting relationships will share such sensitive information. Bench marking is commonly associated with comparison to competitors and with most sample companies claiming they have few local competitors it could be argued that the inability to bench mark locally may result in lower levels of productivity compared to the more fully fledged new-media cluster in London.

For 'Know what' knowledge, we would expect a more diverse range of actor and ICT sources. We know from the sample respondents that the technical programmers in the organisation are often delegated the responsibility to monitor internet resources such as news groups (for example BNML) for local business and people news and sometimes allows for technical information and advice to be exchange which may border on the tacit.

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[23] Mainly for those respondent firms that use them regularly.

This finding is in line with the literature sources, although does not confirm the more extreme claims that most networking can be done using ICT's for all codifiable resources (Coyle, 1998; Castells, 1996; Cairncross, 1998). As one respondent indicated, using codified sources has a time and cognitive cost which a quick chat over the phone and or a short demonstration can resolve more quickly.

'Know who' knowledge is more than just knowing a person's name it also implies a reciprocal relationship either established or potential (Lundvall and Johnson, *ibid*) that can have either a traded and or an un-traded benefit (Storper, 1993). Interesting to see from table 6.4 the relative importance of learning that leads to 'Discovering who can be trusted', an antecedent pre-requisite, before a closer exchange relationship can begin (Lyons, 1994). It is also not surprising to see the importance of seeking knowledge of 'New customers needs' as this is probably one of the key incentives for networking (Dragoi, 2000). Networking with potential clients also required new-media firms to fulfil a particular educational role (Hilbert *et al.*1999) as there are still many business sectors who do have or understand the implications of implementing a new-media strategy (Conway and Perks, 2003)

It is also worth noting what sources of knowledge was not particularly sought as evidenced in table 6.4. The three that stand out that have not been discussed, are (a) 'changes in regulations', (b) 'find new staff with particular skills', and (c) 'find new investors/sources of grants. As discussion with respondents of these findings did not occur we are only able to speculate, however, it maybe that for (a) codified sources are sufficient to answer this knowledge gap. For (c) codified sources such as the DTI web site may suffice, although the importance of 'Know who' for such a strategic issue must come into play at some point, it may simply reflect, that at the time of the study additional financial resources were not applicable. This may also be the case for (b), although rather than the DTI, the BNML would be more suitable. An important implication here is, do these sample firms know what they do not know? Because if they do not know, how can they make informed decisions about future opportunities and threats?(Kotler, 1997).

As mentioned customers, CDSS and freelancers are the most networked partners for learning opportunities. For customers, the major benefit is about learning about changing company needs that might influence service, process or relationship maintenance and thereby becoming the preferred supplier, a relationship marketing strategy (Weitz, 1995). It is also important to know about the markets the client sells into, in terms of likely

changes in the overall business environment from which market and other technological discontinuities can arise. However, to what extent all firms who network with this 'market research' intention is not known, although literature sources suggest that it is usually ad hoc rather than systematic often because of a lack of professional expertise (Stokes, 2000)

The major benefit of networking with CDSS is the possibility of learning about market and technical challenges and opportunities that derive from a different but related technological paradigm. Literature sources would suggest that such sources of learning are beneficial as they minimise the possibility of 'technological path dependant lock-in' (Grabher, 1993; Sternberg, 2000), thus allowing the firm to identify novel solutions to client needs that may derive a differential advantage and potentially a rent reward (Porter, 1986).

Freelancers are the final most common learning networking partner, although from table 5.3 only eight of the sample firms use freelancers regularly. The main benefit of using freelancers is their ability to potentially contribute to each of the four forms of knowledge, thus making a significantly important contribution to a firms overall knowledge base, of course the concern would be that as soon as the project finishes off departs an asset that maybe critical for further client service. It is this concern that has led some firms not to rely on freelance staff for any core activity and instead to develop and invest in their full time colleagues, a strategy that some authors recommend in terms of enhancing loyalty and an enthusiasm to learn and be innovative (Pyke and Sengenberger, 1992).

Although networking with suppliers does not feature highly for most respondents on a regular basis (see table 5.2 and discussion in section 5.8.1), learning from suppliers was a taken up, particularly by firms that used proprietary software. One company had 'beta' testing authority with a software house and could get to test and experiment with the latest update or new publication, potentially gaining a competitive advantage and becoming a market leader in a particular application (Braczyk *et al.*, 1998). However the fact that most respondents do not network with suppliers, even with the explanation given in 5.8.1 must result in the learning potential for new-media to be degraded in some respects. This is because of the lost opportunities of tapping into novel ideas and different industry practices that could be applied into new-media markets with benefits similar to networking with CDSS.

Learning from competitors appears to be the least employed form of networking, which results in learning. This is partly because many of the sample firms' claim that the

majority of their competitors are not co-located in BH and, therefore, lacks networking convenience, and secondly, concerns over IPR and loss of competitive advantage restrict networking for learning purposes, findings reported in research into new-media (Braczyk *et al.*, 1999; Kaplinsky *et al.*, 2003). It would be naïve to think that firms would welcome increased competition, However, from Table 6.4 many sample firms are keen to collect factual information about competitors, and the three companies that did have higher levels of local competition were happy to network with their competitors because as one respondent indicated, beating the competition can be very rewarding by providing a better quality service. Therefore the niche firms that claim to have few local competitors may have problems benchmarking themselves, they may also lack the stimulus to actively compete on quality and service an important element within Porter's conceptual framework (Porter, 1990).

RQ15 To what extent is tacit and double loop learning most appropriate for new-media?

Although respondents were not asked directly about tacit knowledge, it was clear that relationships with CDSS and freelancers derived such knowledge within the BH cluster (Nonaka, 1991; Malmberg and Maskell, 1997) but this was not the case for the majority of respondents (see table that enabled sample firms to gain technical and market sensitive knowledge. The same benefit also derives from customers but they are largely located outside of the cluster and therefore the exchange of such knowledge is less convenient.

It can be argued that technical skills are largely codifiable and, therefore, can be written down and transferred from one person to another (Polyani, 1962, inside Moingeon and Edmondson, 1996). However, how computer code is written, or a web site designed, is more of a creative skill, that is tacit in nature and, therefore, very difficult to codify. Networking can be a time efficient method of filling any tacit skills gaps, by establishing relationships with reliable and trusted freelancers or CDSS. Even with information that is more easily codified such as market information or more basic technical skills, networking can again be more efficient from a time and financial perspective, although there will be a strong expectation for reciprocation. This finding matches those in the literature review that suggests that networking is an effective means for the transference of tacit and codified knowledge (Braczyk *et al.*, 1999; Keeble *et al.*, 1999; Romijn and Albu 2002).

The tacit key skill area that is in short supply in BH has been reported to be management, marketing and sales skills, a finding reported in recent research findings for BH (Kaplinsky

et al., 2003) and reported as a general problem across the whole of the South East (SEEDA, 1999). The majority of respondents were technically trained and educated and while they may have learned on-the-job, the skills of being a manager, several still recognised that this was a problematic issue for them and the industry.

In markets where there is little technological or competitive change or threats, single loop learning might be appropriate (Argyris and Schon, 1978) but this environment is evidently not the case for new-media. The complex nature of the business and technological environment faced by new-media firms, would suggest that double loop learning (Senge, 1990) be an imperative to help cope with such complexity (Malmberg, 1996; Morgan, 1995; Simmie, 1997; Keeble and Lawson, 1998; Amin and Cohendet, 1999). The fact that the level of networking and co-location is problematic within BH new-media, would suggest that the sample firms are not able to exploit fully the potential of double loop learning.

RQ16 To what extent is informal or formal networking appropriate for new-media learning?

From the previous chapter on networking, formal networks were largely employed to meet potential clients, identify their needs, gain market information and hopefully make a sale. For small firms, networking can also provide a cost-effective way of collecting market research information, where 'text book' methods of market research would be precluded, through either lack of time, expertise or expense (Stokes, 2000; Gilmore *et al.*, 2001).

Informal networking, allows firms to tap into other firm's knowledge and skills base in a more trusting environment where risk from information abuse is minimised (Lyons, 1994; Williamson, 1999). This was enhanced through the preference of respondents to exchange this information in social and face-to-face settings, which results in 'knowing the players in the game', enhancing trust and reducing risk (Orlikowski, 2002) and overall, should enhance double loop and tacit learning and exchange (Senge, 1990; Nonaka, 1991). Reciprocated relationships are also more likely to arise, whereby networking can allow the client to become more knowledgeable about the use of new-media technologies. In fact, educating clients was seen as an important route to enabling these firms to integrate greater amounts of digital technology across a range of operational processes in, which both parties could profit in a longer-term relationship.

What is reassuring is that the sample firms have identified routes to learning that are most effective in terms of gaining market knowledge and positive innovative outcomes that will help them cope with discontinuous change and maintain competitive advantage. Lundvall and Johnson (1994) claim that the best form of organisation for a learning organisation is one that is organisationally flat with horizontal information flows. From an observational perspective this appears to be the case[24] with the new-media firms interviewed, in terms of their small size, open plan office spaces and casual dress codes. Flat and small organisations have the additional benefits of being able to establish greater levels of trust internally allowing for the exchange of tacit knowledge and creative ideas to flow (Herrigel, 1996). What will be of concern, however, will be the reduced potential of such learning because of insufficient co-located networking actors (findings from research questions 5; 6; 7), and the weak perceived role played by the co-located institutional players (research question 13), as required by theories of clusters, 'learning region's and the 'interactive innovation' model.

6.8.2 Matching expected and observed outcomes for RQ17

RQ17 To what extent, and why, does cluster co-location enable positive learning outcomes?

There is no full match between expected and observed outcomes for this research question. As this industry is knowledge-intensive, firms are highly reliant on their staff and many firms need to supplement this by accessing freelancers, therefore, locating in the right area is very important. One of the main strengths of the BH hybrid cluster is the pool of skilled labour, which companies can easily access but also take advantage from the collective learning that is generated in the cluster itself (Marshall, 1920; Camagni, 1991; Morgan, 1995; Malmberg, 1996;).

Camagni (1991), Simmie (1997) and Morgan (1997) have evidenced that a cluster of learning is even more possible if there is a degree of mobility of skilled staff and institutional support. This is possible in BH, especially for those firms who make use of freelancers who are employed on a project-by-project basis. This is also potentially enhanced through the training support of institutional agencies such as Wired Sussex,

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[24] To be recommended for further investigation

Lighthouse and the universities, as well as the informal training provided by Silicon Beach and Skills Swap.

This source of skilled staff is seen as one of the key reasons why firms stay or locate in BH, where the two local universities, and to a lesser extent Wired Sussex, are seen as important suppliers or trainers (Tang, 1999; Romijn and Albu, 2002; Kaplinsky *et al.*, 2003). However, as has been noted in earlier chapters, the level of cooperation with the universities is minimal and opinion about Wired Sussex is mixed, and the awareness of Skills Swap and Silicon Beach is not universal amongst the owner-managers.

Company A, cited the need to develop specialist skills because of the complexity of the total diverse range of new-media tools, making it difficult for one person or a small firm, to be expert across all of them. Company A, therefore needs to work with others to tap into these other skill sets to provide a rounded service to the client. This is very reminiscent of flexible specialisation in the 'industrial districts' of Northern Italy, (Piore and Sabel, 1984), where supportive networks allow firms to risk specialising, because they know they can trust and work with other complementary firms to refine the final client service.

Networking and the convenience of co-location is used to help gain general information about clients, competitors, technology and the local business environment enabling firms to then review their business plans and take appropriate actions. In particular, firms were willing to share information about pay rates, supplier costs and bad debtors, although client information and internal financial information was usually not disclosed, for commercial reasons.

From a regional perspective, any enhancement of new-media learning should have a beneficial influence, particularly with suppliers, customers, competitors as well as other third parties if the diffusion of such learning is effective. (Morgan, 1995; Campagni, 1995; Asheim and Isaksen, 2003). However, as the cluster is not fully formed, the theories of clusters and the 'learning region' will not be fully realised and therefore the learning potential degraded. However, an ironic outcome of not being fully formed is that the problem of being engrossed in local tacit knowledge and having a blinkered perspective to external ideas, maybe less problematic (Varaldo and Ferrucci (1996); Amin and Cohendet, 1999).

6.8.3 Matching expected and observed outcomes for RQ18

RQ18 To what extent the sample new-media firms perceive institutional bodies, enhancing new-media learning?

For RQ18 there is no match between the expected and observed outcomes as the findings of RQ12, demonstrated that co-located institutions were perceived to play a weak role in supporting new-media networking and therefore the potential for the 'learning region' degraded.

Wired Sussex do support skills development, managerial training and mentoring for new-media in BH. Those sample firms that have attended, report mixed experiences in terms of competency and usefulness (see previous chapter). There appears to be insufficient cutting-edge training, largely because getting the expertise to BH can be problematic. Two grass-roots organisations have attempted to make up the shortfall through training workshops and networking events, which have been requested by the grass-roots membership, themselves.

It was reported in the previous chapter that the media centres are not perceived as providers of services beyond that of a landlord, and none of the sample tenants were aware of any events designed for information, learning or skills exchange. The only exception is that of Lighthouse, but the programmes they run are not specifically aimed at the resident companies, and were often of an introductory nature.

The two universities were not seen to be active in the training field except from providing a steady stream of graduates, who may have some of the necessary basic technical skills. The universities were largely seen as rather dated in their knowledge base and slow to respond to enquiries and requests. Research from other sources has suggested that the main problem for small firms is a general lack of awareness of what universities have to offer (The Centre for Enterprise, 2000). However, with a high proportion of the respondents being graduates, and largely from the two local universities, this suggests that both parties could do a lot more to find out about each other. Briggs (2001) an industry leader, has also suggested that employee-training provision needs to improve, because there is currently too much focus upon discrete skills:

'One of the big problems with new-media courses is that too many of them are focused

on a very narrow range of usually software-specific skills, very few try to get people to think about how it all fits together, and the potential it offers.' (Adobe, 2001)

The overall take up of institutional and professional service provision of information and skills training is quite low and reflects the largely negative findings in earlier chapters. Tang (1999) and Pratt (1999) described the roles played by Wired Sussex, the Brighton Media Centre, and Lighthouse as supportive, but have not investigated what new-media firms think of the actual service provision. Past literature in the generic small firms area, reports a mixed success of small firm support provision in the UK. This has often been found to be as a result of the inappropriate provision of services by people who do not understand the issues of either the industry or the running of a small 'for profit' organisation (Westhead, 95; Carson *et al.*, 1995; Romijn and Albu, 2002).

The main implication of this outcome is that the potential for 'institutional thickness' is stymied. This is because the establishment of a common language, behavioural norms and the build-up of trust, which fosters collaboration and the capacity for collective learning, is less likely to arise (Amin and Thrift, 1995; Keeble and Lawson, 1998). Overall the empirical findings are not able to confirm the many of the learning claims made for cluster and 'learning region' theory.

6.9 Conclusions

Overall the findings of this chapter suggest that learning within the BH hybrid cluster is problematic because co-location is restricted, and is further exasperated by the narrow networking behaviours of the new-media sample firms. Learning and skills exchange does occur in BH, through informal networks with CDSS, who are trusted partners while skills gaps can be secured using freelancers or the recruitment of full time staff from the two universities.

However, the universities and other potential institutional agencies do not play an active role in the local development of learning and skills exchange. There are two grass-roots agencies, that try to fill the training gap, but they do not usually attract the owner-mangers of the sample firms. The main source of network learning is with clients, but as they are not generally co-located, the resultant proximity benefit, is minimised.

As a result of analysing the fieldwork, the evidence of the sample firms using networking behaviours and benefiting from co-location to enhance their learning organisation characteristics is only partial:

> "A learning organisation is one that promotes the learning of all its members and has the capacity of continuously transforming itself by rapidly adapting to changing environments by adopting and developing innovations" (Asheim, 1996, p.391).

The above conclusions would suggest doubt concerning the research propositions that:

RP3 'All new-media firms that network and are located in the Brighton & Hove cluster will demonstrate positive learning outcomes'.

The findings will also influence the original conceptual framework, see Figure 6.

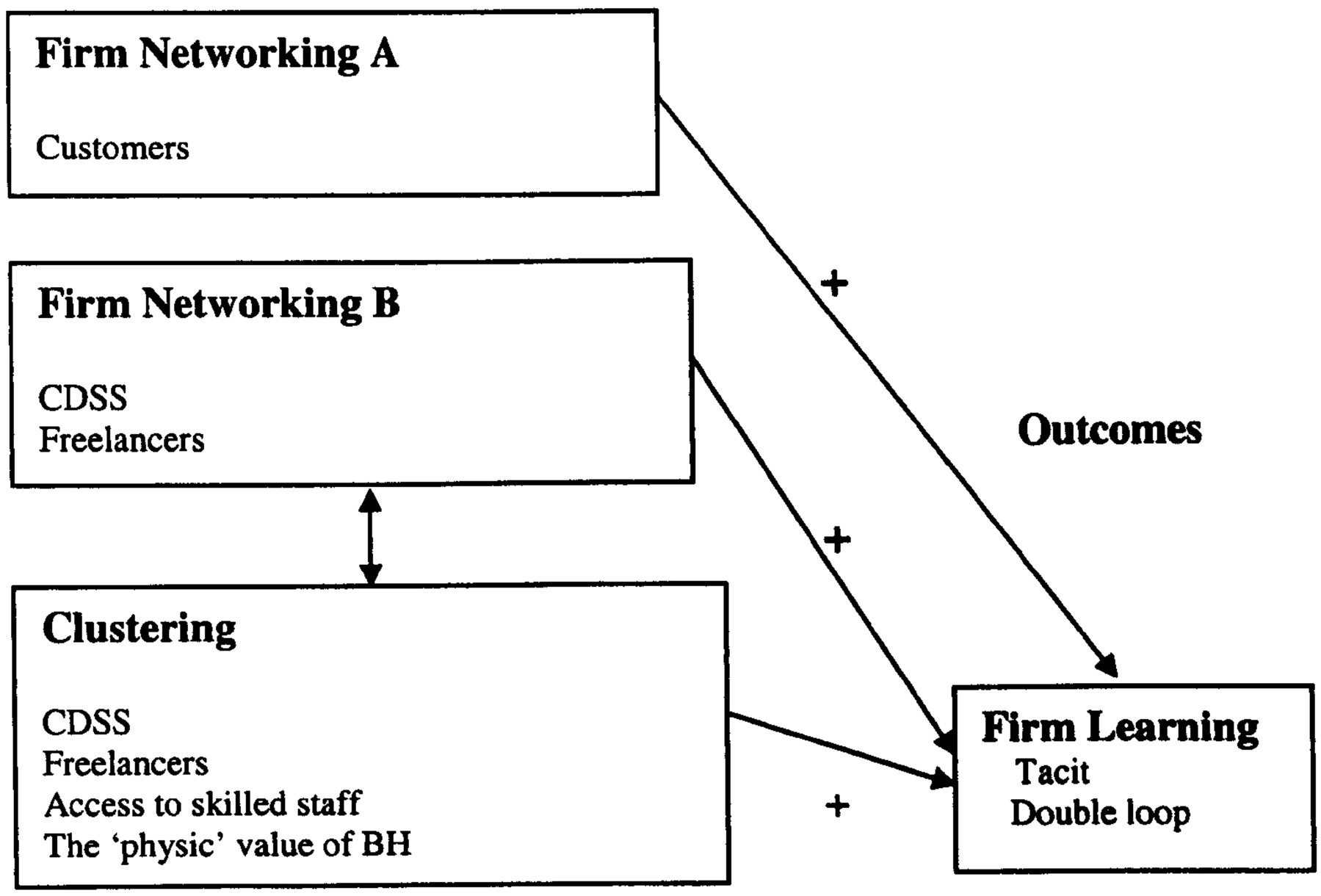

Figure 6.1 Revised networking and cluster factors positively contributing to firm learning capabilities in Brighton and Hove.

