



MOBILITY OF KNOWLEDGE
**TERRITORIAL KNOWLEDGE DYNAMICS
IN LUXURY CAR INDUSTRY. BEYOND
STANDARD AND PRODUCTION MARKETS**

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ABSTRACT

At regional level a number of models, such as innovation systems and cluster have been developed which have been influential on this policy support. Policy initiatives based around these models are firmly rooted in a technological model of innovation and a standard market situation which takes little account of the socio-economic environment and the potential for downstream based innovation. Here we present a case study of the automotive industry in the UK West Midlands region where we consider innovation networks and knowledge developments associated with a shift from the standard market, largely prevalent in the sector, towards a status based market. We observe how, in the status market, composite knowledge networking and interaction with consumers is integral to the innovation process.

KEYWORDS

Territorial knowledge dynamics, production market, status market, territorial innovation models, EURODITE.

ACKNOWLEDGEMENTS

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INTRODUCTION

Over the last two decades the concept of the 'knowledge-based economy' (KBE) has become a central feature of economic development policy in advanced economies. It is argued, that such economy, development is driven by the continual generation and exploitation of knowledge as a fundamental input to innovation. Some authors conclude that we have witnessed a sea change which marks a discontinuity with earlier periods (DUNNING, 2000; DAVID and FORAY, 2002) and that knowledge is the only meaningful resource driving economic competitiveness (DRUCKER, 1993).

In addition, advances in information and communication technology (ICT) have accelerated the process of globalisation with a territorial and intellectual division of economic activities. Territorial approaches have identified systemic interactions where networking reduces the search costs for capital, labour, markets and trading partners and the sunk costs of knowledge accumulation. It is argued that knowledge sharing through such networks is essential to the innovation process. The nature of these value systems and the relational aspects of knowledge acquisition and use, inside and outside territories, have been much discussed within the academic and policy communities. Topics of debate have included the mix of internal (to the firms) and external knowledge inputs and how these different knowledge types of can be captured, developed and exploited in economic spaces.

The main focus of both analysis and policy has been on upstream inputs of capital, skills and (often technical) knowledge to the innovation process and/or on firms' internal processes and organisations. While these innovation discourses implicitly recognise the value of downstream value appropriation, little analysis has been carried out on the relative dynamics of producer and consumer knowledge regimens. In addition, very few theoretical and policy reflexion have built on an integrated comprehension of the socio-economic organisation of markets and of knowledge processes.

Here we propose analysing how knowledge processes organise within particular socio-economic market configurations and how market configurations imply particular territorial knowledge dynamics (TKDs). Building on the semantic contributions provided by ASPERS (2008; 2009) and WHITE (1981; 2002), we argue that the way territorial knowledge dynamics are addressed by

theoretical as well as policy models mostly mirrors the organisation of a 'standard' and a 'production' market.

We report a case study of UK based production and sale of premium segment sports cars where our approach comes from the perspective of markets and their connection with the knowledge based economy. We highlight how particular car producers established in the West Midlands region have developed business and innovation models that build on privileged relations with end-consumers. While at global level automotive industry can be regarded as standard and production market construction whereby knowledge dynamics operate within global production networks, this local strategy highlight an alternative market construction whereby producers and consumers value a mutual social status (ASPERS, 2009). This 'status market' implies particular upstream (supplier-producers) and downstream (producer-consumer) relations that reflect particular TKDs.

The paper is structured as follows. Firstly we briefly refer to the well-known territorial innovation models (TIMs). Secondly we discuss the tenets of the KBE itself and address a broadened questioning based on the increasing relevance of knowledge combination in economic and territorial development. We then introduce some particular theoretical issues regarding the socio-economic construction of markets and relate these to current conceptual issue in regional studies and regional policy. We then discuss the automotive industry and the fit to White's production markets model focussing on our case study of luxury car manufacture in the UK West Midlands. We conclude with observations about the utility of an analysis based on markets and how it can be used to tie together different aspect of the KBE. Also, how the creation of a value system based on tacit knowledge has led to a new geography of innovation and a bridge to consumer markets. Finally, we consider the implications for policy.

INNOVATION, KNOWLEDGE AND REGIONS

Economists and policy makers recognise that innovation, the development of new products, processes or organisational structures, is the driving force of the economy (FREEMAN, 1995; EDQUIST, 1997). SCHUMPETER (1934) described innovation as the basis of quality (sustainable) competition and economic growth. Theories of neo-Schumpeterian or evolutionary economics suggest that innovation does not just come from the autonomous actions of individual firms but is also dependent upon external influences (ROSENBERG, 1976; FREEMAN, 1987; LUNDVALL, 1992; NELSON, 1993; SMITH, 2002). These extend beyond bilateral interactions of

producers, suppliers and users to include all the “elements and relationships which interact in the production, diffusion and use of new and economically useful knowledge” (LUNDVALL, 1992). Thus innovation arises from interactions amongst producers and users of goods and services within an overarching institutional framework of labour markets, human resource development (education and training) and regulations (standards). These interactions enable learning (LUNDVALL, 1992) and the assemblage of new and revised knowledge combinations which are in turn exploited as innovations.

The initial characterisation of innovation systems was at the level of nation states since national economies could be seen to have different economic specialisations, research bases, educational systems and fiscal regimens all of which had a significant impact on innovation outputs (PORTER, 1990; LUNDVALL, 1992; NELSON, 1993). However, subsequently interest also focussed on the local or regional dimension (GORDON and MCCANN, 2000) since regional economies developed differently within the same national environment, there were a number of prosperous exemplar regions where systemic frameworks seemed particularly strong (BRACZYK et al., 1997) and, despite the globalisation of products and services, many ‘soft’ relational and social factors supporting economic success seem most evident at local territorial level where trust and social interaction engendered by spatial proximity are key to networks and linkages that fuel knowledge creation and transfer. Based on the above concepts a number of Territorial Innovation Models (TIMs) were identified including Industrial Districts (BECCATINI, 1981), Innovative Milieus (AYDALOT, 1986), Regional Innovation Systems (COOKE, 1992), New Industrial Spaces (SCOTT, 1988), Regional Specialisation (MALMBERG and MASKELL, 1997) and Clusters (PORTER, 1990; 1998). MOULEART and SEKIA (2003) review these models all of which try to capture the systemic and territorial features that stimulate learning and innovation and, hence, economic development.

