The role of lead firms in cluster evolution: The case of the Manchester television cluster

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The author utilizes recent work in evolutionary economic geography to examine the television cluster in Manchester, UK. A path dependency approach is used to trace the evolutionary phases of the cluster, and to reveal the shifting dynamics of the cluster and the role of key actors. The article focuses on the role of two lead firms – the BBC and Granada. Based on qualitative interview and participant observation data, supplemented with contextual quantitative data collection, the study presents the results of longitudinal research conducted between 2000 and 2014. The author finds that the role of lead firms varied according to the evolutionary phase of the cluster. The role of the broadcasters was most significant during the emergence and growth of the cluster. Both the lead firm and the cluster have been impacted by exogenous factors, particularly regulatory changes. A key trigger point in 2003 led to the evolutionary trajectory of the cluster shifting into decline and stagnation.

Keywords: *cluster, evolution, lead firm, path dependency*

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Introduction

Evolutionary economic geography seeks to identify and understand the dynamic processes that influence the behaviour of firms and their environment (Boschma & Martin 2007; Essletzbichler & Rigby 2007; Frenken & Boschma 2007; Ter Wal & Boschma 2011). While much debate surrounds the theoretical underpinnings of the ‘evolutionary turn’ (Boschma & Martin 2007; Grabher 2009; MacKinnon et al. 2009) and the appropriate objects of analysis (Essletzbichler 2009; Hodgson 2009; Pike et al. 2009), three branches of research have emerged relating to path dependence and lock-in, clusters and localized learning, and spatial evolution (Coe 2010). The evolutionary approach ‘might enhance our understanding of the birth, growth and decline of clusters’ (Maskell & Malmberg 2007, 614), overcoming the limitation of most existing literature on clusters, namely that it is static (Ter Wal & Boschma 2011). As evolutionary economic geography has sought to explain the spatial evolution of firms, industries, networks, cities, and regions, clusters of economic activity have become key sites of theoretical and empirical testing. Coe (2010) suggests that the benefits of an evolutionary perspective within the cluster literature have been apparent for some years (e.g. Chapman et al. 2004; Iammarino & McCann 2006; Sorensonet al. 2006; Menzel & Fornahl 2009; Shin & Hassink 2011).

The aim of this article is to contribute to debates on cluster dynamics, with a focus on the role of lead firms in cluster evolution. On the basis of findings from longitudinal empirical research conducted between 2000 and 2014 in the Manchester television cluster, in the North West region of the UK, it offers insights into both the impact of lead firms as the cluster developed, and the co-evolution of lead firms, other actors, and the regulatory environment. Following an examination of the relationships between broadcasters, spin-off firms, and other firms in the cluster, as well as how these relationships have changed over time, the article demonstrates the vulnerability of clusters to exogenous shocks and the challenges of decline and stagnation.

Cluster approaches and lead firms

Industry agglomeration has received significant academic and policy attention for many decades, with a resurgence in interest beginning in the 1990s due in part to the work of Michael Porter (1990) on clusters. The concept of clusters rests on the assumption that regional specialization of the interlinked activities of complementary firms and those firms’ cooperation with public, semi-public and private research and with development institutions creates synergies, increases productivity, and leads to economic changes. Described as having the ‘discreet charm of obscure objects of desire’ (Steiner 1998, 1) and as a ‘chaotic concept’ (Martin & Sunley 2003, 5), the conceptualisation of industry clusters and their varying applications has resulted in little consensus about their precise meaning (Feser 1998). It has been argued that much existing research on clusters focuses on a particular point in time, and fails to detail the dynamics that have led to their development and success (Bayliss 2007). While, in the past, historical perspectives have been taken by business historians (e.g. Popp & Wilson 2007) and district evolution has been conceptualized using life cycle models (Marshall 1987; Swann et al. 1998), research that has taken a longitudinal approach to clusters and often adopted a cluster life cycle approach has increased. This section outlines the key theoretical concepts used to examine the Manchester television cluster, beginning with a review of dynamic approaches to clusters and thereafter outlining the theoretical conceptualization of lead firms and their role in cluster evolution.

This article draws on research in evolutionary economic geography that has the fundamental aim of understanding the dynamic processes that influence the behaviour of firms and their market environment (Boschma & Martin 2007; Essletzbichler & Rigby 2007; Frenken & Boschma 2007 Ter Wal & Boschma 2011). Economic geographers’ use of evolutionary metaphors such as ‘learning’, ‘path dependence’ and ‘lock-in’ has substantially increased since the 1990s (Barnes 1997). David (1985) suggests the notion of path dependency to describe a change process affected by remote, and sometimes chance, events. While the early stages of path dependency allow for some degree of variety, by later phases there is only one path left; the number of alternative choices gradually decreases (David 1985; Arthur 1989; Dosi 1982) until companies or entire industries become locked-in to one – often inferior – option (Bergek & Onufrey 2013).

Economic geographers have utilized the concept of path dependence to explain the growth of particular industries and how and why older industrial regions become ‘locked-in’ to paths of development, as well as how they may escape such ‘locked-in’ states (e.g. Grabher 1993; Grabher & Stark 1997; Storper 1997; Cooke & Morgan 1998; Boschma 2004; Hassink 2005; 2007). More recently, evolutionary economic geography has sought to explain the spatial evolution of firms, industries, networks, cities, and regions from elementary processes of the entry, growth, decline, and exit of firms, and their locational behaviour (Boschma & Frenken 2011). Boschma & Frenken state: ‘Evolutionary theory deals with *path dependent* processes, in which previous events affect the probability of future events to occur’ (Boschma & Frenken 2006, 280–281, emphasis in the original). It emphasizes that firms and industries do not evolve in a vacuum, but rather co-evolve with other actors and institutions located in the regions in which they are embedded (Nelson 1995). Essletzbichler & Rigby (2007, 566) state that ‘geography plays a critical role in the evolutionary processes of variety creation and destruction, selection and continuity’. Regions themselves are not static and are subject to their own evolution. In addition, the particular ‘innovative milieu’ (Camagni 1991) of localities can make technologies, practices and innovation hard to replicate between regions, locking regions into their own path-dependent trajectories.

Evolutionary approaches have also included the conceptualization of cluster ‘life cycles’. Such approaches include Tichy’s (1998) stages of creation, growth, maturity, and petrification with a view to understanding the factors of successful clusters, and Enright’s (2003) cluster life cycle, which categorizes clusters according to their level of activity and governance – wishful thinking clusters, policy-driven clusters, potential clusters, latent clusters, and working clusters. Enright’s (2003) conceptualization does not include stages of decline or cluster failure.

Menzel & Fornahl (2009) adopt an evolutionary approach to present a four-stage cluster life cycle. First, a cluster *emerges* in a particular industry. This stage is notoriously problematic to observe, and is often only identifiable with hindsight. Local conditions determine whether a cluster reaches the critical mass required to transform to the next stage (Brenner & Schlump 2011). The second stage is *growth*, in which firm and employment numbers rise. Marshallian agglomeration economies become more significant and spillovers occur. Internal cluster networks become stronger and denser. The cluster reaches a stage of equilibrium in the third, *sustaining* stage, in which well-established connections tie the cluster tightly, but market growth has slowed (Brenner 2001). Menzel & Fornahl (2009) suggest that in this mature cluster stage, firms do not benefit from being located in a cluster (Audretsch & Feldman 1996). In Menzel and Fornahl’s (2009) final *declining* stage the number of firms and levels of employment drop. Start-ups are rare and firms rationalize. The capacity of the cluster to transform itself may be limited if the cluster is ‘locked in’, which is more likely to occur in the later stages of the cycle (Popp & Wilson 2007). Menzel & Fornahl (2009) identify three possibilities for the declining stage of the cluster to end. First, the cluster continues to decline until it diminishes. Second, the existing development path is renewed through the implementation of a new (unrelated) technology, often imported from outside the cluster. Third, the declining stage can be viewed as ‘a transition toward completely different fields’ (Menzel & Fornahl 2009, 228).