From figure 6.1 firm networking A indicates that networking with customers largely takes place outside of the BH area but will have a positive affect upon learning. Firm networking B indicates that as networking with CDSS and freelancers does take place within BH this has a reinforcing benefit upon firm learning.

Compared to the original conceptual framework (Figure 1.1, chapter one), Figure 6.1 does not include competitors, as they are not co-located for the majority of sample firms. For those sample firms who have co-located competitors, the degree of learning is likely to be limited (the researcher's assumption) on the basis that these companies largely specialise in low specification web site developments where the requirement for learning and technical expertise is minimal. Figure 6.1 also does not include professional and technical suppliers of services or the universities and support institutions, as the sample respondents have reported that their proximity is not an important issue because of the lack of reported networking with these actors.

The final difference is the explicit inclusion of the 'physic value of BH', that creates the general air of learning and creativity (Pratt, 1999), from, which resident firms can tap into, for creative inspiration:

> "The mysteries of the trade become no mysteries; but are as it were in the air and children learn them unconsciously" (Marshall, 1920: 225).

The evidence from this chapter, therefore, suggests that the conceptual framework and research propositions are degraded by these findings and therefore any benefits for regional learning to take place are not fully fulfilled. The following chapter examines the implications of the hybrid cluster, and the restricted networking behaviours upon the sample firms' innovation outcomes.

Chapter 7: Innovation Outcomes from Networking and Cluster Co-location

7.1 Introduction

The aim of this chapter is to explore the degree to, which networking and cluster co-location influences new-media innovation, confirming or otherwise the conceptual framework and the two research propositions:

RP4 'All new-media firms that network and are located in the Brighton & Hove cluster will demonstrate positive innovative outcomes'.

A context for these aims has already established from the findings of chapters four and five, that BH is a hybrid cluster and that the networking practices of the sample firms are quite restricted. To help achieve the chapter's aim, the following research questions were derived from the earlier literature review chapter:

RQ19 To what extent is innovation important for new-media?

RQ20 To what extent is networking important for new-media innovation?

RQ21 To what extent are concerns over IPR a limitation on the sharing of innovation?

RQ22 To what extent are the co-located institutions perceived to support innovation within new-media?

RQ23 To what extent is cluster co-location important for new-media innovation?

The contents of this chapter begin by exploring the importance of innovation for the new-media industry and the forms of innovation that occur from product, services and process. The barriers and limitations for small firm new-media are then examined followed by a section, on the importance of networking for the innovation opportunities that arise with a range of market actors. The final sections, examine the implications of co-location and concerns over protecting intellectual property rights on the sharing and development of new-media innovation.

This is followed by a summary that explores the expected and observed outcomes for each of the research questions and integrates the literature findings from chapter two. The chapter concludes that networking and co-location do contribute to new-media innovation

but that the full potential for such innovation is inhibited because of the hybrid nature of the cluster and the limited networking practices of the sample firms.

7.2 The Importance of innovation

All the firms recognised the importance of innovation for either: enabling a competitive advantage, or stimulating excitement and change, to keeping ahead of the technology or enabling market diversification.

For a new company, starting up, innovation is an important way to enable it to differentiate itself from its competitors to gain a competitive advantage:

> "I think in the first year that we set up, the only way to differentiate ourselves from our competitors was to be innovative" (Company D).

Being innovative is also a source of excitement as it is developed from creative thinking, so that a company is always developing and changing year to year:

> "We can do things that we could not do last year that is for me really exciting... I am a very visual, creative person and that is the medium I work in, my colleagues are much more hands-on...I am the inventive one... to me, innovation are the tools being there to allow you to move your product and your services forward" (Company E).

Innovation is also about keeping ahead of the technology so that companies can develop new or enhanced products and services that match changing customer needs:

> "I think you do definitely need to be innovative and I think to keep an edge if you like in the marketplace where client needs are always changing" (Company H).

The rate of technological change is such that companies have to innovate regularly otherwise their services can become dated very quickly. Moore's law considers 18 months as a typical lifecycle in the IT industry, whereas company L, believes it is only six months from his experience in new-media:

> "We find our business changes every six months and is just completely different because of technological change that often leads to new client markets as well, so if

you come here and talk to me in six months, the work we would be doing, the projects, the clients, many would be very different" (Company L).

For company K, innovation is part of the cultural drive of the company. New ideas are either based upon new concepts developed by the team and by finding new ways to use the technology in other market sector:

"It is using technology in ways that it has not been used or in ways that it is being used in one sector but is not in another and spot an opportunity and transfer the technology into another sector" (Company K).

Moving into other market segments means that companies can diversify their client base and spread risk so that a downturn in one market sector may not be occurring in other market sectors or they might actually be growing thus balancing out overall returns. Having established the importance of innovation, respondents were then asked about what forms innovation took within their own organisation.

7.3 Forms of new-media innovation

	MODIFY		NEW			
	Sometimes	Regularly	Never	Rarely	Sometimes	Regularly
Product	DL	BNO			BDNO	
Services	AFHLMP	BCDEGIJKNOQ	H	MP	ABDEFGIKLNOPQ	CJ
Processes	ABCDEFGILMP	HJKNOQ	H	AMP	BCDEFGIKLNOQ	J

Table 7.1 Innovation activities, by case

From the questionnaire, only a five of the sample companies had a product, which they packaged and branded, Table 7.1, with no company 'regularly' developing new products. Most firms engaged in modifying their services provision on a 'regular' basis, although the smaller the firms who use proprietary software are more likely to modify their services 'sometimes', with only three firms offering new innovative services on a 'regular' basis. Process innovation appears to take a slightly lower level of importance with the majority of respondents seeking to modify and implement new process provision, 'sometimes'.

7.3.1 Product innovation

Product innovation derives from the possibility of standardising certain services that do not necessarily need to be bespoked. A good example is where company B have developed a database software programme, burnt it onto a CDROM, packaged it, branded it, and it sold largely via resellers. The reason why there are so few companies engaging in new product development is that most of their services are bespoke and do not lend themselves to standardisation.

Another reason why so few sample firms have a product strategy is that the packaging and branding often require large expenditures, as well as patent and trademark protection, which can result in significant costs that small firms can ill afford. Finally, products need to be marketed, and sold through resellers, who will require convincing that the product is worthy of shelf space. They will then require commission, resulting in time and additional costs that will often negatively affect cash flows and short-term profit margins. Although company L, has launched one product, it is a limited strategy:

> "We have not really got the capital behind us to develop and then market new products" (Company L).

Product innovation, Table 7.1 is largely incremental where product features are improved because of client feedback or to meet new client needs. Company B, uses feedback from sales to clients to upgrade and improve its database product:

> "We change and upgrade [brand X] to fit with certain projects...Clients who are using [brand X] are coming to us and saying, 'hi guys, we need to be able to do this', so that drives our product features forward...so we can be better than the competitors." (Company B).

This incremental up-grading of their core product can then be passed onto the next client who then gains from the enhanced features and overall competitive advantage of company B can be enhanced.

7.3.2 Services innovation

Most services to new clients involve incremental innovation, Table 7.1, because no two client projects are the same and therefore it is not normally possible to sell a standardized service. It is also not in the interests of the client to have a web site that looks the same as others, because this can affect their competitive advantage:

> "Our model is very much about doing a bespoke job for a client and then turning that into the project, continuing development so each new client adds new features to our system" (Company N).

Services innovation tends to require bespoke rather than standardised solutions because no client needs are nearly always different:

> "Each design has to be different and you have to work with different technologies moving all the time and you have to adapt the way you work to match the technology and there are certain factors that make each job different for different reasons. It is just the nature of design and the nature of people that we cannot say this is the way I am going to do it, this is the way it is always done, because it does not work like that, life does not work like that, every job throws up its own particular set of problems and you have to adapt and develop" (Company A).

7.3.3 Process innovation

Process innovation varied amongst the sample firms from none, to client stimulated, to proactive innovation. As company A only comprised two people, each person had their own responsibility for particular process procedures, so over time this had become a standardised operating procedure:

> "I am kind of pretty much tied into how we operate, I use certain computer packages that [X a colleague] does not, and vice versa, and I have got to be keeping up with my expertise and do not have time trying to learn his and he doesn't want to learn mine particularly, which sounds a bit blinkered but it works" (Company A).

Company Q was the only company in the sample that has achieved an ISO 9001 certification. Its usefulness to the company was to force it to review its internal procedures and question what had been in place, contributing to the firm recognising the importance of process innovation:

> "...it forced us to look at our practices and audit them to give people some framework around, which they could measure us...it is very easy for us to go in and inspire a client and possibly win a good piece of business but the delivery can often mean that their expectations have not been met, so to be working with ISO is really important" (Company Q).

What is noticeable about product, services and process innovation, is that for these micro firms, incremental innovation is the most common form, as it represents relatively low risk to the firms, as the technology is already largely proven, unlike developing new innovations.

7.4 Limitations for innovation

Most of the firms report that innovation is of an incremental nature that is funded by working on client projects. As most of the firms are small or micro-companies, their internal financial and human resource limitations means that it is not possible to fund teams to develop new or step change innovation without client financial support:

> "...we cannot suddenly spend a couple of months developing something new, we would have to know that we have got revenue coming in to meet everything...but we have innovated as customer requirements have come along" (Company K).

Company P uses proprietary software rather than writing own code and this means that innovation is supplier led from bought in hardware and software. As a sole trader, time and a lack of human resources are limiting factors for experimenting with new software innovations, but if a client requests a new feature or facility, the company will spend time researching the possibilities:

> "...innovation for me is just making small gains and making small progress and I suppose a lot of it is reactionary I am afraid. I am not going to lead the way within the cutting edge...sometimes I do see something new that comes up very

> interesting and I try and have a go at it, but I just have not got the time to do pure research, which I may not need to employ" (Company P).

This company largely specialises in flat, non-dynamic web site design, at competitive prices, using proprietary software, therefore, innovation is largely dependant upon supplier software upgrades rather than innovation led by the respondent.

Company Q is the largest company in the sample (20 employees), and therefore in theory has more resources to call upon, than many of the sample micro companies. However, innovation is financially demanding particularly in the short run:

> "...it is quite costly to us, yes we are profitable but we could probably make a lot more money by being dry and fiscally focused" (Company Q).

7.5 The importance of networking for innovation

From chapter five, we know that networking with others is largely limited to customers, CDSS and freelancers, with only a minimal amount of networking arising from other sources. With respect to innovation, networking is even further limited, largely to customers, with little direct input from others, apart from occasional advice from CDSS and freelancers.

Innovation is very much stimulated by networking and talking to clients and potential clients. This process of networking was described by a respondent as a form of 'marketing research':

> "We believe there is a market for this kind of product, do you agree with this, and better to hear it from the horse's mouth than spend a lot of money developing something for them to say 'well, I do not know why you went and developed that, there was no need for that whatsoever'" (Company D).

Face-to-face networking was reported by several respondents as important in any innovation process:

> "...because you need to know whether people are just talking about it or they are excited about it or whether they are prepared to really commit effort and it is very

> hard to judge that on a phone call or via an email...emails are very difficult things to judge a tone and it is very easy to get it wrong as well and also find yourself committed to things that you did not think you were committed to. You do need this opportunity to meet people to discuss things and we have certainly found it very useful in talking to people" (Company J).

Having established that networking can play a role in the innovation process, the innovation outcomes from networking with others, is now explored.

7.5.1 Customers

For the companies that do have a product strategy (only one company had more than one), the cost of developing products is largely prohibitive and is done on the back of clients' projects:

> "Most of the products really just come out of customers' needs really. We have not really got the capital behind us to come up with a product idea, develop it and then market it....we have one client who has paid for the software, [a contact management system] but he knows that once this gets developed, we own his product, but he is going to get al.l the upgrades for free and a lot of bug fixes, so he is getting something out of it" (Company L).

Sometimes innovation has resulted from talking through with clients their own perceived problem and coming up with a superior solution:

> "Well quite often they [the client] will be looking for an answer to an internet problem but they do not know its cause and they say 'it would be great if that could be solved', and the client might genuinely come to us for one reason, thinking that is what they need the solution to. Luckily, a company in our position is able to look at the bigger picture and say, 'well actually, take a step back and look at that, and what you really need is this, which not only solves this problem, but it will also solve all these things in the same process" (Company G).

Developing innovation though customer networking is a joint reciprocating relationship where both parties can innovate. For company B, this has helped improve their internal process procedures:

"Some of their IT projects are incredibly smooth and we stand to learn off them and how they are doing certain things and I think they are learning probably more off us at the moment...I think you take something from each other...you have to learn something otherwise you would not get anything out of it apart from money...I think the processes in the company have to change all the time, it has to be very fluid. We are little enough to do it, so I think it happens almost as an organic thing, on a day-to-day basis" (Company B).

To help identify flaws in their own internal processes, Company K uses client satisfaction surveys. This information is then used to enhance their internal processes. One particular recent innovation has been to set up electronic project folders, so that any one engaged in a particular project can report their activities, so that everyone else is kept up to date with information flows to and from the client. This helped overcome previous problems of different people contacting a client with the same questions and issues, irritating the client.

Networking contacts with customers has led company F, to realise that it needs to change aspects of its marketing strategy to include pitching for jobs. Pitching can be time consuming and costly, with a high risk of not winning the contract, which for a small company, can be quite risky:

> "I suppose there has been a recent change for us in terms of pitching for work, it was something till about six months ago we just did not do at all, but larger clients often require this process" (Company F).

7.5.2 Complementary digital services suppliers

Networking with CDSS only gave an indirect input into the innovation process and was really more about enhancing learning rather than innovation; however, the following two examples were given by respondents as a response to networking with CDSS.

For company A, networking with CDSS enables the firm to keep abreast of and incorporate the latest software changes into their services design and development processes. The launch of Windows XP was cited as a good example of how networking allowed them to familiarise themselves with the product features and the initial bugs in the software:

> "When it first came out [XP] had its own little bugs that we were not aware of and we had to adapt and that soon went around everyone, 'hey did you know that its got this problem and do you know that its got that problem' and again we were on the phones saying 'how do you do this and how do you do that'. People rang me up and said 'I have got so and so package and say get rid of the one that you have got', I go over and have a look and play with their version" (Company A).

Company K, saw sharing IPR with competitors as problematic but sharing and working with CDSS is seen as beneficial:

> "We have worked specifically with a company just along the corridor on a project, and we have got the company across the road to help us with pitching, with quotes, which we have been able to put forward to people. I think it probably works better with complementary companies, where's there's no direct crossover" (Company K).

For Company K we have an example of a form of joint project working, but this was not commonly reported, although some firms spoke of this as a future aspiration.

7.5.3 Networking with other third parties

Apart from customers and to a far lesser extent CDSS, the remaining market actors had little direct input into the innovation process. From the findings in chapter five, there is little evidence of networking with competitors, and when the respondent interviews covered networking for innovation purposes, none was reported with competitors, the main concern being IPR or lack of co-located competitors.

Networking with suppliers for innovation purposes is largely restricted to keeping up-to-date and participating in vendor product training or product testing by those companies that use proprietary software. Company F enhanced their process innovation by ensuring they were on all important vendor e-mail lists and by keeping abreast, via the trade magazines, of any new product launches. The company felt they had a good system for ensuring their internal processes were kept current by sourcing and buying the best software from this activity.

As has been reported in earlier chapters, freelancers are commonly used to fill skills gaps when completing client projects. They may even be used to start a client project in terms of generating ideas for client solutions that internal staff may have overlooked but the overall stimulus for innovation, originates from client projects.

Wired Sussex organises regular workshops covering the legal aspects of IPR, terms of trade and contract law and other apparently useful topics while their web site provides helpful links to useful information providers. However, as was reported in chapter five, the organisation has largely been dismissed as not being a particularly useful resource and, therefore, has little input in the innovation processes of the sample firms.

Only company Q claimed to be working on a research project with one of the universities but was unable to recall the details. There was little knowledge of the training or degree programmes being run at the two universities and the sample firms were only aware, in a very general sense, of the graduates that are produced, some of, which they employ. From the perspective of the respondents, the media centres, although co-locating similar and complementary companies, do not actively engage their tenants in any innovatory programmes acting instead largely as landlords.

Although networking is seen as having a useful role for aiding the innovation process, it is largely only influential when networking with clients, yet most sample firms claim that their clients are not based in BH. This leads onto the next section, which questions the role co-location may have in enhancing innovation.

7.6 Cluster co-location and innovation outcomes

From previous chapters, we know that BH is a hybrid cluster with only CDSS, freelancers and institutional agencies co-located. As the previous sections have demonstrated, none of the co-located parties plays a significant role within the innovation process. BH is, however, a good source for qualified staff and freelancers, and to a certain extent, the decision to locate in BH was aided by this fact, as it is from this resource, that innovation will ultimately derive (see chapter four). The other beneficial aspect of being based in BH is the creative atmosphere that can act as an inspiration for innovation and for design ideas to arise. Company Q felt that BH was largely a closed community with respect to sharing innovation ideas. Competition is seen as the main threat to sharing, yet from his experience, companies that are more proprietary are not seen as being more successful than companies that are more open:

> "The inhibiting factor is that we are in competition…you say what you want to say, give away as much as you want to give away, some people are very enclosed and proprietary and others are far more open and, I do not think that necessarily, those who are proprietary tend to be more successful than those who are not" (Company Q).

Co-location does have an influence on innovation within the hybrid BH cluster, but in an intangible manner, rather than as a direct output from firms networking, with the added limitation caused by concerns over intellectual property rights, the issue to be explored in the next section.

7.7 Intellectual property rights (IPR)

There appears to be three schools of thought concerning IPR worries; one is about protecting all IPR; the second is about protecting core ideas but then sharing on a pragmatic basis and the third school is based within the philosophy of open-source sharing within a community of developers.

One common method of protecting IPR is by signing non-disclosure agreements between client and developer:

> "For the client it gives protection from disclosure of sensitive company information and for the respondent it is to protect the copyright of the designs they create" (Company A).

For Company O, IPR is protected by copyright and terms of trade, which are usually negotiated and then written into the contract before the work begins. Sharing IPR within the BH cluster is something that can happen but usually for this firm investigating other people's IPR is largely done by reviewing web sites and not particularly from networking with others.

Generally, Company N prefers to own the copyright of everything it produces but then licence out its usage to its clients. This allows the company to retain the right to use the developed code for other client applications. The sharing of general information on innovation ideas between people that are trusted was felt to be quite common within BH:

> "Most of them are pretty happy to share but there is a certain amount of guardedness, there is a combination of I want to learn from you and be guarded but most people are pretty happy to share" (Company N).