More recently we have seen a concentration of thinking and policy initiatives around the concept of the knowledge-based economy which has become a buzz for politicians of all hues. Although the role of knowledge, and the centrality of learning as the most significant process of innovation, has been a clear theme in the TIMs literature (LUNDVALL, 1992; FLORIDA, 1995; MORGAN, 1997) there was less discussion of knowledge itself as a resource or of its modes and phases in the innovation process. By comparison economists had over many years developed ideas and theories about knowledge and its role in the economy. Starting with Adam Smith and the division of labour (hence knowledge) the theories of knowledge as a resource that drove economic growth were

developed by classical and neoclassical economists from Marshall's unspecified mechanisms of externalities to the mathematical models of growth theory of ROMER (1986) and LUCAS (1988).

Of course there can be scepticism about whether the KBE is really different or whether it is just the knowledge content that is different, for example, between the industrial revolution and the ICT revolution where, in both, there were periods of rapid economic expansion and change. CASTELLS (1996) proposed that the key feature was that added value comes from actions from and on knowledge rather than actions on materials or, expressed another way, a greater reliance on intellectual capabilities than on physical inputs or natural resources (POWELL and SNELLMAN, 2004). According to DUNNING (2000) the 'sea change' has been the growth in the value of intangibles such that the ratios of intangible to tangible assets in company books of 20:80 in the 1950s had reversed to 70:30 in the 1980s. We can also identify other features such as the rapid expansion of the knowledge stock (DAVID and FORAY, 2002), the rise in traded knowledge as a product in its own right and the growth in importance of knowledge intensive business services (KIBS) (SIMMIE and STRAMBACH, 2006) and the shortening of product lifecycles. In addition the ICT revolution has enabled the codification of what had been hitherto craft based (tacit, personal or experienced based knowledge (POLANYI, 1983) and the ability to transmit and access it at long distance (STEINMUELLER, 2002) leading to global communities of practice. CREVOISIER and JEANNERAT (2009) add that the incorporation of knowledge into economic processes is no longer a sporadic process, as in the unintended spillovers model, but is systematic and permanent.

Also the sectors dominating growth in the economy are those that depend on knowledge generation such as ICT, biotechnology or business services rather than traditional manufacturing. DAVID and FORAY (2002) suggest that growth in such industries results from a close relationship to science and technology. This is a popular view of the KBE – often seen as synonymous with the 'new economy' and centred on high tech sectors. However, ROSENBERG (1976) highlighted the problem of an elitist approach to knowledge where too much importance is given to scientific knowledge and too little to engineering or organisational knowledge. SMITH (2002) argues that knowledge creation is an economy wide process, not dependent upon research and development. Thus the KE is not solely about high-tech sectors but encompasses all economic activity, from services to manufacturing and incorporating ICT (CAIRNCROSS, 1997; THUROW, 1999). In similar vein ASHEIM et al. (2005) propose a typology of knowledge with an, albeit fuzzy, distinction of analytical (scientific), synthetic (technical) and symbolic (creative/metaphoric) knowledge. While symbolic knowledge is often compartmentalised as concerning marketing, branding and

advertising, LASH and URRY (1994) and LEE (2002) suggest that goods derive as much significance from symbolism as from their material content. CREVOISIER and JEANNERAT (2009) also highlight the importance of symbolic knowledge, observing that innovation increasingly depends upon socio-cultural dynamics as opposed to pure technology. Besides the obvious growth in specifically cultural industries (media, entertainment sport, tourism and leisure, cinema, video games, etc.) they observe that the “incorporation of cultural and aesthetic aspects, within products” is taking on increasing importance across a wide range of sectors. These cultural and aesthetic aspects have also to be understood in the context of a development of an “experience economy” (PINE and GILMORE 1999) where end consumers are decisive in the economic valuation of goods and services through their personal engagement in the consumption experience. Thus COOKE and DELAURENTIS (2007) observe that the importance of the socio-cultural component of products and services highlights, to a greater extent than in the past, the value of symbolic knowledge.

Consequently, the same authors observe the increased complexity of the knowledge processes at play in economic activities. They highlight the distinction between learning based on cumulative knowledge trajectories (e.g. technological or sectoral trajectories) and learning based on composite or combinatorial dynamics where innovation is derived from coalescing bodies of knowledge from different fields according to specific entrepreneurial needs. Other academic writing on the KBE has also recognised that innovation often comes from diversity of knowledge sources (JACOBS, 1969; FRENKEN et al., 2007) and based on creativity (FLORIDA, 2003). Also POTTS (2001), from a market perspective, notes that the concept of knowledge refers to associations between ideas not to the arithmetical sum of the ideas. From this viewpoint Potts sees the increase in connections, which increases diversity or compositeness, is the real change in the knowledge base. Nonetheless these various contributions have still tended to concentrate on upstream networks – even though these might involve different knowledge bases, sectors or localities. Policy geared to the KBE has not only followed this upstream approach but has in large measure been geared to the knowledge behind scientific and technological innovation. In other words, knowledge policy has till now largely neglected downstream market inputs, such as the involvement of end consumer in innovation or the non-technical value achieved through symbolism and metaphor.

TERRITORIAL KNOWLEDGE DYNAMICS

One clear theme on which there is agreement, perhaps picking up from the networking paradigm of the TIMs, is that knowledge itself results from shared and collective learning processes (COOKE, 2002; ANTONELLI, 2006; CREVOISIER and JEANNERAT, 2009) that are developed through learning routines and interactions. The ITC revolution and the globalisation of trade have enabled business to take place over long as well as short distances. Thus the scale, and nature, of knowledge networking has been subject to considerable study and the geographical proximity, seen as the key to learning in the TIMs, has been challenged. Thus MORGAN (2004) is moved to deny the notion that the spatial element of economic development can be discounted against the global economics paradigm. MALMBERG and MASKELL (1997) suggest that there is a division between knowledge that can be codified, and hence able to be transmitted and utilised at long distance, and that which is embedded in localised cultures and institutions and is therefore 'sticky' and likely to be retained in localised specialisms. BATHELT et al. (2004) also distinguish between near and distant interactions on the basis of codified (explicit) or tacit (implicit) knowledge forms. Thus they speak of 'pipelines' and 'local buzz' where new codified knowledge can be searched at long distance but is absorbed and utilised within localised 'face to face' networks where it can be socialised and exploited. BOSCHMA (2005) argues that, aside from physical proximity, there are other types of proximity such as cognitive or relational proximity where economic actors share a background such that tacit knowledge interchange can occur between distant actors, engineered via meetings if necessary. In any case there is agreement that inputs of new knowledge, from different places, business sectors or fields are essential to overcome potential negative 'lock-in' effects.