While different cluster life cycles conceptualize a variety of numbers of stages and attribute different characteristics to each, the core concept is based on change over time and an evolution from ‘birth’ to ‘death’ or ‘renewal’. For Bergman (2007), this concept provides a useful ‘discussion template’ that enables cluster trajectories to be compared. However, Martin & Sunley (2011) argue that the biological metaphor is inappropriate, as clusters are not simply aging, and that such typologies signal what is ‘normal’ or ‘ideal’ in cluster development. They suggest an ‘adaptive cycle’ model in which cluster evolution is viewed as an adaptive process with different possible outcomes based on episodic interactions of nested systems. The adaptive cycle allows for a variety of possible outcomes to result from the interaction between accumulation, connectedness, and resilience. Following a phase of release and decline, the cluster can either disappear or undergo a phase of renewal, or a new (different or related) cluster can emerge and replace the old cluster (Martin & Sunley 2003, 1307). This adaptive approach is less deterministic and allows for clusters to transition ‘forwards’ and ‘backwards’ within the phases. Both endogenous and exogenous forcing mechanisms move the system along the phases, mediated by two-way interaction between the cluster and its environment.

Cluster life cycle approaches offer useful tools to conceptualize and test empirically the dynamics of cluster formation and evolution. However, a primary focus has been upon cluster emergence and growth, to the neglect of more mature clusters. Few studies have been able to trace the evolution of a cluster from formation to the present day (exceptions include Cook & Johns 2011; Shin & Hassink 2011; Mossig & Schieber 2014. The present study therefore contributes the results of a longitudinal study of a specific cluster, and utilizes contemporary evolutionary approaches to understand the evolution of that cluster.

*Lead firms in cluster evolution*

Firms are often the focus of empirical studies of clusters as they form a logical entry point into the cluster, yet the heterogeneity of firms is often underemphasized. Many clusters comprise a variety of firms that differ in size, organization and ownership, and the composition of any cluster firm population varies by industry and geography. This article examines the particular role of lead firms in the evolution of clusters. Large firms are often credited with significant roles in the development of agglomeration economies, but positive effects should not be assumed. While Ingstrup (2014) finds that the topic of lead firms in clusters has received much attention – especially if synonymous terms are included, such as anchor firms (Feldman 2003; Waxell 2009), focal firms (Lazerson & Lorenzoni 1999), dominant firms (Hatfield et al. 2007), and flagship firms (Rugman & DaCruz 1997) – there has been little empirical observation and analysis of large firms’ impacts in different cluster stages or phases or on the role of facilitators of these cluster benefits.

Markusen’s (1996) typology of industrial districts developed as a result of the incorporation of the role of the state, the role of large firms, and longer-term change dynamics into traditional studies. She presents four distinctive industrial spatial types: (1) Marshallian new industrial district; (2) hub-and-spoke district, in which regional structure revolves around one or several major corporation in one or a few industries; (3) satellite industrial platform, comprising mainly branch plants of absent multinational corporations; and (4) state-centred district, where a major government tenant anchors the regional economy (Markusen 1996). For each type, Markusen (1996) highlights the key role that lead firms can play in industrial districts, but also emphasizes significant variation in the roles played by lead firms.

This article uses the concept of a lead firm to assess the impact of two large broadcasters in the Manchester cluster: BBC North (a branch of the national broadcaster, based in London) and Granada (a broadcaster originally formed in Manchester and now forms part of the UK’s second largest broadcaster, ITV). Lead firms have been described as:

those firms that occupy strategically central positions because of the greater number and intensity of relationships that they have with both customers and suppliers (Aldrich 1979). This position is usually reinforced by both their technological and organizational skills and their greater access to capital. (Lazerson & Lorenzoni 1999, 362)

Also the term ‘anchor tenant’ has been used, and defined as ‘a large firm that provides both stability and traffic in ideas’ (Feldman 2003, 35).

Lucas et al. (2009) find that in the early stages of the cluster life cycle, lead firms are instrumental, particularly with regard to the organization of resources and activities, but as the cluster evolves their role transforms. As the cluster grows, firms act as bridges, linking external markets to other actors in the cluster. Other advantages of lead firms include providing stable employment for a large number of people and attracting new labour into the city or region. Lead firms can contribute positively to the local labour market through their pivotal role in workforce development and training, by acting as reservoirs of talent (Lucas et al. 2009). This tallies with Morrison’s (2008) conceptualization of lead firms as ‘knowledge gatekeepers’, in which lead firms appear to have a strong effect on the internal organization of industrial districts, allowing firms to avoid lock-in effects and face international competition. The recognition of ‘leading’ or ‘anchor’ organizations in industry clusters is significant in the literature, as the presence of such organizations has been conceptualized both to promote industrial clustering and to affect the degree to which firms connect with global networks (Giblin 2011).

Randelli & Lombardi (2014, 1201) identify the role of lead firms with dominant network positions in the cluster evolution, arguing that

cluster evolution leans on the successful path of their firms, particularly those leading firms that over time accumulated power, knowledge and market share, so as to become predominant and to be able to influence the evolution of the entire cluster.

Lead firms can act as gatekeepers, offering vertical connectivity (diffusion and recombination of external knowledge within the local cluster) and horizontal connectivity (circulation of knowledge within the firms of the cluster) (Morrison 2008; Randelli & Lombardi 2014). Clusters and lead firms engage in co-evolutionary processes as the fortunes of technologies, firms and regions are jointly determined (Feldman 2003). However, the presence of large organizations alone does not inevitably stimulate such a clustering effect and emphasizes that appropriate characteristics and conditions need to be in place’ (Giblin 2011, 23). Belussi & Sedita’s (2009) study of industrial clusters in Italy identifies an additional role for firms. They identify four ‘triggering factors’ that affect districts’ evolution at different stages of their life cycle: ancient craft traditions, natural resource endowment, anchor firm, and entry of multinational corporations (MNCs) (Belussi & Sedita 2009). In this regard, lead firms not only play a role in cluster evolution, but are also key actors in ‘triggering’ changes in that evolution.

The role of lead firms changes as the cluster evolves but less attention has traditionally been paid to lead firms in mature and declining cluster stages. Klepper’s (1997; 2007) industry and firm-based perspective emphasizes the changing dynamics across stages of the industry cycle, and agglomeration is understood to enable, or increase, first-mover advantages for early entrant firms (Klepper 1997). Klepper builds on the concept of ‘routines’ in evolutionary economics, which views organizational routines as the collective, repetitive ‘habits’ of firms that are partially tacit and problematic to replicate (Teece et al. 1997). Routines can be transferred through inheritance from a parent firm to its spin-off companies (Klepper 2002). This concept of organizational routines has been used to examine the role of large firms across all stages of the industry life cycle, with Klepper (2007) observing the presence of organizational routines replicated through spin-offs, albeit imperfectly. The parent–progeny routine inheritance process is an important secondary mechanism that favours continued organizational heterogeneity throughout the industry life cycle (Wenting 2009).