Several firms were more pragmatic about sharing their innovative ideas. Apart from trade marking the brand name of their one product, Company D is able to retain protection by not revealing the source code. If they do offer the source code to a developer, then a non-disclosure agreement is signed. Sharing information within BH is not seen as an issue in the sense that they do not have any competitors to share information with because of the niche nature of the product. However, they are willing to share general information at networking meetings.

For company E, IPR is not a particular issue because most of the work they do is commissioned by the client so IPR passes to the client on project completion. Sharing information about innovation in a general sense is seen as very useful, particularly between complementary services providers. Company F has had no concerns about IPR because:

> "...we are never really selling technology or selling a process we are more about selling our skills, what is there, is the idea and the way it is executed" (Company F).

As such, the firm is happy to discuss what it does with others and share their knowledge, but on a reciprocated basis, and networking can be useful in aiding this. It helps promote the firm to others, as well as exchanging useful information about technology changes in proprietary software.

Open source sharing reflects a long tradition within the Internet community. Company C for example, was against the notion of IPR, quoting Benjamin Franklin, "a damnation on all patents" where the respondent believes that it represents a "tax on thinking". He also felt that enforcing IPR is very expensive and provides an income for lawyers, while some firms always seem to find loopholes in the law to abuse other people's ideas.

Companies G and L specialise in open source software development rather than products, which usually means that they are keen for others to use their software. This is because it is the execution and their development skills they offer, rather than specific code, that gives them their revenue. However, they will use non-disclosure on occasions if they feel

IPR is threatened. Generally, they are happy to share company developments that are occurring, but only with others that reciprocate, and whom they trust.

Software will normally be protected by copyright as long as the date of the development can be proved. Sharing innovative ideas is seen by company J as a good thing, particularly when it is reciprocated. Sharing ideas is seen as a way of improving on them, as most new ideas are probably naïve in structure:

> "...most innovation or most ideas about a product are invariably wrong in some way and so if you do not talk about them and do not share them you may have difficulty improving" (Company J).

The respondent went onto equate the whole process of developing new services as part of the competitive process, where for services; the first mover may have a competitive advantage. The Internet can be seen to provide the 'perfect knowledge' that some economists believe is a characteristic of perfect competition, so attempting to protect ideas is often futile:

> "At the end of the day it all boils down to who can get there first on most of these things and very few companies are in a position to develop an idea and do it before the idea is spread on the internet and then copied...the great thing about innovation is people all do it a bit differently" (Company J).

In practice from the respondent's perspective the Internet creates a level playing field, people will continue to resolve problems and create services slightly different from each other so that competitive advantage can still remain.

7.8 Relevance to research proposition four and underpinning literature

Research proposition to be assessed		Expected Outcomes:	Observed Outcomes
RP4 'All new-media firms that network and are located in the Brighton & Hove cluster will demonstrate positive innovative outcomes'. The following research questions are based upon the findings of the literature review with a view of determining whether the research proposition 4 holds:		These expected outcomes are predicated on the basis that Brighton and Hove is an 'ideal type' of new-media cluster.	Observed outcomes are based upon the preceding analysis of the field work with the 17 sample companies. The findings are compare to the expected outcomes and then categorised as to whether there is a: Good Match Partial Match No Match
RQ19	To what extent is innovation important for new-media?	Innovation is important for new-media, particularly incremental innovation.	Good Match: Innovation is very important for new-media business owners for growth or survival. Most innovation is continuous and incremental.
RQ20	To what extent is networking important for new-media innovation?	Networking is important for new-media innovation.	Partial Match: With customers this is the most important element for incremental innovation, although most customers are not local. Local networking with complementary services providers is an important source for incremental innovation as is freelancers for those that use them, otherwise local networking is limited with competitors, suppliers and other third parties
RQ21	To what extent are concerns over IPR a limitation on the sharing of innovation?	Concerns over IPR are a limiting factor for sharing innovations.	Partial Match: Local networking with competitors and other third parties for innovation is limited due IPR concerns and the costs of enforcement, although a minority are not concerned about IPR issues using instead low costs methods of protection or are open source motivated.
RQ22	To what extent are the co-located institutions perceived to support innovation within new-media?	Co-located institutions are perceived as important in supporting new-media innovation.	No Match: The institutional bodies, the universities, media centres and trade body are not perceived as playing an important role in enhancing innovation.
RQ23	To what extent is cluster co-location important for new-media innovation?	Cluster co-location is important for new-media innovation	Partial Match: Apart from CDSS, freelancers and the ambiance of BH the cluster makes only a partial contribution to new-media innovation

Table 7.2 Summary of expected and observed key findings

The aim of this chapter was to determine to what extent the innovation within new-media firms in BH benefits from networking and cluster membership, thus providing evidence to determine the validity of research proposition four. This chapter section will explore the implications of whether the expected outcomes of BH representing an 'ideal type' are

actually observed (Table 7.2), this will be done by examining the underlying literature that supports the observed outcomes. The implications of any discrepancies that arise from the expected and observed outcomes from table 7.2 are then discussed, clarifying where practice deviates from expectation with an account of why this might be.

From Table 7.2 it can be seen that one of the expected outcomes (RQ19) is actually observed for BH, while for research questions (20, 21 and 23), there are mixed findings, with research question 22 having no match, suggesting that BH does not conform to the 'ideal type' and therefore that research proposition four does not hold.

7.8.1 Matching expected with observed outcomes for RQ19 and 20

RQ19 To what extent is innovation important for new-media?

This research question does have a good match between expected and observed. Innovation is seen as very important to this industry by the participants because the business environment is characterised by rapid technological and market change. According to Moore's Law, there is a doubling of computer power at constant prices every two years (Walker, 2003). This means that companies that do not innovate will quickly find that they will lose market share, as they are perceived to be outdated. This has also been widely reported in the literature on small firm innovation for knowledge and technology-based companies (Rothwell, 1991a; Christopoulos, 1999; Thomas, 2000; DTI, 2001). Being innovative is also about maintaining competitive advantage particularly as the majority of the firms in the sample had developed niche differentiation strategies, which would need to be continually updated if that competitive advantage was to be maintained.

For all the sample firms, 'services provision' rather than product provision to clients is the core of their business strategy. Most of the sample firms report incremental services innovation an outcome common with networking relationship with customers (Hakansson, 1992), where matching changing client needs, results in improvements and additional services. However, according to Asheim (1996) incremental innovation could become a disadvantage in the medium term if a superior technology were to supplant existing technologies. However, radical innovation if often beyond the financial and resources scope of many small companies, (Hoffman *et al.* 1998). Innovation in general and radical innovation in particular suggests that a firm is intent upon growing the company and its

productivity (DTI, 2003b). The difficulty for small firms is that radical innovation generally has larger investment requirements and carries greater levels of uncertainty and risk (Hoffman *et al.* 1998). A study of small manufacturing firms by Hankinson (2000) found that when respondents were asked whether they wished to grow their company the response elicited was:

> "very few would be prepared to develop the firm further even if it was possible, the philosophy here was that 'the status quo is always better than the unknown', and especially since modern recessions seemed to be both more frequent and damaging".

New-media in particular has only recently began to recover from a major recession in the sector (Nutley, 2004) during the late 1990's and therefore may have also created a more risk adverse climate amongst the sample firm owners.

One remedy for supporting radical innovation by Håkansson (*ibid*, p.41) suggests that a good source of such innovation is to network and partner with a firm in a horizontal network where the firm will be exposed to more unique new ideas:

> "...collaborations with customers leads in the first instance to the step-by-step kind of changes (i.e. incremental innovations), while collaboration with partners in the horizontal dimension is more likely to lead to leap-wise changes (i.e. radical innovations".

However, as we will see in the next section, collaboration and networking across horizontal channels is very limited.

From table 7.1 only five companies were involved in product innovation and again none involved radical innovations. The range of products for all but one company is limited to one only and for most, was developed on the back of a client project rather than based upon their own research and development idea. The main problem for product innovation arises from the investment costs involved; costs of research and development, packaging, marketing and retailing. This finding is common among most small firms in general and was reported as the main reason for small firms not innovating (http://www.dti.gov.uk/iese/ecotrends.pdf, 20.02.03).

Process innovation was not seen by most respondent firms to be a major issue, as the directors would specialise in different parts of the customer interface process, while limited time, left little opportunity for experimentation. Several companies had found that by networking with CDSS, they were able to exchange ideas about processes to upgrade their own internal systems.

For those firms where the local customer market was dominant, low prices and simple web sites were the most common requirement and, therefore, the need to be innovative was less necessary, apart from keeping up with the latest software up-grades and patches. Competitive advantage can however be achieved by emphasising customer service, such as company P, however, to maintain a quality service in a low price environment is still problematic in terms of profitability (Porter, 1980).

Innovation as with learning was seen by the sample respondents as important for maintaining their competitive advantage. Innovation is largely incremental as predicated by literature sources, which can be disadvantageous in the medium term if a radical technology was to replace the existing one:

> "...over-reliance (on incremental innovation) would mean that these areas will very quickly exhaust the technical paradigm on which they were founded" (Crevoisier, 1994).

How new-media firms can be orientated toward radical innovation will be a big challenge because of their resource constraints. However, if the co-located institutions were seen to play a more supportive role in this area, these small firms maybe be encouraged with financial and technical help to become more adventurous in their innovative approaches.

RQ20 To what extent is networking important for new-media innovation?

There is only a partial match between expected and observed outcomes, because of the limited networking practices of the sample firms. The literature for technology and knowledge-intensive small firms is not conclusive that networking can play a key role in enhancing firm innovations (Hoffman *et al.* 1998; Neeley and Hii, 1998). Examples of these contradictions are that Shaw (1998) reported, that participation by small firms in networks enhanced their innovation processes. This was due to the increased access to information, bartering exchanges, economic support and friendship. While Vaux et al.

(1996) found from their research that actually technology companies made little use of networks to aid innovation. This can only lead one to believe that:

> "...one cannot generalise about the existence and importance of SME external linkages" (Hoffman et al., 1998).

One of the main constraints upon new-media innovation is the lack of sufficient financial resources to fund new services research. This is where networking and working in partnership with a customer, supplier or complementary service provider can be helpful in sharing the costs and expertise required for new-media innovation. De Propris (2000) reported the benefits of joint working, where her sample found almost two thirds of firms were networked with client firms of, which a significant proportion also co-operated over innovation. Similarly, results from the West Midlands Survey of firms, participating in a regional innovation programme found that firms that engaged in joint innovation activity, were up to 6 times more likely to innovate than firms that acted alone (Landabaso, 1999). However, only one company reported such joint working with a CDSS. The problem that seems to occur is that the management of the complications in coordinating a deeper level of cooperation between two organisations and the resulting transactions costs that arise are problematic for a small firm with limited resources, an issue not particularly explored in the relevant literature (Williamson, 1995).

In general innovation largely arose on an internal basis by simply matching changing customer needs with incremental improvements. Many reported that each client contract was often quite different, requiring varying solutions, using dissimilar combinations of people skills, programming code and design. It was also important for clients to see that their web site and its functionality are better and different from their competitors rather than having standardised web site solutions. When questioned about radical innovation, the response from firms was that they invariably do not have the resources to set aside for pure research and development. They rely instead on using client project funding to identify improvement in code and design which can then be incorporated into offerings to new clients, such reliance on incremental innovation is a common feature of small firms in regional and cluster environments but makes them vulnerable to substitute and superior technologies overtaking them (Ashiem and Isaksen, 2003).

From previous chapters it was identified that apart from customers, networking with CDSS was common practice however innovation exchange was found to be more limited because

of the general concern over protecting intellectual property rights (see next sub-section). This is unfortunate because a study by Romijn and Albu (2002) found that hi-technology firms that network and are co-located with those companies that provide complementary services play an importing supporting role in the innovation process. The co-location element was found to be important because face-to-face contact enhanced the exchange tacit knowledge.

However, for the eight firms that use freelancers on a regular basis, they were seen as an important source of creative new ideas and novel technical solutions, often gleaned from working in different contexts and for different types of projects, however as with learning outcomes, their departure after the project has finished may result in that tacit skill set being lost unless it has been transferred successfully. It is this access to new ideas from different contexts that literature sources suggest can be a very powerful tool for gaining differential advantage from the normal technological trajectory of the rest of the industry, particularly where firms are dependant upon likely single loop endogenous learning (Keeble *et al*. 1999).

As with the previous chapter on learning, networking with suppliers and competitors is not widely practiced. However, from table 6.4 we know that the new-media sample is quite active in searching for information about competitors. One respondent indicated that they use the internet to review the web sites built by competitors and perform a form of reverse engineering to try and determine the code and design applications used. For the three firms that are tied to the BH market, they were more willing to network with competitors and share technical information. However, it is worth reminding readers that as these firms relied upon using proprietary software, their ability to be innovative was largely limited to the use of software upgrades and then its creative use.

The innovation literature posits that an important outcome in the exchange of ideas and innovative developments is the need to meet on a face-to-face and preferably on an informal basis. This helps ensure that the tacit nature of new ideas are better communicated in what should be a more trusting environment (Braczyk *et al*., 1999; Keeble *et al*., 1999; Romijn and Albu 2002). However, again, the problem for BH is that the key actor, the client is not based in BH and therefore the ability to conveniently access this form of networking is not possible.

To conclude this section the restricted networking practices of the new-media sample to just customers and freelancers must curb their innovative capabilities are therefore less

likely to access contrasting and novel alternate sources of new ideas, that can stimulate the development of new services, products and processes that can arise from working with suppliers, CDSS and even competitors. This finding contradicts that of Kaplinsky *et al.* (2003) all of whom suggest that BH new media are active networkers, so with have even more contradictory evidence. The question that also arises, is to what degree BH is different from other new-media locations in the UK and overseas? Unfortunately the empirical evidence is mixed, research into the Silicon valley area suggests that companies there do exploit on a far wider scale networking relationships (Saxenian, 1994) while research in regions in Germany suggests that it is more limited (Bathelt *et al.* 2004).

7.8.2 Matching expected with observed outcomes for RQ21

RQ21 To what extent are concerns over IPR a limitation on the sharing of innovation?

There were mixed finding when the expected and observed outcomes were compared for research question 21. Various forms of IPR protection were cited as being applied by most of the sample, in either 'terms and conditions', non-disclosure and licence agreements or normal copyright. These more informal methods of protection (Blackburn, 2001) are cheaper and less time consuming than attempting to formally register their IPR. For some of these firms, the costs of enforcing IPR and the legal loopholes that can arise and be exploited, is a key reason why they do not attempt to develop products but concentrate on service provision, which can be more difficult to replicate, because it is the combination or particular people and their skills that can create unique services. In addition, much service provision is done on a client commissioned basis, where normal copyright passes to the client on completion, so IPR is not normally an issue in this context.

This concern about protecting new ideas, and, therefore, not sharing them with others, was dismissed by one firm on the basis that most new ideas are flawed in the first instance and sharing the issues can be helpful. Secondly, even when a new idea is put into practice, eventually the industry will have found a way to replicate it without infringing copyright. The true competitive advantage is getting it right, being first into the market, and then continuing to innovate.

Finally, a minority of firms still felt that the advantage of the Internet was in the free flow of information and ideas, which could then be built upon and refined by others in an open

source network so that software products and services could be developed innovatively, and at low cost, thus democratising the Internet. A point raised by Hawkins (2002: 31):

> 'Some software programmers are opposed to copyright on moral grounds, which is why most internet protocols are not copyrighted or patented'.

This philosophy has resonances with the 'open source' movement, which claims that innovation is best enhanced by making software code freely available, so that the internet community of code writers can then debug and strengthen the software more efficiently than closed proprietary developers (Raymond, 1999).

Although the majority of the sample firms did believe IPR was a barrier to the transfer of innovative ideas there were a few who because of their open source philosophy or were confident that their confidentiality clauses were sufficient, were happy to share innovative ideas. For the firms that are concerned about IPR, its resolution is not straight forward as copyright law for software code is not as robust as patent law. There are three companies that market software products and so to a certain extent their legal protection can be extended to trade mark protection, but all this costs money and the initial concern for many of the respondents was the costs of legal protection and its enforcement.

7.8.3 Matching expected with observed outcomes for RQ22

RQ22 To what extent are the co-located institutions perceived to support innovation within new-media?

For RQ22 there is no match between expected and observed outcomes because we know from the findings of RQ 12 demonstrated that co-located institutions were perceived to play a weak role in supporting new-media. Innovation is not particularly enhanced through contact with the two local universities because as was concluded previously, there is little relationship with new-media sample firms apart from resourcing staff and placement students. Of course such staff will play a role in the company's future innovation strategies but as was highlighted in one of the interviews the readiness of undergraduates for employment in new-media is problematic because they lack the skills and knowledge sets required, that a generic ICT type of degree does not offer.

In terms of research and development there was no evidence from the sample firms that they were able to access this from the two universities, with one respondent suggesting that

they (the universities) suffered from out of date thinking and technology. The literature reports that Cambridge and Oxford universities are embedded far more with the local technology companies who are reported to work closely with them to the benefit of enhancing innovative outcomes (Keeble *et al.*, 1999 and Romijn and Albu, 2002). A particularly finding by Romjin and Albu (*ibid*) was that those hi-technology firms that did work closely with their local university were more likely to develop radical innovative products than those that were not. This may suggest a particular lost opportunity for the sample firms in BH.

Likewise, the other institutions in BH (WS, BMC and SIC) appear to play limited roles in the innovation processes of the firms contacted, as few respondents were able to report any form of continuous relationship that was seen as beneficial. The opportunities for 'institutional thickness' (Amin and Thrift, 1995) to arise with respect to innovation are, therefore, unlikely, perhaps resulting in more missed opportunities. Thomas (2000), when researching small technology firms in South Wales, established that they: 'tend not to be well-integrated into the academic, governmental, company networks', arguing that support structures should be targeted at such firms.

Such a failure of perceived support is not reported by other authors such as Kaplinsky *et al.* (2003) and Pratt, (1999) while research by SEEDA (2003) give glowing reports of the 'role-model' role of Wired Sussex. The perceived failure of Wired Sussex amongst the sample group from this author's perspective is one of having an organisation imposed on a new-media community, with few resources, high initial expectations and insufficient experience of the industry to garner respect and support. Such findings have also been reported in other but unrelated clusters where networks and innovation outcomes have sometimes failed because they were socially engineered and under-resourced (Shutt and Pellow, 1998).

Overall this is another disappointing finding from the perspective of any successful implementation of a regional innovation system. Institutions should play a key role in the transfer of knowledge and innovation support according to academic authors in this field (Asheim, 1996) but according to the perceptions of the sample studied this is not done very effectively.

7.8.4 Matching expected with observed outcomes for RQ23

RQ23 To what extent is cluster co-location important for new-media innovation?

For RQ23 there is a partial match between expected and observed outcomes in that co-location with freelancers and potential staff from the universities does enhance innovation for the sample firms. But we also know from the findings of RQ2 and 3 that the economic externalities and un-traded interdependencies are degraded which combined with only limited networking with co-located actors (RQ5 – RQ9) and degraded learning and innovation opportunities from (RQ14-18, 20-22) that the full potential for innovation according to theories of clusters and the 'learning region' must be degraded.