What is clear is that in the modern economy there is mobility of knowledge through ICT, free trade rules allowing movement of goods, services and capital and enhanced migration of people as never before. Manuel CASTELLS argued that our societies are constructed around different flows including capital, information, technology, organizational interactions, images, sounds and symbols. He proposed the idea of a new spatial form characteristic of social practices that dominate and shape the network society which he called the 'space of flows' (CASTELLS, 1996: 412). Of course the different flows need not be contiguous. Using a similar concept to the space of flows, CREVOISIER and JEANNERAT (2009) describe the interaction between global knowledge and production shifts in global networks as multi local and multi-scalar knowledge dynamics. Here

they suggest shared knowledge interaction and learning occurs across a number of territories and coin the term Territorial Knowledge Dynamics (TKDs) to express the dynamic nature of knowledge interactions and to differentiate from individual regions which may have greater or lesser areas than the less defined 'territory'.

Such a multi-local and multi-scalar perspective has been highlighted by recent literature that emphasizes how in the modern economy production of goods and services is organized in space through 'global production networks' (COE et al., 2004). These involve both traded and untraded interactions amongst firms and agents that can be either geographically proximate or distant. They suggest that within them different activities take place at different locations with a division of knowledge between routinised and innovative activities. Further to this, they observe that for individual regions it is imperative to capture value added from local interactions with these global networks. Thus institutional frameworks and policy support in less developed regions try to capture and retain high value activities whilst in developed regions the objective is to retain and develop high value activities and, as appropriate, shed those of lesser value which can be undertaken more cheaply elsewhere. Using similar arguments, DAHLSTRÖM and JAMES (2012) discuss how local economic actors and policy makers might develop capacities to anchor and develop such mobile knowledge.

MARKET CONSTRUCTION IN TERRITORIAL DEVELOPMENT

Based on the considerations above, it can be argued that innovation and learning is mainly conceptualized as upstream processes oriented to or from the market. In such a perspective, the analysis of knowledge processes pays little or no attention to the socio-economic market construction and thus provides only a partial understanding of the process. This observation can be related to the recent work of BERNDT and BOECKLER (2009; 2010) who contend that, even though market is a well referred concept in economic geography, it is often taken as granted and the way it constructs socio-economically often remains unexplored.

In both orthodox and heterodox frameworks markets are essential to economic analysis. In the former they function as mechanisms to where the supply and demand of goods and services equilibrate at the ideal price. Thus the market facilitates the processing of information with, ideally at least, the assumption of perfect competition and transparency amongst the actors. In the latter,

markets are regarded as socio-institutional construction resulting from the coordination of various actors in the production, the valuation and consumption of good or service.

Our approach is from this latter perspective. Here, while clearly accepting that markets are a mechanism of information processing about price and incentives and therefore the test of what constitutes economically useful knowledge in a static sense, they can also be thought of as dynamic mechanisms to grow and re-coordinate knowledge (POTTS, 2001). HAYEK (1937) also viewed markets as mechanisms to coordinate knowledge but importantly, as Potts points out, in an evolutionary frame, knowledge is also the mechanism by which they do so. Thus markets are not just price mechanisms but also knowledge mechanisms where, as Potts observes, knowledge forms the rules by which the market functions. Considering the market from a socio-institutional viewpoint naturally leads to idea that it may take various forms of socio-economic organisation and may reflect particular territorial knowledge dynamics. Following the particular theoretical contributions provided by ASPERS (2009) and by WHITE (2002), different ideal-types of market are here distinguished. They provide analytical frameworks that can be related to important theoretical and policy models often adopted to support regional development.

ASPERS (2009), distinguishes the socio-economic construction of standard markets from status markets respectively. In the former, market actors (e.g. producers, suppliers, intermediaries, consumers) coordinate according to standards or shared norms that are explicitly expressed, or at least commonly agreed and identified, to evaluate a good or a service. For example, in the automobile market, these include such parameters as price, longevity, fuel consumption, performance etc. There are also a series of quality (TQ16949) and regulatory standards (e.g., EURO 4 emissions) which are shared by producers and suppliers alike. In such a perspective producer and consumers are abstracted from mutual social recognition as their relation is mediated by standard against which they coordinate. By contrast, in status markets the same standards-based rules apply but there are additional rules which are tacit and interpreted via the consumer's experience. These relate to intangibles such as image, lifestyles and individual perceptions. Importantly, there are judgments on both sides, buyer and seller, which are status related. Thus status markets connect to consumers directly in a way that standard markets do not.

For WHITE (2002) market construction organises mostly around relations between suppliers and producers (upstream relations), between producers and consumers (downstream relations) and, importantly, between rival producers resulting from the interpretation of mutual 'signals'

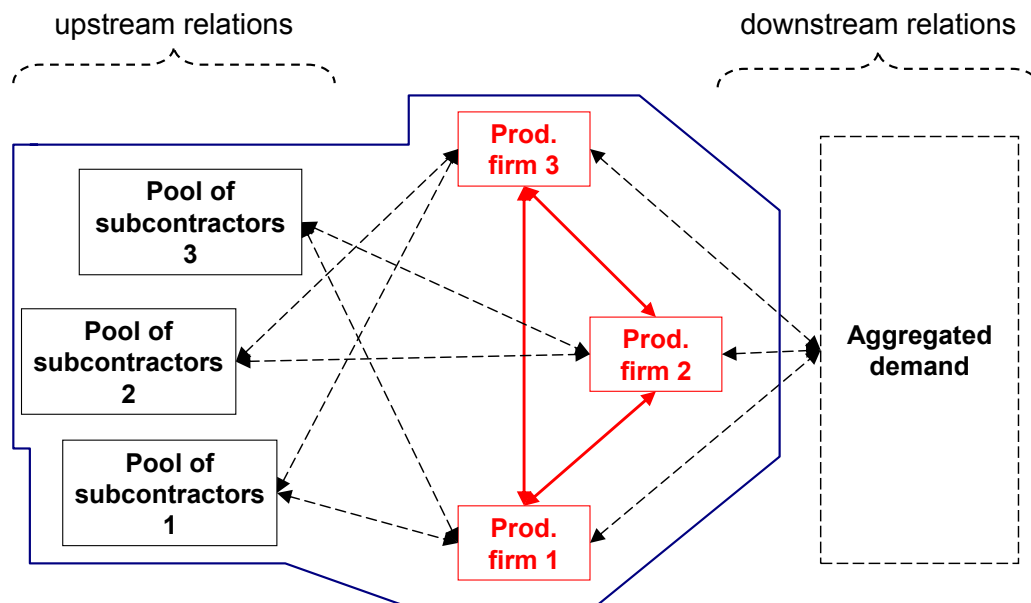
(knowledge). When such signals take stable conventional forms, producers reduce uncertainty by positioning their product in strategic niches through mutual comparison. They tend to become less dependent (to decouple) from single suppliers who apply the same standards and thus become more interchangeable and provide a similar supply to more than one producer. Also, they decouple from single consumers whose demand is expressed in an aggregated way. Such a configuration of relationships is spoken of as a production market – as illustrated in Figure 1 below. The market is socialised in that the firms within it are mutually dependent for continuity of offer and price stability.

