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Konzelmann, Suzanne J. and Fovargue-Davies, M. and Wilkinson, F. (2018) Britain's industrial evolution: the structuring role of economic theory. *Journal of Economic Issues* 52 (1), pp. 1-30. ISSN 0021-3624.

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Britain's Industrial Evolution: The Structuring Role of Economic Theory*

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***Accepted for publication in the *Journal of Economic Issues* on 27 February 2017**

Abstract

This paper traces the co-evolution of industrial organization and the ideas and policies that have influenced Britain's industrial development from Alfred Marshall's pioneering work on the English industrial districts to the present. It then examines four contemporary districts – in footwear, motorsport, sparkling wine and cyber security – that are internationally competitive, despite decades of ill-informed policy choices, if not neglect. We then investigate the case of British elite sport as a high-performance industrial cluster with potentially transferrable institutional arrangements, particularly with regard to the nature and role of the strategic lead body and the state as well as relationships within the system. We conclude that Marshall's methodological and theoretical approach to understanding industrial organization – and his belief that industrial districts would co-exist with other forms of industrial organization (rather than be super-ceded by them) – helps to explain the dynamism of contemporary British industrial districts, with important implications for Britain's industrial revitalization.

Key words: Industrial districts/clusters; Industrial strategy/policy; Industrial organization; Competitiveness; UK elite sport

JEL Codes: B21, B52, L10, I50, Z2

1. Introduction

Liberal economics¹ emphasizes individualism and specialization; and struggles with the notion of co-operation. In the context of production, the question of securing co-operation has been subsumed in theories of market exchange and managerial authority, where both the “invisible hand” of the market and the “visible hand” of management co-ordinate and control. An important exception was Alfred Marshall's analysis of the English industrial districts – localized clusters of small enterprises and their suppliers, which were at the heart of British industrial development. Based on first-hand observation, Marshall identified “external economies” derived from the concentration of production in particular localities, where the balance between competition and co-operation was an important determinant of success of both the district and its constituent firms.

During the early 20th century, the increasing size of highly successful American and German enterprises revived the question among economists of how to reconcile increasing

¹ “Liberal economics” is a term for the classical and neo-classical economic theories that emphasize individualism in free markets and laissez-faire policies in which the government's role is limited to the provision of support services.

returns (in production) with perfect competition (in markets). From the perspective of (static) neo-classical theory, the first firm adopting the most efficient scale of production in relation to the size of the market takes the whole of the market and becomes a monopolist. In this context, Marshall's theory of industrial districts sparked a vigorous debate. In Marshall's view, the economy is divided into a corporate sector – composed of large, joint stock companies – and a traditional sector – composed of industrial districts (Jensen, 1990: 409). Based on Adam Smith's conceptualization of the division of labour and its relation to the extent of the market, markets are not assumed to be fixed in size (Young, 1928); so increasing returns in the corporate sector do not necessarily lead to monopoly. Marshall's theory of industrial districts thus purported to resolve the problem of increasing returns and competitive equilibrium through external economies – *external* to the firm but *internal* to the clusters – that enabled member firms to compete effectively, even with much larger, vertically integrated firms.

Perhaps the most influential attack on Marshall's theory came from Piero Sraffa (1926), who dismissed external economies and contended that increasing returns are pervasive in industry and incompatible with competition, suggesting that the solution is the theory of monopoly.² His conclusion – that “in the circumstances, I think it is Marshall's theory that should be discarded” (Robertson, Sraffa and Shove, 1930: 93) – apparently settled the debate; and Marshall's dynamic and evolutionary theory of industrial organization and development was abandoned (O'Brien 1990).³

During the 1920s, as Britain experienced high levels of unemployment and excess capacity, economic theorists, including Sraffa, attempted to explain the micro-economic (firm/industrial organization) effects of low levels of demand. However, their focus was on the supply side. Taking a static equilibrium approach based on a priori reasoning and assuming a given market size, theories of perfect, oligopoly and monopolistic competition maintained that capacity utilization – and hence employment – is determined by the equilibrium level of output, which only in perfectly competitive markets is at full

² This position was strongly challenged by Allyn Young (1928), Joseph Schumpeter (1928) and Normal Silberling (1924). For further elaboration, see Konzelmann and Wilkinson, 2016.

³ Foss (1994) provides an excellent analysis of the process by which Marshall's dynamic and evolutionary theory of industrial organization and development was suppressed and ultimately eliminated from economics during the 1920s and 1930s.

employment.⁴ From this perspective, as in any other market, unemployment is considered voluntary; and the solution is a reduction in the price of labor.

During this same period, Keynesian macro-economic theory was evolving in quite a different direction, contending that the problem of unemployment is *involuntary* and the consequence of an insufficient level of effective demand, with the solution being government spending on public works to compensate for weak private sector spending (Crotty, 1999). However, although economists have long lamented the absence of “micro-economic” foundations for macro-economic theory, the inconsistency between these conflicting explanations of output and unemployment appears to have gone un-noticed.

As the focus of study in industrial organization shifted away from clusters of firms operating in industrial districts and sectors and towards individual firms competing in particular market structures, the conventional wisdom evolved to contend that the historical tendency in capitalist development is towards large firm dominance, with the progressive reduction of the small firm sector to a residuum. Thus, at the same time as “Keynesian” theory was evolving to inform macro-economic policy, micro-economic theories of monopolistic and oligopolistic competition informed industrial policy – and Britain experienced the decline (if not disappearance) of her industrial districts. From this point on, the role of small firms and localized productive systems was progressively marginalized;⁵ and the idea of geographic location and external economies generated only a “thin trickle” of contributions in relation to forms of firm agglomeration in local and regional productive systems (De Propriis, 2009: 361).

However, interest was revived with their “re-discovery” by Italian scholars during the 1960s and the crisis of “Fordist” mass production during the 1970s and 1980s (Best, 1990; Piore and Sabel, 1984; Pyke, Becattini and Sengenberger, 1990). The success of these modern industrial districts in securing inter-firm co-operation and channeling their joint efforts towards quality upgrading and product and process innovation brought them to the attention of the international research community (Landstrom, 2002). Yet as in Marshall’s time, the success of this form of industrial organization challenged the orthodox view that

⁴ Hart’s (2003) analysis shows how the development of these theories led to the disappearance of Marshall’s methodology and theoretical approach as the “Marshallians” who followed him abandoned his biological analogy and transformed his “representative firm” into an equilibrium firm.

⁵ See, for example, Solo, 1984.

inter-firm co-operation is mainly an attempt to fix prices⁶ and is therefore inefficient; and it questioned the strict dichotomization of “firms” and “markets”.

The research on industrial district forms of organization since the 1960s has produced a plethora of new terms – including, among others, “territorial clusters”, “new industrial spaces”, “local productive systems”, “innovative milieu”, “regional innovation systems” and “learning regions” – and it has been praised by Solo (1985) for its institutionalist methodology. In this context, scholars have accepted Marshall’s ideas about external economies and the dynamic benefits of the districts’ “industrial atmosphere”. But they have tended to add more explicit “social” and contextual features drawn from empirical studies, leading some to suggest that the industrial district debate would benefit from moving away from a model based on stylized accounts of particular national experiences towards a model capable of accommodating a variety of empirically observable forms (Zeitlin, 1992; 2008). Moreover, despite the recent “renaissance” of interest in industrial policy in the aftermath of the 2008 financial crisis (Warwick, 2013: 47), little progress has been made in the policy arena, possibly because, as Solo (1985: 835-6) points out, consideration of the role of the state has been largely neglected. In both of these areas, a return to Marshall’s theory and methodological approach serves as a useful starting point.

