

Clusters in the New Media Industry: Relevant Model or Artifact?

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Abstract

This paper examines the relevance of the concept of clusters to small firms in the media industry. The analysis examines the activities of owner-managers and their businesses set in the context of contemporary models of clusters. The paper investigates whether the studied cluster exhibits the characteristics and benefits of an ideal type. The paper draws on evidence from a new media cluster on the South coast of England.

The conventional wisdom of the Porterian cluster and others suggests that a range of economic and un-traded interdependencies arise through co-location. This paper aims to build upon this research to see whether it applies in the claimed new-media context on the South coast of England where trading with in-tangible goods and services are dominant. The research began with a critical review of the literature concerning industrial clusters and their features. These findings were applied into an interview protocol and a series of in-depth interviews were then carried out with managing directors in Sussex, England. This methodology was seen as the most effective way of exploring their experiences of the reality of the outcomes for co-location. The findings suggest that the new-media cluster meets few of the conditions and benefits widely assumed to arise from co-location. The findings revealed that customers and competitors are not co-located and there were limited networking behaviours between the studied organisations. However, there was evidence of knowledge spillovers in the sense of the labour market and use of freelances.

The paper's key contribution is to encourage a more critical approach by researchers when applying generalized models or the conventional wisdom to specific phenomena. In this example, we would recommend the use of qualitative research findings to examine the reality of the assumed benefits that are said to 'mysteriously' arise from clusters and the motivations and activities of actors with-

in those clusters. Care should also be exercised by stakeholders when seeking to transfer cluster models from one context, region and industry to another.

Introduction and Context

One of the dominant concepts in the contemporary small business and entrepreneurship literature is that of geographical clusters. This has its roots in industrial geography which identifies three elements: geographical proximity; connectivity between firms (the content and purpose of this can vary); and engagement with a supportive infrastructure (such as a science park or venture capitalists). Clusters are sometimes regarded as variants of 'industrial districts', the latter placing a greater emphasis on socio-political factors (Rosenfeld, 1997; Gordon and McCann, 2000). Early variants had a manufacturing emphasis (Marshall, 1890-1920) where businesses 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".

Although the nature of economic activity has changed from manufacturing to service activities in developed economies, the legacy of the attractiveness of industrial districts as an effective means of production, distribution and exchange has not diminished with time. A significant contribution derived from the 'Italian school' (eg Becattini, 1989) which emphasised the significance of community, small firms and institutional support as a means of providing a competitive, flexible and specialised means of production. More recently, Porter has emphasised the interaction of cooperation and competition leading to 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 complementarities" (Porter, 1990, p.16).

'Interconnected companies' could be vertical (suppliers and customers) or horizontal (with related industries and even competitors). The cluster model also contains other stakeholders who share mutual interests, such as universities and government agencies. 'Commonalities and complementarities' also suggests that the 'interconnected companies' are more likely to have similar needs for research, information, markets, technologies, needs for specific assets, resource requirements and public goods. Being co-located 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).

Co-location also allows for lower transportation and transaction costs as travel, time and increased trust should produce lower costs (Lublinsky, 2003; Storper and Harrison, 1991). Clusters can also attract the required skilled labour, the mobility of which can enhance the exchange of ideas and knowledge throughout the whole cluster (Camagni, 1991; Krugman, 1991). There are also un-traded benefits

that can arise such as mutual co-operation, learning and resource sharing and are sometimes referred to as either ‘embedded benefits’ or ‘un-traded-interdependencies’ (Granovetter, 1985 and Storper, 1993). In addition the role of co-located universities, research establishments, trade bodies and government support agencies can help 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).

In this ideal type, clusters can achieve a competitive advantage for members even on a global scale if the customers are demanding quality and excellence and that competition encourages differentiation and innovation. In addition, suppliers and related industries are attracted to locate in the cluster, providing goods and services and ‘knowledge spillovers’. Knowledge spillovers, especially technological spillovers, can occur indirectly through innovation generated by others in the industry and directly through trading with suppliers and customers (Glibert et al., 2008). The cluster itself contains or attracts key resources, such as skilled staff, that can then manage and innovate new products and services through the transfer of tacit knowledge between organisations.

The literature on clusters and associated concepts are not without critics. At a theoretical level, several academics have criticised Porter’s cluster theory and the premises upon which it is based. 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. 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).

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.