Research method

A prevailing critique of cluster approaches is that empirical studies offer only ‘snapshots’ (for a comprehensive critique of the cluster concept, see Martin & Sunley 2003). Cluster life cycle approaches tend to address this by viewing the cluster over longer periods of time, either focusing on one or two cluster stages, or more rarely, covering an entire cluster evolution. By nature, evolutionary approaches seek to understand change dynamics over time. The availability and limitations of research data has resulted in many evolutionary economic geography studies utilizing quantitative methods, focusing on firm entry and exit data (e.g. Wenting & Frenken 2011; de Vann et al. 2013; Crespo et al. 2014; Boschma & Hartog 2014). Menzel & Fornahl (2009, 232) suggest that ‘the assessment of the systemic dimensions [of cluster life cycles] requires more qualitative measures, as their influence only becomes apparent in in-depth case studies’. Yet, there have been comparatively few evolutionary cluster studies adopting qualitative research methods (exceptions include Shin & Hassink 2011; Elola et al. 2012; Mossig & Schieber 2014). This is due, in part, to the large investment of time (and often resources) required to study a cluster using qualitative methods such as interviewing over a long period of time.

This article is based on research conducted between 2000 and 2014. There were two periods of intensive data collection interspersed with frequent collections of data, engagement with the industrial community, and constant monitoring of trade publications and company websites. A database of firms and institutions was constructed in 2000 and updated at various times in subsequent years. It provided the sample for interviewing in the two intense periods of data collection. The first period was 2000–2002, during which 59 interviews were conducted with interviewees from firms (in all stages of production, from finance, production and facilities, post-production, through to distribution), institutions and freelancers. The interviews were held with a range of different industry actors, including commissioning editors, firm owners and managers. The interview topics included the firm’s (or individual’s) activities, past career, the development of the industry in Manchester, connections to other firms (particularly broadcasters), projects completed, and the position of Manchester vis-à-vis other clusters, primarily London. Table 1 lists the distribution of interviews by production stage. All interviews were conducted in the Greater Manchester area, with the exception of some interviews with institutions, financiers and broadcasters in London. Participant observation was conducted at industry events, institutional networking initiatives and in social spaces, such as the BBC North bar. This participant observation became an important tool to verify and substantiate interview material on firm rivalries, associations and networking practices.

During the second period, 2009–2010, 40 interviews were conducted with representatives of firms and institutions (Table 1). In addition to the interview topics covered in the first research period, the second set of interviews included discussion of the proposed MediaCity development. All interviews held during both research stages were recorded and transcribed verbatim.

The film and television industry presents challenges in terms of data collection, and reliable data on firm numbers, activities and histories is often not available. The firm data for the two study periods were extracted from trade publications and qualitative ‘oral histories’ of firms. The relatively high levels of staff turnover in firms and through work on projects, created a high degree of awareness of firm and individual histories. The focus of the research was therefore on mapping the evolution of the cluster at organizational level to enable a picture of the whole cluster and its evolution to be developed. The interview data, contextual quantitative data and participant observation notes were combined and ‘coded’ to identify themes and key insights. The coding categories related to the interview topics specified above.

The role of Granada and the BBC as lead firms in the evolution of the Manchester cluster

The evolution of the Manchester television cluster can be broadly divided into four stages: emergence, growth, transition, and decline and stagnation. A key triggering point occurs in the evolution of the cluster in 2003, signalling a shift towards stagnation and decline. In this section, the focus is on the role played by the two large broadcasters – Granada and the BBC – in the development of the cluster since its emergence to the present day.

*Emergence: 1929 – late 1960s*

Shortly after the founding of the British Broadcasting Corporation (BBC), the publicly funded organization established a number of regional offices, including BBC North West based in Manchester in April 1929. Following a period of consolidation and internal restructuring at the BBC, the North East and North West offices were then combined to form BBC North, based in Manchester city centre. The Manchester office was responsible for the production of all regional programming in the north of England, and owned studios and facilities capable of producing a variety of programming for national BBC broadcasting. However, the majority of national programming was produced from the BBC’s headquarters in London.

Manchester was also home to Granada, an independent broadcaster. The firm won its first franchise to broadcast a weekday service in the North West in May 1956. During the 1960s the station developed a strong regional identity, and began producing their flagship programme, *Coronation Street*. Granada built studios and production facilities at their site on Quay Street in Manchester city centre. At the time, the levels of production were relatively low, as television programmes were broadcast on only two channels and for limited hours each day. This early era in television production saw the establishment and development of production methods, the identification of production roles, and the initial formation of early organizational routines. All production took place within the limited number of broadcasters mimicking the Hollywood studio system, and much knowledge was transferred from film production and translated into the production of television programmes.

*Growth: late 1960s – early 1990s*

The demand for television programmes expanded from the late 1960s onwards as broadcasting hours increased, and the next three decades witnessed substantial and significant growth nationally, including in Manchester. BBC North continued to produce regional programming and also became home to the BBC’s Religion & Ethics department. Hence, for the BBC, in-house production outside Manchester focused on religious and light entertainment. A handful of programmes were supplied to the BBC via outside contracts mediated through BBC North. BBC North operated as a satellite branch with little autonomy over programme commissioning, even in relation to regional programming, which started to adopt standardized formatting across the UK regions.

While production levels at BBC North focused on particular types of programming and maintained relatively consistent levels in the 1970s and 1980s, Granada Television grew rapidly. During that period it became a widely respected broadcaster with nationally and internationally renowned programming. In the 1980s, The New York Times described Granada as ‘the finest television company in the world’ (cited in Dibbits 2013). Granada continued to produce regional output serving the North West but growth came from the provision of national programming. The Granada Studios complex on Quay Street grew extensively as Granada invested heavily in studio space, equipment and labour.

In 1982 an additional national broadcaster, Channel 4, was formed. Channel 4 had no in-house production capability and therefore gave rise to the emergence of a large number of independent production companies (Cook & Johns 2011), some of which were established in Manchester, thus signalling the emergence of a film and television ‘cluster’ in the city. During this period, Granada and the BBC formed the focus of television activities in Manchester, as the majority of their production remained in-house: ‘Manchester was the jewel of the crown because you had Granada and therefore we had a level of independent supply chain outside the business that really didn’t happen anywhere else’ (Post-production firm C, 19 September 2009).

Both broadcasters became important sites of knowledge generation, and productive and institutional capital, becoming lead firms with superior ‘organizational routines’ (Klepper 1997; 2007). In the late 1980s Manchester was the BBC’s biggest production operation outside London, producing over 600 hours of network programming (Coe & Johns 2004). However, the limited capacity of BBC North to commission dramas and light entertainment without deference to London resulted in independent producers looking to Granada as their source of finance and distribution. In particular, Manchester was developing an increasingly strong reputation for producing ‘gritty’ realistic dramas for national and international markets.

By the end of the 1980s the Manchester cluster was thriving, with activities focused upon the lead firms Granada and BBC. With much production retained in-house, the broadcasters offered attractive careers with good salaries and promotion opportunities. The in-house production enabled individuals to gain a sound knowledge base, as their training programmes included all aspects of production (planning and budgeting, casting, filming, and editing). Since broadcasters needed to respond to rapid technological changes in production equipment and processes, they relied on strong internal technical expertise and experimentation was encouraged, particularly at Granada. Thus, Granada was able to capitalize on clear first-mover advantages (Lambkin 1988; Lieberman & Montgomery 1988).

This case differs from Klepper’s (2007) industry life cycle because the retention of production by broadcasters in-house negated the influx of new entrants in the embryonic stage. New market entrants only start to feature in the second growth phase. Klepper’s (2007) cycle focuses on manufacturing and he identifies that in the second growth phase the production process becomes more refined as specialized machinery is substituted for labour. In this creative industry case, the production process does become more refined, and specialized machinery is developed and introduced, but there is little substitution for labour. At all stages of the industry, and of the cluster life cycle, the production process is highly dependent upon labour and creative talent.