In Britain, despite their decline in numbers, parts of some of the old industrial districts – such as British footwear in Northamptonshire – have survived; and new ones – such as Motor Sport Valley in the Home Counties, English sparkling wine in Sussex, Kent and Cornwall and the Malvern Cyber Security Cluster in Worcestershire – have emerged. In many respects, the firms in these districts, like their predecessors, have benefitted from both the economies of large scale (district) production and the agility of being small. They are able to compete effectively with much larger producers; and in the face of fluctuations in demand, their constituent smaller firms are able to adjust capacity, innovate and adapt. By contrast, large firms, when confronted with an unexpected shift or downturn in demand, are often less responsive and forced to eliminate capacity, which is then no longer available when the trade cycle reverses.

This paper traces the co-evolution of industrial organization and the economic theories and policies that have influenced Britain’s industrial development from Marshall’s

⁶ Adam Smith wrote: “People of the same trade seldom meet together, even for merriment and diversion, but the conversation ends in a conspiracy against the public, or in some contrivance to raise prices” (Smith, 1999 [1776]: 232).

pioneering work on the English industrial districts to the present. It then examines the cases of four successful industrial districts – in footwear, motor sport, sparkling wine and cyber security – whose constituent (mostly small) firms are highly competitive internationally, despite decades of policy choices, informed by economic theory, that served the interests of large multi-divisional and trans-national firms whilst undermining some of the key sources of the industrial districts’ competitive capabilities and external economies. We then investigate the case of British elite sport as a form of high-performance industrial cluster, with striking similarities to the Malvern cyber security cluster in terms of having both an independent strategic lead body and intelligent, arms-length state support.

Taking our point of departure from Marshall’s original definition of the industrial district – a geographically localized productive system based on an extended division of labor between small and medium sized firms, specialized in distinct phases of complementary activities within a common industrial sector – we use the term “industrial district” to describe the cases in our study. We recognize that that by their very nature, districts are evolutionary and that they develop, institutionally, to accommodate the shifting requirements of their market segments. We are interested in the kind of environment that is conducive to the emergence and competitive success of the industrial district as well as the threats and obstacles to its development. The fact that new industrial districts are emerging whilst others are re-invigorating themselves and adapting reveals the significant dynamism of this form of industrial organization and the small- and medium-sized businesses within it. We conclude that Marshall’s methodological and theoretical approach to understanding this form of industrial organization – and his belief that industrial districts would co-exist with other forms of industrial organization (rather than be super-ceded by them) – helps to explain the dynamism of contemporary British industrial districts, with important implications for Britain’s industrial revitalization.

2. Marshall’s Theory of Industrial Districts

Between the invisible hand of the market and the visible hand of managerial authority in large firms are organizational forms composed of “small- and medium-sized firms in particular branches of industry, localized in a specific area and participating in a production system characterized by divisions of labor between firms” (Hirst, 1999: 111). The organization of such systems involves a blending of networks of interdependent actors and firms, of hierarchies and markets that evolve over time as the structures of these relationships

are cast and re-cast and as the environments within which they are embedded change.⁷ Alfred Marshall was a pioneer in theorizing these systems, which he identified as *industrial districts* (Marshall, 1920 [1890]: 157).

Welding Adam Smith's notion of the division of labor as the primary vehicle of economic progress to Darwinian evolutionary theory,⁸ Marshall argued that in economic life, the struggle for survival selects the fittest and fitness depends upon two complementary factors: increased differentiation and more sophisticated co-ordination. A finer division of labor – which requires ever improving co-ordination of productive activities – leads to a more efficient use of resources, the development of specialized skills, knowledge and machinery and increased differentiation. Marshall was acutely aware of the systemic nature of production; and central to his understanding of the evolutionary trajectory of capitalism was the interaction between organization and knowledge. In this, the central role of organization is *integration* of the increasing subdivision of production with the increasing division of labor (Marshall, 1920 [1890]: 84).

Marshall drew a clear distinction between relationships within and between firms. Within the firm, relationships are coordinated by the manager-entrepreneur and take the Karl Marx form, in which co-operation permits the realization of increased output per worker. By contrast, outside the firm, relationships are coordinated by the market and take the Adam Smith form, where co-operation in exchange, secured by competition among individuals motivated by self-interest, permits the realization of gains from trade. At both levels, dynamic forces are at work, with increased specialization and improved organization operating both within and between firms, creating opportunities for others recognizing the potential benefits from economies generated beyond their own boundaries. In this process, freedom of enterprise and the rivalry it generates is a vital element, rewarding successful firms and punishing failures.

Marshall identified external economies and an industrial atmosphere resulting from the localization of industry as being important determinants of the competitive success of both the district and its constituent firms. The close proximity of firms provides opportunities for specialization and for the district as a whole – and the firms within it – to secure economies (both static and dynamic) both in production and in technical and organizational innovation, that are beyond the reach of individual firms. Benefits of proximity also include

⁷ See, for example, Groenewegen and van der Steen. 2006; Beijer and Groenewegen, 1992.

⁸ See Marshall, 1920 [1890], Book IV, Ch VIII.

improvements in and specialization of skills; their diffusion creating a supply of appropriately qualified labor; the growth of “subsidiary” trades and services; and expansion of highly specialized machinery based on the combined demand of local firms. Firms concentrate on what they do best and establish an environment that improves the overall competitiveness of the locality.⁹

In his early analysis, Marshall placed limits on firm size associated with growing problems of internal co-ordination, the aging of the founder and failure to find a successor. But these are individual failures and the development of the district is maintained as vigorous newcomers replace the old.¹⁰ In Marshall’s view, industrial districts occupy both a physical and a social space, with its own structure and history; and district effects are long-term, cumulative and dependent upon co-operation in knowledge creation and innovation (Marshall, 1920 [1890]: 156). However, Marshall considered individualistic initiative and free enterprise to be drivers of progress. While collective action may foster individual success, it risks blunting initiative and inhibiting competition. Thus, institutions such as trade associations had a role in coordinating production, enforcing quality standards, redressing power imbalances, ensuring constructive competition and providing other specialized services; but, lacking the profit motive, they are of secondary importance to individual entrepreneurs. For similar reasons, public sector intervention was seen to have a limited role in industrial and technical progress.¹¹

⁹ Contemporary analyses of industrial districts put greater stress than did Marshall on the collectivist and institutional basis for successful co-ordination. See, for example, Amin and Thrift, 1994; Brusco and Sabel, 1981; Brusco, 1982; Piore and Sabel, 1984; Sengenberger, Loveman and Piore, 1990.

¹⁰ Foss (1994) explains the important evolutionary dimensions of Marshall’s theory.

¹¹ This is in contrast to more recent discussions of industrial districts, where collectivity in the form of direct inter-firm relationships, formal and informal institutions and public policy are seen to play a central role in establishing and guaranteeing business and labor standards, fostering innovation and technology diffusion and organizing education and training. This collective framework serves to generate and release widespread enterprise and entrepreneurial talents which are the source of the dynamism of productive systems. There are therefore important differences between Marshall and his modern followers in the boundaries between direct economic relationships and those mediated by the market. For Marshall this boundary by and large coincided with that of the firm, whereas in more recent accounts, direct relationships extend beyond that of the firm, with significant implications for our understanding of the nature of industrial organization, the positioning of the firm within it and how these factors influence economic performance.

3. The Evolution of British Industrial Organization since Marshall

For Marshall, the industrial district's vitality stems from its ability to innovate and respond flexibly to change. Although he recognized that districts could decline as easily as they could prosper, he expressed confidence in the resilience of this form of industrial organization and its dynamism (Marshall, 1920 [1919]: 190-91). Nevertheless, during the 1920s Britain suffered de-industrialization and the decline of its industrial districts. Whilst Marshall's students of the "Old Cambridge School"¹² studied this phenomenon, his view was shifting towards seeing large size as the next stage in industrial evolution. Increasing industrial concentration in Germany and the USA led Marshall to place less emphasis on both limits to firm size and the importance of external economies (Marshall, 1920 [1919]: 115).