Taylor (2005) levels numerous problems with the concept including the ‘neglect of the imperatives of capitalism’ and the ‘fetishing of proximity’ which neglects the subtleties of the functioning of business enterprises. The cluster concept is also founded on two chaotic concepts: ‘social capital’ and ‘institutional thickness’. Taylor’s critique culminates in a request for a thorough empirical testing of the model. ‘What has been created in a theoretical edifice built on rhetoric that, notwithstanding a recent flurry of papers, is still weakly and selectively grounded in reality’ (Taylor, 2005, 2). Others have

been similarly critical of the generality of the model and many have or suggested variants of the ideal type. Nevertheless, clusters continue to be frequently promoted by academics and policy makers as a means of stimulating entrepreneurship and the economy.

Cluster Benefits for Small Firms?

Having set out the broader benefits and weaknesses of the cluster model, what of the relations with small firms and entrepreneurship? The cluster literature emphasises numerous benefits for small businesses. This is especially the case given their resource constraints, absence of internal specialisms and relatively weak supplier and market power. *A priori*, cluster co-location may make it easier for members 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 (Lyons, 1994). This can result in peer-to-peer relations within, 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, 1999, Greve and Salaff, 2003; MacKinnon *et al.*, 2004).

Cluster membership has the potential for to help small firms overcome resource constraints in relation to learning and innovation. Many small firms do not have the internal resources to search the business environment for market information, business contacts, learning new skills, or improving 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). This increased potential networking benefits should allow small firms to cope more effectively with the business environment (Aldrich and Zimmer, 1986; Szarka, 1990) 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).

Co-location of small firms may enable the transfer of tacit knowledge. Tacit knowledge, it is argued, is more problematic in its transfer (Nonaka, 1991) than codified knowledge. The proximity within clusters 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). This leads us to a further important ingredient in the cluster model: that of trust. Trust is emphasised elsewhere as one of the pre-requisites of successful collaboration between networked firms (Neergaard and Ulhol, 2006). In his seminal work, Uzzi also argues that in an embedded logic of exchange, trust acts as the primary governance structure (1997). Yet, trust takes time to develop and it may be argued that operating within geographical proximity may help cultivate trust relations between owners and managers of firms.

Learning and innovation are increasingly regarded as 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”.

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).

Whilst *a priori* arguments exist for the benefits of small firm’s cluster membership, in practice, questions have been raised regarding the extent to which entrepreneurs and small firms engage with networks and are embedded (Birley, 1984/91; Curran *et al.*, 1993; Curran and Blackburn, 1994; 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.

More significantly in the study of clusters, there is also a questioning of the relevance of geographical proximity for small firms. Curran and Blackburn (1994) and Edwards *et al* (2006) found evidence that 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 by owner managers to becoming too involved with local partners wishing instead to maintain their independence and autonomy that might be threatened if they became too reliant on others in the local economy (Curran and Blackburn, 1994; Shaw 1997). This was seen as having a general constraining effect upon firm learning and innovation because of the ‘tradition of being insular and autonomous’ (Laforet and Tann, 2006) Uzzi (1997) infers this in his discussion of the ‘paradox of embeddedness’.

Edwards *et al* (2006) found that the degree to which small firms network varied by sector where higher value added process tended to network more extensively where ‘learning of best practice might be considerable’, however if the sector is characterised by ‘short term contracts’ competitive concerns would reduce this tendency. Business owners were also less likely to be members of a club or association, unlike many stereotypes depict thus providing little socio-political embeddedness for cluster development. This was supported by Dodd (1997), after examining British household panel survey data, who 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. 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. It is clear that the success and of cluster phenomenon in practice is strongly contingent on business sector, technology use, labour requirements and the level of local embeddedness to underpin economic exchange. What scientific evidence we have suggests little knowledge accumulation in the same direction.

Here we focus on the new media industry which has attracted a good deal of attention. Evidence from a cluster of new-media firms in Cardiff , suggests that 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, multi-media 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.

The evidence on the relationship between 'cluster activity' and innovation is also mixed. Freel, for example, summarises '... innovation may no longer be understood as the outcome of independent decision-making at the level of the firm, but rather must be viewed as an iterative, cumulative and co-operative phenomenon, which incorporates more than simple phased dyadic or bilateral relations between users, industry and the science base...(Freel, 2003: 751). Thus, '...a firm's capacity for innovation will inevitably be enhanced by the extended knowledge base, and cost and risk sharing, offered through extensive linkages with external agency (e.g. suppliers, customers competitors universities, public agencies and so on)' (Freel, 2003:752). However, in his fieldwork Freel (2003) found that *novel* innovators tended to have a wider geographical reach than *incremental* innovators. From this it may be inferred that an emphasis on promoting local networks and exchange as a means of enhancing innovation may in fact be misleading.