During the growth stage between the 1960 and early 1990s the Manchester television industry emerged as a result of the technological segmentation of broadcasting on a regional basis. During this period it was necessary for regional charters to be issued as the television receivers had limited range. The provision of regional programming was entrenched in early broadcasting and provided an opportunity for clusters outside London to emerge. The Manchester cluster outperformed all other regional cluster, in part due to the huge commercial success of Granada. Granada developed innovative programming across a number of different genres during this period, which alongside BBC North created a vibrant cluster with a critical mass of production and strong in-house training and development for staff. This supports Klepper’s (2007) assertion that influential agglomeration economies could be expected to agglomerate around regions where successful early entrants are located. Granada is an example of a successful early entrant located in a region that produced more output, employed more labour, and was more innovative than other regions (with the exception of London). This made the Manchester cluster attractive to new entrants and enhanced the performance of firms located there:

in the early nineties, Granada was a very healthy independent local producer [pause], very big [pause], and the BBC, had, and it still is, but less so perhaps, very big departments. So we had two huge producers in the city, so there was a lot of television production here. (Production company M, 8 January 2010)

*Transition from 1993 to 2003*

The Manchester cluster experienced a period of transition in the 1990s after two shocks altered the evolutionary trajectory of the cluster: the 1990 Broadcasting Act (Broadcasting Act 1990) and lead firm internal restructuring. The 1990 Broadcasting Act, which came into effect in 1993, imposed a requirement upon broadcasters that 25% of their production should be sourced from independent production. This ushered in an era of flexible specialization (Piore & Sabel 1984; Storper & Christopherson 1987; Barnatt & Starkey 1994; Tempest et al. 1997) in which the old ‘studio system’ broke down and the era of in-house training and production changed significantly. The broadcasters responded with internal restructuring and cost-saving exercises, and quickly downsized. Large numbers of individuals left Granada and BBC North. Some left voluntarily, as they regarded the Broadcasting Act as an opportunity to escape the increasingly ‘stuffy’ creative confines of the broadcasters. A number of spin-off companies were established in Manchester in production, post-production and facilities. These parent–progeny relationships proved enduring and came to shape the evolutionary trajectory of the cluster.

The 1990 broadcasting quickly disrupted the growth witnessed in earlier stages in the cluster. Firm numbers grew rapidly as a result of spin-offs from BBC North and Granada. However, between 1991 and 1998 the total employment in film and television in Greater Manchester declined by 12.3% (Table 2).

Contrary to Klepper’s (1997; 2007) proposed life cycle, the UK industry generally, and the Manchester cluster specifically now exhibits a *more* heterogeneous firm population through the establishment of spin-off firms resulting from the 1990 regulatory changes. As Wenting (2009) observes, the parent–progeny routine inheritance process is an important mechanism for continued organizational heterogeneity over the whole industry’s evolution. As the case of Manchester demonstrates, the structure and evolution of the cluster has been determined by the legacy and inherited organizational routines of the lead firm broadcasters, particularly Granada:

Through a rationalization process, in the 1990s the BBC dramatically reduced resources and commissions in all regions including the north. This had a significant impact on the levels of production at BBC North. Not only had in-house production reduced through the 25% quota, but the BBC also recentralized almost all production in London at this time. This effectively ‘hollowed out’ the BBC and while it retained a small presence, its role as a lead firm in the Manchester cluster was greatly diminished and became totally overshadowed by Granada. Granada continued to increase in corporate size but commissioning hours out of Manchester plateaued. Increasing numbers of commissions were outsourced, many to ex-employees who had formed production companies or associated service firms (such as post-production houses), although this was not generated by overall growth, but rather from contraction in in-house commissioning.

Following a relaxation in ITV ownership regulations in 1993, Granada initiated a geographically extensive series of mergers and acquisitions. These began with a hostile takeover of London Weekend Television (LWT) before acquiring Yorkshire-Tyne Tees Television, Anglia, Meridian, and Border. The focus of the Manchester-based firm began to shift from its regional routes as its geographical footprint increased and the firm looked to London:

If you look back fifteen, twenty years, Granada was the North West television company. All its programmes were made here. For all sorts of reasons there has been a drift of some types of show to London, but it is always … in a way it has always maintained a commitment to making programmes here. There are lots of reasons, partly it is about its ITC franchise, undoubtably, although that is undoubtably going to change as broadcasting legislation changes still further. (Post-production company 7, 4 April 2001)

Growth in the cluster slowed as the 1990 Broadcasting Act and lead firm restructuring impacted on the in-house broadcasting system. The high number of spin-off firms caused a boom in firm numbers (but a decline in absolute numbers of employment) and increased the insecurity for the greater proportion of freelance workers. The organizational routines of Granada, and to a lesser extent BBC North, were transplanted from parent to progeny as spin-off firms established. Individuals working for Granada and/or the BBC learned and practised production methods, budgeting methods, the organization of production and outsourcing, and the management of creative talent. The training role performed by BBC North and Granada created a legacy of expertise and organizational routines that still perpetuates today:

my mentor … when I was in production used to say that if you had Granada television on your CV they would employ you like that … because it was where you got the best training from the best producers, the best camera people, directors of photography, script writers, researchers. You know, it’s a real seal of approval. (Production company C, 18 November 2009)

The spin-off firms were still highly connected through a dense web of networks formed at Granada:

Our story [in Manchester] is different because a lot of our contacts either left Granada before us, or have made use of Granada, or we have made use of them when we were at Granada … you have a knowledge before you start. (Production company 2, 2 March 2001)

During the cluster life cycles of growth and conservation, these organizational routines became established and even extended into a Manchester ‘way of doing things’ that emphasized innovation and realism, clearly positioned to the left politically and insisting on a critical stance in drama and documentary work. A common attitude of ‘us against them’, with ‘them’ meaning London, strengthened the internal cohesiveness of the cluster and resulted in many individuals remaining in Manchester after 1993, resisting the centrifugal pull of London.

The period 1993–2003 saw further changes in lead firm activities. BBC North continued to commission low levels of production with decision-making resting firmly in London. Granada continued to extend geographically and lose its focus on the North West. In September 1999, Granada employed 1508 people,1 but by 2001 the number of directly employed staff had reduced to 1122, with an estimated 2900 employees indirectly supported by Granada in the North West.2 In 2001 Granada owned 7 out of 15 ITV regional licenses. This era of acquisition resulted in a dilution of Granada’s regional identity and an increasing centralization of commissioning decisions in London rather than Manchester.

Nevertheless, production in the Greater Manchester area in 2001 accounted for 30% of ITV’s commissioned programme hours. The cluster also produced a range of programmes for the BBC, Channel 4, Channel 5, and Sky. These commissions were negotiated and awarded in London. At the time, over 400 companies were located in Manchester, employing 9259 people with freelancers in addition (Johns 2004). The cluster was composed of over 130 production companies, 30 post-production companies, and a wealth of facilities and services firms (Coe & Johns 2004). The cluster was mature and highly specialized, attracting labour from across the North West, but nevertheless predicated on connections to London for finance and distribution.

The shift from growth to transition in the Manchester cluster resulted from an external shock. Martin & Sunley (2011, 1308) suggest:

[A] mature cluster might remain in a stable ‘conservation’ ... phase of development for a considerable period of time, depending on just how inflexible they become as an economic system and on the nature of any shocks to which their firms are subjected.

The levels of resilience and adaptability are important in this regard, since if a cluster has low resilience a major shock could move the cluster into a ‘release phase’ in which growth ceases and the cluster contracts. In the case of the Manchester cluster, the external regulatory shock triggered a ‘release phase’ in which the cluster contracted in real terms, but appeared to grow as the plethora of spin-off firms emerged. While the 25% quota for outsourced production could have led to growth for the cluster, the contraction of the lead firm broadcasters resulted in a negative shock. Martin & Sunley (2011) argue that rigidities and inflexibilities among cluster firms may only become apparent once the cluster is subjected to an external shock. In the Manchester case, it was clear that the cluster had emerged and grown around the two broadcasters, but the national regulation of production had reshaped the mechanisms of production and fundamentally undermined the existing broadcasting system. The cluster adapted to these changes in the conservation phase but faced further shocks in 2003.