What economists and policy-makers ultimately took from Marshall's theorizing on industrial organization informed economic theories of firms and markets, which provided an under-pinning for explanations – and justification – of large-scale capitalism, which was vigorously pursued from the inter-war period onward.

3.1 From Industrial Districts to Large-Scale Production

But why did the British districts decline so rapidly? Based on their reading of the work of Marshall and his students, Belussi and Caldari (2009) suggest that this was due to the cumulative impact of the gradual acquisition of knowledge, skills and competitive capabilities, along with superior innovation and technological development by competitors and the conservative attitude of British entrepreneurs. Thus, it was not so much the superior performance and efficiency of administrative co-ordination in large firms as "exhaustion of the original conditions and the ill-conceived Victorian heredity of believing themselves technologically superior to any international competitor" (ibid.: 354). This ultimately prevented local entrepreneurs from recognizing and responding effectively to radical changes in international competitive conditions.

However, as discussed below, there is also substantial evidence that the decline of the British industrial districts was hastened by banking concentration, which starved them of

¹² Becattini (1990) distinguishes two Cambridge Schools of Economics. The first is the one surrounding JM Keynes and his followers, including, among others, Richard Kahn, Joan Robinson, Gerald Shove, Nicholas Kaldor, Austin Robinson and Piero Sraffa. The second – 'the 'Old Cambridge School' – surrounds Alfred Marshall and his students who studied and developed research fields within industrial economics. These included, among others, SC Pigou, DH Robertson, Arthur Bowley, Sydney Chapman, DH MacGregor, Charles Sanger, CR Fay and Philip Sargent Florence.

finance, as well as by policy choices – informed by economic theory – favoring industrial concentration and *inter-firm* competition.

3.1.1 Industrial Finance

During the 19th century, the market power of British banks was widely dispersed; and the system was mainly comprised of small local banks whose fortunes were closely tied to the communities they served. Few had branch networks. The main source of funds was local deposits and most lending took the form of short-term credit and medium- and long-term loans to local businesses (Cottrell, 1979; Collins and Baker, 2003). However, following the banking crises of 1866, 1878 and 1890, there was a shift away from private sector financing towards larger holdings of government securities (Goodhart, 1972: 167-01; Collins and Baker, 2003: 105; Checkland, 1975: 469-81). The banking system was consolidated with the five largest banks (London and Midland, Barclays, Lloyds, Westminster and National Provincial) accounting for approximately 80 percent of English deposits by 1920, each with a head office in London and a national branch system (Carnevali, 2005: 15).

Incentives driving this process included standardization of operations, diffusion of credit risks and transferring surpluses through branch networks whilst institutional regulations created incentives for provincial banks to move their headquarters to London, typically by acquiring a London-based bank. However, branch managers had little discretion with regard to the terms of lending to local businesses; and the administration of small loans was expensive because of the difficulty of assessing the lending risks. The near absence of local and regional banks also meant that there were no financial institutions aligned with the interests of smaller, regional firms. The disappearance of bank funding forced businesses to turn to the stock market – ultimately making them vulnerable to hostile action, in the event of share prices failing to meet share-holders' expectations.

3.1.2 Rationalization of the Industrial Structure

The economic difficulties of the 1920s and 1930s led many to question both the market's ability to deliver growth and whether the economy might be better managed at a macro-economic level with Keynesian tools and at a micro-level by "rationalizing" the industrial structure. The 1929 Report of the Balfour Committee concluded that industry should be re-organized along the lines of large American and German businesses; and following the merger wave of the 1920s, industrial output became increasingly concentrated. In 1948, under the Marshall Plan, the Anglo-American Productivity Council was set up to

exchange knowledge of industrial organization and methods, with the aim of assisting British industry in raising productivity levels; and between 1948 and 1952, teams of supervisory, technical, and workshop personnel went to America to study production methods and make recommendations – all of which stressed the need to emulate American techniques (Hannah, 1983: 140-2).

Thus, following the Second World War, there was acceptance of a role for the state in managing the economy; and governments of all persuasions prioritized *re*-industrialization, promoting concentration through mergers and acquisitions as a means of raising efficiency (Meeks, 1977). Fueled by strong war-time demand and post-war reconstruction, large mass production firms reaped the benefits of internal economies of scale, giving the appearance of improved productivity. Nationalization was also a key feature of postwar industrial policy, with the initial targets being utilities (coal, electricity, gas and railways), with manufacturing firms being nationalized much later.¹³

However, instead of developing new industries and technologies, due to well-connected special interest groups, British industrial policy tended to take the form of shoring-up ailing industries.¹⁴ Whilst British management and governments were dominated by a belief in the advantages of large firms and the efficiency gains of internal economies of scale, the conglomerates put together by nationalizations, mergers and acquisitions were larger than the most efficient size and often composed of groupings of inefficient plants (Prais, 1976) which were either state-owned or owned by widely-dispersed share-holders – that would eventually make them vulnerable to further “restructuring” via the stock market. Manufacturing capability was severely weakened, but rather than evolving a strategy for addressing the problem, the view was that the economy was progressing to a “post-industrial” service-based stage of capitalism (Gibson, 1993; Dunham-Jones, 2000).

3.1.3 Competition Policy and the Dismantling of the Industrial Districts’ Institutional Infrastructure

The revival of competition policy during the 1950s – in an economy full of anti-competitive practices inherited from the Great Depression and the War – worked to the advantage of large, multi-divisionals and the disadvantage of small firms in industrial

¹³ British Steel was created in 1967, bringing together the 14 largest British steelmakers under public ownership and to create large integrated steelworks; and during the 1970s, nationalization was extended to shipbuilding, aerospace and motor vehicles (Rolls-Royce and British Leyland), resulting in further concentration.

¹⁴ See, for example, BIS, 2010; Wren, 1996; Silbertson, 1981; Vickers and Yarrow, 1988.

districts. The 1956 Restrictive Trade Practices Act, for example, was the first of a series aimed at increasing competition as a means of promoting investment and rationalization in industry, with the aim of boosting productivity, economic growth and employment. However, it dealt a serious blow to the industrial districts by making many of their informal co-operative agreements either illegal or subject to scrutiny. Important among these were resale price maintenance agreements which had prevented sellers from competing too fiercely on the basis of price but were now specifically prohibited. The Act also required the registration of all collective agreements and set-up the Restrictive Trade Practices Court to investigate them – and judge whether they were anti-competitive. But no such strictures applied to large multi-divisional firms.

The Act also undermined the industrial districts' institutional infrastructure by curtailing the activity of trade associations, which not only provided valuable services for their members, such as joint marketing and dissemination of technical knowledge, but also played a role in pricing agreements which were now considered anti-competitive. Meanwhile, the 1962 Robbins Report, which recommended that all Colleges of Advanced Technology be converted into "polytechnics" undermined the training infrastructure of the industrial districts.

3.1.4 The Stock Market as Industrial Re-organizer

From the 1960s onward, with growing confidence in financial markets, the stock market came to be viewed as a mechanism for restructuring industry.¹⁵ This was based on the "efficient markets hypothesis", that a firm's share price is an accurate reflection of the value of the underlying productive enterprise. Using this logic, the stock market was theorized to be an efficient "market for corporate control" and the "discipline mechanism" by which under-performing management teams could be replaced by more effective ones when share price fell (Schleiffer and Vishny, 1997). Restructuring through hostile take-over was therefore viewed as performance-enhancing (Fama, 1970).