There have also been doubts regarding the transfer of *technology* between firms within clusters, as a primary means of stimulating innovation. Gilbert *et al.* (2008) found benefits to geographical cluster location for independently founded firms with Initial Public Offering (IPOs). However, they were unable to link these to technological knowledge spillovers: one of the alleged benefits of clustering. They suggested that other dynamic factors, including high levels of competitiveness and an enhanced ability to spot market niches as a result of being in a cluster, may be more significant factors explaining the better performance of firms based in clusters. Thus, the concept of technology transfer as a benefit to clusters is open to question.

Finally, evidence suggests that the role of co-located institutions does not guarantee the existence or advantages of Amin and Thrift's (1994) 'institutional thickness'. In particular, the existence of government and quasi-government agencies underpinning business relations are not guaranteed. Services offered by government, through Business Link and other networking agencies have been criticised for providing inadequate services for small firms. The delivery is sometimes short-term, *ad hoc* or discriminatory, thus not adding to the embeddedness of co-located firms (Westhead, 1995; Carson *et al.*, 1995; Romijn and Albu, 2002). Relations between Universities and small firms has also received mixed empirical support. Although Romijn and Albu (2002) found positive relationships with universities 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. Other studies have found 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.. The ability to manufacture clusters is also highly questionable. Trust is emphasised by Neergaard and Ulhol (2006) as one of the longer term outcomes of the Danish networking model between some firms although they express doubts about the ability of

public policy interventions to stimulate new networks. They conclude by arguing the need for '...public policymakers to work with, seek to build on, and support existing enterprise initiatives, rather than to blindly subscribe to the physical-proximity thesis of the industrial district paradigm, while at the same time relying on a unidimensional economic and instrumental approach to network creation without any consideration of the role of trust' (Neergaard and Ulhol, 2006: 535),

Thus, whilst attractive from a theoretical and policy perspective, the evidence suggests that the cluster model possesses a number of assumptions which remain open to empirical scrutiny. There appears to be few 'general' empirical findings that confirm the ideal type and most studies of the model provide exceptions rather than the rule

Data and Method

In the reviewing the literature, one strong theme to emerge is the absence of reliable primary data on clusters. A particular criticism of the cluster literature is in relation to the methodologies employed. There is a near lack of research that actually involves 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 using quantitative approaches or is theoretically hypothesised (Hoffman *et al.*, 1999).

We use data collected from firms operating in the so called 'new-media industry'. This industry is characterised by web based digital technologies that are constantly changing, resulting in the convergence of different combinations of media, providing seamless interactivity for the user (Pratt, 1999; Backlund and Sandberg, 2002; Manovich, 2003). The industry is largely service based and includes website construction and design, e-commerce facilities, databases and interactive learning materials. The majority of firms are small if not micro sized, in keeping with the core skill of becoming creative 'hot-shops' (Kaplinsky *et al.*, 2003) who write software code in developing solutions as opposed to using proprietary packages written by others.

A major characteristic of the new-media industry is that the underlying digital technology is changing 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 also 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). Juxtaposing the new media industry and clusters is not new. There are several reported new-media clusters in the UK: 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, DTI, 2001 and SEEDA, 2002). . The characteristics of the industry, that is the technological paradigm, the prevalence of inter-firm collaboration and the size of the firms studied, collectively provide an appropriate test-bed for the cluster model.

We draw on data from the Brighton-Hove (B-H) new media industry. B-H is said to be one of the largest outside of the London area, with 300+ companies and is sufficiently coherent to have its own website suggesting some level of self-defined coherence (www.wiredsussex.com). Authors who have

written about new-media and new-media in B-H appear convinced that it *is* a cluster and make reference to Porter's definition (Porter, 1998).