*Post-2003: stagnation and decline*

While the 1990 Broadcasting Act was an exogenous shock, a further piece of legislation impacted on the evolution of Manchester cluster. The Communications Act of 2003 imposed an out-of-London quota for independent production commissions of 30% on the BBC and 50% on ITV (Communications Act 2003). The Act, which had been introduced to temper the effects of increased concentration of media activities in London, focused attention on the regions and their productive capacity. As the second largest cluster in the UK, Manchester was well positioned to capitalize on the Communications Act, but the quota did not operate as intended and London production companies set up regional offices (often on a temporary project-by-project basis), which intensified competition within Manchester and other regional centres. In addition, internal changes in the Manchester cluster had profound and long-term effects and served to shorten the ‘conservation’ phase of the cluster. Changes in corporate strategy at Granada accelerated the transition of the cluster from conservation to decline.

The consolidation of regional broadcasters in the late 1990 and early 2000s left two large regional broadcasters: Granada and London-based Carlton. The 2003 Communications Act paved the way for further consolidation and Granada was able to merge with Carlton. In February 2004, ITV Plc. was launched. The Granada brand was quickly eradicated and new headquarters established in London, despite Granada holding 68% of shares compared to Carlton’s 32%. The formation of ITV signalled the ‘hollowing out’ of activities in Manchester. All major decision-makers were transferred to London, leaving very little commissioning being done from Manchester and the many of the staff who remained did so to support the filming of *Coronation Street*, which was geographically rooted in Manchester in the short term.

By 2009 the number of firms in Manchester had decreased from over 400 in 2001 to 258 (Cook & Johns 2011). The decrease in firms was caused by firm failure, firm relocation (often to London), and some consolidation through acquisition by larger non-local production companies (often seeking a regional presence to gain commissions):

[G]radually Granada has been shrinking in recent years and so you know there is less production being made, full stop. (Industry club, 6 October 2009)

It [the decline of Granada] is so sad for people of a certain age i.e. myself but, you know, people starting out in the industry now, they won’t remember what a great institution Granada was and obvious[ly] I can see looking at it. Objectively I can see how it makes sense for ITV to withdraw from its regional commitments, you know, the regional commitments that make Granada great. No longer make sense in the modern market place, so I understand that on that level it’s just really sad if you were there at the time. (Production company D, 10 November 2009)

A second, much smaller, wave of spin-off firms was created at the time by ex-Granada staff. These firms entered a highly competitive market place in which firms were forced to adapt to the absence of a lead firm in the cluster. The firms adopted a variety of strategies, including targeting alternative broadcasters and diversification into other associated sectors. Since the growth of the Manchester cluster, the firms have looked to London as a source of finance and distribution as the levels of commissioning from Manchester were never sufficient to support the levels of activity, even at the cluster’s peak. Connections to commissioning editors, production editors and large facilities firms were all sought in London. With regard to diversification, Manchester has a strong reputation for IT infrastructure and software development that has increasing overlapped with media production. The broadcasting sector is notoriously cyclical, and firms traditionally sought additional sources of revenue to regulate cash flows. For example, many firms engaged in corporate and commercial work. Such activities often involved looking beyond London to European and Asian clients. Diversification was a key strategy for firms in the Manchester cluster after the 1980s and it formed a key aspect of the cluster’s resistance: ‘We feel like it is too much of a gamble to rely on work from the BBC and Granada. We’d rather work exclusively with indies [independent production companies]’ (Post-production company 5, 4 April 2001).

While firm levels decreased, the cluster had sufficient internal resources to adapt and resist decline into total cluster failure, even during the worst of the global recession. However, a further extra-local decision impacted on the Manchester cluster. In the mid-2000s the BBC decided to relocate five of their departments – Children’s, Sport, New Media, Five Live, and Research and Development – from London to MediaCity, in Manchester. This development resulted in a further stage of transition in the cluster but has not yet generated sufficient perceptible growth to take the cluster out of stagnation. The BBC decision was politically instigated and motivated as the BBC management sought to make the BBC more nationally representative (Christophers 2008). The site began a gradual opening from 2007 with the first BBC departments relocating in 2011. The MediaCity:UK project aimed to create a ‘global media hub’ with the BBC as its anchor tenant. The developers also stated their intention to attract large international firms such as Google and Disney (Cook & Johns 2011). However, no such firms have been attracted to date. ITV has moved their *Coronation Street* operations over to MediaCity:UK and sold the old Quay Street Studios.

The impact of the relocation of the BBC departments on the Manchester cluster has been relatively small for a number of reasons. First, the departments that relocated to MediaCity:UK form a small proportion of the BBC’s commissioning and total spend. The only commissioning genre present in MediaCity:UK – Children’s – accounts for only 10% of total commissioning hours and 8% for the whole of the UK. It is also one of the cheapest genres with an hour of programming, costing GBP 150,000 compared to drama at GBP 680,000 and entertainment at GBP 440,000. The proportion of total programming commissioned from MediaCity:UK by the BBC is therefore low.

Second, the departments that have relocated are those that do not rely upon the availability of adult talent. An exception to this is sport, but sporting talent is much more evenly geographically distributed and MediaCity:UK is located in a significant sporting centre. An outcome of the dominance of London in UK media activities is the intense concentration of acting and production talent locating in and around London. Currently, BBC Salford, and MediaCity:UK generally, are not challenging the status quo of talent concentration.

Third, the relocated departments do not overlap with any existing specialisms in the Manchester cluster. While firms in the cluster have produced content across all genres (and have been required to do so to survive), particular expertise in drama, light entertainment and current affairs has not been built upon. For firms looking for work in these genres, connections to sources of finance and distribution in London (or beyond) are still necessary.

Fourth, since MediaCity:UK has recently opened, it is difficult to assess with any degree of accuracy the impact of the BBC as a lead firm in the cluster and the role it is playing in the cluster evolution. While the BBC’s relocation is viewed positively by the firms in the cluster, most hesitate to suggest that any ‘real benefits’ will reach them in business terms:

Unfortunately a lot of that [activity at BBC North] then disappeared and over the past, in my experience, looking over at the BBC and working there at times … it has been really up and down. It has gone through periods of being very big and employing loads of people and then it shrunk right back and it doesn’t end up employing a very many people. Hopefully, with Media City it will expand and to counteract that problem. (Production company L, 6 October 2009)

Over 2700 employees have relocated to MediaCity:UK, forming 17% of the BBC’s workforce, compared to 8169 located in London (Begum 2014). This does represent a significant increase in employment levels, although the popular press is keen to downplay such figures, claiming that many BBC employees are commuting to Salford from the South East (Swinford 2013). The BBC has also been criticized for employing small numbers of local people. In 2011 more than 23,000 people from Greater Manchester applied for jobs with the BBC. Of those, 246 were successful, including just 26 from Salford (BBC News 2012).

By 2014 over 100 firms had moved into MediaCity:UK, and despite ambitions to the contrary, the vast majority of those firms are local, having relocated from within the Greater Manchester area. A wide variety of firms have been attracted to the site, with under half performing media production activities. Many firms offer supportive or associated services such as PR, marketing, or IT infrastructure and software. Further empirical research is required to analyse effectively the impact of the BBC relocations on the Manchester cluster, and the local economy more broadly.