However, a key strength for BH is that it has a very strong resource factors in terms of design, creativity and physic value. These are an important element for most of the respondent firms and has been seen by some authors as the 'New Competition' (Pratt, 2002) as opposed to the 'Old Competition' which is based upon price rather than differential advantage. Pratt goes onto argue that creativity requires a context and the location of BH may well offer a locational context. BH is a good place to be located, in terms of its sea and countryside environment, architecture, arts and creative companies, fashion and bespoke retailers with an accompanying community of freelancers and graduates from one of the University's, design and arts school, in other words BH has a very positive 'Physic value' (Oakey *et al.* 2000).

To fashion this source of creativity a range of qualified staff and freelancers has gravitated to BH over many years (Pratt, 1999; Kaplinsky *et al.*, 2003), who can be used to bring a different perspective, new ideas, and a different range of experiences, to bear upon a client proposal and product-service solution. A general limiting factor reported in the previous chapter is the apparent shortage of skilled managers and marketers, who would be needed to take new ideas to market, a shortage that is reported by the DTI (2003) as a major inhibitor for small firm innovation after economic and financial factors (http://www.dti.gov.uk/iese/ecotrends.pdf, 20.02.03).

What is apparent from the fieldwork is that the new-media sample has an approach to innovation that has a number of characteristics that are similar to Asheim's (2001) model of 'interactive innovation'. It is based upon social interactions, although in this case largely with customers (although these actors are not co-located) and freelancers. New-

media is not characterised by large R&D departments but is not quite 'bottom up' as Asheim describes, as most innovation is led by customer needs and so is largely reactive rather than proactive and usually not locally based. Finally as mentioned earlier, although innovation is a regular occurrence, it is largely incremental with the medium term disadvantages of being substituted by radical innovative solutions, and sometimes from an unrelated industry (Porter, 1986).

Ironically one disadvantage that BH new-media is not likely to suffer so much from is the problem of cluster inertia and group thinking (Uzzi, 1997; Sull, 1999). This is because the BH cluster is not a fully formed 'ideal type', where networking with mobile freelancers (only for some), and networking outside of the cluster with customers and not fully engaging with suppliers, institutions and competitors may allow for exogenous (outside of the cluster/region) innovation to develop.

However the overall limiting factor for BH is that it does not contain the full range of 'interacting' co-located actors (figure 7.1) which is contrary to the predicted requirements for the model of 'interactive innovation' to function successfully (Ashiem *et al.*, 2003).

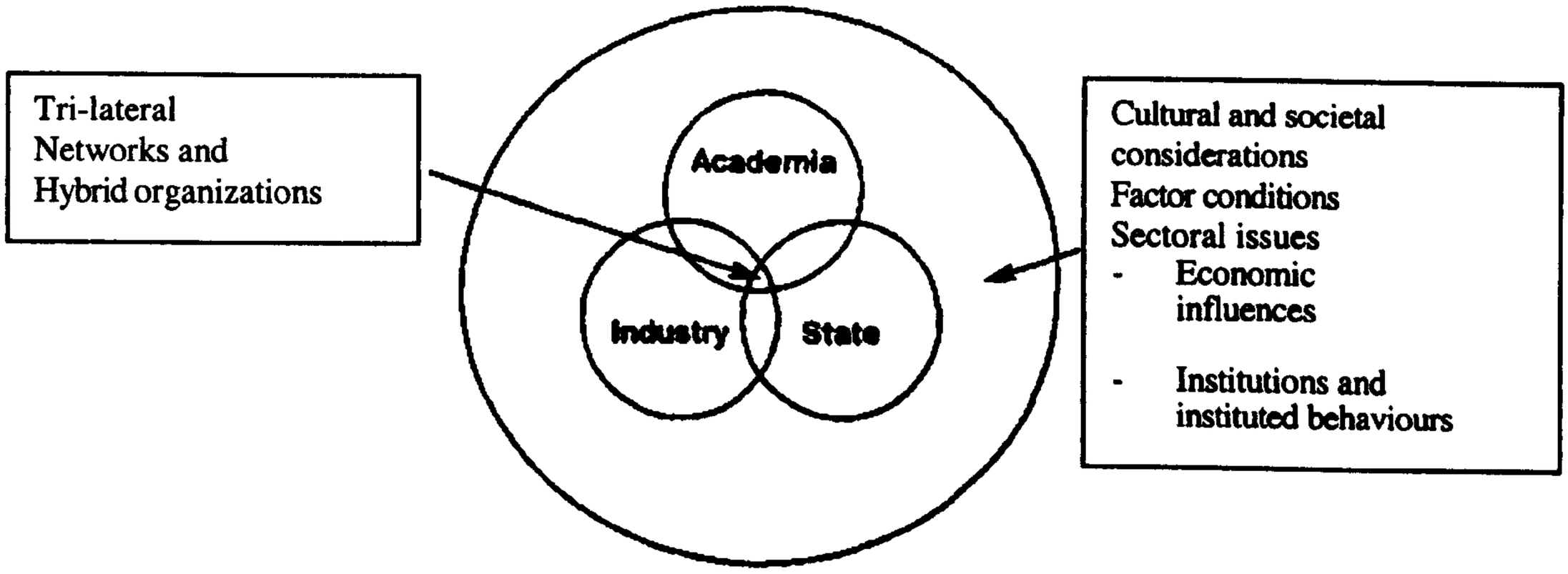

Figure 7.1 An interactive regional innovation systems model

Source: Adapted from Etzkowitz, H. and Leydesdorff, L. (2000) in Deakins and Freel (2003)

7.9 Conclusions

Overall this chapter provides evidence that networking and cluster membership have only a partial contribution to the innovative capabilities of the participants interviewed. This finding creates further doubt into the efficacy of the research propositions:

RP4 'All new-media firms that network and are located in the Brighton & Hove cluster will demonstrate positive innovative outcomes'.

The findings will also influence the original conceptual framework, (see Figure 7.1).

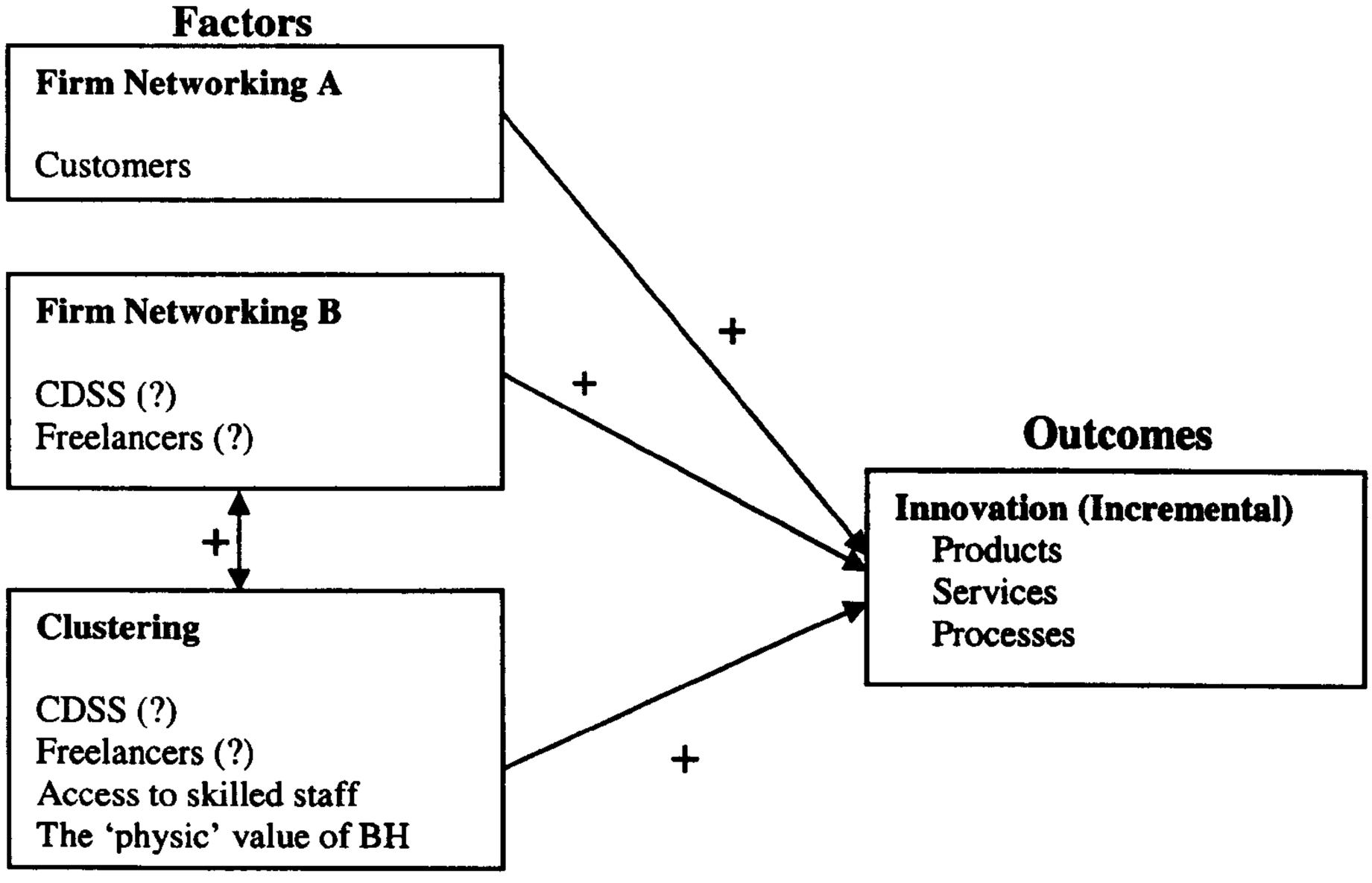

Figure 7.2 Revised networking and cluster factors positively contributing to firm innovation capabilities in Brighton and Hove

From figure 7.2 firm networking A indicates that networking with customers largely takes place outside of the BH area but will have a positive affect upon innovation. Firm networking B indicates that as networking with CDSS and freelancers does take place within BH this could have a reinforcing benefit upon firm innovation, however, because of concerns over IPR, the willingness to share innovative ideas will be less than the willingness to share learning, hence the ? symbol.

This is because of competitive concerns, as CDSS are not always that very different from the sample firms, as they all have digital technology as their core competence. Using freelancers can result in a paradox, as their mobility can be beneficial in terms of the experience they bring to developing new products and services but conversely they might go and work for a direct competitor or start a business in direct competition.

Compared to the original conceptual framework (Figure 1.1, chapter one), Figure 7.1 does not include competitors, as they are not co-located for the majority of sample firms. For those sample firms who have co-located competitors, the degree of sharing innovative ideas is likely to be limited (the researcher's assumption) on the basis that these companies

largely specialise in using proprietary software for relatively low quality web site designs therefore the need for innovation is minimal. Figure 7.1 also does not include professional and technical suppliers of services or the universities and support institutions, as the sample respondents have reported that their proximity is not an important issue because of the lack of reported networking with these actors.

'Physic value', is again an added factor made explicit, and plays a role within BH, if firms can tap into its influence, enabling a greater level of innovative capability to occur:

> "One man starts a new idea, it is taken up by others and combined with suggestions of their own; and thus it becomes a source of further new ideas" (Marshall, 1920: 225).

This thesis has now confirmed that the different elements of cluster and networking influence, do not follow the 'ideal type' suggested by Porter (1990) and others, it therefore, weakens the proposed conceptual framework and research propositions and it remains to the following final chapter, to draw together all the key conclusions and make suitable recommendations for theory, future research and professional practice.

Chapter 8: Conclusions and Recommendations

8.1 Introduction

The aim of this chapter is to bring together all the findings of the previous chapters, and then compare them to the overall objectives stated in Chapter 1, to determine whether firm learning and innovation is enhanced by networking and co-location in a cluster. A literature review helped set out the conventional wisdom, which formed the basis for a conceptual framework, Figure 8.1.

Five research propositions were then derived from this process, from which 23 research questions were proposed, which were then applied to the empirical aspect of the thesis. A qualitative appraisal was then used, involving face-to-face audio-recorded interviews. The data collected was analysed using Nvivo and manual methods of listening and interpreting and then assessed against the stated propositions and conceptual framework.

The overall findings are that the theories of networking clusters within a learning region have a limited application to the sample new-media firms' learning and innovation outcomes. However, the author is able to recommend a range of actions that may enhance such theories becoming more applicable.

This chapter is divided into three main sections. Section 8.2, will review the aim of the thesis research and its key findings. Section 8.3, offers an assessment of the implications for theory, contributions to the literature and future research, the final section 8.4, identifies recommendations for professional practice for new-media firms and a range of institutional agencies.

8.2 Thesis aims and key findings

The overall aim of this thesis was to determine whether BH is a new-media networking cluster that results in enhanced firm learning and innovation within the context of a learning and innovative region. This involved an examination of a series of specific questions that were specific to four research propositions as explicated in chapter two.

Of the 23 research questions, seven have a good match between expected and observed outcomes, while a partial match is found with 12, with 4 research questions having no match (Table 8.1):

	Research Questions			
Research Propositions	**No. of RQ's (n = 23)**	**Good Match**	**Partial Match**	**No Match**
Chapter 4 RP1: 'All new-media firms in Brighton & Hove form a new-media cluster'.	(RQ 1 – 4) N = 4	RQ 4	RQ: 1,2,3	0
Chapter 5 RP2: 'All new-media firms in Brighton & Hove are active networkers'.	(RQ 5 – 12) N = 8	RQ: 5,8,10	RQ: 7,9,11	RQ: 6,12
Chapter 6 RP3:'All new-media firms that network and are located in the Brighton & Hove cluster will demonstrate positive learning outcomes'.	(RQ 13 – 18) N = 6	RQ: 13,15,16	RQ: 14,17	RQ 18
Chapter 7 RP4: 'All new-media firms that network and are located in the Brighton & Hove cluster will demonstrate positive innovative outcomes'.	(RQ 19 – 23) N = 5	RQ 19	RQ: 20,21,23	RQ 22

Table 8.1 The frequency of matches between expected and observed outcomes for the set research questions.

8.2.1 The evidence to support research proposition one

RP1: 'All new-media firms in Brighton & Hove form a new-media cluster'.

From chapter four, there is a good match between the expected and observed outcomes for research question four. This confirms the expectation that a key reason for a new-media firm to locate or remaining in BH is because of the co-located pool of technically qualified staff and freelancers. This finding is completely in line with the conventional literature (Marshall, 1920,) although respondents did indicate that there was a shortage of people with management and marketing skills (DTER, 2000).

The remaining three research questions for chapter four (RQ1,2,3) had partial matches between expected and observed outcomes, concerning the level of agreement and evidence for firm location decisions, based upon potential co-located partners, networking and un-traded interdependancies and the existence of positive externalities. For example, respondents were not able to cite the co-location of customers, as local firms were usually too small to require sophisticated web based services. Nor were competitors co-located on the basis that they offered niche technical services and because they targeted non-local

markets. The only co-located actors with whom networking regularly took place with were the CDSS and for some firms, freelancers. Institutions, media centres and suppliers are co-located but they are not perceived by the sample firms as contributing directly to the decision to co-locate or remain in BH. This last finding is particularly challenging to some literatures including that espousing the 'learning region', which makes great store of these bodies playing an active role in supporting cluster developments.

Although there were some positive externalities (lower wage rates) there were also negative externalities occurring (increasing office costs, lack of affordable housing and congested transportation). However, a positive factor that appears to be traded off by the sample respondents is the strong 'physic value' of being located in BH and the impact that this has on lifestyle and upon the creative atmosphere of the city.

Because of the poor evidence for the co-location of key actors and minimal benefits of co-location arising, contrary to that predicated by the conventional literature, the research findings fail to provide sufficient support for the first research proposition:

RP1 'All new-media firms in Brighton & Hove form a new-media cluster'.

8.2.2 The evidence to support research proposition two

RP2: 'All new-media firms in Brighton & Hove are active networkers'.

From chapter five there were three good matches between expected and observed outcomes. RQ 5 and 8 concerned networking with customers and CDSS from which there is good evidence of this occurring (although with customers this occurs outside of the city). RQ 10 confirmed that informal and face-to-face networking were the preferred methods of networking, that are based upon trust relationships, from which un-traded benefits arose, largely in the form of reciprocated learning.

There were partial matches for RQ's 7, 9 and 11. RQ 7 found that networking with competitors was very limited as many sample respondents claimed that BH had few direct competitors and that regional and national competitors were too distant for convenient networking. RQ 9 involved freelancers, 8 sample firm respondents do network regularly with them and gain, overhead savings, learning and innovation transfer while the remaining 9 firms were more reluctant to use them apart from non-essential project work. RQ 11 found that new-media delegating did occur contradicting the small firms literature,

however, this was limited in many cases to either most staff being involved in virtual networking or one other director having face-to-face networking responsibility. RQ 6 found little evidence of networking with suppliers, partly because there is no extensive production chain involved, there was, therefore less need to realise flexible manufacturing relationships. Relationships with other suppliers were price/quality market-based because the supply chain in characterised by standardized products and services. Networking with institutions (RQ12) was largely limited because of negative perceptions of the roles played by the universities, media centres and Wired Sussex, all of which are co-located.

Because of the restrictive networking behaviours of the sample firms, contrary to that predicated by the conventional literature, the research findings fail to provide sufficient support for the second research proposition:

RP2 'All new-media firms in Brighton & Hove are active networkers'.

8.2.3 The evidence to support research proposition three

RP3:'All new-media firms that network and are located in the Brighton & Hove cluster will demonstrate positive learning outcomes'.

From chapter six there are three RQ's, that had a good match between expected and observed outcomes. The findings for RQ 13 confirm the importance of learning for new-media firms to help cope with discontinuous change in markets and technologies. RQ15 and 16 confirmed the importance of tacit, double loop learning and informal learning for the transfer of higher order learning (that can lead to innovation) although codified, single loop learning and formal learning were also employed, and seen as complementary.

There is no match for RQ 18, institutions are not perceived to contribute to firm learning even though they are co-located because as we found from RQ12, institutions are not seen as active contributing networking partners.

As a result of these findings, it means that the learning potential according to the 'ideal type' from the conventional literature on the cluster and 'learning region', is degraded and therefore the evidence does not support research proposition 3[25].

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[25] On the basis of Popper's (1963) falsification principal

8.2.4 The evidence to support research proposition four

RP4 'All new-media firms that network and are located in the Brighton & Hove cluster will demonstrate positive innovative outcomes'.

Finally, the final analysis chapter seven, found only RQ 19 as having a good match between expected and observed outcomes (the importance of innovation to enable firms to keep up with changing client needs and discontinuous technologies). The reasons why RQ's 20 and 23 have only a partial match are the same for RQ's 14 and 17 respectively, namely, restrictive networking and weak benefits from co-location, must degrade the innovative potential of firms according to the 'ideal type' from the cluster and regional innovation systems literature. Likewise RQ22 (the role of institutions and innovation) has no match as with RQ18 (the role of institutions and learning),as institutions are not perceived by the sample firms for contributing positively to the potential for firm innovation. Therefore, there is insufficient evidence to support research proposition four.