This uncritical subscription to the concept is replicated in a line of numerous and influential UK government cluster policy initiatives (DT1, 1999; Pratt, 1999; DETR, 2000; DPA, 2000; DTI, 2000; DCMS, 2001; DTI, 2001; Wired Sussex, 2002; European Commission, 2002; Kaplinsky *et al.*, 2003). However, whether or not the cluster concept is an appropriate foundation on which to understand the existence and operation of firms in the industry in B-H remains open to question. Given the above arguments, we draw upon face-to-face-interviews with the proprietors of 17 new media businesses in Sussex, England. There are three core technology areas on which these businesses are based:

- Web programming: These companies build web sites using their own code and not using proprietary software [8 companies].
- Web databases: These companies build databases for web applications using their own code not proprietary software [3 companies].
- Web site build and design: These companies rely upon proprietary software [6 companies].

Appendix 1 provides further details of the firms. Further details can be gleaned from Conway (2006).

Research Propositions

From the above literature review the following research propositions are explored within the context of a 'new-media' cluster in Sussex:

- RP1 Owner-managers of new-media firms in B-H perceive themselves as part of a cluster
- RP2 Clustered new-media firms actively trade with co-located supply chain actors.
- RP3 Clustered new-media firms actively network with co-located support institutions
- RP4 Clustered new-media firms derive cost and un-traded benefits from co-location.
- RP5 Clustered new-media firms compete with each other for clients

The research approach comprised a qualitative research design in order to tease out the motivations and meanings of owner-managers in relation to clusters. 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). However, there are limitations to these approaches and some have argued that they have provided '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 interviews to overcome these weaknesses in research design. Grant and Perren (2000, p.196) also 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".

The selection of the firms to be interviewed was based upon Wired Sussex's (the local creative industries trade association) directory of members in conjunction with advice from a senior researcher at Wired Sussex. Of the 300+ members who claim to supply web based solutions, a list of 150 firms was drawn up of companies who claim to write code for web based solutions as opposed to the remaining

firms who only use proprietary software to design web sites. Code writers were sought as this involves a high level of added value and they would be expected to be more inclined to actively network to gain the benefits of identifying best practice (Edwards *et al.*, 2006).

Firms were then selected randomly from the list and were contacted for interview. Of the 17 firms, 14 claimed to be coders only, while 3 indicated that they wrote code but also used proprietary software for smaller standardized client requirements. The interviews were based upon a semi-structured design (Easterby-Smith, 1991) which enabled the respondent to discuss freely the research themes identified by the authors from the review of literature (Johannessen and Dolva, 1995). The interviews were transcribed and (Carson *et al.*, 2001) then coded with the use of NVivo 7. This largely qualitative approach allowed for the exploration of the perceptions and opinions of respondents (O'Donnell and Cummins, 1999) with respect to networking, cluster membership and the potential outcome for learning and innovation. These 'why', 'how' and 'what' questions are particularly suited to a qualitative approach (Yin, 1994) as the perceived reality of the subject's lived experience was sought.

Fieldwork Findings

RP1 Owner-managers of new-media firms in B-H perceive themselves as part of a cluster

Whilst the bulk of research and policy documents use the term cluster, there is little or no research which has canvassed the views of the so-called actors within the cluster. Respondents were asked to comment on whether they considered themselves as part of a new media cluster. This is important not only as a way of understanding their level of engagement locally but as a means of teasing out the self-definitions of these owner-managers.

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

	New Media Cluster
Agreement	LNO
Partial agreement	BCDEGHIJMQ
No agreement	AFKP

The results show a mixed response. For some there was a strong affinity with the notion of a local new media cluster. 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).

However, the bulk of respondents suggested that it was a partial cluster, with intermittent or weak ties between firms. The reasons for this are shown in Table 1.

Table 1 Reasons why Brighton and Hove is considered 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 B-H had many new media companies they were not perceived as direct competitors because they were specialists.
The cluster is limited by a lack of a coordinated strategy.	“... What I think we lack in B-H 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).
Existence 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, B-H 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 B-H did have an abundance of local suppliers although they did not all necessarily network or buy in these local services.

A number of respondents disagreed with the idea that they were operating within a ‘new media cluster’. Some objected to the term ‘cluster’. However, the main reasons were pragmatic and included their reported low levels of economic interaction with other firms in the sense of using similar, or same suppliers, and competing with each other for clients. On the other hand, even these firms cited activities which would help underpin a cluster:

“... 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).

Social networking, it is often argued in the cluster literature, helps build up trust between actors and leads to economic interchange. Such social exchanges were found in other passages of transcriptions but whether they were converted into economic activity was another matter. Company I, has had little need to network with other third parties apart from clients. This was because the nature of their services is specialised and f its company policy is not to become dependant upon third parties for its core business competencies:

“We are too specialist and ‘bespoke’ also we would not wish to become reliant on a third party with respect to our clients and then something goes wrong” (Company I).