The distinction between producer (trade in intermediary goods) and consumer markets (selling to end users) is not new. However, White's also describes the production market as socialised since firms depend upon each other and plan and commit to the production of goods and services within a system of mutual signals. Producers in this market have little sight of individual end consumers who are seen as providing a relatively predictable aggregate demand. While in White's analysis this is described as a production market, it can also be approximated to the standard market of Aspers since it is based on a series of established and recognised standards some of which are generated internally by the industry and some externally by regulatory bodies or consumer groups.

Even they do not directly refer to White's models, most important territorial innovation models, largely inspired by industrial theories, are conceptualized from the production market perspective. At regional scale the models are perceived as particular production systems that distinguish from each other through the specification or the specialisation of local cumulative learning processes. Regional innovation and competitiveness is driven by the process of positioning among the different production systems. Consumption is most often implicitly regarded as aggregated globally.

More recent theories of territorial development provide a more interregional and multi-scalar analysis of such territorial innovation models. In particular, work on 'global production networks' (COE et al., 2004) emphasises that knowledge flows and innovation occur not only within regions but also between them. Such work also presents features familiar to the production market concept, observing how regions 'position themselves' within and towards global networks. The analyses further highlight how particular knowledge exchanges appear between supplier and production regions and how global standards facilitate the establishment of such multi-local relations. However, as with the TIMs, little attention is paid to the analysis of end consumption which remains implicitly conceptualized at a globally aggregated scale.

FIGURE 1. THE RELATIONAL ORGANISATION OF THE PRODUCTION MARKET



Source: redrawn from WHITE and GODART (2007)

The 'production market-based' perspective not only permeates theoretical models but also policy models seeking to support the development of the KBE. For example, policy models based on clusters are based on the distinctiveness of production systems and on upstream processes that drive new way to innovate. Thus policy agendas often concentrate upon ICT and other technologies and inputs to R&D while the European Union's main monitoring instrument, the Community Innovation Survey (CIS), is largely geared to upstream indicators and technological innovation. While the input to innovation from customers is given high importance in CIS returns, this in most instances refers to intermediate customers. For instance in engineering sectors, such as the automotive industry, 'customers' as a source of innovation generally means buyers of intermediate products rather than end users. Few of the companies surveyed will actually sell directly to consumers. Thus these agendas and the data used to monitor them are geared to upstream innovation inputs and to the precepts of production markets. In the case region similar policies were implemented by the regional development agency (RDA) which chose 'clusters' as its

main vehicle to deliver innovation policy and funding, (ADVANTAGE WEST MIDLANDS, 1999; 2007).

We are not here seeking to diminish the importance of upstream (technological) innovation as an economic driver but to recognise as detailed by JEANNERAT and KEBIR (2010), that innovation is driven by knowledge changes involving both production and consumption systems and that the ability to find and use knowledge, and to recognise market opportunities, are also important knowledge parameters. An excellent discussion of the range of innovation outside the 'heroic' model is provided by BLAKE and HANSEN (2005) who observe that innovation is contextualised by the social relationships involved in supply and demand as much as by a theoretical market context. We here argue, in different terms, that this 'heroic' form of innovation, the TIMs themselves and most of the supporting policy framework for innovation, and the knowledge based economy are rooted in the producer and standard market concept.

THE GLOBAL AUTOMOTIVE INDUSTRY AS A PRODUCTION MARKET

The automotive industry is globally important economically. In the EU employment in auto related manufacture is almost 3m with as many as 9m non-manufacturing jobs dependent upon the sector (ACEA, 2010). In the course of its history the industry has set the paradigms of industrial organisation, including assembly line production (Ford), and – arguably - 'lean production' (Toyota)¹. In recent decades, further radical changes have affected the entire value chain (CHANARON, 2004; WOMACK et al., 1990). As observed more than two decades ago by PAVITT (1984), the sector is a mature industry, dominated by large companies where, for the most part, innovation is incremental and process oriented reflecting the socio-economic maturity of the market and the need to extract maximum returns from production (WOMACK et al., 1990). Thus, the industry is conservative in its approach and the innovation model is 'top down' and proprietary with closed interfaces and few open areas for independents (JÜRGENS et al., 2010). Nevertheless competition, and the pressure for cost recovery, has driven a great deal of technological change which has made vehicles more fuel efficient and improved both safety and reliability (MACNEILL and BAILEY, 2010).

¹ See COFFEY (2006) for an discussion on the efficiency of Japanese auto companies

Here we can turn to White's analysis of production markets. Car makers, and their direct or indirect suppliers, are within a system of quality and cost standards and regulations which has resulted in comparisons with each other as the fundamental benchmarks. The system is illustrated in Figure 1 above. The three production firms are competitors but they are also inter-dependent since they rely on the same suppliers. Hence economies of scale, scope and organisation are obtained because each sub-contractor is an agent of all three producers (WHITE, 2002; WHITE and GODART, 2007). Similarly the fact that the sub-contractors themselves have lower tier suppliers creates a further group of interdependencies. The trend towards consolidation and specialisation amongst sub-contractors has reinforced these interdependencies by closing down alternative options.