8.2.5 Implications for the central research proposition and conceptual framework.

The implications of the findings from chapters 4 – 7 are that learning and innovation are very important to the success and growth of new-media firms. However, the hybrid nature of the BH new-media cluster, means that according to the conventional wisdom in the literature on these issues, learning and innovation are less likely to be fully exploited, therefore, the key research proposition also does not hold:

RP0 '**All** new-media firms that network and are located in a cluster will demonstrate positive learning and innovative outcomes'.

Furthermore, the original conceptual framework in Figure 8.1 reduces to a very narrow set of active factors because of the hybrid nature of the BH cluster (see Figure 8.2):

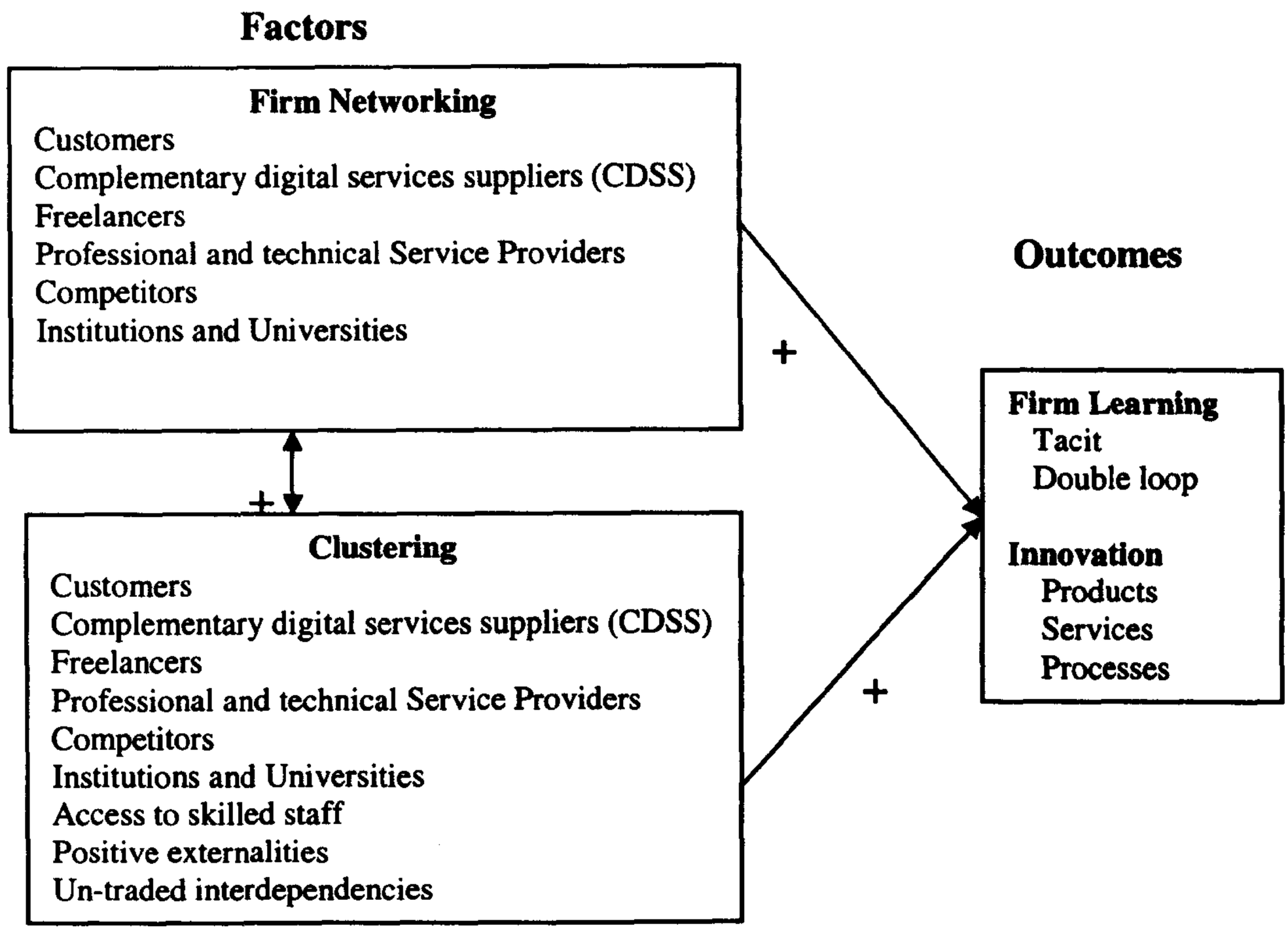

Figure 8.1 Schema of the original conceptual framework

Figure 8.2 (see below) does not feature many of the factors found in Figure 8.1, as the preceding paragraphs have demonstrated that they are not prominent in the BH networking cluster: professional and technical service providers, competitors, institutions and universities, positive externalities and un-traded interdependencies.

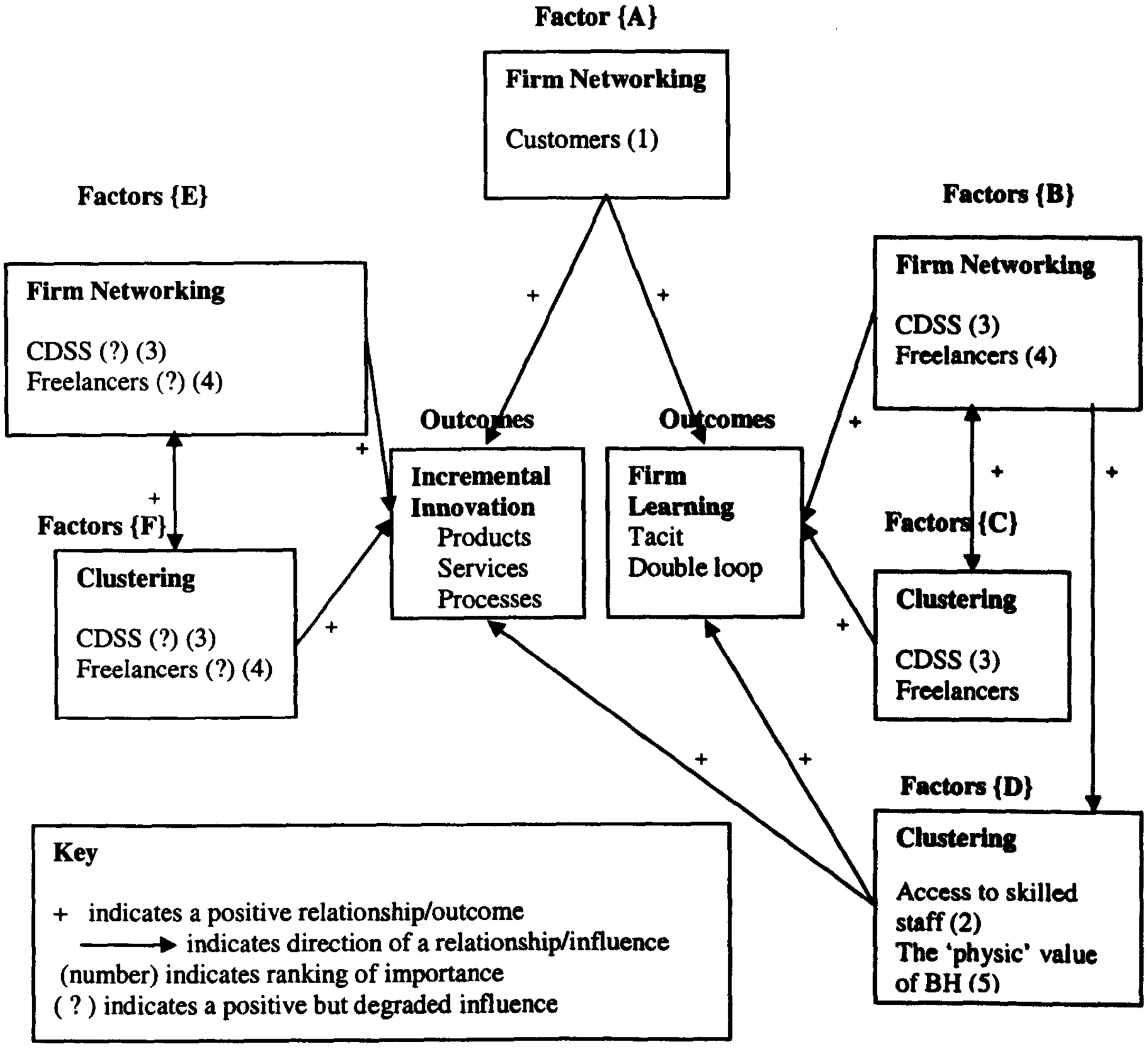

Figure 8.2 Revised conceptual framework

Figure 8.2, shows a revised conceptual framework, indicating where there is partial evidence of factors that result in some networking and clustering relationships and cluster benefits. For example, Factor {A}: Networking with customers, positively influences firm learning and innovation outcomes, indicated by the + symbol, but not via any cluster influence, as customers are not largely co-located. It should be noted that innovation within the sample firms is largely of an incremental nature and only rarely involves a radical or step change innovation. This has important implications, because the need for networking with a wide range of actors or the need to co-locate will be less of a requirement, although the capacity for learning will still suffer as a result.

There are three firms, however, that have over 50% of their sales turnover from co-located customers[26], but these are small clients with unsophisticated needs. They are served using proprietary software that involves minimal innovation and skills learning outcomes.

Factors from {B}: CDSS and Freelancers are able to influence firm learning outcomes directly and are enhanced because of being co-located in BH (see these factors simultaneously in {C}). The double-headed arrow indicates that firm networking and clustering for these factors are mutually reinforcing. The remaining cluster factors {D}: Access to skilled staff and the 'physic' value of BH are specific to BH and in, themselves, can contribute to firm learning, if networking firms take advantage of them.

However, the networking and cluster factors (CDSS and Freelancers) do not equally affect firm innovation outcomes, because of concerns over IPR and are represented as factors in {E and F} with the (?) symbol, to suggest that their influence upon firm innovation outcomes are positive but variable. However, as previously stated, this apparent weakness is moderated by the fact that new-media innovation is largely incremental. The remaining factors, 'access to skilled staff' and 'the 'physic' value of BH, are still active influences upon both firm learning and innovation outcomes.

In Figure 8.2, each factor has a number in brackets. For example, customers (1), indicates that this is the most important factor for firm learning and innovation outcomes. This is because customer networking is the most prevalent and has the greatest reported impact upon the framework outcomes, even though customers are not co-located. This and the remaining rank ordered factors are based upon the researcher's interpretation of respondent responses during the fieldwork interviews.

Access to skilled staff is ranked second, because this was cited as an important reason for locating or staying in BH to start a new-media business. Skilled staff is reported in the academic and policy literature as the key resource that enables new-media firms to develop creative and innovative client solutions from, which competitive advantage can be derived. CDSS are the second most networked party and they are co-located in BH. They have the advantage of not being direct competitors but still use digital technology, for either different technical or market applications. Both new-media and CDSS firms are, therefore,

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[26] See Chapter 4, Table 4.9

able to benefit mutually from networking and co-location, in terms of sharing ideas, information, skills and learning, but only to a lesser extent for innovation.

Freelancers are ranked after CDSS largely because not all new-media firms regularly use them[27], preferring instead to develop their own full time staff, although there are only four firms who only 'rarely' use freelancers[28]. Freelancers offer a fresh perspective, skills, and knowledge of other firm operations that can be very useful for new-media firms to enhance their learning and innovation outcomes.

'Physic value of BH' is the final ranked factor, its importance for firm learning and innovation outcomes is, however, more intangible because it is difficult to measure its effect. Respondents agreed that BH was the place to be, for its lifestyle and creative culture. Company C in particular, captured the sentiment for many of the respondents, by suggesting that the city had a certain 'je ne sais quoi' and 'frisson' that lends itself to an atmosphere that engenders learning and innovation. Hospers (2003) refers to cities like BH, as 'cultural and technology cities', where the internet and culture combine, to form new products and services, as a form of 'creative destruction', where the 'existing disappears and something new is born' (Shumpeter, 1942 in Hospers, 2003).

The other major difference between the two conceptual frameworks is that Figure 8.2 does not refer to positive externalities, which according to (Pratt, 1999) are largely discounted away as new technology acts as the channel of distribution. Un-traded interdependencies similarly has been discounted because of the limited networking practice of the sample new-media firms. The institutions, universities and professional-service providers are also not included, as the sample firms have largely dismissed the significance of their role in supporting new-media learning and innovation. Finally, competitors are also not included, as the majority of firms claim that their competitors are not particularly based in BH, and that the potential for networking with them is limited because of concerns over IPR.

Although, the academic literature by inference, would suggest that a hybrid cluster predicates degraded learning and innovation outcomes, this might be less so for small firm new-media innovation. This is because innovation is largely incremental and largely customer driven, unlike radical innovation that would certainly benefit from a more fully

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27 See Table 4.8, Chapter 4 and Table 5.3, Chapter 5.

28 See Table 5.3, Chapter 5.

functioning cluster. The critical question for the long run viability of the sample firms will be:

> 'Is incremental innovation driven by customer needs, sufficient for small firm growth and or survival, in the long term'?

The BH new-media case suggests that cluster analysis of firms from the conventional literature is over simplistic. A recent DETR (2000) study illustrated that amongst a number of industry clusters identified in the UK there was considerable variation in the pre-requisite critical factors for effective cluster operation, with the suggestion that for some clusters, networking was not even paramount[29].

For BH the most similar cluster in the DETR report featured the Cambridge software cluster. However, there the similarity ends because the BH cluster lacks a science base as the two local universities do not particularly serve the digital technology industry from a research perspective, whereas the University of Cambridge and companies such as Microsoft provide such a catalyst for research. BH also lacks sufficient local networking a feature which is seen to be important for the Cambridge software cluster. Finally, institutional support appears to be quite comprehensive in Cambridge and has been reported upon independently in the literature (Romijn and Albu, 2002), whereas in BH the finding suggest this is not the case.

8.3 Implications for theory, the literature and further research

8.3.1 Theory

It is clear that using an 'ideal type' such as the Porter 'cluster', as the basis for theory building, has its limitations, because generalisation from one cluster industry to another does not appear to be valid, as BH new-media has several Porter cluster factors missing. In addition, the thesis findings concur with those reported by the DETR (2000), that different industry clusters can be highly individualistic, making generalisations across industry clusters problematic. The findings of this thesis also cast similar doubt over the efficacy of the 'learning region' and the 'regional innovation system' concepts. A key element for both of these approaches is the positive role that is expected to be played by co-located institutions, however the perceived value of these bodies by the sample respondents

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[29] See Table 4.17, Chapter 4.

suggests that the universities, media centres and Wired Sussex play a minimal role in the development of the respondents' own learning and innovation capabilities.

Not only does the BH new-media cluster not match the 'ideal type', a conclusion from Chapter 4, is that several of the sample firms use business niche strategies to enable them to compete in more sophisticated markets outside of BH. The new-media sample firms claim to have evolved into either writing their own code and or serving niche markets. This they claim helps them avoid direct competition and minimize the affect of the dot.com recession of the late 1990s. This evidence indicates a perverse outcome for Porter's (1990) theory that co-location is the key to competitive advantage, as it results in the potential reduction of local competitive rivalry.

Whether these thesis findings can be generalised to other new-media clusters could be an area for further theoretical development. For example is the use of niche strategies, virtual networks and informal networking, particular to new-media clusters, if they are, this would have implications for institutional agencies, which develop networking and technology infrastructure policies.

As the 'physic value', lifestyle and cultural aspects of BH were important aspects for sample firms locating in BH, this may imply that many of the sample firm owner-managers are not fully entrepreneurial in the commonly accepted sense (Carson *et al.*, 1995) of seeking to grow and exploit all market opportunities. If BH new-media is characterised by such owner-managers then the expectation that these firms will always be striving to innovate and learn may be a misnomer and may partly explain the restrictive networking practices in BH.

At a more practical level the term new-media was used throughout this thesis, however, evidence from the sample firms suggests that it is not widely respected. The recommendation for future research would be to drop the term and use instead the term 'digital media', as the term more accurately reflects the nature of the technology that it represents. Likewise, it would be incorrect to refer to BH as having a new-media sector, as this is too narrow a view, as there are many support and complementary new-media style businesses in BH. A term, which appears to be gaining currency and, which is more encompassing is 'the creative industries' (DCMS, 2001). The firms in this industry often use digital technology as their core technology, for example, film, artists, advertising, where BH is a major centre for such companies (*ibid*).

The thesis conclusion that BH new-media networking within the local economy is limited, supports evidence by other authors that embeddedness and co-location, with all actors in the supply chain, is not critical to competitive advantage (Curran *et al.*,1993, 2000; Caincross, 1998). The new-media sample firms were able to maintain non-local relationships with customers by combining face-to-face meetings for critical events, such as early contract negotiations, with day-to-day decisions, communicated via email and more the more traditional use of telephone and fax.

Finally, the BH new-media case suggests that the Porter theory of cluster analysis of firms is over-simplistic; therefore, the current use of Porter's model for understanding industrial clusters needs to be used with more caution. Policy makers should stop referring to BH as a Porter cluster and instead recognise its hybrid nature so that resource decisions can be taken to attract larger users of new-media to locate into the City so that the customer base is expanded.

8.3.2 Contributions to literature development

Although these thesis findings do not support the 'ideal type' from the conventional literature, does this mean that the theories of networking clusters enhancing learning and innovation within the context of regional leaning and innovation, are invalid? The author believes that the answer is no, because even in a hybrid form these theories can act as a benchmark from which any gaps can potentially be identified and remedied. These findings do confirm other stated suspicions that clusters are heterogeneous in nature and that simply classifying a grouping of companies as a cluster and then assuming all the 'ideal' characteristics of networking, learning and innovation will arise (as if by magic), will probably lead to policy mismatches.

Based on the foregoing analysis and conclusions the following contributions of this thesis to the existing literature are:

- The research focuses on the new-media industry, providing for the first time, an in-depth case study from a qualitative perspective.
- The development of the conceptual framework is a novel combination of two distinct research domains, industrial clusters and small firm networking.

- The findings suggest that as with other clusters there is no 'ideal type' that can be generalisable.
- It extends the understanding of how cluster co-location and networks enhance small firm learning and innovation but in a hybrid manner.
- The research highlights the perceived limited role of local institutional stakeholders and the consequent limitations this places upon the full implementation of the learning region and a regional innovation system.
- However, a range of managerial recommendations are offered to help enhance the applicability of networking clusters in the context or regional learning and innovation.

To conclude this section, although the BH new-media cluster does not feature all the active components of a fully-fledged networking cluster situated in a learning and innovative region, this does not mean that these conditions do not exist in a different geographic, technological and social context. What these findings do warn is that just because there is an apparent clustering of firms, it does not mean that a range of benefits, naturally arise.

8.3.3 Recommendations for further research

Several of the sample firms claimed they had a niche technology-marketing strategy or focussed on a particular market segment and as a result, believed they had few local competitors. Further research into the actual level of technical or market differentiation would be recommended, to help clarify the reality of these claims, as it might be the case, that their technological and market differentiation is minimal, and that the competitive threat to them in BH, is in fact more significant.

Another area of investigation is the use of virtual networks as a real alternative to face-to-face networking and co-location. Technologies such as broadband are increasingly found in business-to-business contexts, it allows for faster and more reliable communications, using email, file transfer and VoIP with video. The more sophisticated client may well be happier making greater use of such technologies, relying less on face-to-face meetings and the need to be co-located.