For company P, while networking does happen in B-H detailed sharing with direct competitors is likely to result in more competition and lower prices:

“I’m 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).

Clearly, from these results there is no consensus amongst owner-managers that they operate within a cluster and there is mixed support for the proposition. In reality also, their activities suggest that proximity does not necessarily lead to economic exchange and nor are they seeking to deliberately nurture such exchanges.

RP2 Clustered new-media firms actively network with co-located supply chain actors.

One of the central tenets of the cluster literature is the development and use of a co-located supply chain. By supplies we are referring to purchased material inputs and labour. It was clear that the B-H cluster did not correspond to the ideal type in relation to supplies of material inputs. Although some firms reported the usefulness of links with suppliers during the start-up phase of their firm, suppliers were not considered by most firms to be a beneficial aspect of their networking strategy. This is particularly the case for those companies that write their own software code, and have little need to buy resources, where their main resource input, are their knowledge workers. Suppliers of office equipment or professional business services were largely judged on price and quality of service, rather than on their proximity convenience.

Exceptions to this were in a minority. One of the non-code writing companies did have a relationship with its software suppliers to realise technical benefits for the firm. 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 time to prioritise them. Romijn and Albu (2002), suggest from their study that if suppliers are providing non-complex services, then substantial face-to-face meetings will not be required. This could be the case for the new media sample as their key input is human capital rather than specialised intermediate

The supply of expertise and labour, however, presented a different picture. Close proximity and to a work force with relevant skills was regarded important for the majority of respondents. The use of complementary digital services suppliers (CDSS) was also indicated as important especially when in-house expertise or capacity was inadequate. . 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 its fashion or technical trends” (Company H).

Some also indicated that collaborating with CDSS enabled them to then bid for larger contracts. For company D, because of its size, competing for larger contracts such as £250,000 + and particularly when working with the public sector, usually involves quite strict procurement criteria:

“...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 also enabled some firms to enter new markets. 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.

The use of a local pool of freelancers was also considered important. Just under half of respondents used freelancers regularly on a project by project basis. They helped fill skill gaps or were used to supplement core staff in an overhead efficient manner:

“...it has allowed us to gain a wide degree of experience and when ever stuff comes up we cannot manage, we can bring people in to do it”. (Company K)

However, other respondents were less enthused about using freelancers preferring instead to develop their core staff:

“The preference is that you get more buy in, and you build up a relationship and you get to know each other’s 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 then they are busy on someone else’s contract”. (Company G)

All respondents agreed that B-H was seen as a good source of technical staff and was a key reason for locating or remaining in the city.

As a result of the evidence examined, there is mixed support for the proposition 2: Clustered new-media firms actively network with co-located supply chain actors. Whilst these firms were strongly engaged with local supplies of labour, and especially free-lancers, their technical and material supplies were sourced elsewhere. The use of freelancers and complimentary businesses was however, used cautiously.

RP3 Clustered new-media firms actively network with all co-located support institutions.

There are two universities and one further education college in the B-H area. These not only provide degree courses but a variety of services to businesses and the community. However, only one respondent reported any form of relationship with either of the two universities. One of the reasons provided was that the Universities were largely seen as being out-of-date technically, because of the fast changing nature of the new media industry. It was also suggested that they exhibited a 'technology' silo mentality, whereas new-media is largely characterised by a convergence of technologies:

"I despair of these organisations because they just do not understand that the longer they keep new-media and communications technologies as separate sectors, missed opportunities occur".
(Company Q)

Several respondents simply reported no need to contact or work with the two universities:

"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 maybe useful'"
(Company H).

This is even more ironic when many of the people interviewed were graduates themselves and more specifically often graduates of the two local universities. In addition, the Universities were seen as a useful source of graduate employees, as having a skilled workforce was seen as key to enhancing design and creativity, although, these new staff invariably required enhanced training.

B-H also has a co-located trade association for the 'creative industries' of which new-media is considered a subset (DCMS, 2001). The association runs regular networking and training events. Yet the take up from those interviewed was minimal. The association was largely viewed as a vehicle for freelancers to network or for new entrants into the locality to begin building a local presence while the networking events were seen as quite superficial in their purpose:

"I was talking to them about the work we do but it was totally above their heads and they were not interested at all. I felt like I was more at a party, where I'd just met somebody who was into something else". (Company A)

The staff of the trade association were seen as administrators rather than new-media professionals and although they were well intentioned they were known to be under-resourced and with too wide a remit to be of effective use.