Discussion and conclusions

The Manchester television cluster demonstrates that the role of lead firms varies over time. By adopting a path dependency approach the evolution of the cluster can be understood and the co-evolution of the cluster and the lead firms analysed. Bresnahan et al. (2001, 842) believe that ‘[s]tarting a cluster involves, first, building the economic fundamentals for an industry or technology, and second, finding the spark of entrepreneurship to get it going’. This case of the Manchester cluster shows that the emergence phase can result from forces other than entrepreneurship. The Manchester cluster was formed through the establishment of two lead firms – the BBC and Granada – and both emerged as a direct result of national regulation, although the establishment of Granada was organic but facilitated by the award of regional charters.

The highly regulated nature of the UK television industry meant that for many decades the Manchester cluster evolved on a trajectory determined by the organizational structure of the national broadcasters. The break-up of the lead firms due to the exogenous shock of the 1990 Broadcasting Act transformed the Manchester cluster. The replacement of the old studio system with ‘flexibly specialized’ (Piore & Sabel 1984; Storper & Christopherson 1987; Barnatt & Starkey 1994; Tempest et al. 1997) forms of production created an explosion in spin-offs and new firm formation. This transformation was not unique to Manchester but the cluster’s dependence on the lead firms resulted in a high degree of vulnerability to change. In addition, the break-up of the studio system had wider, long-term impacts, particularly on the training of broadcasting talent. This gap is still apparent today, and is becoming more significant as the generation trained by the broadcasters retires.

The formation of new firms had the potential to create growth as the international competitiveness of Granada and the new dynamism of the flexibly specialized production system could have further strengthened the Manchester cluster. The cluster retained a sufficient degree of specialist firms and creative talent, connected through dense networks previously centred on the lead firms. Owners of spin-off production firms held the resources to capitalize on their network connections to commissioning editors, and similarly, spin-off post-production and facilities firms retained strong links to new production firms. The regulated 25% regional quota of production offered a market for growth. However, an endogenous change accelerated the cluster in a different trajectory, into decline. The 2003 Communications Act was an exogenous regulatory change or ‘triggering factor’ (Belussi & Sedita 2009) that impacted on the lead firms and on the whole cluster as a result of the co-evolutionary relationship between the lead firms and the cluster. Granada had for some time seen itself as an international company with a wide range of interests and had started to disassociate itself from Manchester and the North West. The Communications Act of 2003 facilitated the merger of Granada and Carlton, and provided Granada with a reason to move to London. This created a cultural and physical distance between the commissioning editors in London and the ex-Granada employees in Manchester, and the historical legacy of Granada in Manchester may have begun to act as a disadvantage as Granada rebranded itself as ITV.

As the Manchester cluster evolves due to the development of MediaCity:UK and the relocation of some BBC departments, questions over the role of lead firms are again the key to understanding the cluster. This research suggests that the *type* of BBC departments relocated is a significant limiting factor for cluster growth. Combined with the now total absence of regional development support (the Regional Development Agency was dissolved after MediaCity:UK opened) or cluster facilitators, the potential for transition into anything other than stagnation seems unlikely. The development of MediaCity:UK was not driven by internal drivers and the current configuration of the new development does not utilize pre-existing broadcasting talent and expertise. The Manchester cluster still has to look outside the cluster for sources of finance and distribution (Coe & Johns 2004).

This case study presents four findings. First, the role of lead firms varies according to the evolutionary phase of the cluster. Clusters and the firms contained within them co-evolve, and lead firms are often a focus of attention in cluster studies, as they can be large employers and are charged with responsibilities such as knowledge generation and transfer, finance and distribution, training, and acting as ‘conduits’ to the broader global environment, as nodes in ‘global pipelines’ (Bathelt et al. 2004). Prior to 2003 the Manchester cluster conformed to Markusen’s (1996) neo-Marshallian cluster, with both the BBC and Granada playing significant roles as sources of finance, distribution and labour market development (Coe & Johns 2004; Cook & Johns 2011). Spin-offs from the lead firms caused the emergence of the cluster and played a fundamental role in transforming the cluster in its growth stage. The emergence of a multitude of independent production companies, facilities firms and post production companies, many of which spun out from the broadcasters, created a high degree of connection between firms (Cook & Johns 2011). The presence of Granada as a headquartered firm is particularly important as this lead firm had all key decision-makers present in the cluster (rather than in London in the case of the BBC). The extent of the legacy of BBC North and Granada was such that even after their roles diminished, spin-off firms based on lead firm ‘organizational routines’ shaped the cluster in its conservation and decline phases. These ‘organizational routines’ included specific ways of working developed in-house at the broadcasters, such as project management methods, working practices, and even creative decision-making.

Second, lead firms are not immune to the same market and other exogenous pressures and shocks that all cluster firms are exposed to. This case study shows that lead firm activities can be disrupted by internal change (such as shifts in corporate strategy) and external factors (such as regulatory change). National policymaking and regulatory change has significantly impacted the Manchester cluster, both directly and through the impact on lead firms, specifically the 2003 trigger point. The transition from each evolutionary phase has been precipitated by regulatory change. This raises questions about how we understand the activities and impact of lead firms in clusters and how they are vulnerable (or not) to exogenous changes.

Third, if placed in Markusen’s (1996) typology, the increased presence of the BBC at MediaCity could represent a shift towards becoming a ‘state-anchored’ industrial district, as the BBC is, by definition, a state-owned enterprise. In addition, until the development of MediaCity, the lead firms in Manchester had been the two broadcasters. As MediaCity is a private property development owned by Peel Holdings, this firm may also be considered to be a lead firm in the Manchester cluster. It is currently unclear how changes in the *type* of lead firms present in Manchester will impact on the future evolution of the cluster. The evolutionary perspective facilitates analysis of the impact of the MediaCity development by placing recent changes in the longer-term evolutionary context of the whole cluster. However, the development has only recently been established, and therefore further empirical work is needed to assess its impact, both on the cluster itself and on the evolutionary trajectory of the cluster.

Fourth, research tracing the outcomes of lead firm exit on cluster evolution has been limited to date. While some research has examined total firm entry and exit as a quantitative measure of cluster dynamics (e.g. de Vann et al. 2013; Boschma & Hartog 2014), The Manchester case shows that significant exogenous shocks can disrupt firm and employment levels, causing divergence from existing theories of cluster and industry life cycles (e.g. Klepper 1997; Tichy 1998; Menzel & Fornahl 2009). The case is peculiar due to the significant impact of *national* regulatory change, but minimal *local and regional* policy intervention. Further, the case does not fit any of Enright’s (2003) cluster categories – wishful thinking clusters, policy-driven clusters, potential clusters, latent clusters, or working clusters. With high levels of activity, but low levels of governance, this case makes an interesting counterpoint to some recent cluster studies in which regional development agencies were reported as strong (e.g. see Karlsen & Nordhus 2011; Ingstrup & Damgaard 2013; Ingstrup 2014 on cluster facilitation). Also, the lead firms and the cluster as a whole have been influenced by exogenous shocks caused by decisions made in London (both corporate and regulatory changes). The 2003 regulatory changes represented a key ‘trigger point’ (Belussi & Sedita 2009) that altered the evolutionary trajectory of the cluster. This article finds that evolutionary approaches to the Manchester television cluster can reveal the key dynamics of change and that path dependency approaches afford a wider angle with which to view the evolution of the cluster.

Notes

1 ‘The cultural strategy for England’s North West: Cultural audit and data report’, a consultation draft produced by North West Cultural Consortium in 2001.

2 ‘The regional impact of Granada Television’, a report produced for Granada Television by G. Hall, Manchester Business School, in 2011.

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References

Aldrich, H. 1979. *Organizations and Environments.* Englewood Cliffs, NJ: Prentice-Hall.

Arthur, W.B. 1989. Competing technologies, increasing returns, and lock-in by historical events. *The Economic Journal* 99, 116–131.