However, the leverage used to finance these take-overs meant that targets needed to be asset rich, the selling of which would more than repay the debt (Lazonick and O'Sullivan, 2000). Thus, investors targeted companies whose assets were under-valued by the stock market, creating enormous profits and a stock market bubble – interpreted as evidence of

¹⁵ British industry was particularly vulnerable, since it had historically been reliant on the stock market, instead of banks, for financing that could not be generated internally.

improved industrial performance. The reality, however, was that it dismantled vast segments of British industry, setting-off a process of de-industrialization.

3.2 The “Stagflationary” 1970s, De-industrialization and the Crisis of “Fordism”

The UK’s entry into the European Economic Community in 1973 abruptly exposed British industry to further competitive pressures. Many workers lost their jobs; and the resulting industrial unrest was met with fierce government opposition, exacerbating the problem and further weakening manufacturing capability. At the same time, progressive relaxation of exchange rate controls and the growing importance of multi-national firms drove globalization, as firms relocated production abroad to escape higher labor and social welfare costs. This accelerated de-industrialization and significantly weakened the ability of the government to influence macro-economic outcomes.

During the 1970s, the effects of simultaneously rising unemployment and increasing inflation – “stagflation” – were exacerbated by rapidly rising state expenditure to meet the growing costs of mass redundancies. Ultimately, stagflation, de-industrialization and import penetration put a halt to mergers and acquisitions and led to a process of vertical *dis*-integration and a crisis of “Fordist” mass production.¹⁶

During the 1980s, as attention turned to the small firm sector, policies were aimed at promoting small business growth – of *individual* firms as a generic category – rather than upgrading the performance of local or sectoral networks of firms (Zeitlin, 1995). This was supported by the idea that the emphasis should be on the competitiveness of individual firms rather than the districts or sector of which they formed a part. The survival of old industrial districts (like footwear) and the success of newer ones (like motorsport, sparkling wine and cyber security) is therefore of empirical and theoretical significance since they have succeeded – in spite of the conventional wisdom and policy.

4. Co-operation and the “New Competition”: Re-discovery of the Industrial District Model

During the 1970s and 1980s, the emergence of more co-operative forms of industrial organization – labelled the “new competition” (Best, 1990) – originated with Italian, Japanese and German producers who had evolved more co-operative relationships with both their workforce and suppliers than was usual in the large-firm dominated Anglo-American

¹⁶ See, for example, Best, 1990; Harrison, 1994; Herrigal and Zeitlin 2009; Hirst and Zeitlin, 1991; Piore and Sabel, 1984; Storper, 1997.

system. Greater motivation to co-operate resulted in better operational and dynamic efficiency based on improved productivity; better quality control; and more effective use of both equipment and materials as well as the skills and knowledge of workers and suppliers in the improvement of products, processes and the organization of production (Howes, 1991).

In Italy, this took the form of the re-activation of the “Marshallian” industrial district in the “Third Italy”, the study of which was pioneered by Giacomo Becattini and Sebastiano Brusco during the 1960s and 1970s. However, it was not until the failings of Fordism became increasingly obvious, during the 1980s and 1990s, that the wider international research and policy community took notice (Landstrom, 2002). This can be partly explained by the fact that the early research findings were mainly published in Italian; so their dissemination outside of Italy was limited.

Contemporary studies of industrial districts identify them as local agglomerations of small firms engaged in the production of particular products or services, in close association with their suppliers. Strong links with local knowledge centers – such as universities, public research institutes and training institutions – facilitate the development of both a regional capacity for collective learning, technological, scientific and managerial development and an adequate source of appropriately skilled labor (Keeble and Wilkinson, 2000). Inter-firm relationships are typified by a mixture of competition and co-operation, where member firms are specialized but closely linked by subcontracting and the mutual benefits derived from co-operation. This often takes the form of technical, design and other linkages between firms at different stages of vertical subcontracting chains, but can also involve firms supplying similar products. Such “horizontal” co-operation involves common provision of services and advice – such as accountancy, finance and legal; technical and design; marketing and export – and the sub-contracting to potential competitors of orders in excess of their own productive capacity. Repeated interaction among specialists fosters innovation (Amin and Cohendet, 2004; Doring and Schnellerbach, 2006); and by contrast to the “Chandlerian” model, in which the distribution and coordination of resources is governed by hierarchy, within industrial districts, “heterarchical” governance structures involving inter-firm and organizational networking and relational contracting foster a balance between competition and co-operation and a sharing of collective resources (Herrigal and Zeitlin, 2009; Keeble and Wilkinson, 2000).

Nevertheless, district firms remain highly competitive in their product markets; and the balance between competition and co-operation in industrial districts is crucial to their viability. Co-operative aspects of inter-firm relationships help to minimize disadvantages of

small size, while competitive aspects, along with specialization, impart the dynamism and flexibility that are often lacking in large, vertically-integrated firms.

In recent years, efforts have been made to explain the formation, life cycle and “resilience” of industrial districts. However, their trajectories over time are unpredictable due to the complex feedbacks and interactions between micro-level actors and the macro-structures within which these take place.¹⁷ While most researchers take a “linear” life cycle approach¹⁸, Martin and Sunley (2011) propose an *adaptive* life cycle model, in which development is evolutionary and contingent on district-specific dynamics. In this context, empirical studies show that whilst some clusters develop organically, in others, the support and intervention of “facilitators” can play an important role in building a platform for trust and “co-opetition”¹⁹ and promoting a flow of information, ideas and resources (Gagne et al, 2010; Ingstrup and Damgaard, 2013; Mesquita, 2007). Thus, the presence of a facilitator, by coordinating and promoting the process of district development, has the potential to contribute to its resilience. As discussed below, especially in the cases of cyber security and elite sport, the role played by such a strategic lead body is enhanced by its ability to maintain a degree of independence from both business and the state so as to avoid “capture” by any special interests involved.

We now examine four contemporary districts – in footwear, motorsport, sparkling wine and cyber security – before investigating the case of British elite sport as a high-performance industrial cluster.

5. Contemporary British Industrial Districts: Northamptonshire Footwear, Motor Sport Valley, English Sparkling Wine and Malvern Cyber Security

The industrial districts in our study differ from those of Marshall’s time, which were producing products that could compete with mass produced alternatives. Ours are producing much smaller volumes of high value, price-insensitive products and services, not usually intended for the mass market, but internationally competitive nonetheless. But similar to Marshall’s industrial districts, co-operative aspects of inter-firm relationships help to minimize disadvantages of small size whilst competitive aspects, along with specialization, impart the dynamism and flexibility that are often lacking in large, vertically integrated firms.

¹⁷ See, for example, Martin and Sunley, 2011; Groenewegen and Beije, 1992.

¹⁸ See, for example, Brenner, 2004; Menzel and Fornahl, 2010; Ter Wal and Boschma, 2011.

¹⁹ See, for example, Brandenberger and Nalebuff, 1997; Dorn, Schweiger and Alters, 2016; Bengtsson, and Raza-Ullah, 2016.

Our four industrial districts represent very different industry sectors: a (mostly) traditional craft industry; high tech design and manufacturing; an emerging agriculturally-based sector, and information technology (IT). Three are included in the government's industrial strategies (BEIS, 2016), the exception being Northamptonshire footwear. They are also at different phases of evolution; English Sparkling Wine and cyber security have only really been a force in the market since the turn of the millennium; Motor Sport Valley originated after the Second World War, whilst shoe making has been a Northamptonshire industry for at least 900 years.

In *Footwear*, although lower cost overseas producers have come to dominate the mass market segments, high quality shoes (especially for men), made in the traditional, labor-intensive fashion, remains a strong Northamptonshire industry, with innovative market segments being developed and new companies emerging. Nicholas Cooper, for example, founded Stamp Shoes in 2011, and recently introduced “No Place Like Home” handmade shoes – with built-in GPS. According to the British Footwear Association (2016), the industry employs around 5,000 people producing approximately 5 million pairs of shoes each year (of which over 60 percent are exported), with an annual turnover of £2.3 billion.