The city of Brighton has a wide range of business networking groups, a local chamber of commerce, Business Networking International, Federation of Small Businesses and two focussed informal networking groups, 'silicon beach' (<http://www.silicon-beach.com/>) and Skills Swap (<http://www.skillswap.org/>). The main limitations cited by respondents when considering engagement in networking was a lack of time, coupled with a strong reservation against delegating responsibility, particularly for networking that had little or no impact on the businesses 'bottom line'. In practice this meant none of the respondents reported attending any of the above networking groups on a regular

basis. The only exception was with the two focussed informal networking groups. These were seen as non-strategic and about a third of the respondents were happy to allow their staff to attend during out of office hours. However none reported that they approached this or other forms of networking as a systematic commercial practice.

Seven of the 17 people interviewed were running businesses based in purpose built 'media centres', of which several were centrally located and two on the outer fringes of the City. However, none were able to recall any planned networking activities being organised by the centre managers, who were seen primarily as landlords only:

“...the notion of some form of dynamic community residing in the media centre, I think is a romantic one”. (Company Q)

When questioned about their own initiatives concerning networking, within the centres, only one firm could indicate that this was pursued. It was suggested by another respondent that working in the centre was a similar experience to the “anonymity of living in a block of flats”.

Because of the very limited networking activities with co-located institutions there is little evidence to support the third research proposition: 'All clustered new-media firms actively network with all co-located support institutions'. It seems that the motivations to network were not sufficiently strong enough to stimulate engagement with institutions and nor was the network regarded as sufficiently attractive or meaningful for these respondents. Most typical support institutions are co-located but there is little evidence of active networking.

RP4 Clustered new-media firms derive agglomeration cost and un-traded benefits including knowledge spillovers from co-location.

One of the central components of the cluster model is the agglomeration economies of scale that will accrue to participants, including reduced costs of production. For those firms in the B-H cluster, labour was the major input. As already discussed, B-H firms used freelancers for their activities but there were also other benefits of location. Graduates from the two local Universities provide a steady stream of labour and this was seen as a major attraction for B-H, strongly influencing the location decision and particularly staying within the region.

“...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, and overheads are not so high, we can sell in at a better rate and still make the same profit, compared to someone in London”. (Company O)

One major cost saving that was identified was the cost of skilled staff and most agreed that it was around 25-30% less than the cost of staff in London. Office costs were also regarded as being around 10-15% lower than those in London. Collectively, it was argued that these lower costs were giving these firms an advantage when competing against London competitors for London-based clients. Although, there are the additional costs of time and travel to meet clients outside of the city these were low relative to the cost of locating in London. The use of ICT technologies meant that services could largely be managed remotely, using email, VoIP and the telephone for day-to-day communications.

Whether or not these could be described as agglomeration economies is open to debate. Indeed, it seems that the advantage of being located in B-H is relative to the high costs of labour and offices in London rather than any agglomeration effect. On the other hand, the pool of labour within the B-H location undoubtedly provides a key input into these businesses.

There was, however, mixed evidence of un-traded benefits being realised, largely because of the limited networking partners available. The sharing of direct staff and resources was not mentioned by any respondents who instead cited either concerns about loss of intellectual property or the time required to manage such relationships. One key un-traded benefit was the exchange of information and ideas with complimentary digital suppliers. This was usually done on an informal bi-lateral basis either face-to-face or by using technologies. These exchanges were based upon trust relationships that were reinforced by an ethical code that if broken would result in great damage to a firm's reputation in what is a close knit community.

Interview findings revealed that B-H 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 its 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).

Clearly, there appeared to be ‘knowledge spillovers’ in the sense of these firms buying in freelancers and employing graduates directly. For many respondents these advantages were often ‘taken for granted’ rather than regarded as providing a competitive advantage. However, the evidence presented does chime with the some elements of the cluster model.