One particular finding where there has been little reference in the literature, is Oakey *et al.*'s (2000) concept of the 'physic value' of a location, a quality that this thesis finds present in BH. A useful study would be to investigate the contribution it makes to, 1) attracting staff to BH, 2) influencing a firm's decision to locate in BH, and 3) the impact it is said to have on enhancing creativity in the city.

Probably one of the key future research questions was highlighted at the end of section 8.2:

> 'Is incremental innovation which is driven by customer needs, sufficient for small firm growth and or survival, in the long term'?

We know from Asheim, (1998) and others that incremental innovation maybe taken over by a radical substitute technology in the future. To achieve an answer to this question, the researcher would suggest that a longitudinal study be made of small new-media firms and the impact incremental innovation has on sales growth and profitability, and then in addition, compare with new-media firms that engage in radical innovation.

At the time of the thesis research, there was mixed evidence of positive externalities and 'un-traded interdependencies' occurring in BH. However, this may simply reflect the relative newness of the sector, which may evolve from a latent, to a 'Porterian' like cluster, in the future (Rosenfeld, 1997). Tracking BH new-media in a longitudinal study would help identify whether this becomes the case, or not.

The implications from the conventional wisdom, published in the literature, suggests that as BH is a hybrid cluster, that learning and innovation are likely to be stymied, but is that really the case. A cross comparison with other new-media clusters which are more fully formed would enable an examination of this potential difference, to see whether it exists. If it does not, it could suggest that the literature on clusters and networking, as far as learning and innovation are concerned, are further flawed. It might also be the case that there are other explanatory variables at work, which should be assessed. For example, small firm size may dictate that customer driven incremental innovation is the only practical outcome.

The thesis detected a change in the demographics in the sense that the first generation of owners are now in their mid to late 30's often with family responsibilities. Several research questions spring to mind, how has their networking behaviours changes, and are they more or less entrepreneurial? An assumption running through this and most works on small

firms is that all owners are entrepreneurial, when they may became more lifestyle orientated as they and the firm mature and as a consequence take fewer risks and become less innovative?

The respondents claimed that CDSS offered complementary services and therefore were not perceived to be a threat, but with the ever-increasing trend of technical convergence, they may well become more of a competitive threat in the future and may account for why there was far less evidence for networking that involved the exchange of innovative ideas. Therefore, an analysis of CDSS technologies would be useful to see what cross-overs are likely in the future and how that will impact upon local competition.

The thesis findings did not fully explore the networking relationships with cluster members outside of the supply chain, although the initial analysis suggests they do not play an important role, apart from family and friends. It would be useful to find out why, as these third parties, banks, solicitors and accountants etc, could play an additional role in enhancing learning and innovation for small new-media firms because of the expertise they have.

The specific question that was asked in the questionnaire[30]: "With whom do you network for the exchange of information, ideas or shared resources?", is unfocussed, and it would be recommended that the question be broken down into its constituent parts, information, ideas and shared resources. This would make it possible to identify which particular actors are important sources for these different outcomes of networking.

It would also be useful to extend the research questions that were used in this thesis into a single case design, and interview across a range of personnel in one company. This would help determine the depth of networking and the consequent learning and innovative behaviours, that the 'elite' respondents may not be aware. It would also be recommended to interview some very large companies for the comparative, large and small company perspective. It could also explore what role large companies play within BH, as a potential lead organisation that encourages cluster development, along the lines of (Markusen's, 1996) hub-spoke cluster principle.

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30 see appendix C, question 3.

Freelancers play an important role for many of the sample companies and interviewing them would give an added perspective in terms of what they believe they contribute to the learning and innovation outcomes within the BH cluster. It would also be useful to interview the other actors within the supply and production chain, customers, competitors and suppliers, to confirm or otherwise, the findings from this study. This study did not purposely interview companies where digital technology was an add-on, rather than a core aspect to their business[31], interviewing these companies could provide useful information for comparative purposes.

There are three sample firm companies[32] who do have significant sales in BH, and who felt that BH was a competitive market place. The characteristics of these firms, is that they use proprietary software rather than write their own code. They also design flat rather than dynamic web sites, for the cost conscious client with unsophisticated new–media needs. This profile of new-media company was most susceptible to the affects of the dot.com crash[33], which raises the following research question that is worth investigating: Why did these companies survive and how well are they currently performing, compared to the firms that write their own code or specialise in niche technologies or markets?

The sample firms included eight firms based in media centres[34], where there was a strong degree of hostility towards the media centre property owners, by the sample tenants, with several companies questioning the value of such locations. An interesting proposition to test, would be to determine to what extent the benefits of a media centre location are realised, in terms of 'un-traded interdependencies', positive externalities and revenues, compared to firms not based in media centres. A similar comparison could also be made between those companies that are centrally city based and those based in the suburbs. This is because those companies that were based in the suburbs had located or relocated, largely for cost considerations, what are the true cost-benefit implications for such a decision.

Finally, on a more practical level, the researcher would recommend using a digital recording device for interviewing purposes, they are less obtrusive, have a far longer recording time, (8 hours) and can be stored on computer and even emailed. Additionally, if the technology is capable in the near future, the software could even do the transcribing.

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31 See Chapter 3 for an explanation.

32 See Table 4.9, Chapter 4.

33 Interviews with Ian Elwick, Chief Executive, Brighton Media Centre, 6.12.02; interview with C. Clemons, new-media consultant, Wired Sussex, 25.11.02; 27.05.03).

34 See Table 4.11, Chapter 4.

Although the original conceptual framework cannot be currently demonstrated in BH, the following section of recommendations may if implemented result in a more enhanced functioning cluster. The framework could then be reused, to determine whether the recommendations have led to positive learning and innovation outcomes, because of a more effective networking cluster.

8.4 Recommendations for professional practice

This chapter section, discusses a range of recommendations by the researcher, based upon the findings of the thesis analysis. The following recommendations will be centred upon the four research propositions with a view of determining to what extent new-media firms, the universities, the media centres and Wired Sussex can enhance the value of co-location and networking within the overall context of the 'learning region' and a 'regional innovation system'.

8.4.1 Recommendations for new-media firms in Brighton and Hove

A major concern from these research findings is that because of the hybrid nature of the cluster and the restricted networking practices of the sample firms, that innovation and learning opportunities can be degraded. This could place these firms at a competitive disadvantage, particularly with their nearest competitor rivals who are largely based in London, who do have co-located customers and competitors (Pratt, 1999).

RP1 'All new-media firms in Brighton & Hove form a new-media cluster'

Respondents claimed that customers were not co-located because of their technical differentiation strategies and that local customers were too small and lacked sufficient sophistication and budgets to represent a viable client base. It would be difficult for new-media firms to influence larger more sophisticated firms to locate to BH, however, expressing these needs to Wired Sussex and the City council could help formulate a cogent policy to attract such firms. It would also be rather short sighted to completely ignore the local market, especially as more companies are recognising the need for having a web site[35] or developing a more sophisticated web site (ONS, 2000), so although these small

[35] 50% of B2B small service firms do not have a web site in BH (Conway and Perks, 2003)

firms (approximately 8000 in BH, source BHCC, 2005) may not look like attractive clients, some might become larger firms with more sophisticated needs in the future.

A common strategy amongst respondents was that of practicing a technical differential specialism that allowed them to claim that they had few if no local competitors. Yet exposure to local competitors can lead to a healthy competitive environment from which innovation is more likely to be encouraged (Porter, 1990) while a lack of such exposure can lead to complacency. Admittedly, they are exposed to national competition, but with less opportunity to meet them on a face-to-face basis. Firms with this profile should therefore make an additional effort to gain this exposure by attending regional and national trade fairs as well attending London based networking events where many competitors are said to be located. This has the additional benefit of enabling firms to benchmark themselves and identify best practice (Malmberg and Maskell, 2002), such auditing can enable firms to recognise their strengths and take action to minimise identified weaknesses.

One of the main attractors for locating to BH is access to skilled staff, some of whom are local graduates and some attracted from other parts of the UK, both appreciating the 'physic' and lifestyle benefits of the city, the beaches and surrounding countryside. However, such is the popularity of BH, certain diseconomies have has arisen, the cost of housing is now very similar to London but with salaries about 25% lower. This may prove either as a disincentive to relocate or force staff to leave the BH for lower cost media centres elsewhere[36]. One approach used by one company was to buy a house and then rent it to staff at below the market rate, other new media firms may need to offer a similar package if they wish to attract talent, particularly from London.

The final recommendation is more of a health warning, several firms reported that because of economic diseconomies within BH they had located or relocated to the suburbs of BH. This may result in a short term saving in office accommodation costs and avoid city congestion, however it might result in becoming disconnected with the core of the new-media cluster, reducing face-to-face contact, access to informal networking and the important 'Buzz' that results.

RP2 'All new-media firms in Brighton & Hove are active networkers'

The current narrow networking base, can lead to the possibility that the sample firms become subject to the disadvantages of 'group thinking' (Sull, 1999) and 'strong ties'

[36] One small company that was interviewed were considering moving up North for housing cost reasons.

(Granovettor, 1985) where double loop learning (Chaston, 1999) will become more problematic to arise. By widening their networking base beyond their direct client and CDSS, will enable these firms to tap into new ideas and different business perspectives, with the following paragraphs giving a number of recommendations about how this can be done.

Two limitations to networking claimed by the owner-managers was a lack of time and people resources. An audit of time management amongst all staff may well identify the inefficient use of time, which could then be more usefully employed toward enhancing networking practices. An aspect of time management would be to review their client base, to determine to what extent the 'pareto rule' applies, for example whether 80% of sales come from only 20% of the client base? If this is the case but company effort is distributed equally amongst the client base, this may not be the best use of time, with small accounts that are not predicted to grow. Networking time can then be re-prioritised to involve more cluster actors.

In addition, the people resources available for networking could be enhanced if there were greater levels of delegation, currently only three firms delegate networking to a second director. If staff and directors could be trained and then trusted, a greater number of media and non-media networking events could be covered, rather than just concentrating upon customers and CDSS. One time-efficient method of local networking is through logging onto the BNML, but few of the MD's interviewed were aware of this facility. Although it has its faults with a relatively high noise to usefulness ratio, staff should at least be encouraged to access it for its technical support and spin-off informal networking events.

One further way in which ICT's could extend the networking capability of small new - media firms, will be the medium term application of Voice over Internet Protocol (VoIP), which coupled with video is expected to expand rapidly by 2006 (Taylor, 2004). This represents a double opportunity for new-media firms in terms of integrating the technology into current services but also having first mover advantage when the technology becomes generic for electronic face-to-face networking, thus to a certain extent overcoming the more impersonal email text communications of today.

A key co-located actor but with whom there is limited networking are suppliers. Reaching out to at least one co-located supplier on a networking rather than a market based

relationship can enable new-media firms to access novel ideas and learning. It would not necessarily be uncommon for such suppliers to be supplying goods and services to clients that new-media firms would also have an interest in. One such relationship was found amongst the sample respondents, whereby each company acted as the sales force for the other, offering cross referrals to the benefit of all concerned.

In addition a number of respondents were adamant in not using freelancers to cope with volatile sales, claiming it diluted their team development. This is more likely to be the case if freelancers are simply being used as an extra pair of hands. Authors such a Pyke and Sengenberger (1992) maintain that volatile sales are best handled by investing in full time staff and equipment rather than using part time staff and equipment hire. These authors' research findings, suggest that those companies that invest are found to gain higher growth results and a more sustainable competitive advantage, as full time staff are more likely to commit to the organisation's goals. However, it could still be recommended to these firms to use freelancers not for the purpose of handling volatile sales but instead to tap into their skills base which if transferred will benefit the permanent staff.

The issue of volatile sales and project work are difficulties that most sample firms have to cope with, anticipating when project work becomes available and whether they will win the contract so that staff planning and schedules can be organised. This is where the astute networking firm who keeps many antennae alert, searching the 'buzz' of the market place, is more likely to pick up news of a client looking for a supplier and thereby have an earlier chance of being selected.

Although all of the sample firms engaged in networking with CDSS it was still rather limited to the exchange of learning with little exchange for innovative developments or joint working. Cooperation was usually only considered once a firm had realised that it needed to partner to gain the extra resources to meet a contract specification, by then it was usually too late for both organisation to allocate and coordinate resources on time. It would make sense therefore to take a more proactive approach to this problem and plan ahead, anticipate skills, technology or market gaps of knowledge capability and then prepare a strategy with another firm that would be interested in reciprocating such an approach. It might still not result in success but it should increase the odds of winning work that would otherwise be beyond their reach.

The sample firms were critical of Wired Sussex's networking events, as being poorly focused, but this view was often only based on one or two visits, and then several years ago. Wired Sussex now offer a range of potentially useful services, from press release writing, a London office service, a web site with 10,000 unique visits a month, a discounted mentoring scheme as well as themed talks and networking events (www.wiredsussex.org.uk, 15.8.04). There are also many other networking opportunities in BH, the Chamber of Commerce, Federation of Small Businesses, Business Networking International, the 'Tuesday breakfast' club, Sussex Enterprise events and the Hove Business Association, to name a few. The new-media sample should reconsider the case for networking locally and by delegating the task, pursue this as a medium-term project, before finally fixing its networking strategy.

Nearly half of the sample firms were centrally based in dedicated media buildings, yet few reported that they actively networked in the centres themselves, complaining that the management never organised any regular events. Although this might be the case, the lost opportunities of convenient access to market information, learning and innovation sharing are considerable. A business club could be formed within the centre with a representative from each floor as part of a management committee;[37] this does not have to be the managing director. Formal and informal events could be arranged, with specific themes, for example, marketing and sales skills exchanges, technical code writing or more general managing company issues. These events could have a senior or a junior rank focus or some could be completely open ended to reflect the democratic nature of the industry, as long as there is no loss of focus.

Apart from some examples of student placements and the recruitment of graduates from the two local universities, the relationship with the universities is quite narrow, yet the two universities both have business support units that can be contacted for sources of help and advice. The two local universities were also criticised for not being 'cutting edge' in terms of the technology employed or the courses that were on offer, yet both universities do have specialists in digital technology, but the sample firms have not met these staff.[38] The new-media firms should put their cynicism to one side and be more proactive in contacting the universities to see whether reality matches perception.

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37 Organised by a lead tenant, preferably in cooperation with the Landlord.

38 Difficult to say who is to blame for this, the universities or the sample media firms?

Finally, to ensure that networking is tackled at a strategic level new-media firms should implement a networking review, and map current relationships and likely outcomes. Once completed, to then examine the networking gaps where no regular relationship exists, to assess the opportunities and threats that networking or not, with these new partners may offer, so that relationships are more effectively developed. It would be hoped that if new-media firms took on board these recommendations they would widen their networking base and gain greater benefit, which they claim already to receive, from face-to-face, informal networking, which according to all literature sources is an important route to trust based relationships, which exchange tacit knowledge, and experience double loop learning, more readily.

RP3 'All new-media firms that network and are located in the Brighton & Hove cluster will demonstrate positive learning outcomes'.

Although all the respondent firms recognised the importance of learning, they may not recognise that their current learning is probably historically path dependant, forming a mindset that is myopic to learning about new technologies and the implications of future technological convergence upon markets and services. This will mean that learning from other digital media formats and their application into current and new markets will be necessary. This will require the transfer of a high degree of tacit knowledge, which will be enhanced through networking with a more diverse range of actors, as recommended for RP2.

As these technologies converge, technical and service standards such as those issued by the British Standards Institute will develop and change. New-media firms will need to keep up-to-date and design to these standards, (for example web accessibility for disabled access), otherwise failure to comply will result in their products and services not meeting customer specifications (currently only 5 of the respondent firms 'occasionally' seek to keep up-to-date, table 6.4):

> "...ensuring innovation conforms to standards can avoid costly errors. Standards help in the diffusion of technical knowledge. New information reaches a wider range of companies, enabling them to innovate. The standard then becomes the benchmark in the market on the basis of which leading companies can launch the next developments" (www.bsi.global.com, 20.9.04).

This means that new-media firms will need to network and cooperate with professional advisors, either directly or through one of the BH's institutional stakeholders. This is also true for improving their knowledge of other firms' benchmarks of best practice (table 6.4), where there is currently little evidence of the sample firms sharing the lessons and mistakes of past activities or the comparing of operational metrics to determine what is optimally possible in other contexts that can then be transferred.

At the heart of new-media learning is the creative use of design and technology skills for web site developments. Owner-Mangers should therefore encourage their staff to attend events at Skills-Swap and Silicon Beach, grass-root organisations that combine skills exchange with informal networking. These peer-to-peer events help diffuse technical learning throughout the community as well as enhancing individual and hence firm capabilities. One particular skills' weakness that requires particular attention is in the area of sales and marketing which several firms highlighted. Apart from attending short course that a local training provider could put on, a more bespoke approach would be work with a mentor who has strong experience of working in sales and marketing for a small firm. This could be organised through the Industrial Society's School of Coaching or there are time efficient mentoring schemes run on-line.

A key reason why marketing and sales can be a key new resource is because it can help enhance a firms ability to assess market opportunities through more sophisticated SWOT analyses and identify either the next 'killer-application' or next impending threat (O'Connor and Galvin, 2001). More importantly, it can help improve communications with potential clients so that the firm can become less dependent upon pitching for contracts,[39] and instead win project work on the basis of a marketing sales campaign (Fill, 2001). However, the ideal way of winning business is through referral, this will be achieved by providing excellent customer service but also through cross referrals from reciprocating networking partners. This may of course sound like the business panacea, the limiting factor will be the time taken to develop such skills or the ability to recruit what is a scarce resource set.

A practical alternative way of accessing such skills, would be to combine forces with another new-media firm (a CDSS) through which bids for larger contracts could be made, using each others' network contacts and scarce resources, fulfilling the concept of un-

[39] Pitching involves a great deal of preparation from which no payment is ever received unless the contract is one.

traded interdependancies. From the clients perspective dealing with what appears to be a larger full service operation that is professionally managed across all business functions will also have the benefit of reassuring the client of the viability of dealing with a new supplier of technical services.

Being located in the BH cluster which does have suppliers, universities and Wired Sussex co-located, seems such a wasted learning opportunity, not to benefit from that, particularly as this can have a negative impact upon innovative capability. This is particularly ironic for the local universities as most of the respondents are graduates, several having graduating from BH. A sense of civic responsibility should encourage them to register with their respective alumni and go into the universities and offer to teach one-off style seminars and take a pro-active approach to developing a learning relationship with the local universities. The PR and goodwill outcomes will surely reward this effort, or is this author being too naive? Porter (2000) was certainly of the opinion that private firms should invest in public assets as a way of supporting the enhancement of the supporting infrastructure such as education, the investing firm could retain special access to such an asset to minimise the free-rider problem. .

Finally, new-media firms and the people that work within them, can improve their learning opportunities from recognising the benefits that can accrue from the region as a whole, not just the BH location. Lessons and best practice may be best leant from other cluster locations that are not that far away from BH, for example the Reading games cluster and the Oxford hi-technology cluster, contacting the local trade bodies that are equivalent to Wired Sussex for example Wired Berkshire and Oximedia, could lead to fruitful new opportunities for learning.