Audretsch, D.B. & Feldman, M.P. 1996. Innovative clusters and the industry life-cycle. *Review of Industrial Organisation* 11, 253–273.

Barnatt, C. & Starkey, K. 1994. The emergence of flexible networks in the UK television industry. *British Journal of Management* 5, 251–260.

Barnes, T.J. 1997. Theories of accumulation and regulation: Bringing back life to economic geography. Lee, R. & Wills, J. (eds.) *Geographies of Economies*, 231–244*.* London: Arnold.

Bathelt, H., Malmberg, A. & Maskell, P. 2004. Clusters and knowledge: Local buzz, global pipelines and the process of knowledge creation. *Progress in Human Geography* 28, 31–56.

Bayliss, D. 2007 Dublin’s digital hubris: Lessons from an attempt to develop a creative industrial cluster. *European Planning Studies* 15, 1261–1271.

BBC News*.* 2012. *MP Hazel Blears Tells BBC ‘MediaCity Must Recruit More Locals’*. 19 January. <http://www.bbc.co.uk/news/uk-england-manchester-16618243> (accessed 5 May 2014).

Begum, S. 2014. BBC staff spread across regions now. *Manchester Evening News*. 31 October. <http://www.manchestereveningnews.co.uk/business/business-news/bbc-staff-spread-across-regions-8024472> (accessed 14 November 2014).

Belussi, F. & Sedita, S.R. 2009. Life cycle vs multiple path dependency in industrial districts. *European Planning Studies* 17, 505–528.

Bergek, A. & Onufrey, K. 2013. Is one path enough? Multiple paths and path interaction as an extension of path dependency theory. *Industrial and Corporate Change* 23, 1261–1297.

Bergman, E.M. 2007 Cluster life-cycles: An emerging synthesis. Karlsson, C. (ed.) *Handbook of Research on Cluster Theory*, 114–132. Cheltenham: Edward Elgar

Boschma, R.A. 2004. Competitiveness of regions from an evolutionary perspective. *Regional Studies* 38, 1001–1014.

Boschma, R. & Frenken, K. 2006. Why is economic geography not an evolutionary science?: Towards an evolutionary economic geography. *Journal of Economic Geography* 6, 273–302.

Boschma, R. & Frenken, K. 2011. The emerging empirics of evolutionary economic geography. *Journal of Economic Geography* 11, 295–307.

Boschma, R. & Hartog, M. 2014. Merger and acquisition activity as driver of spatial clustering: The spatial evolution of the Dutch banking industry, 1850–1993. *Economic Geography* 90, 247–266.

Boschma, R. & Martin, R. 2007. Editorial: Constructing an evolutionary economic geography. *Journal of Economic Geography* 7, 537–548.

Brenner, T. 2001. *Self-organisation, Local Symbiosis of Firms and the Life Cycle of Localised Industrial Clusters*. Max-Planck-Institute, Papers on Economics and Evolution 0103. http://www.econ.mpg.de/files/2003/staff/brenner/WP0103.pdf (accessed 23 September 2015).

Brenner, T. & Schlump, C. 2011. Policy measures and their effects in the different phases of the cluster life cycle. *Regional Studies* 45, 1363–1386.

Bresnahan, T., Gambardella, A. & Saxenian, A. 2001. Old economy’ inputs for ‘new economy’ outcomes: Cluster formation in the new silicon valleys. *Industrial and* Corporate Change 10, 835–860.

*Broadcasting Act 1990*. Chapter 42. http://www.legislation.gov.uk/ukpga/1990/42/contents (accessed 4 May 2014).

Camagni, R. 1991. Local ‘milieu’, uncertainty and innovation networks: Towards a new dynamic theory of economic space. Camagni, R. (ed.) *Innovation Networks: Spatial Perspective*, 121–143. London: Belhaven.

Chapman, K., MacKinnon, D. & Cumbers, A. 2004. Adjustment or renewal in regional clusters? A study of diversification amongst SMEs in the Aberdeen oil complex. *Transactions of the Institute of British Geographers* 29, 382–396.

Coe, N.M. 2010. Geographies of production I: An evolutionary revolution? *Progress in Human Geography* 35, 81–91.

Coe, N.M. & Johns, J. 2004. Beyond production clusters: Towards a critical political economy of networks in the film and television industry. Power, D. & Scott, A.J. (eds.) *Cultural Industries and the Production of Culture*, 188–204. London: Routledge.

*Communications Act 2003*.Chapter 21. http://www.legislation.gov.uk/ukpga/2003/21/section/32 (accessed 13 May 2014).

Cook, G. & Johns, J. 2011. The transformation of broadcasting and film in Manchester and Liverpool. Karlsson, C. & Picard, R.G. (eds.) *Media Clusters: Spatial Agglomeration and Content Capabilities*, 161–198. London: Edward Elgar.

Cooke, P. & Morgan, K. 1998. *The Associational Economy*. Oxford: Oxford University Press.

Christophers, B. 2008. The BBC, the creative class, and neoliberal urbanism in the north of England. *Environment and Planning A* 40, 2313–2329.

Crespo, J., Suire, R. & Vicente, J. 2014. Lock-in or lock-out? How structural properties of knowledge networks affect regional resilience. *Journal of Economic Geography* 14, 199–219.

David, P.A. 1985. Clio and the economics of QWERTY. *American Economic Review* 75, 332–337.

de Vann, M., Boschma, R. & Frenken, K. 2013. Clustering and firm performance in project-based industries: The case of the global video game industry, 1972–2007. *Journal of Economic Geography* 13, 965–999.

Dibbits, K. 2013. *MMU Researchers Explore History of Broadcaster: Granada Archive to Be Created at University*. <http://www2.mmu.ac.uk/hpp/about-us/news/detail/index.php?id=2153> (accessed 14 May 2014).

Dosi, G. 1982. Technological paradigms and technological trajectories. *Research Policy* 11, 147–162.

Elola, A., Valdaliso, J.M., Lopez, S.M. & Aranguren, M.J. 2012. Cluster life cycles, path dependency and regional economic development: Insights from a meta-study on basque clusters. *European Planning Studies* 20, 257–279.

Enright, M.J. 2003. Regional clusters: What we know and what we should know. Bröcker, J., Dohse, R. & Soltwedel, R. (eds.) *Innovation Clusters and Interregional Competition*, 99–129. Berlin: Springer.

Essletzbichler, J. 2009. Evolutionary economic geography, institutions, and political economy. *Economic Geography* 85, 159–165.

Essletzbichler, J. & Rigby, D.L. 2007. Exploring evolutionary economic geographies. *Journal of Economic Geography* 7, 549–572.

Feldman, M. 2003 The locational dynamics of the US biotech industry: Knowledge externalities and the anchor hypothesis. *Industry and Innovation* 10, 311–329.

Feser, E.J. 1998. Old and new theories of industry clusters. Steiner, M. (ed.) *Cluster and Regional Specialization: On geography, Technology and Networks*, 18–40*.* London: Pion.

Frenken, K. & Boschma, R. 2007. A theoretical framework for evolutionary economic geography: Industrial dynamics and urban growth as a branching process. *Journal of Economic Geography* 7, 635–649.

Giblin, M. 2011. Managing the global–local dimensions of clusters and the role of ‘lead’ organizations: The contrasting cases of the software and medical technology clusters in the west of Ireland. *European Planning Studies* 19, 23–42.

Grabher, G. 1993. The weakness of strong ties – the lock-in of regional development in the Ruhr area. Grabher, B. (ed.) *The Embedded Firm*, 255–277. London: Routledge.

Grabher, G. 2009. Yet another turn: The evolutionary project in economic geography. *Economic Geography* 85,119–127.

Grabher, G. & Stark, D. 1997. Organizing diversity: Evolutionary theory, network analysis and postsocialism. *Regional Studies* 31, 533–544.