Only the three Producers sell directly to the consumer with sub-contractors producing intermediate parts and services. In White's analysis, the prime concerns of all the players are focussed upstream because this is where the greatest uncertainty and potential hazard exists. Therefore, following the end of the vertically integrated (Fordist) company, maintaining cost and quality control of the upstream system has been the main concern in somewhat of a contrast to the notional market pull system. Here market segmentation is largely on price with firms finding individual niches within the overall level of demand. The Toyotaist paradigm of 'lean' manufacture and just in time production exemplifies the production market approach. Organising the system to deliver parts according to quality standards, at the right time and in the right sequence to feed production lines has become one of the car makers' main areas of expertise. Hence Quality, Cost, Delivery (QCD) became (and remain) the watchwords during the decades from the 1970s onwards. In addition much policy as has been devoted to helping companies organise the production market. Competitiveness of the flag ship car makers depended upon it. In the case study area alone significant sums were spent on projects to help to 'organise' the pool of sub-contractors².

Mutual rivalry in this situation leads to high levels of conservatism where producers seek to occupy and maintain market niches in which they benchmark against each other. Hence, whilst vehicles have become more efficient, the basic ergonomics and drive changed little in 100 years until recent events, both financial and political, began to bring about changes, albeit slowly, to power sources.

² In the UK west Midlands some €110 was spent over a ten year period through the supply chain improvement programme 'Accelerate'. The spending was supported and overseen by the big local car makers and tier 1 suppliers.

THE AUTOMOTIVE INDUSTRY IN THE UK WEST MIDLANDS: 'ESCAPING FROM THE PRODUCTION MARKET TO THE STATUS MARKET'

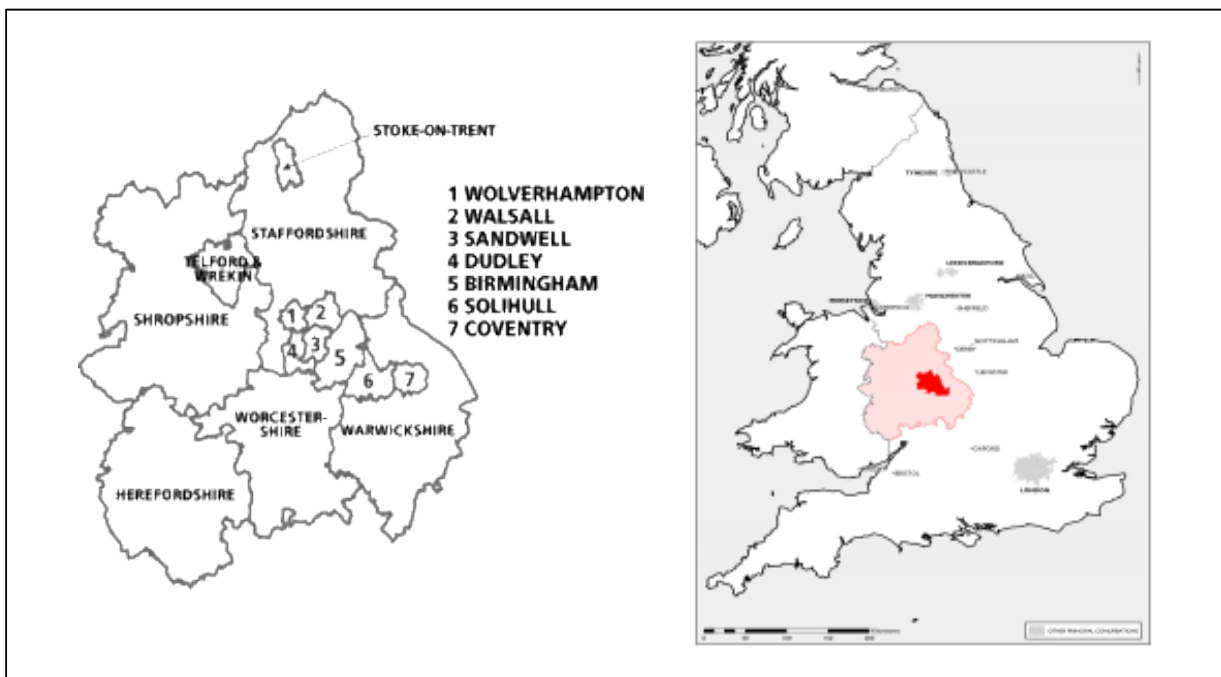
In theoretical markets these comparisons will be in terms of either capability (standard market) or image (status market) respectively. In practice, actual markets incorporate both standard and status elements, to a greater or lesser degree. Thus brand and image are always important to commodity (volume) producers as much as to builders of premium or performance vehicles. Here we next look at the case study of the industry in the UK West Midlands where we can observe a transition from the former to the latter within the region's automotive industry.

The region is located in the central area of England, as shown in Figure 2 above. It is one of the long standing areas of global motor industry production. The heyday of production was in the early 1950s but, in the following decades, with open trade rules and globalisation, the regional industry was unable to compete and production declined. The reasons behind the demise have included lack of investment, managerial failings, poor labour relations, global competition and pressures of cost recovery (HOLWEG and OLIVER, 2005; BAILEY, 2007; BAILEY et al., 2008) alongside a more recent migration towards lower cost locations (HOLWEG 2009) The end of volume activity came with the closure of the Rover and Peugeot plants in 2005 and 2006 respectively. However, in parallel to the decline in volume manufacture there has been a growth of higher value niche or specialist production high value engineering, engineering design and development services (DONNELLY et al., 2005) through companies that range from large producers, such as Jaguar Land Rover through medium sized companies such as Aston Martin to small scale producers such as the sports car producer, Morgan Motors. Other businesses, such as the electric car developer Zytec, have developed from the motor sports sector. Alongside this niche manufacturing there is a growing base in engineering design and development services ranging from major international businesses like TRW, Ricardo and MIRA to small and medium sized companies like Zytec and Prodrive. (See MACNEILL and BAILEY, 2010 for a summary.)

Thus the region's automotive industry was uncompetitive within the producer market and is therefore, albeit out of necessity, moving from its former position within the standard market to an increasing participation in a status market. As we discuss above, here the same standards-based rules apply but there are additional informal and often un-definable rules that relate to consumers' image, lifestyles and individual perceptions. Thus market niches in status markets are not

determined by price but by a set of intangible parameters. This has three implications. Firstly, there is a direct interaction with consumers which is more individualised than aggregated as in a standard market. Secondly, selling price becomes a less dominant factor giving more room for innovation within the whole upstream system. Thirdly, as we will discuss in the case study, there is more a more varied and obvious role for the downstream system which goes beyond conventional advertising, distribution and sales.