Motor Sport Valley emerged just after the Second World War, evolving to produce a highly technical skill set, with the ability to design, develop and deliver advanced products to very short time-scales. As with luxury shoes, the cost of motorsport products and services is very much a secondary factor – the pressure of competition demanding constant innovation – but unlike Footwear, which is a much smaller district than in Marshall's time, motor sport businesses are opening up new markets in defense, the marine industry, aerospace and health technology. The largest of our districts, Motor Sport Valley is home to over 4,500 businesses, (of which around 90 percent are exporters), employing around 40,000 people (including some 25,000 engineers), with a combined annual turnover of around £9 billion. (Motorsport Industry Association, 2013; Nathan, 2015).

Although *English Sparkling Wines* made their presence known less than a decade ago, largely as a consequence of climate change and the ability to ripen classic champagne grape varieties, they currently account for an ever-increasing number of international awards. There is some question regarding the footprint of the English sparkling wine “district”, with the best known estates clustered in Sussex and Kent, where local networks of grape and wine producers operate. As the sector develops, local groups of associated businesses may coalesce around initially isolated producers, creating more regionally defined districts. Thus, although the term “English sparkling wine” currently applies to wine produced anywhere in

England or Wales, this might eventually need to be re-defined. This is a fast growing sector. The land devoted to viticulture doubled during the past decade (to over 2,000 hectares) and is expected to increase a further 50 percent by 2020. Annual production exceeds 5 million bottles, up from 3 million just four years previously, with sparkling wines accounting for 66 percent of all production and sales reaching £100 million in 2015. Exports are expected to increase from 5 percent of current production to 25 percent by 2020 (English Wine Producers, 2016).

The *Malvern Cyber Security Cluster* is also young and fast-growing. It acquired a “facilitator” or “strategic enabler” – Key IQ Limited – very early on as well as state interest, due to the critical importance of cyber security; and it is the best example of “co-opetition” in our study. Key IQ is itself a business – set up in 2010 to help people leaving the now privatized company, Qinetiq, to develop their own businesses by offering consultancy and facility management, including the Wyche Innovation Centre. The cluster was formally established in 2011 and a year later hosted the inaugural “Festival of Innovation” to attract entrepreneurs, educators, students, young people and the general public. The Malvern cluster is composed of over 80 small companies, which have achieved a 71 percent increase in employment, 48 percent increase in turnover and 58 percent increase in gross value added since 2011 (Tech City and NESTA, 2016).

5.1 Industry Origins and the Value Associated with “Place”

The presence of key resources explains each of our districts original location; yet long after footwear and motorsport had outgrown these, the brand value associated with “place” remains a significant business asset. The footwear industry emerged in Northamptonshire due to the presence of one of the largest cattle markets in the country and a plentiful supply of oak bark and water to assist in tanning. In the 21st century, a Northamptonshire location is a mark of quality tradition and bespoke service, especially in overseas markets.

In the case of motorsport, prior to the Second World War, British involvement was hampered by a chronic lack of circuits for Grand Prix motor racing. But after the war, when land was returned to private ownership, it included large numbers of ex-military airfields – many in the Midlands and Eastern regions of the country, now known as Motor Sport Valley. As these were converted into circuits, engineers were attracted by the opportunities provided. The Silverstone Circuit, which began life in 1943 as an RAF training airfield, was first used for motor racing in 1947 and is now home to motor sport businesses and a University Technical College, with a number of Formula One teams based close by. Motor Sport Valley

is no longer restricted to the UK; many companies such as Ilmor, Cosworth and Judd, also have a strong presence in the USA, one of the largest motorsport markets in the world.

English sparkling wine is inseparably connected to its location. Whilst appropriate soil conditions for growing grapes were present in the south of England, until a degree of climate change from the 1980s onwards permitted the successful ripening of classic Champagne varietals, were winemakers able to produce a very high quality product. Although the industry has not yet been able to turn its origins into significant “place” value, this is likely to change as producers accumulate global awards – frequently beating established Champagnes. If the wines continue to improve, English sparkling wine or perhaps a collective brand will eventually add value in the way that “made in Northamptonshire” adds value to a pair of men's shoes.

The Malvern Cyber Security Cluster owes its location to the presence of the Defence Evaluation and Research Agency (DERA) and its subsequently privatized commercial arm, Qinetiq. Being beyond the range of hostile bombers during the Second World War explains the cluster's original location in Malvern; but with the cessation of hostilities, the number of scientists and technicians in Malvern continued to grow. Since the establishment of Key IQ in 2010, the cyber security cluster in Malvern has benefitted from strategic leadership, which now extends beyond Malvern as a consequence of demand from cyber security businesses across the country. In 2014, Key IQ set up the UK Cyber Security Forum, a UK government and industry-led partnership that aims to develop the sector's skills and infrastructure and includes an online communication and collaboration platform, “CyberCollaborate”.

5.2 High Value-Added, Price-Insensitive Products

All four districts focus on developing the best possible product – essential for survival in a relatively small, high value-added sector – with very little, if any, competition based on price.

Motor Sport Valley businesses remain competitive by continually innovating in the design and production of high quality components using a highly technical manufacturing system that is also very flexible and capable of reliably delivering products against a very tight schedule, with around 30 percent of profits being invested in research and development. During the Formula One season, teams will use hundreds of different components, but few of any one type; and by the following season almost all will be obsolete. Although the cost of each component – as well as the finished product – is typically very high, performance is more important than price.

The Malvern Cyber Security Cluster also specializes in partly or fully bespoke services and products. As in motorsport, last year's product is rarely good enough, as hackers continue to up their game, creating constant pressure on cyber security providers to innovate and stay ahead. Given the impact of a systems breach – in terms of financial cost, loss of intellectual property and damage to the business's reputation – cyber security is an area where cutting corners is increasingly risky, placing the emphasis firmly on quality over price.

With handmade shoes, the emphasis is also on producing a high quality product, but with a very different value proposition and production process. Both are about the investment of time and care that traditional skills demand, which is an essential part of their value. Whilst mass produced alternatives are available, customers appreciate the “human” investment involved.

With English sparkling wine, as Nicholas Coates, co-founder of Coates and Seely observed, “to us, it is not a numbers game; it's not how big we can be, it is how good our wine is” (quoted in Stodell, 2016: 48). The more lucrative revenue stream from higher value products has also attracted farmers into the industry, many of whom have experienced sustained downward pressure on their prices from supermarkets and other outlets for produce; some have set up wineries whilst others grow grapes to supply to other wineries or rely on neighboring estates to produce wine for them.

5.3 Ownership Structures and Ease of Market Entry

Although all four districts support a wide range of ownership structures, widely-dispersed shareholding is noticeably rare.

Motorsport was not always a highly skilled and capital-intensive business; neither large car manufacturers nor glamorous Grand Prix teams drove the development of British motorsport. Rather, it was small engineering companies in the lower cost formulae that gave rise to a rich pool of talent. Many businesses are share-holder owned, usually by a small group of investors with close connections to the sport, rather than distant investors whose primary interest is in short-term financial returns. This allows established businesses to continue, following the retirement of their original owners; and it facilitates the raising of capital to fund what is becoming an increasingly expensive development process. It is also a key means of entry for “new” teams, obviating the need to start from scratch, whilst keeping existing groups of engineers and designers together, along with their skills, networks and relationships. For example, the team now based at Enstone in Oxfordshire has, since 1981, competed as Toleman, Benetton, Renault, Team Lotus and presently Renault again; for this

reason it is known as the “Enstone Team”. Others have taken a different route. Williams Grand Prix Holdings floated on the Frankfurt stock exchange in 2011, selling a minority interest but retaining over 70 percent of the existing shares – thereby raising the required funds without losing control of the company. The choice of Frankfurt is also significant; in London, the International Accounting Standards Board’s International Financial Reporting Standards 8 requires disclosure of the value of any contracts amounting to 10 percent or more of turnover, whilst the Generally Accepted Accounting Practice in force at Frankfurt does not. In a highly competitive environment, such confidentiality is a clear advantage. The ownership of the McLaren Group is also closely held. As of 2014, 25 percent was owned by its Chairman, Ron Dennis, with the remainder split between his business partner, Mansour Ojje (25 percent) and the Bahraini investment company, Mumtalakat (50 percent); both Dennis and Ojje have had a long involvement in motorsport, providing the group with both a narrow range of share-holders and a significant understanding of the businesses.