RP4 'All new-media firms that network and are located in the Brighton & Hove cluster will demonstrate positive innovative outcomes'.

As with learning, all the respondent firms expressed the recognition of the importance of innovation for their medium to long-term survival. However, many of the respondent firms claim that the benefits of practicing a differentiation technology strategy gives them a competitive advantage, however, as this is usually combined with an incremental approach to innovation they run the risk of their technology being overtaken by a substitute radical innovation in the future. From table 6.4, only nine of the respondent firms are learning on a 'regular' basis about technological developments from their networks, is this being compensated elsewhere, if not a potential good source would be Wired Sussex and

the universities. The encouragement again would be to work with these two bodies to maximise all sources of technological and market change that may result in either opportunities or threats.

Currently, innovation results from client projects some of which are focussed within a niche market, for example, utilities. This must present a further risk in addition to that mentioned in the previous paragraph, and can result in customer 'lock-in' and if demand fails and the specialism cannot be transferred, serious consequences will arise. By widening their scope of networking partners (as recommended for RP2), they are more likely to tap into other market opportunites and thus hopefully avoid this potential pitfall. There was some concern amongst the sample firms that networking can lead to a loss of IPR. A problem that then potentially arises is that firms are less likely to tap into new sources of thinking that could question a myopic mindset developing. There is evidence to suggest that small firms do not understand IPR, where UK SME's lag behind their European counterparts in terms of patents and trademarks (DTI, 2003). As a result, they may assume that the costs and red tape involved do not outweigh the benefits and therefore do not make an informed choice, which a training programme or consultancy advice from one of the local institutions could resolve.

A major limiting factor for the sample firms, particularly for radical innovation, was finance and human resources, yet this study could only find one example of joint working to develop a new product/service and share scarce resources and attendant risks. It was suggested by one respondent that this arose because the level of coordination with another party, is perceived as potentially costly in terms of time, culture and money, where returns would be uncertain. These are certainly difficult issues to resolve, which if expressed to the support institutions in the city could result in advice, grant awards and training being offered, but as we have seen, there is little such engagement to-date for this to happen.

At a practical level firms that take up the challenge of applying for ISO 9000/1 accreditation (achieved by one sample company) can as a result self audit and improve their management processes, identifying their weak and strong points, from all perspectives, not just design and innovation processes. The award of ISO 9000 can serve as part of the company's branding strategy of demonstrating quality to larger and more prestigious clients, who may well insist on this status to become a certified supplier. The same benefits can also be said to be true for the Investors in People award (IIP), that can also act as a short hand to potential clients that staff are well trained and motivated.

Finally, new-media firms should seriously consider how the 'regional innovation system' can support and enhance their innovation capabilities. Apart from reaching out through the regional equivalents of Wired Sussex, there are universities with digital expertise in Kent, Oxford, Portsmouth, Reading and Kingston all within reasonable driving distance of BH. However, the recommendations for innovation and learning will be partly dependant upon the proceeding recommendations aimed at local institutions, who, according to the sample firms, have yet to make a significant contribution to enhancing firm learning and innovation.

8.4.2 Recommendations for the local universities

RP1 'All new-media firms in Brighton & Hove form a new-media cluster'

Although BH has two universities they were only seen as an important for location decisions for the supply of technology graduates, but were not seen as a source of R&D or training. In fact, the general perception was that the universities were unlikely to have the cutting edge knowledge and equipment to support new-media. However, the author is aware that both universities do have a degree of expertise in digital technologies and during the field work phase one of the universities had just launched an MSc in Digital TV, Production and Management, where much of the equipment had been supplied by Hewlett Packard with the course co-sponsored by Victoria Reel, a major new-media player.

It would therefore seem reasonable to assume part of the problem is an educational one, whereby the two universities need to outreach to the new-media community, not just the very large firms, to fully inform them of services on offer. There are various conduits of communication that could be used, Wired Sussex, the BNML, the three media centres, Silicon Beach and Skills-Swap, therefore such a communication strategy should be relatively straight forward.

If the two universities gained a reputation for supporting new-media it may actually encourage larger firms to locate to BH, as well as other related industry actors, thus improving the whole perception of BH as the place to be for advanced technology, creating the potential for a more dynamic cluster.

RP2 'All new-media firms in Brighton & Hove are active networkers'

The sample firms also had a negative perception of the two universities in terms of their poor outreach and lack of networking capability. Admittedly, the sample new-media firms are equally to blame, although they do have far less resource to speculatively network with the universities.

An easy starting point for the universities would be to attend Wired Sussex's monthly networking events on a regular basis. These events will expose the universities to the freelancers and lower level programmers who attend and thus help inform educators of new-media's technical needs. However, senior new-media owners do not generally attend these events and therefore the universities should invite these people to an initial one-off event to the university campus itself, to extol the digital resources and expert staff they do have and thereby dispel some of the negative perceptions, perceived by some.

RP3 'All new-media firms that network and are located in the Brighton & Hove cluster will demonstrate positive learning outcomes'.

One would imagine that the universities should play a key role here, but the evidence from the sample firms suggests this is not perceived to be the case. A number of firms complained about the level and quality of the university courses and of the calibre of some of the students, that they had met during placements. The universities should invite a cross section of new-media companies to form an industrial education panel to provide advice about curriculum design and delivery. This panel should also involve the two grass-roots organisations, Skills Swap and Silicon Beach to tap into their experience and expertise.

The two universities should cooperative and work together in formulating a strategy for the BH cluster as a whole, to avoid repetition of scarce resources. One respondent expressed the concern that new-media type courses were modelled along specific and separate technologies such as IT, telecommunications and design, missing the whole point of new-media, which is about the convergence of related technologies. The universities need to think of developing programmes that are cross-disciplinary, to capture the core essence of new-media.

The two universities should also seek to offer courses for non-users of new-media to help educate local industry into the benefits of using this technology as there is a

> "...lack of qualified knowledge among customers when commissioning new media products" (Backlund and Sandberg, 2002, p. 90).

In a recent survey of small service firms located in BH, over 50% did not have a web site (Conway and Perks, 2003) thus suggesting a sizable untapped market still exists locally.

Mentoring (see section 8.4.1) and peer-to-peer action-learning have been successfully used by the author's university but have yet to be offered to the new-media community. Action-learning sets can be a very powerful tool for the transfer of tacit knowledge where in addition the environment of a university can overcome some of the reservations participants might have of sharing with close or near competitors (Bourner etal 2000).
Many of the sample new-media directors although well qualified code writers or designers, had little training in IPR, technical standards, marketing and sales thus, potentially, losing business opportunities, particularly to the more astute competitor. The business and management faculty staff of both universities should review their provision in these areas, to tailor courses that are relevant to new-media, using outside trainers, if necessary.

In terms of the 'learning region', the following sub regions of SEEDA, Oxford, Kent, Surrey (Kingston) and Wessex (Portsmouth) are supported by local universities all of whom have adjacent new-media clusters of varying sizes (see 8.4.3). Yet the author is unaware of these universities working together, sharing information, learning and innovation opportunities for new media. If not the universities, then responsibility to create such a network should be picked up by the South East Media Network (www.southeastmedianetwork.com), so that the theory of the learning region is more likely to be implemented[40].

RP4 'All new-media firms that network and are located in the Brighton & Hove cluster will demonstrate positive innovative outcomes'.

Again, the assumption would be that the two universities make a useful contribution to the innovation needs of the local new-media cluster but this is not perceived to be the case by the sample respondents. Innovation is financially and human resource problematic for small new-media firms, where innovation often requires economies of scale to be implemented, that is why most innovation is incremental and funded via client projects.

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[40] This should likewise be applied in the development of a regional innovation system

New-media has only recently began to recover from a major recession in the sector during the late 1990's and therefore may have also created a more risk adverse climate amongst the sample firm owners toward innovation (Nutley, 2004). The universities could help reduce such risks, by offering consultancy and access to resources in return for either an equity stake or a royalty payment, on a 'no win no fee basis', or what ever both parties can agree to. Of course, some firms would not follow this route because of a perceived loss of independence but at least they would have a choice.

The two universities could also run an annual competition for the most innovative new-media product-service development launched. A range of local stakeholders could be involved in the judging process so that we have another example institutionally, of a cohesive force supporting new-media. In addition competitions are a common form of incentive to stimulate interest and competition as the PR value of receiving a university award is significant, not just locally (Fill, 2003).

A particular scheme that is co-managed by universities, is the Knowledge Transfer Partnership (KTP) which is a DTI programme but implemented by universities working with SME's and could be specifically targeted at the new-media cluster. It involves the recruitment of a specialist graduate who with the resources of the host university, work full time for the new-media firm for an initial contractual period of two years, where half of the salary is covered by the scheme, the other half by the company. These awards are specifically made to encourage innovation either product, process or service, an ideal package solution, yet poorly marketed to new-media.

Of course there are a host of other schemes available to small firms, for example, SMART awards, Proof of Concept Award, R&D tax credits and the SBS Small firms loan guarantee scheme, however for a small firm, the time and energy required to seek out what is most appropriate is problematic. A useful role that the universities could play is one of honest broker, acting as a signposting agency for such firms.

What seems clear to this author is that the two universities lack sufficient experience of working with the concept of a cluster, possibly because BH is largely a small firms environment, who do not have the spending power of major firms. Because of financial concerns, the universities have directed their efforts at wooing the larger firms regionally (author's opinion). However, the Higher Education Innovation Fund is available for supporting such smaller clients and visits to universities that have a good track-record of

supporting clusters could be a useful experiential process. For example, site visits to universities that are seen as role models in supporting clusters are University Cambridge with Europe's largest hi-technology cluster; Oxford University's work with the racing technology cluster; Sheffield Hallam's work with the engineering technology cluster; Manchester University and the textile cluster and probably the most relevant, the University of Westminster and their work with digital media in London (DTI, 2004).

What is ideally required is a central coordinating function for regional innovation, a role possibly for SEEDA. Centres of technology excellence based within universities have worked effectively in Germany in supporting clusters (DTI, 2003b). The southern based universities in the SEEDA region could focus upon particular aspects of digital technology where BH would naturally focus upon web based technologies. Then through a forum of technology excellence, exchange their learning and innovation as well as supporting new-media industry.

8.4.2 Recommendations for the media centres

There are two media centres in the centre of BH, the Brighton Media Centre and Lighthouse. There is a third centre although not new-media dominated, the Sussex Innovation Centre, and is located at the City's Eastern periphery, on the campus of the University of Sussex.

RP1 'All new-media firms in Brighton & Hove form a new-media cluster'

In some respects, they fulfil a useful role, as they do attract start-up new-media firms because of the flexible contractual arrangements, in terms of short-term rental periods, relative ease of office upgrade and all have the normal infrastructure requirements for new-media, namely, broadband. The main negative perception of these centres is a combination of rising office costs and lack of strategy with respect to enhancing a networking based learning and innovation culture.

RP2 'All new-media firms in Brighton & Hove are active networkers'.

Tenants largely reported minimal support from media centre landlords, with little encouragement for centre networking. The main recommendation would be to implement a directors meeting of all tenant firms with the media centre management, to identify how

the centre can become more of a fully functioning networking, learning and innovative place to locate.

The media centre should encourage directors meetings[41], rotating around particular themes, useful for sharing best practice, for example, terms of trade, IPR, client presentations etc. Each centre has a boardroom that could be used for such meetings but is currently charged out, thus often remaining locked and empty. A similar meeting could be held for staff with different skill sets, for example, programmers and designers etc to enhance cross-fertilization and the sharing of technical problems but from different perspectives. If the media centre has a range of technology companies or a cross section of industries, regular meetings to encourage the exchange of ideas, would help enhance firm double loop learning.

All three media centres are companies limited by guarantee, which means any surplus goes back into the organisation and not to shareholders, yet this altruistic position is not perceived by the sample tenants that were interviewed. To overcome this image and subsequent cynicism, an internal and ethical public relations campaign should be implemented. This should involve the above recommendations and communicated through weekly emailed information, and welcoming introductions for new tenants to the other media centre residents.

RP3 'All new-media firms that network and are located in the Brighton & Hove cluster will demonstrate positive learning outcomes'.

If the recommendations within RP2 are implemented then this should have a positive impact upon media centre learning. It would make sense to work with Wired Sussex and the universities as part of a stake-holders forum to enhance new-media learning. Marketing, sales and IPR issues have already been identified as problematic for the cluster, however, a full audit of new-media learning needs, should be implemented by all three parties. This should enable a unified strategy to be implemented with each stakeholder taking responsibility for particular aspects of learning that are most pertinent.

Also what else does not appear to happen, is any sense of a city or region wide strategy for media-centre development. This in association with the other recommendations already made would help the development of the 'learning region' if the media centres in BH and regionally, met at least once a year to exchange information, learning and best practice.

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[41] The frequency of such meetings to be mutually agreed.

RP4 'All new-media firms that network and are located in the Brighton & Hove cluster will demonstrate positive innovative outcomes'.

As with RP3, the innovation capabilities of new media centre members should be enhance if RP2 were to be implemented. The big advantage with the media centres is that the close proximity should make it very easy for tacit knowledge and the sharing of innovative ideas to be exchanged. This proximity should also encourage joint working on innovative projects so that the synergies of both companies, is combined and that the risks and costs are shared.

What would really help enhance media centre effectiveness is a more strategic approach to selecting new tenants. As part of an investigation into office space costs, it was made clear to this author that at least one of the media centres were not very selective in who they took on as a resident. An ideal scenario, that appears to work well in Silicon Alley in the USA, is a media centre with not just a mix of digital technologies, but offices rented to a research centre, a large consumer electronics company and even a bank (www.55Broadst.com, 10.5.2003). Therefore, under one roof you have the multiple synergies of a range of small by diverse digital technologies, coupled with intellectual research capability, funding as well as the conducive role of a large corporate.

8.4.3 Recommendations for Wired Sussex

Wired Sussex is the lead trade body for new-media in BH, funded ultimately via the Small Business Service. There are now at least five other similar organisations in the SEEDA region, Wired Kent, Wired Wessex, Wired Berkshire, Wired Surrey and Oxmedia, forming the South East Media Network (www.southeastmedianetwork.com, 20.9.2003).

RP1 'All new-media firms in Brighton & Hove form a new-media cluster'.

Wired Sussex is based in the heart of the City, although it serves the whole of Sussex, the majority of its database of companies however are based in BH (SEEDA, 2003).
Initially it seemed to this author that Wired Sussex did a good job in supporting new-media, the web site (www.wiredsussex.com, first visited 12.10.2002), although somewhat limited did appear to be a useful source of information. The author then attended a number of networking events and apart from useful speakers, found the events rather unorganised,

largely featuring freelancers and code writers with little evidence of senior management attending.

The over-riding impression was of a small team of people with limited resources, trying to do their best but with limited business acumen, to understand the needs of small business new-media. Networking is a skill that cannot be learnt over night, and this is even more the case for people that are expected to organise such events. There is a lot of networking groups in BH who would be available on a consultation basis to help organise and run networking events, professionally.

RP2 'All new-media firms in Brighton & Hove are active networkers'.

As indicated in the previous section, the sample respondents felt that the Wired Sussex networking events were unfocussed, particularly with respect to who attends, with few managing directors coming. Two types of events are recommended[42], one involving senior directors, for the purposes of exchanging experiences and the other involving directors from potential customer organisations, so that both parties can educate each other of the needs required and the services on offer. Bearing in mind that managing directors are time poor, these events could be held with the following alternative timings to suit different needs, a breakfast, lunch or evening event, rather than always in the evening. With a current database of over a 1000 companies, this should enable WS to hold targeted events that have greater focus.

Many of the smaller new-media firms felt ignored by Wired Sussex and so it would be recommended that they implement a policy of contacting all small new-media companies with the purpose of inviting suggestions, feedback and questions of how WS services can be improved. When organising future networking events, Wired Sussex should take into account that the demographics of new-media owners has changed from the early 1990's, the young single professional male living and working in the city centre and socialising heavily (Pratt, 1999). The first generation owners are now in their mid to late 30's, often married with children and not necessarily living in BH, and certainly not able to party every night. Therefore pub nights, pizza, speed dating and other similar organised Wired Sussex events will need to be tailored diffently to avoid further alienation.

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[42] The frequency of such meetings to be mutually agreed.

RP3 'All new-media firms that network and are located in the Brighton & Hove cluster will demonstrate positive learning outcomes'.

The development of the concept of the 'learning region' and 'interactive innovation' has at its core the importance of intra-regional networking across clusters and locations. The SEEDA region in which Wired Sussex is based also contains a number of other new-media clusters. It would be strongly advised that networking and the exchange of information and ideas of how to support new-media are encourage across the six 'Wired' organisations. It was interesting to note that if you visit each of the Wired's web sites there is no obvious reference to the other Wired's, nor an obvious hyperlink to them, which surely should be remedied. The web sites should encourage inter-regional networking amongst member firms as novel business solutions maybe occurring that could then be diffused across the whole region, ratcheting up best-practice, which must be one of the aims of the 'learning region'.

In conjunction with the other 'Wireds' an audit of services provided to the new-media audience should be conducted to benchmark best practice and identify gaps and any unique issues that might also be valuably diffused. In addition, exchanging speakers, and MD's from the new-media firms themselves would be a useful way to spread knowledge within new-media across the region.

In an earlier section the issue of new-media myopia was raised, and issue that Wired Sussex should concern itself with as it can affect all firms within the community. Therefore one of its educational tasks is warn of this danger and by bringing in experience from across other clusters, technologies and institutions, keep firms aware of the potentiality from outside of the sector.

An area of particular skills weakness that has already been mentioned, with recommendations for the universities and the media centres is marketing, sales, IPR and standards. These and other learning and skills gaps should also be identified through a region wide survey of new-media education, training and skills needs. To fulfil the possibility of the 'learning region' materialising, cooperation between the 'Wireds' , the local universities and media centres, using the audit information described above, develop a learning, education and skills policy that is then implemented by the agreed relevant party.

There has been a certain assumption in this and other research into networking, that owner-managers know how to network, yet it is clear to this author through his out-reach responsibilities with local industry that this is far from the truth. Going into a crowded room of strangers who appear to have formed cliques can be very daunting. Ensuring that you listen and do not come across as an aggressive sales type requires a careful balance of sharing and imparting information. Wired Sussex would do well to bring in professional networking trainers, not just to help run their events but also to train the new-media owners themselves.

Of course, to implement many of the recommendations is this and the other sections will require a degree of investment, but how will these inputs impact on outputs and how will they be monitored? Apart from occasional reports published by SEEDA there does not appear to be any systematic data collection or the creation of a management information system to monitor and identify the successes and failures. Ecotec's (2003) 'a practical guide to cluster development', suggests the data requirements in Table 8.2 be collected on an annual basis, that between the Wired's and the universities, could quite feasibly implement:

Driver – Networks and partnerships

- Number of partnership arrangements
- Number of co-operation agreements
- Number of networking events
- Number of joint research activities
- Extent of social capital

Driver – Innovation and R&D

- R&D employment
- R&D expenditure
- Number of business spin-outs
- Number of patents applied for
- Number of innovation awards
- Number of new products/ processes adopted

Driver – Human resources

- Number of vacancies
- Educational attainment rates
- Number of defined qualifications
- Extent of measured skills gaps

Outcome – Economy and enterprise

- Net employment change
- Increase in GVA/GDP
- Growth of existing businesses
- Number of firm within the cluster
- Levels of investment
- Levels of profitability
- Value of exports

Table 8.2 Measuring cluster performance

Results from table 8.2 should over a period of time help inform policy as to how best support the new media clusters in the South East in a more informed, efficient and effective way.