FIGURE 2. UK WEST MIDLANDS LOCATION



Source: West Midlands Government Office

For the region's automotive industry, a shift towards a status market reduces cost sensitivities and provides opportunities to extract higher value throughout the supply matrix. Scale economies are reduced in importance. Innovations, that would not be introduced in a standard market, such as the novel construction techniques described in our case study, are possible here. As we discuss in the next section the shift to the status market also involves a set of privileged upstream and downstream relations drawing on and leading to a set of new knowledge dynamics.

WEST MIDLANDS' SPORTS CAR PRODUCTION

RESEARCH METHODOLOGY

The empirical study presented in this section draws on a research that took place in the EC FP6 funded project, EURODITE (Contract nr° 006187). The specific empirical element put forward here stems from an internal report for this project (MACNEILL et al., 2009). The report had contributions from Laura JAMES and Chris COLLINGE at the Birmingham University, who should be particularly acknowledged. The specific firm-based knowledge dynamics investigated were around the development, construction and promotion of new sports and performance vehicles nested within the overall territorial knowledge dynamic described above - the shift in the nature of the regional automotive industry from a concentration on the mass (commodity) segment to niche or luxury (premium) manufacture.. The research was based on constructing knowledge biographies of major innovations in vehicle development, production and marketing undertaken by of two West Midlands based luxury and sports car makers.

The biographical methodology, utilized in the EURODITE project, is described by BUTZIN and WIDMAIER (2012). The approach puts one or more significant innovations at the point of departure and traces the network of actors involved through a series of interviews. While recognising the role of the firm, as the point at which innovation (exploitation of ideas) occurs, the network uncovered is not centred on any one firm's internal and external interactions. It is therefore not constrained within geographical (TIMs) or technological innovation systems. Both upstream and downstream interactions and influences on the innovation(s) can be identified as well as between particular production firms operating in parallel markets.

Interviews were carried out between September 2007 and August 2008. More than 50 interviews were conducted with personnel in the car makers themselves and with those in upstream knowledge networks, co-developers of the innovations, other suppliers, knowledge providers, universities and KIBS, and downstream marketing functions including car makers' marketing departments, racing teams, KIBS (working as events organisers) and dealerships.

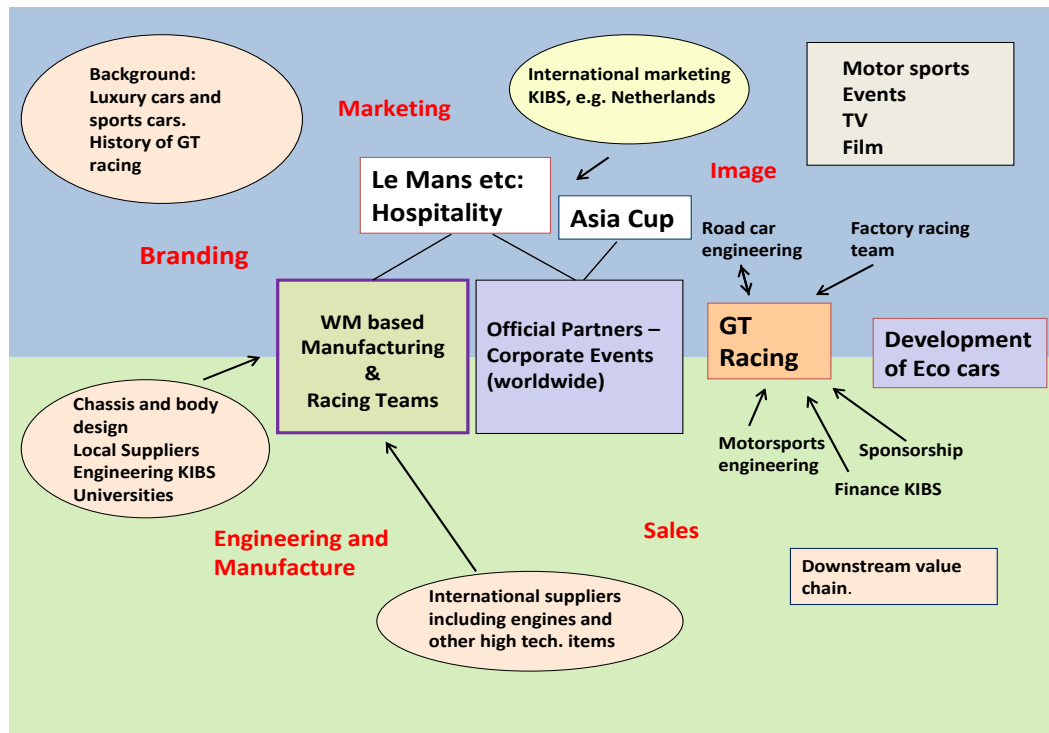
ENTERING THE STATUS MARKET THROUGH PRIVILEGED DOWNSTREAM RELATIONS

The downstream networks are illustrated in Figure 3. They comprise a diverse group of both proximate and distant players including racing teams and promoters, sponsors, organisers of promotional events, media organisations and other partners. Innovations in design and vehicle engineering are tested through “Grand tourer” (GT) racing activities and therefore connect directly to consumers given that (unlike Grand Prix cars) GT cars are versions of standard road cars³ (3) and there is a direct relation to production vehicles. Racing activities represent testing but also the promotion of ‘normal’ road vehicles. This close relationship is illustrated by the outsourcing relationship of one manufacturer to an engineering ‘KIBS’ business that prepares the official (works team) GT1 cars and manages the race team and racing logistics. The same firm also modifies and sells cars to private teams for GT2-4 classed events and has a secondary business is the maintenance of these vehicles. Thus, the activity of reinforcing the brand image through racing activities is here turned into an income stream in its own right. As a result the whole activity is self-sustaining. Unlike the significant expenditure by major manufacturers, from their marketing budgets, for Grand Prix racing, here the parent company provides no budget for racing.

Sales of road cars are thus assisted by the symbolism created through racing events and associations of image. This is backed by ‘placements’ in the media, particularly in the ‘up-market’ and lifestyle press exposes consumers to symbolic knowledge aspects such as brand image and lifestyle. In addition corporate hospitality, for example at racing events, involves selected consumers directly. At the same time the knowledge and experience of these ‘involved’ consumers’ is fed back into future innovation in a more direct way than could be realised through surveys or focus groups. Further involvement of the KIBS sector is seen in the organisation of the promotional events and organisation of hospitality. The metaphor of lifestyle that connects to the cars is further reinforced from a connection to other luxury commodity sectors which are jointly branded at racing and other corporate events. Such goods include watches, champagne, clothing and luggage (MACNEILL et al., 2009).