Shoe-making is something of an artisan industry, with relatively low barriers to market entry. Many started out family-owned businesses, owned either wholly or by a small group of controlling share-holders, with most continuing in this way. Others are now owned by large fashion and footwear companies; Church’s, for example is owned by Prada, but continues to operate largely autonomously. This tendency to respect an acquisition’s independence is due to the importance of authenticity in limited quantity luxury products.

Ownership of English vineyards and wineries encompasses a range of structures. Many are family-owned, having been established on existing farms (such as Camel Valley), with others (like Ridgeview) being funded by the sale of the founder’s previous businesses. Forty Hall is run as a charitable foundation in co-operation with the local authority; and Chapel Down is partly crowd-funded. Again, few, if any, are funded through widely-dispersed shareholder ownership. This is partly because it takes about five years to bring a vineyard into production – so investors have to have a long-term view. For many producers, the main investment is in the land itself, which many farmers already own, with suitable buildings available for a winery; in this case, the planting of vines and the winery are usually the most significant expenses. As the sector develops, some wineries will eventually change hands – and the nature of ownership may also evolve – but it is unlikely that ownership structures will converge.

In the Malvern cyber security cluster, most are small and micro businesses, set up by highly qualified individuals, who have little or no experience of running a business. As a result, the presence of Key IQ, providing both business services and networking opportunities

facilitated the emergence and development of the cluster. A constant stream of new, innovative businesses is vital to the cluster's future, since creativity is essential to stay ahead of cyber criminals. A single, generic security product would make online systems collectively vulnerable, mitigating against the emergence of large, dominant players within the industry.

5.4 Co-operation and Competition – “Co-opetition” – and the Role of Industry Bodies and Collective Institutions

In all four districts, effective co-operation forms the basis for creative and constructive competition, taking the form of working together – often in collaboration with the sector's industry body – to provide and upgrade such collective resources as training, marketing, research and development and export-related services as well as to encourage and facilitate innovation.

5.4.1. Co-opetition

Co-operation played a key role in the development of Motor Sport Valley. The Cosworth DFV Formula One engine, for example, originally designed for Colin Chapman's Team Lotus, was put into series production by Ford Motor Company during the 1970s and 1980s, and was made available for purchase by any private team entering the sport. This helped many new teams enter the market and provided work for many other specialist suppliers.

In Malvern, co-operation is relatively informal since, by its nature, cyber security tends to involve secretive organizations, which, until the advent of Key IQ, rarely encountered each other. Subsequently, the highly specialized nature of these businesses meant that there was advantage to be found in working together on certain types of project; whilst on other projects, the same businesses might find themselves in competition. This is the embodiment of “co-opetition” – much of it being facilitated by Key IQ.

Co-operation in both footwear and sparkling wine is more complex. In footwear, where production levels are relatively low and demand is increasing, there is little pressure to directly compete; some customers form a long-term relationship with a favored firm, whilst others might buy from several. In this context, under-supply is an important component of strategy – as it is in true luxury categories – where maintaining margins and promoting both co-operation and constructive competition underpins the ability to compete effectively whilst at the same time responding to customers' requirements.

Under-supply is also a feature of English sparkling wine, since even the largest English wine producers are relatively small. In this context, co-operation with larger businesses plays

an important role, with Waitrose – the John Lewis Partnership’s grocery division – offering significant publicity and another channel to market as well as being a producer itself. Co-operation takes other forms within the sector: Some wineries make wine for other estates, whilst some farms supply grapes to larger producers. Instead of investing in their own bottling line, groups of estates sometimes opt for a mobile bottling plant that visits each estate in turn. All of these strategies can reduce the initial cost of market entry – crucial when the average vineyard is less than 5 hectares. But the Managing Directors of both a large family wine producer and a winery run as a charitable foundation believe that co-operation could go further in promoting the competitiveness of the sector. Both expressed the opinion that producers would benefit from seeing themselves in competition with the rest of the world instead of each other, thereby encouraging co-operation in such areas as the bulk buying of supplies required by all to help reduce needless costs.

5.4.2. The role of Industry and Strategic Lead Bodies

In facilitation co-opetition, an active industry body can be instrumental in the construction (or re-construction) and maintenance of the institutional infrastructure for collective resources, such as training, facilitation of innovation, enforcement of quality standards and provision of specialized services and advice. It can promote the interests of the sector in terms of marketing and represent the industry politically. Since these bodies are largely sustained by businesses in the sector itself, they must be considered to be doing the right things, and doing them sufficiently well to justify the effort and cost.

The British Footwear Association (BFA) is influential and actively involved in marketing bespoke English shoes abroad, often reinforced by association with other British products. When James Bond puts his foot down in his Aston Martin, for example, that foot will usually have a Northamptonshire boot on it. The BFI also organizes and accredits both formal college-based training programs and learning through apprenticeships; and it provides technological input, contributing to major developments in both manufacturing and design processes.

The Motorsport Industry Association (MIA) also actively represents the interests of the sector, brokering partnerships, and supporting the provision and accreditation of professional qualifications. Like bespoke footwear, motorsport is a very skills-intensive sector, relying on a steady supply of highly qualified recruits. For this reason, the MIA set up the first degree-level course in Motorsport Engineering and Design in partnership with Swansea Institute; and the MIA has both a Motorsport Education Forum and a Motorsport Employers Group, to

ensure that training remains up-to-date. But Motor Sport Valley is not solely reliant on local talent: its international reputation draws in talent from around the world. The MIA also works with UK Trade and Investment (UKTI) to promote exports and entry into new markets.

As English sparkling wine is at an early stage of development, its industry body, the UK Vineyard Association (UKVA), is less well-developed than its counterparts in footwear and motorsport. Whilst the UKVA looks after technical matters and represents the industry's interests to government, marketing is provided by English Wine Producers (EWP), originally set-up by a few leading producers to promote their wines to the trade, media and consumers in the UK and abroad. EWP is now a complementary industry body to the UKVA. It remains to be seen how the industry structure will develop; it may remain fragmented, adopt a strategy similar to industries elsewhere or develop something uniquely its own. Early on, the industry realized that its development depended on improved educational resources.

Plumpton College – now a state-of-the-art facility providing courses in viticulture – was until recently, by its own admission based in “a few old chicken sheds”. Much of the funding for the transformation came from the industry – from wineries and the educational sector itself.

The Malvern Cyber Security Cluster is unusual in that it does not have a conventional industry body, but is instead facilitated by a private company, Key IQ, which also formalized the cluster. The Malvern Cyber Security Cluster consists of many very small businesses; and Key IQ set up the Wyche Innovation Centre to help many of them to take their first steps. Serviced office and laboratory space is part of the package, but equally critical are the contacts with other local businesses and the availability of consultancy. These enable a focus on the core idea of the business – essential in a small start-up – whilst helping it to be outward-facing. The relationships that Key IQ facilitates include potential finance partners as well as direct assistance of various kinds, with remuneration by fee or equity/profit sharing. Although the cluster attracts many highly skilled and qualified people, needing less of focus on industry specific education than in the other districts, it actively searches for new talent, visiting schools – to promote both good practice on the internet and careers in cyber security – and providing puzzles, so that anyone can test their aptitude, regardless of age.