Curiously, rather than emphasise issues related to agglomeration economies or un-traded dependencies, interviews with owner-managers revealed non-business factors as a major advantage of location. Eight of the business-owners already lived in B-H, whilst nine moved to the area. The latter did so for a variety of reasons, Most respondents spoke of the benefit of being based in B-H in terms of lifestyle (sea and countryside) and also the creative atmosphere of being in a city where a diverse range of firms are based, resulting in:

“...a certain ‘je ne sais quoi’ about Brighton. 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 forward looking attitude”. (Company C)

Overall therefore, there is evidence to support aspects of the fourth research proposition: ‘Clustered new-media firms derive agglomeration cost and un-traded benefits from co-location’. Although benefits were identified in terms of knowledge spillovers, both directly through the employment of freelance labour and directly through University graduates, some were concerned about the loss of knowledge to these workers.

RP5 Clustered new-media firms compete with each other for clients

In addition to co-operation, a further key element of clusters is the potential for firms to compete with each other. Gilbert et al. (2008), for example, suggested that competition between firms in geographic regions may aid business performance. The results from the study found that B-H was not, however, regarded as an attractive market in terms of clients. These firms looked further a field for customers, citing either London or even international markets. This logistically limits the amount of time available for face-to-face networking. The potential client base in B-H was largely seen as micro/small companies with relatively unsophisticated digital needs and with corresponding small budgets. Where firms had some business clients in B-H, the complaint was that competition from companies that used proprietary software to design websites was intense and coupled with relatively unsophisticated and price sensitive clients, resulted in poor profitability:

“I think you would probably find plenty of new-media work here, [Brighton and Hove] but it is of the budget variety 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)

In addition to most clients not being co-located, respondents claimed to operate in niche markets with bespoke services and therefore their competitors were either national or global with little-to-no local networking taking place:

“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)

As a result, the findings from the study lead to a rejection of the fifth proposition: clustered new-media firms compete with each other for clients. Rather, the client and customer base of the studied firms was beyond the boundaries of the B-H cluster. There are some cost savings from accessing a skilled labour pool. However there are costs arising from not having co-located customers. There are some un-traded benefits based upon trust relationships

Table 2: Important Factors in Locating or Starting up in Brighton and Hove

When locating or starting-up in B-H, what was the level of importance of the following?	Never	Rarely	Sometimes	Always
<i>Proximity of complementary digital services suppliers (CDSS)</i>		OB	LKJHFEDC	PNMA
<i>Proximity to customers</i>	A	PKE	ONMLJHD C	FB
<i>Proximity to local suppliers</i>	M	PONLK EDBA	JHFC	
<i>Proximity to Competitors</i>	KA	POM- FEDB	JHC	NL
<i>Proximity of a workforce with relevant skills</i>		F	PFA	ONMLK JHEDCB

A summary of the findings in relation to the location of the businesses can be gleaned in Table 2. Essentially, the Table demonstrates the unevenness in the factors affecting the operation of these businesses and underline the importance of labour markets compared with proximity to suppliers and competitors.

Conclusions and discussion

This paper has examined the relevance of the cluster model of business interaction to a cluster of new media firms in Brighton and Hove (B-H). Clearly, there are a substantial number of firms operating in the locality undertaking economic activity within the new media industry. However, the findings demonstrate that this does not mean that they simply correspond to the ideal type cluster model. The above findings suggest an unevenness in the relevance of the cluster model to firms in the B-H new media industry. The results show that many of the trappings of the ideal type are not found: especially in relation to local supply side, customer base and competitiveness factors. These results provide further support to the critics of the alleged benefits of co-location, or that small firms are active local ‘networkers’ because of their intrinsic internal resource constraints and specialist weaknesses. The above findings also show that, although having some of the pre-requisite conditions to meet the characteristics of a ‘cluster’, the small firms in the B-H new media sector are unlikely to move towards fitting the conditions of the ‘ideal type’: the B-H cluster is not a full cluster in its infancy.

In some respects, it can be argued that the results reveal the ingredients of success of the new media cluster in B-H. These include the contextual benefits of environmental attractiveness together with the benefits of a readily available supply of appropriately skilled labour. At the same time, there was a need for the businesses to go beyond the immediate locality in order to find clients. This geographical configuration, it may be argued, is also a result of the current technological paradigm of the new media industry and the actual location of the client base. One interesting way the cluster has managed without the fulfilling the alleged benefit of co-location is its use of internet based technologies (Pratt,

1999). Of course, it does assume that the client base is sufficiently knowledgeable and has invested in the relevant technology, to enable this form of economic exchange to occur at a distance. However, with the ever increasing application of such technologies through broadband connections more firms may be encouraged to trade more remotely (Torre and Rallet, 2005).