³ GT racing involves variants on production cars. There are different rules according to the classification with GT1 allowing the most modifications and GT3 less. The former is the domain of highly specialist professional teams whilst the latter encompasses a wider range of private participants.

FIGURE 3. NETWORKS OF WEST MIDLANDS BASED SPORTS CAR MANUFACTURE



Source: Authors' own

The knowledge base that is important to innovation in these case studies is significantly broader than either analytical or technical knowledge in either the upstream supply base or within the companies own resources. Downstream innovation and the role of symbolic knowledge is clearly an important and integral part of the overall innovation process and one which goes significantly beyond just branding or promotion. The studies also illustrate a direct connectivity to consumers. Rather than being seen as simply providing an overall aggregate demand they are engaged in the innovation process through the testing of the cars and are able to participate in the metaphor of brand image building – at the same time reinforcing their own personal lifestyle images.

The orientation to a status market thus involves the (re)construction of privileged relations with end consumers who are knowledgeable enough to recognise and understand the symbolic value of the car. This implies two particular downstream knowledge dynamics:

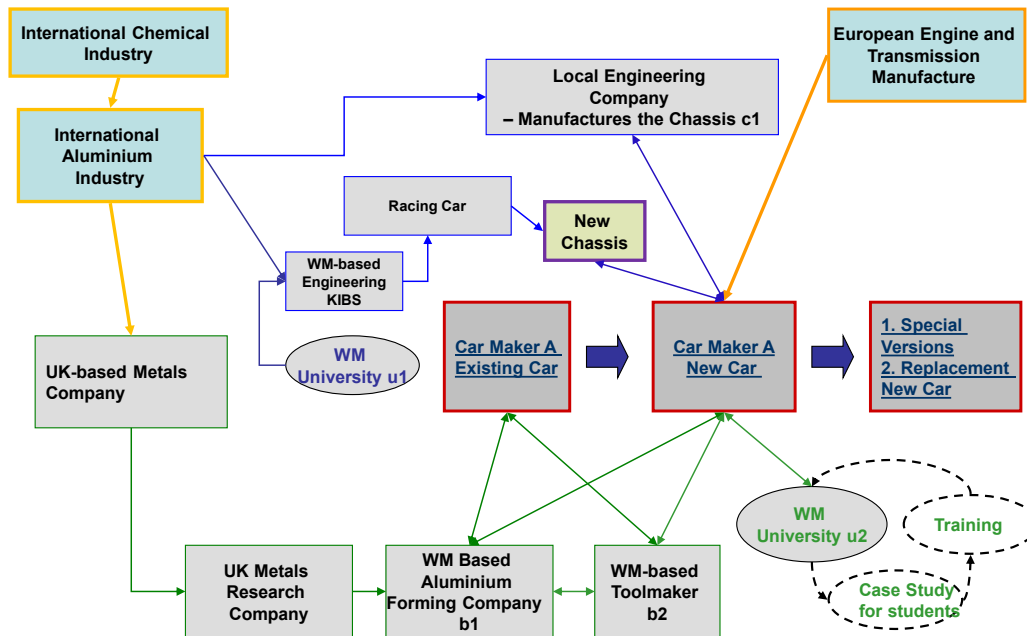
- Initiating and engaging end-consumers into learning about the cultural value of the car. This is done through racing and related symbolic knowledge creation. Racing acknowledges a particular status (for example, history and reliability). It also implies associating other producer relating on similar status to this initiation process (e.g. the association with other luxury brands such as Jaeger LeCoultre watches at the le Man 24hr race.)
- Particular technical development related to the expected status of the brand (racing technology and or particular relations with other luxury products)

STATUS AS RESOURCE FOR PRIVILEGED UPSTREAM RELATIONS

The upstream network surrounding the genesis of a new car from a particular manufacturer is shown in Figure 4. Essentially there are two networks. The upper one shows the companies involved in designing testing and producing a new aluminium chassis. As can be seen it was tested via a racing car prior to being the base for a new model. The same chassis was ultimately used on three models from rival companies – Jaguar, Aston Martin and Morgan. The lower network shows the firms involved in the design and development of a new body shell. The interactions were ostensibly highly codified since they involved computer based design and modelling. Nevertheless we observed a considerable level of shared background and tacit knowledge amongst the players that went beyond the shared knowledge base amongst a community of practice.

Figure 4 illustrates the companies and other organisations that were the most significant players in the innovation from concept to finished product. It is notable that, although the study details a major innovation, the knowledge networks are quite small in terms of the number of players. This is consistent with the theory of transaction cost economics WILLIAMSON (1979). It is also notable that most players are local, where network interactions are both cheaper and easier. The firms are embedded in the West Midlands automotive innovation system and have a high degree of trust and ‘closure’ (GRANOVETTER, 1992) as exemplified by the fact that much of the initial work on shaping both the chassis and the body was done on a voluntary and unpaid basis.