5.5 Evolution and Development

Development in three of the four districts has been a primarily bottom-up process, driven by a continuous inflow of new market entrants; only the Malvern Cluster has had significant strategic leadership from an early stage. Thus, whilst involving organizations of a variety of sizes and types, it is the innovative dynamism of the smaller, newer and more agile

members that supports the longer-term health of all four. Some companies will fail and others will merge, but a steady stream of replacements provides incentives for innovation, maintains the critical mass for retaining key collective resources and upholds the value of the location, in turn, reinforcing the district and its ability to evolve.

Both the footwear and English wine sectors have benefitted from new internet technology, especially in terms of online marketing and sales. Not only does this provide a closer relationship with existing customers and access to new customers; it also reduces the cost of sales for more frequent short-runs of seasonal styles, encouraging customers to return regularly.

The pressure to innovate has resulted in many motor sport companies opening up new markets in other high-tech industries, necessitating changes in company names. In 2015, for example, McLaren Group was renamed McLaren Technology Group, to reflect diversification into healthcare, oil, gas and financial services. McLaren have, like BAE Systems, also partnered with UK Sport to produce training equipment. Of the four districts, Motor Sport Valley has evolved furthest from its original roots – and it could be said that it is developed a set of capabilities rather than a range of products.

The evolution and development of the Malvern Cyber Security cluster is unusual, having had a coordinating body to provide leadership and facilitation from a very early stage in its development. Aside from the benefits this brings, the importance of cyber security to both commercial and national interests has brought with it significant government interest, with proximity to the UK Government's Communication Headquarters in Cheltenham and its Special Forces training areas has resulted in local businesses being awarded both government contracts and funding.

5.6 Summary

Two factors governing the appearance and development of modern industrial districts stand out as fundamental. The first is the nature of the district's main product or service. Whether the priority is luxury, winning or staying secure, its price-insensitive nature provides the margins required to fund innovation, education and ever-better – rather than cheaper – products. Whereas price/cost competition typically leads to fewer producers, since there can only be one price leadership position in a market, innovation is sacrificed; downward pressure on wages and margins undermines local living standards; and large size stifles new market entry, which is a key source of dynamism in a successful industrial district.

The second key factor is the importance of place. With the exception of English Sparkling Wine, all of the products and services produced in our districts could, at least in theory, be produced anywhere in the world. Whilst some, like Motor Sport Valley and Northamptonshire footwear, have out-grown the initial resources that gave rise to them, the relationships and reputation that have developed since are not easy to replicate, serving to reinforce the value of both the location and the businesses located there. These relationships bring both the incentive to innovate and compete – as well as to co-operate in exploiting opportunities that would not be open to individual small businesses; they also allow the collective funding of resources that members all require. As discussed above, these resources, as well as the way they are delivered, may vary; but they bear a close resemblance to Marshall’s “industrial atmosphere”.

We now turn to the case of UK elite sport, which in many respects represents both a high performance industry sector and a significant British industrial policy success story.

6. Building International Competitiveness: Could British Government and Industry Learn from the Olympic Policy Model?²⁰

The British Olympic Team’s performance at Atlanta 1996 – finishing 36th with only one gold medal – was the catalyst for a new vision for the future of UK elite sport and a strategy for achieving it. When John Major – a life-long cricket supporter who understood the political significance of sport – succeeded Margaret Thatcher as prime minister in 1991, a decade of political indifference to sport ended. Major’s backing proved instrumental in the strategic changes underpinning elite sport’s competitive turn-around (Houlihan and Lindsey, 2013, p. 40). Political support was crucial, since both the institutional and legal framework supporting elite sport development required reform. Another problem was finding a predictable, competitive source of funding, both in absolute terms and by comparison to other countries, since the UK was in recession and the government’s reputation for fiscal prudence had been damaged by Sterling’s exit from the European Exchange Rate Mechanism in 1992. However, the new National Lottery, set up in 1993, provided a viable alternative to exchequer funding, with around 30 percent of the proceeds earmarked for good causes, including sport.

But additional funding was not sufficient to change the game. Leadership, a clearly articulated vision and a strategy for achieving it – along with processes for identifying and

²⁰ This section draws heavily on Konzelmann and Fovargue-Davies, 2016.

developing talent – also needed to be developed. Since the difficulties afflicting elite sport were no secret, an interested government could engage with existing institutions to facilitate the most pressing changes quickly. This made it easier to create the system and to develop it further as required.

Funding was thus the second of only four – albeit highly significant – changes in the government’s relationship with elite sport. The third was the primary institutional change, also initiated by the Major government: In July 1994, it proposed the separation of mass participation from elite sport and replaced the Sports Council of Great Britain – which had previously had responsibility for both elite and mass participation sport in England – with the England Home Country Sports Council (Sport England) and a new arms-length body, the United Kingdom Sports Council (UK Sport), which was assigned responsibility for elite sport only, with much closer links to the British Olympic Association. In January 1997, UK Sport became fully operational; and was granted a license to distribute Lottery funding to elite sport shortly afterwards.

Crucially, political support for elite sport – with a key message for industrial strategy development – survived subsequent changes of government. Tony Blair’s New Labour brought the fourth key change affecting elite sport development. No longer was Lottery funding limited to facilities, it could now be allocated to teams, athletes and support staff, so athletes no longer had to juggle employment with training and competition; and coaches and other specialists could be funded. This fundamentally changed the way the system worked: Instead of government dictating what teams spent money on, they were free to spend it on what was *actually* required and *when*. Discipline came with the hard-nosed rule that funding was contingent on competitive success – or the demonstrable likelihood of it – within set timescales as well as strict governance procedures for funding recipients to account for their use of public investment.

6.1 The British Olympic Team’s Competitive Turnaround

Table 1 shows the British Olympic team’s performance since 1996, illustrating both the speed of the competitive turnaround and the sustained improvement ever since. In Rio, Team GB made history by improving its performance following a home games – whilst also winning medals across more sports by more athletes – and the ambition for Tokyo 2020 is further improvement still.

Insert Table 1 about here

6.2 UK Elite Sport Institutions — and Their Relationship with the State

Figure 1 illustrates the structure of the UK elite sport competitiveness development system, showing the limited, but essential role that the state plays in the integrated system.

Insert Figure 1 about here

UK Sport is an executive non-departmental public body of – and accountable to – the Department for Culture, Media and Sport (DCMS). It sits between the DCMS and other sporting institutions and is unusual in many respects; a public institution, it is run at “arm’s length” from government, working in *partnership* with the Home Countries Sports Councils, National Sport Governing bodies (NGBs) and elite teams to *lead* elite sport to world class success. This makes UK Sport an integral part of the system, rather than a top-down instrument of government policy. UK Sport is also led by former sporting world champions, who know what it takes to win medals in international events. This underpins the quality of its relationships with the rest of the system and its ability to put a clear case to government for the needs of elite sport. UK Sport is pragmatic and adaptive; and it has avoided capture by both political and sporting interests. This is critical for an organization that leads a cluster. In many ways, the role played by UK Sport is comparable to that played by the Malvern cluster’s lead body, Key IQ; and it is in sharp contrast to the leadership provided by a traditional industry body, which is subject to the control of – and hence, vulnerable to capture by – its (financially) supporting cluster members.

In the elite sport system, there is collaboration between the NGBs and elite teams; UK Sport serves as the strategic lead body and facilitator, with the NGBs and elite teams having input into the processes required and how they are operationalized. Because recognizing and developing talent within particular disciplines takes place within individual sports, effective information sharing between the NGBs, elite teams and UK Sport is essential. State involvement is thus indirect, horizontal and integrated, involving open and regular communication.