The niche market strategy practiced by the sample firms also tends to take them beyond the immediate locality for clients thus reducing any general benefits a cluster may have to offer (Edwards *et al.*, 2006). Similarly, in their study of a biotech cluster in Uppsala, Waxell and Malmberg (2007) also suggest that whilst local labour and expertise is important markets are more globalized.

The influence of local institutions was mixed. There was a negative perception of the services provided by the two universities, apparently undermining any strong evidence of institutional embeddedness from this quarter. If the perceived 'silo' mentality and redundant technologies are a reality, this will be particularly difficult to change. However, this may simply reflect a national concern cited by previous authors (Etzkowitz *et al.*, 2000; Thomas, 2000), although other studies have indicated that when Universities do actively engage with the innovative ambitions of SMEs, positive outcomes arise (Pickernell *et al.*, 2006). However, the role of the Universities as suppliers of graduates should not be overlooked as a key element of the B-H cluster: these provided expertise as well as at a lower cost than labour in London.

B-H is a popular place to run a new-media firm. There appears to be three central reasons for this. One, access to qualified graduate staff and experienced freelancers at a relatively lower cost, compared to London salaries. Two, the overall 'buzz' (Bathelt *et al.* 2004) and creative ambience of the city, a certain 'je ne sais quoi' and 'frisson' as one respondent stated, which is key to any design process (Pratt, 1999). Third, the so called 'physic' value and lifestyle benefits (Cooper, 1999) of being located near the sea and countryside (Oakey *et al.*, 2000; Kaplinsky, 2003).

Collectively, this bundle of economic and non-economic factors does not simply correspond to the models of 'clusters' in the literature. Whilst there is evidence of economic benefits from co-location, in the form of a readily available labour pool, other benefits accrue from non-business, co-location factors. Thus, the results confirm the findings of Gilbert *et al.* (2008) who suggest that technological spillovers are less important than knowledge spillovers within clusters. These businesses were benefiting from the knowledge base of direct employees and freelancers based in the B-H area. However, a major motivation of these owner-managers for locating in B-H was non-economic. Having decided upon this, it was clear that they were able to run their businesses because of the surrounding resources even though their client bases were predominantly outside the immediate locality.

The findings of this paper appear to be in line with an earlier DETR report and a review of that report (McDonald *et al.*, 2007) that networking and cluster characteristics were not fully evident in a number of other identified clusters and this was explained as arising because they were:

'...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' DETR (2000, p.31-32).

Caution should be exercised in relation to the promotion of clusters merely on the grounds of having similar firms within an area. Whilst co-location of 'similar industrial firms' may be regarded a pre-

requisite for the development of a cluster, the specificity of the market niche, the location of clients and the technological paradigm of the industry means that a more sophisticated approach to public policy intervention and the promotion of clusters is necessary (see also Huggins, 2000; Neergaard and Ulhol, 2006).

In sum, the B-H new media sector may not be regarded as a cluster in the stereotypical sense, but it is a variant. The findings also add weight to the argument against any generalised notions of what constitutes a cluster and that, in reality, any cluster will be distinguished by a variety of economic and non-economic factors. Thus whilst the notion of a cluster continues in the literature, the scientific evidence to date continues to suggest that it remains an ideal type.

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Appendix: Profile of Businesses

Firm	Location	Core Business	Job Title	No. of Staff	Regularly use Freelancers	Yrs
A	Central Media C	Web site build-design	MD	2	Y	10
B	Central Office	Web databases	Snr Prog	15	N	20
C	Suburb House	Web Programming	MD	4	Y	13
D	Suburb Office	Web databases	MD	4	N	5
E	Suburb House	Web databases	MD	3	Y	4
F	Suburb House	Web site build-design	Brch Mgr	1 + 10	N	3
G	Central Office	Web Programming	MD	5	N	9
H	Central Media C	Web site build-design	MD	3	Y	5
I	Suburb Office	Web Programming	MD	4	N	3
J	Suburb House	Web Programming	Tech Dir	8	N	3
K	Central Media C	Web Programming	MD	6	Y	6
L	Central Media C	Web site build-design	MD	3	Y	3
M	Central Office	Web site build-design	MD	4	N	3
N	Central Media C	Web Programming	MD	14	Y	3
O	Suburb Media C	Web Programming	MD	13	N	4
P	Suburb House	Web site build-design	Sole Trader	1	Y	5
Q	Central Media C	Web Programming	Chair	20	N	10

Source: Conway (2006)