RP4 'All new-media firms that network and are located in the Brighton & Hove cluster will demonstrate positive innovative outcomes'.

Many of the recommendations made in RP3 will similarly impact positively upon new-media innovation. Ideally in conjunction with the universities and the other 'Wireds', the theoretical benefits of a 'regional innovation system' are more likely to be realised if the regional bodies worked more closely together.

It would make sense that the coordinating trade body such as the South East Media Network negotiate with the universities a series of technology centres of excellence, as recommended earlier. Here, research and development could be focused and afforded because of the economies of scale. These centres could then develop strategy for the region which is then sensitized at a local level by the relevant delivery body (university, a particular Wired or media centre). However, the author is aware that this level of cooperation may not feasible, that is why the more proactive institutions should then attempt to provide a more coherent service locally, to potentially act as a role model.

One major deficiency in BH specifically, is a lack of very large companies outside of the public sector who could act as catalysts for growth and innovation (DETR, 2000).

Ecotec (2003) claims that large firms provide the following benefits to a locality:

- Create a critical mass of experienced managers and workers
- Provide a customer and supplier base
- Provide ideal conditions for high technology companies to grow and develop
- They have a multiplier effects in terms of a regions local economy for materials and services

Wired Sussex through the Chamber of Commerce and other links, should be actively working with new-media stakeholders (City Council, SEEDA etc), to bring in direct investments from large firms, which can then act as a further catalyst to new-media developments within the city, rather than a large proportion of the client base located outside of the city and region (London primarily).

This should also be complemented with lobbying transport planners to improve East - West Sussex communications. This could be tackled more effectively, by joining forces with Wired Wessex and Wired Kent, so that new-media firms from all three sub-regions

can reach more efficiently regionally based clients, as opposed to commuting to London for additional business. In addition the issue that should be campaigned for would be the loosening and speeding up of planning control regulation and decisions, which are seen as problematic in the City as far as office accommodation is concerned (Brighton and Hove Chamber of Commerce meeting with Laurence Robertson MP, 9.06.04).

Wired Sussex as the potential industry voice, should rally together all the local new-media stakeholders and form an industry strategy committee for BH. This would develop policy initiatives that are owned and developed at a local level, but taking in expertise from other new and non-media clusters, so that a more comprehensive strategy perspective can be developed. The other 'Wireds' would do likewise and then exchange and cross fertilise arising recommendations.

As we have seen from the thesis findings, the 'physic' value is an important reason for firms to locate or stay in BH as is the attraction for skilled staff and freelancers. Yet all this could be jeopardised if insufficient investment is made in the local infrastructure, leisure facilities, transport and cultural activities. This has to be a priority and although they do not hold the purse strings, Wired Sussex should join with other key city stakeholders with similar mutual interests (Chamber of Commerce, Traders Associations, City Centre Business Forum, The Economic Partnership, Federation of Small Businesses etc) to lobby the City council and local councillors and the three MPs.

BH is a relatively small city with severe constraints concerning its ability to expand either North (The South Downs) or South (The English Channel). It has, however, a flourishing creative industry sector of which new-media is an important element. However, it has to compete with the larger cluster in London and increasingly, with other clusters worldwide.

To maintain its competitive advantage, learning and innovation are the key success drivers, where networking has an important contribution to make, which currently is under-utilised. It is hoped that the recommendations made in this final chapter will go some way in helping to alleviate this issue.

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Appendicies

Appendix A Wired Sussex networking events, field notes

Date: 27th March 03.

Wired Sussex. (Wired Ventures)

Venue: Alfresco Restaurant/Bar.

The speaker was John Warchus, from Shadbolt & Co. the resident legal clinic expert, who offered an update on issues affecting new-media companies in 2003.

Time: 6 – 9pm

What is Wired Ventures?

An informal monthly networking opportunity for people working in New-media whether running your own business or working for a local company, from games developers to production houses to ISPs.

Objectives of the events?
To share experiences and tips.
To find customers, employees, suppliers, partners, investors.
To provide a support network for entrepreneurs.

Who?
For New-media professionals, whether running their own business or working for a local company.

Structure of the Evening

I arrive promptly, and by 6.45 there were about 20 people. There appeared to be plenty of free wine and beer from the bar and where a large number of pizza slices were later offered which appears to be a major attraction of the evening.

The speaker was introduced at around 7.20 and up until that point you were left to your own devices with the Wired Sussex staff appearing to be more concerned with the admin for the evening. The speaker was quite good and a certain amount of Q&A resulted. Men outweighed women four to one, and a number of people I spoke to were freelancers looking for work or new-media staff, rather than MD's making social connections.

The dot.com crash of the late 90s and the subsequent slow recovery were discussed as were technical issues, although the main focus of the networking appeared to be more of social bonding.

Date: Thursday 29th May 2003

Wired Sussex. (Wired Ventures networking event)

Venue: Alfresco Restaurant/Bar.

The guest speaker was Colin Barker, Editor in chief of Computing, an IT weekly newspaper that caters for senior managers of IT in the UK.

From 6 – 9 pm

About 40 people attended drawn in by the guest appearance of Colin Barker. Colin's talk was interesting as he indicated that in the mid 1990's his publication represented 'old media' and the 'new-media' at the time was seen as something of a threat with the possibility that electronic formats would replace hard copy and probably by other organisations.

In practice his and other publications run parallel electronic versions serving the same audiences by providing different services, archiving, links email and networks while the hard copy is still focused upon news and jobs. He believes that overall the electronic version has not cannibalized the hard copy and that there really is no such thing as new-media anymore.

The networking aspect of the evening was quite similar to previous events with 80% male, late 20's early 30's, with little evidence of many senior executives attending. Conversations appear largely connected with various local personalities, social activities and some technical exchanges. The networking process appeared quite static with people largely keeping to their initial groups. The Wired Sussex staff, although friendly played no particular role in introducing people, where new attendees were expected to start networking at their own initiative. The speaker began at around 7.15 and it lasted for about 30 minutes with some Q&A. After he finished people tended to then leave with only about ten people left at 8.30.

Thursday 26th June 2003

Wired Sussex. (Wired Ventures)

Venue: Alfresco Restaurant/Bar.

The guest speaker was Darren Fell, Managing Director of Pure, a Brighton based digital marketing company that uses mobile phone text messaging as a marketing medium that is sold to clients.

From 6 – 9 pm

Around 25 people came to this event, it was a sunny evening so the event had tough competition. The format for the evening was the same as the previous two occasions that I attended, where the first half of the evening was quite unstructured with little apparent help for new comers when they arrive.

The speaker made a good presentation, although unlike the previous events this was more of a sales presentation of the company rather that imparting useful information to the attendees. There was again plenty of wine and food and so no one made any complaints to me, although I could see that for more senior people to attend it could be perceived as not the best use of time.

Again the audience appeared to be largely people in their early 20s, programmers, designers and freelancers, with little evidence of any senior people from local new-media firms. After the speaker finished people seemed to leave quite quickly this time, probably to take advantage of the closing sunset.

Appendix B Interview instrument

New-media Interviews

Organisation..... Date.....

Name..... Title.....

Tape Recorded Yes / No Time/taken.....

Thank you for agreeing to see me. The purpose of this study is to understand whether new-media benefit from clustering in Brighton & Hove and the impact this may have on gaining new information, learning-transferring new skills and innovation.

Is there a best practice that can then be shared and to inform policy makers as to how they can help new-media grow and develop.

Everything said today will be confidential and anonymous and I will be happy to send you a summary report when completed.

There are no right or wrong answers to give and if you are not sure please do not hesitate to say so.

Why did you start your company?

Prompts if required:

No employees
Year started
Core business / competitive advantage
How rapid would you describe changes in your technology / market place

What are your main objectives for your company?

Prompts if required:

Growth to become a medium size and maybe larger company

To achieve an income that allows for a comfortable lifestyle

What does the term new-media mean to you?

Prompts if required:

Do you have any alternate terms

What does the term industry cluster mean to you?

Prompts if required:

Is BH a new-media cluster / why or why not
Do you have any alternate terms

Why did you locate in Brighton & Hove?

Prompts if required:

Main advantages / disadvantages of locating in B&H

Importance of the lifestyle of the city/skilled employees/economies-cost savings

Importance of Proximity to (employees/customers / suppliers / competitors / education / others ?) Why

What does networking (working with external partners) mean for your company?

Prompts if required:

How is your networking done:

Who does the networking for your company

Formally : through agencies and places of work

Informally : Café-bar-social informal networking

Do you have a preference/why

Who do you network with (customers / suppliers / competitors / education / others

Why and why not

Via face-to-face ?

Virtual?

Do you have a preference/why

How important is learning (skills & problem solving) for your company?

Prompts if required:

Is learning transfer easy or difficult / why

What specific learning have you gained

Is there a particular networking partner

Which is more important formal or informal networking / why

Which is more important f2f or virtual networking

Was proximity important for learning outcomes / why

Does the B&H cluster exchange learning freely? Reservations

How important is innovation (minor or major changes) for your company / your industry?

Prompts if required:

What are your main sources for innovation (internally – externally)

Has networking led to any product / service / process innovations

How would you describe the innovation

Is there a particular networking partner

Which is more important formal or informal networking / why

Which is more important f2f or virtual networking

Was proximity important for this innovation outcomes / why

Does the B&H cluster exchange innovation ideas freely? Reservations

Thank you

Questionnaire

Attached are questions that require a tick box response only.

Clifford Conway
University of Brighton
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Brighton
BN2 4AT

Tel: 01273 642175

Fax: 01273 642153

Email: c.conway@bton.ac.uk

Q1. When locating or starting-up in Brighton & Hove, what was the level of importance of the following?

	Never	Rarely	Sometimes	Regularly	Do not Know
Links with universities					
Proximity of complementary digital services suppliers					
Proximity of a workforce with relevant skills					
Attractive local living environment					
Proximity to customers					
Availability of technology infrastructure (Broadband etc)					
Attractive environment for all staff					
Reputation of a Brighton and Hove address					
Proximity to local suppliers					
Access to sympathetic sources of capital					
Availability of appropriate premises					
Access to international airports					
Access to London					
Supportive services from local agencies (Wired Sussex, Supportive Local Authority					
Proximity to Competitors					
Other……..					

Q2. From your experience which of the following are considered <u>Problematic</u> when locating in Brighton and Hove for 'New-media' companies?

	Never	Rarely	Sometimes	Regularly	Do not Know
Transport problems for staff					
Cost of premises locally					
Shortage of local skilled labour					
Difficulty in accessing local sources of capital, finance					
Lack of appropriate premises locally					
Absence of government grants					
Local planning controls					
Housing problems for staff					
Costly environment					
Inadequate local business services					
Lack of local subcontractors					
Other					
Other					

Q3. With whom do you network for the exchange of information, ideas or shared resources?

	Never	Rarely	Sometimes	Regularly
Direct Competitors				
Customers				
Banks				
Lawyers				
Marketing & PR agencies etc				
Family & Friends				
Wired Sussex				
Accountants				
Suppliers				
Complementary digital based service providers but not direct competitors				
FSB-Brighton & or Brighton & Hove Chamber of Commerce & or Sussex Enterprise				
Freelancers				
Universities				
Other third parties **.....**				

Q4. From your experience, how does networking take place that involves the exchange of information, ideas or shared resources?

	Never	Rarely	Sometimes	Regularly	Do not Know
Via internet (e-mail/newsgroups etc)					
Video Conferencing					
Sharing premises					
Telephone					
Face to Face					
Via cafes during working hours					
Socially via leisure or cultural events out of working hours					
Via Formal Networking Events					
Other.....					
Other.....					

Q5. What information & learning do you wish to access when networking?

	Never	Rarely	Sometimes	Regularly
The needs of current and new customers				
Technology Developments				
Local Business News				
Information about Competitors				
Find new Staff with particular skills				
Find new Investors or sources of grants				
Changes in Regulations				
How to Improve Operations				
Improve Management & Personal Skills				
Identify new suppliers with either lower costs or new products				
Discover who can be trusted				
Learn new technical skills				
Other……..				
Other……..				
Other……..				

Q6. Does your networking impact upon any of these learning facilitators?

	Never	Rarely	Sometimes	Regularly	Do not Know
Encourages Performance or Gap Analysis that helps identify strengths & weaknesses					
Agreeing and discussing metrics between firms					
Sharing lessons between Firms/even Mistakes					
Sharing Knowledge either Technical or Commercial					
Other…… ……..					

Q7. From your experience how would you characterise innovation within Your company for either Product, Process or Service

Please Circle the Most Applicable

Modified = minor changes **NEW = major changes**

Product Innovation:	**Modified** features (Never) (Rarely) (Sometimes) (Regularly)	**New** product (Never) (Rarely) (Sometimes)(Regularly)
Process Innovation:	**Modified** Internal Management-Technical or Information System or Organisation (Never) (Rarely) (Sometimes) (Regularly)	**New** Internal Management-Technical or Information System or Organisation (Never) (Rarely) (Sometimes) (Regularly)
Service Innovation:	**Modified** Service to Clients (Never) (Rarely) (Sometimes) (Regularly)	**New** service to Clients (Never) (Rarely) (Sometimes) (Regularly)

Q8. What % of your sales turnover is based in:

	%
Brighton and Hove:	
Outside Brighton and Hove but in the region:	
In London:	
Beyond the region and London:	
International:	

Thank you (please either fax, email, post)

Appendix D E-mail interview request

From: Clifford Conway [SMTP:c.conway@bton.ac.uk]

To: XXX

Cc:

Subject: Re: New-media research and Chardonnay

Sent: 2003-08-07 오후 2:46 **Importance:** Normal

> > Dear XXX
>
> As part of my university doctoral research into the impact networking
> may have on innovation and learning in new-media I would like to come
> and talk about this and the new-media cluster.
>
> The information will help identify the key success factors for new-media learning
and
> innovation to then pass on as best practice. I will send you a copy of the
> report
> that will be completely confidential as well as a bottle of chardonnay for
> your time.
>
> Regards
>
> Clifford Conway
>
>
> Senior Lecturer
> University of Brighton Business School
> Mithras House
> Lewes Rd
> Brighton
> BN2 4AT
>
> Tel: 01273 642175
>
>
>

Appendix E Interviews with Wired Sussex (WS) and the Brighton Media Centre (BMC).

Date: WS (25.11.02) and BMC (6.12.02)

Dear.....

Thank you for agreeing to meet me to discuss the 'new-media cluster' in Brighton and Hove.

Q1 What does the term new-media mean for you?

WS: This term is rather dated to the 1990's the preferred term to use would be Digital media, any organisation that using digital technologies as their core technologies. The term new-media has now lost its newness as it is an established technology particularly in the B&H where it accounts for approximately 20% GDP. Multi-media was a much earlier term with the advent of the cdrom in the early 1990's.

BMC:I think by definition it can't be up to date because it includes the word 'new' in it.

Prompt: "So are you happy still using the term new-media"

BMC: No, I've begun to avoid it.

Prompt: "Do you have an alternative?"
BMC: "Media... New-media was invented because was perceived that the internet introduced a new medium of communication, but now new-media uses digital technology to actually bring traditional forms of media up to date".

Q2 What does the phrase 'The Brighton and Hove New-media Cluster' mean for you?

WS: Most people refer to the Brighton and Hove new-media as a cluster, there are approximately 150 small (<50) companies using digital technologies at their core in B&H, where most are micro companies. In terms of a cluster containing the complete value chain then it has most of the component parts although the customer base is more widely based London and elsewhere in the UK.

BMC: I've been under a misapprehension for a few years because I've been referring to what we've developed here in Brighton as a cluster and apparently it's a fledgling cluster. One measure (of a cluster) which we have done is to work out what happens actually in the media centre, which is only a part of this cluster, and every company within the media centre trades with three other companies in the

centre. So these forms of trading are all different, obviously some pitch together, some use other people's skills, other people share resources, so on and so forth.

Q3 What do the terms 'formal' and 'informal' networking mean for you in the context of new-media?

BMC (only): Informal networking is related to the café society, that, people would see that as the place where they got business...its more relaxed. I mean they will use other means obviously, they will use all the normal marketing techniques, as well formal events, suit and tie jobs but there the emphasis is on sales rather then developing relationships.

Q4 To what extent does your organisation support new-media networking

WS: We hold monthly networking events as well as one day workshops covering essential issues for firms to develop their business, they are seen as quite successful events and of course we have an excellent web site with many facilities.

BMC: We do not actively get involved in organising events due to budgetary constraints but the firms themselves naturally meet regularly and work together. We do maintain networks through a newsletter that goes out to everybody and that goes out at least once a month.

Q5 What proportion of 'New-media' firms in B&H are Micro Companies employing 2-9 people

WS: Around 80%
BMC: About 90%

WS mentioned the importance of the use of freelancers to supplement skills on a project by project basis.

Q6 Why do you think that so many are micro companies?

WS: A certain proportion is lifestyle companies approximately less than 50%. Companies tend not to grow much further than 10 either because of a lack of confidence in the economy, or that remaining relatively small enables them to remain focussed on their core competencies without necessarily worrying about a range of issues that can arise from being larger. Also B&H has a significant supply of freelancers that can be tapped into as when a project demands.

BMC: Because it's a creative business, having worked in the creative industry all my life, you know, mostly with designers in my case, they do not want too many other people to have input into the project their working on, because, not because of huge egos necessarily but because it's, it's, creativity based on a number of things, it's based on things like visual assessment which can't be easily put into words, it's also based on a verbal input which again has a creative side to it and if you get too many people inputting into that initial creative process you get some sort of mush at the end of it and instinctively or actually explicitly, people working in the industry

are aware of that and there's a huge resistance to becoming too large because then you destroy that element of working in a small team.

Q7 Do you think that networking within the B&H cluster allows new-media firms to innovate more effectively?

WS: Yes, a cluster can provide a synergy particular amongst suppliers, other related but not competing sub-sectors and to a lesser extent with competitors.

BMC: I've got to say yes because I feel that the reason that it's grown from a grouping to a cluster is because firms are attracted by that. I think because the people are there. That means that there's going to be more stimulus. Innovation comes from having adequate supply of information and stimulation for, to be able to dip into, to be able to answer any problem, because the problems will always be diverse and therefore the material that you're going to use must also be diverse and the people that you might want to rely on should have diverse skills, so the wider that is the more likely it is that you going to achieve innovation.

Q8 Do you think that networking within the B&H cluster allows new-media firms to become more effective learners?

WS: This is probably the most significant aspect of networking, with all elements: the business environment, products and technology, business & personal skills. Significant because it is less threatening to share this information all again some reservations will be evident wrt products and technology between competitors for patentable products/processes.

BMC: Yes because of the social and informal networking that occurs. Learning takes place in many different ways most of it is informal and almost subliminal, other forms of learning are very structured. Mostly what they want to learn is how to become more creative and learn more about technology. The obvious gap is business and personal skills and understanding the business environment, they're not too hot on that, they think they've covered it but they haven't.

Thank you for your time and co-operation