Since most institutions in the elite sport system develop athletes, the result is an “expert driven” system, with access to state resources, rather than the other way round. By allocating these resources to the most successful teams, UK Sport enhances the “market” within which British elite sport operates, ensuring that it is highly competitive with a focus is winning.

There is competition for team places as well as funding, both within sports and between them. But competition is constructive and takes place within a transparent framework designed to maximize the performance of athletes, sports and the team as a whole.

By facilitating information sharing *among* the NGBs, teams can learn from each other, learn from failures and, where possible, turn them into successes. Although development programs within particular disciplines vary, by continually mapping the international sporting landscape, the competitiveness development system is able to evolve to meet changing requirements, exploit opportunities, and address obstacles as they appear. The focus on winning is thus realized via a system producing a steady stream of talent, (rather than a few individuals), resulting in sustainable success.

To ensure that a team's focus is not only on performance but also on the systems and processes that help deliver it, in 2008 UK Sport developed its "Mission" review process. This tracks, assesses and challenges each funded sport, identifying – and finding solutions for – issues before they can impinge upon performance. The effectiveness of all of this is illustrated by the response to a disappointing performance in the pool at the London Games. Along with the inevitable reduction in funding came significant support – including input from other teams as well as performance experts from outside sport – to identify and address areas of weakness. The result was the best performance in the pool since 1908 at the following Rio games.

In short, whilst increased funding and intelligent, arms-length state involvement have certainly helped, these are not the whole story. Equally important are the overall leadership and vision, the institutions making up the system, the way they work together, their relationship with the state, and the nature of the strategic lead body. The constructive nature "co-opetition" is also central to maintaining an enabling competitive environment for elite athletes and teams. These principles – along with longer-term planning and investment horizons – have clear implications for the development of an industrial strategy, and the health of industrial districts.

6.3 Could British Government and Industry Learn from the Olympic Policy Model?

Sport has its own structure, culture, and criteria for success – as do the various disciplines within it. The same is true of business and industry. For this reason, the approach adopted by UK elite sport should be seen for what it is: a strategy designed to develop international competitiveness. The detailed approaches required to win medals in any

particular discipline are usually the focus only of those most directly involved – which would also be the case in a strategy for industry.

Seen from this perspective, the transformation of elite sport reveals transferable insights in terms of vision, leadership, new approaches to state involvement and funding, as well as the allocation of – and accountability for – resources. There are also insights in strategy and planning horizons, as well as processes for identifying opportunities, developing competitiveness, providing support services and managing sectors facing difficulties or decline. We consider the implications for an industrial district of a systems-based, expert driven approach, where the state assumes a “market enhancing” role (Aoki, Kim and Okuno-Fujiwara, 1997).

British elite sport is a high performance industry sector that has not attracted much attention in contemporary industrial policy debates. Unlike three of the four industrial districts analyzed above, it has benefitted from strategic public-private leadership and targeted public investment, demonstrating a highly successful industrial policy model. It also has a surprising amount in common with Marshall’s analysis of the English industrial districts of his time – as well as the factors that have contributed to the success of modern districts. This success is based largely on co-operation in areas that strengthen competitiveness, the quality of relationships, timely and appropriate information sharing, innovation and continuous development.

The Malvern cluster comes closest to the Elite sport system, especially with respect to having arms-length government support and a strategic lead body offering leadership and facilitation. In both, the presence of an institution to facilitate communication and information sharing, provide strategic leadership and vision, and help direct the right resources to the right places at the appropriate time – in order to deliver the desired outcomes – is a significant source of competitive advantage.

Four areas stand out as contributors to the success of UK elite sport: (1) a clearly articulated and shared vision – with a strategy for achieving it; (2) an institutional structure to provide strategic leadership and to identify, support and develop talent – insulated from interference by short-term political (and sporting) interests; (3) an enabling competitive environment with access to a reliable source of finance; and (4) an institutional system that encourages learning, innovation and responsiveness. These – if made available to British industrial districts and sectors – would be likely to facilitate improvement in the UK’s international industrial performance.

7. Conclusions

We conclude by returning to Alfred Marshall, who was keenly aware of the evolutionary nature of productive systems and of the environments within which they are embedded. He viewed competition as “an activity, a process with evolutionary dimensions” (Kerstenetzky, 2010: 576), rather than a market structure; and he was concerned with “competitiveness” – of firms as well as local, regional and national productive systems. Marshall saw the evolution of industrial organization and development as encompassing different routes to industrialization and involving alternative organizational forms – including both large factories and small firms in industrial districts – that are variously inter-twined as they evolve and co-exist over time.²¹

After Marshall’s death in 1924, his methodological approach and evolutionary theory of industrial organization and development were increasingly abandoned as Neo-classical micro-economic theory focused attention on individual firms competing in particular market structures, instead of groupings of firms operating within localized productive systems and industrial sectors; and static equilibrium models of perfect, monopolistic and oligopolistic competition were developed to explain optimal output and employment levels of firms operating in these markets (Foss, 1994; O’Brien, 1990). Although Keynesian ideas were emerging to inform macro-economic policy during the 1930s and 1940s, Neo-classical micro-economic theories informed industrial policy; and the conventional wisdom came to view large scale production as the next stage of industrial evolution.

From a Marshallian perspective, the economic situation is a dynamic process of change and progress; and since Marshall’s time, financialization and globalization have fundamentally altered the character of the local, national and international environments within which firms and sectors in advanced industrial economies find themselves competing. This has had a profound effect on the fate of the British industrial districts. Having virtually disappeared, older, surviving districts are re-vitalizing themselves; younger ones have emerged and are competing successfully in international markets; and new industrial ecosystems continue to appear. The vitality of Britain’s contemporary

²¹ Jensen (1990) interprets Marshall’s theory of industrial organization and development – particularly in relation to technology – as evidence of the institutionalist under-pinnings of Marshall’s approach.

industrial districts – despite decades of ill-informed policy choices, if not neglect – attest to the potential this form of industrial organization offers for industrial renewal.

From the cases analyzed above, it is clear that Britain possesses the entrepreneurial, production, and innovation capabilities required to successfully compete in global markets. However, in many ways, these businesses and the industrial clusters of which they form a part are succeeding against the odds. UK elite sport, on the other hand, has systematically set about stacking the odds in favor of its athletes and teams. The absence of a coherent institutional framework, within which existing and future businesses and industrial ecosystems can develop the competitive capabilities required for success, is limiting the numbers of successful businesses and clusters, and thus the performance of the broader economy. In this, the UK elite sport system – which has been successfully developed and implemented in a British cultural and institutional context – provides an approach to building international competitive capabilities from which important lessons could be learned, with important implications for Britain’s industrial revitalization.

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Table 1. British Olympic Team's Performance in the Summer Olympic Games

Olympic Games	Total Funding from UK Sport* (£millions)	Number of Funded Sports*	Number of Medals				World Ranking
			Gold	Silver	Bronze	Total	
Atlanta 1996	NA	NA	1	8	6	15	36 th
Sydney 2000	£58.9**	13	11	10	7	28	10 th
Athens 2004	£ 71.0**	16	9	9	12	30	10 th
Beijing 2008	£ 235.1	27	19	13	15	47	4 th
London 2012	£ 265.1	27	29	17	19	65	3 rd
Rio 2016	£ 274.5	20	27	23	17	67	2 nd

* **Source:** UK Sport, 2016.

** Figures for the Sydney and Athens Olympiads relate only to Podium level funding as during that time the Home Countries Sports Councils were responsible for supporting athletes at the Foundation and Podium Potential levels.

Figure 1. The UK Elite Sport Competitiveness Development System