Hassink, R. 2005. How to unlock regional economies from path dependency? From learning region to learning cluster. *European Planning Studies* 13, 521–535.

Hassink, R. 2007. The strength of weak lock-ins: The renewal of the Westmunsterland textile industry. *Environment and Planning A* 39, 1147–1165.

Hatfield, D.E., Lamb, W.B. & Tegarden, L.F. 2007. On the shoulders of giants: Co-location with dominant firms in the emerging fiber optics industry. *Industry and Innovation* 14, 445–460.

Hodgson, G.M. 2009. Agency, institutions, and Darwinism in evolutionary economic geography. *Economic Geography* 85, 167–173.

Iammarino, S. & McCann, P. 2006. The structure and evolution of industrial clusters: Transactions, technology and knowledge spillovers. *Research Policy* 35, 1018–1036.

Ingstrup, M.B. 2014. When firms take the lead in facilitating clusters. *European Planning Studies* 22, 1902–1918.

Ingstrup, M.B. & Damgaard, T. 2013. Cluster facilitation from a cluster life cycle perspective. *European Planning Studies* 21, 556–574.

Johns, J. 2004. *Tracing the Connections: Manchester’s Film and Television Industry*. PhD thesis. Manchester: University of Manchester.

Karlsen, A. & Nordhus, M. 2011. Between close and distanced links: Firm internationalization in a subsea cluster in Western Norway. *Norsk Geografisk Tidsskrift–Norwegian Journal of Geography* 65, 202–211.

Klepper, S. 1997. Industry life cycles. *Industrial and Corporate Change* 6, 145–181.

Klepper, S. 2002. The capabilities of new firms and the evolution of the US automobile industry. *Industrial and Corporate Change* 11, 645–666.

Klepper, S. 2007. The evolution of geographic structures in new industries. Frenken, K. (ed.) *Applied Evolutionary Economics and Economic Geography*, 69–72. Cheltenham: Edward Elgar.

Lambkin, M. 1988. Order of entry and performance in new markets. *Strategic Management Journal* 9, 127–140.

Lazerson, M. & Lorenzoni, G. 1999. Resisting organizational inertia: The evolution of industrial districts. *Journal of Management and Governance* 3, 361–377.

Lieberman, M.B. & Montgomery, D.B. 1988. First-mover advantages*. Strategic Management Journal* 9(S1), 41–58.

Lucas, M., Sands, A. & Wolfe, D.A. 2009. Regional clusters in a global industry: ICT clusters in Canada. *European Planning Studies* 17, 189–209.

MacKinnon, D., Cumbers, A., Pike, A., Birch, K. & McMaster, R. 2009. Evolution in economic geography: Institutions, political economy and adaptation. *Economic Geography* 85, 129–150.

Markusen, A. 1996. Sticky places in slippery spaces: A typology of industrial districts. *Economic Geography* 72, 293–313.

Marshall, M. 1987. *Long Waves of Regional Development*. London: Macmillan.

Martin, R. & Sunley, P. 2003. Deconstructing clusters: Chaotic concept or policy panacea? *Journal of Economic Geography* 3, 5–35.

Martin, R. & Sunley, P. 2011. Conceptualizing cluster evolution: Beyond the life cycle model? *Regional Studies* 45, 1299–1318.

Maskell, P. & Malmberg, A. 2007. Myopia, knowledge development and cluster evolution. *Journal of Economic Geography* 7, 603–618.

Menzel, M.P. & Fornahl, D. 2009. Cluster life cycles: Dimensions and rationales of cluster evolution. *Industrial and Corporate Change* 19, 205–238.

Morrison, A. 2008. Gatekeepers of knowledge within industrial districts: Who they are, how do they interact. *Regional Studies* 42, 817–835.

Mossig, I. & Schieber, L. 2014. Driving forces of cluster evolution – growth and lock-in of two German packaging machinery clusters. *European Urban and Regional Studies*. DOI: 10.1177/0969776414536061

Nelson, R.R. 1995. Co-evolution of industry structure, technology and supporting institutions, and the making of competitive advantage. *International Journal of the Economics of Business* 2, 171–184.

Office for National Statistics. n.d. *[nomis database, for subscribers]*. www.nomis.co.uk [now www.nomisweb.co.uk] (accessed 12 May 2000).

Pike, A., Birch, K., Cumbers, A., MacKinnon, D. & McMaster, R. 2009. A geographical political economy of evolution in economic geography. *Economic Geography* 85, 175–182.

Piore, M. & Sabel, C. 1984. *The Second Industrial Divide*. New York: Basic Books.

Porter, M.E. 1990. *The Competitive Advantage of Nations*. New York: Free Press.

Popp, A. & Wilson, J. 2007. Life-cycles, contingency, and agency: Growth, development and change in English industrial districts and clusters. *Environment and Planning A* 39, 2975–2992.

Randelli, F. & Lombardi, M. 2014. The role of leading firms in the evolution of SME clusters: Evidence from the leather products cluster in Florence. *European Planning Studies* 22, 1199–1211.

Rugman, A.M. & D’Cruz, J. 1997. The theory of the flagship firm. *European Management Journal* 15, 403–412.

Shin, D.-H. & Hassink, R. 2011. Cluster life cycles: The case of the shipbuilding industry cluster in South Korea. *Regional Studies* 45, 1387–1402.

Sorenson, O., Rivkin, J.W. & Fleming, L. 2006. Complexity, networks and knowledge flow. *Research Policy* 35, 994–1017.

Steiner, B. 1998. The discreet charm of clusters: An introduction. Steiner, M. (ed.) *Clusters and Regional Specialization: On Geography, Technology and Networks*. London: Pion.

Storper, M. 1997. *The Regional World*. Guilford: London.

Storper, M. & Christopherson, S. 1987. Flexible specialization and regional industrial agglomerations: The case of the US motion picture industry. *Annuals of the Association of American Geographers* 77, 104–117.

Swann, G.M.P., Prevezer, M. & Stout, D. 1998. *The Dynamics of Industrial Clustering: International Comparisons in Computing and Biotechnology*. Oxford:Oxford University Press.

Swinford, S. 2013. BBC spends £26,000 on taxis between London and Salford. *The Telegraph* 10 February.

<http://www.telegraph.co.uk/culture/tvandradio/bbc/9861270/BBC-spends-26000-on-taxis-between-London-and-Salford.html> (accessed 9 September 2014).

Teece, D., Pisano, G. & Shuen, A. 1997. Dynamic capabilities and strategic management. *Strategic Management Journal* 18, 509–533.

Tempest, A., Starkey, K. & Barnatt, C. 1997. Diversity or divide? In search of flexible specialization in the UK television industry. *Industrielle Beziehungen* 4, 38–57.

Ter Wal, A.L.J. & Boschma, R. 2011. Co-evolution of firms, industries and networks in space. *Regional Studies* 45, 919–933.

Tichy, G. 1998. Clusters: Less dispensable and more risky than ever. Steiner, M. (ed.) *Clusters and Regional Specialisation: On Geography Technology and Networks*, 211–225. London: Pion.

Waxell, A. 2009. Guilty by association: A cross-industrial approach to sourcing complementary knowledge in the Uppsala biotechnology cluster. *European Planning Studies* 17, 1605–1624.

Wenting, R. 2009. The inheritance of organizational routines and the emergence of a firm genealogy in the fashion design industry. Becker, M.C. & Lazaric, N. (eds.) *Organisational Routines: Advancing Empirical Research*, 103–130. London: Edward Elgar.

Wenting, R. & Frenken, K. 2011. Firm entry and institutional lock-in: An organizational ecology analysis of the global fashion design industry. *Industrial and Corporate Change* 20, 1031–1048.