FIGURE 4. UPSTREAM KNOWLEDGE NETWORKS IN MANUFACTURE OF A NEW SPORTS CAR



Source: Authors' own

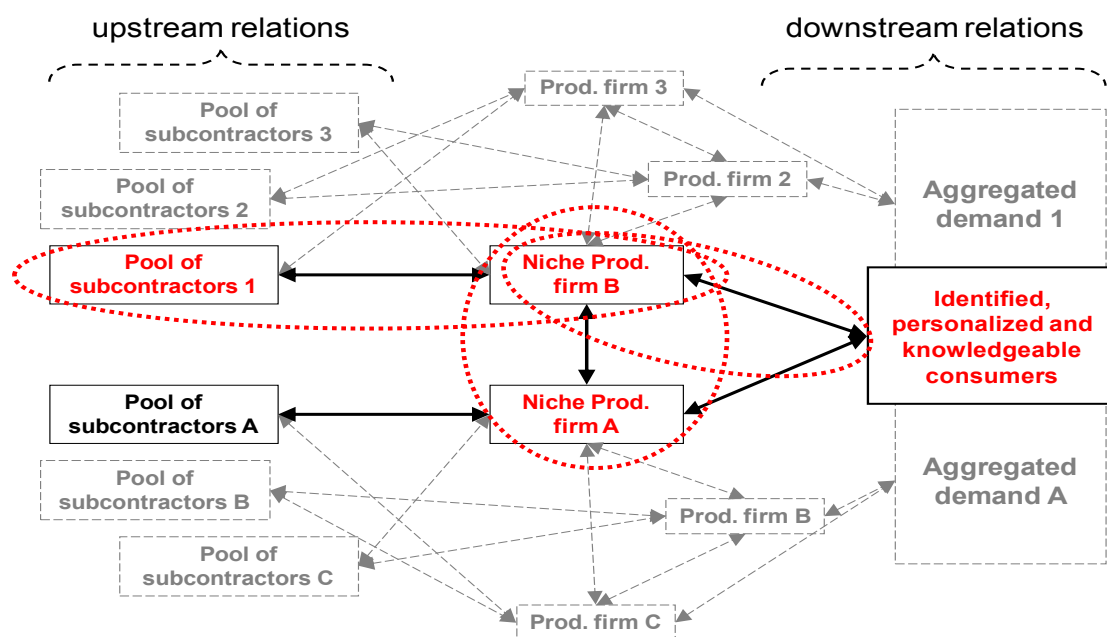
Using an analysis based on knowledge flows amongst the proximate firms we might consider a contrast between what have been termed 'local buzz' and 'pipelines', where the former has a higher tacit knowledge content. However, in fact both types of knowledge were intertwined throughout. Local networks concerned a codified activity, computer engineering, albeit that interactions had a high tacit content with the involvement of KIBs, universities, local toolmakers and manufacturers as well as the principal companies. The more distant network interactions related to specialised enabling technologies and to the supply of engines and transmissions. A significant codified element was tuning the 'set-up' of the vehicles to engines and transmissions from German based suppliers using long distance connections to these suppliers' software. However, there was a strong shared tacit knowledge base, for example, where testing was carried out via a shared enthusiasm for racing (LAWRENCE, 2008). Using our market based analysis we can see that presence in a status market enables the development of particular modes of relations. For example, the chassis and body development presented here involved innovative but expensive

techniques though interactions that were based on shared enthusiasm, recognition and understanding of status rather than cost. We can argue that downstream privileged relations between producer and consumer, result in upstream interactions which build on mutual social recognition (loyalty and status) rather than technical mediation (standards) leading to potential new knowledge development.

SHARED INNOVATION IN STATUS MARKETS

The business model we have described bridges the gap between the production market (WHITE, op cit) and the consumer. The status market thus has a similar role to the production market in sifting, testing and augmenting knowledge. Knowledgeable consumers represent a considerable asset as a knowledge pool. Through the downstream aspects innovation model we have described, companies are able to draw on this pool while, at the same time, connecting consumers to their own and other sectors' products.

FIGURE 5. CONNECTIONS BETWEEN STANDARD (PRODUCER) AND CONSUMER (STATUS) MARKETS



Source: inspired and adapted from WHITE and GODART 2007

In this sense, the construction of status within markets implies extending comprehension beyond a pure production market perspective as illustrated in Figure 5. This extension can be related to three particular knowledge dynamic and territorial dimensions highlighted by the dotted ovals in the diagram. Firstly, we can see the network of upstream links, and privileged relationships with local suppliers. The second set of links are between production firms A and B. Here these could represent local links between the car maker and engineering KIBs discussed above where both have direct connections to consumers and their knowledge enabling iteration and joint innovation based upon consumer feedback. Alternatively, the oval might encompass multi-local links with other production systems given their involvement in the joint system of promotion, the same benefits of connectivity are realised by the producers and vendors of the other luxury goods sectors that are co-promoted, Thus an alternative representation could be that firms A and B are in different sectors but engage in joint promotion and innovation and thereby realise the same benefits of connectivity. Such an example can be observed in joint promotion between luxury car makers and Swiss watch manufacturers and the joint development of new designs and livery.

The third oval links the downstream connections concerned with creating proximity relations with consumers who get initiated to the status value - for example, through invitations to events, factory or museum visits etc. The acquisition, sifting and utilisation of knowledge thus takes place in all market elements. In this view, we could argue that privileged upstream knowledge dynamics may lead to privileged downstream relations and vice versa.

CONCLUSION

In this paper, our intention was to provide a broadened perspective on knowledge dynamics in the KBE from a particular reflexion on market construction. Based on ASPERS' and WHITE's contributions on the socio-economic construction of market, we have argued that traditional territorial innovation models reflect a particular perspective of market organisation based mainly on (technical) standards and a strategic niche positioning of local production systems that are related to globalized and 'aggregated' consumption. Inspired by such models, of which the iconic 'cluster policy' is the most utilised, policy initiatives remain mostly oriented to upstream processes and technological knowledge dynamics that are specified and specialized at a local/regional level. More recent theories have paid an increased attention to the multi-local and multi-scalar relation that occurs within global production networks (GPN). However, regional economies and innovation still

remain mainly conceptualized on technological improvement and efficiencies of cost, quality and delivery (QCD). The same models are applied across a wide range of sectors.

Our case studies illustrate the networks involved in innovation, branding and promotion of luxury and performance cars in the UK West Midlands. The interactions detailed arise within a significant knowledge dynamic, namely the move of the region's automotive industry towards higher value engineering and production or, in other terms, a move from a position largely within a standard market to one within a status market. The change radically impacts on the innovation paradigm enabling a series of privileged relationships through a common understanding of positioning of the new status market situation. In upstream production and purchase of intermediate goods, position in the status market enables commitment and experiment and extraction of higher value than usually associated with the standard market model of the automotive industry.

Looking at the downstream networks, a similar shared understanding with agents and consumers is evident. Here a complex interaction of racing, events and joint promotion alongside other luxury goods, embeds intangible but at the same time well understood, values in the minds of consumers and agents. Further, the same intangible values can be seen to be shared by the upstream suppliers. Two observations can be made. Firstly, innovation occurs throughout the whole network and arises from symbolic or metaphor based knowledge as well as from scientific and engineering based knowledge. Often, it is the combination amongst them that produces the most interesting innovations. Secondly, within status markets the interaction with consumers is also a privileged one where consumers are not only personalised but are seen as 'knowledgeable' and from whom additional innovation can be either initiated or tried and tested.

From a policy point of view it is clear that most policies for regional economic development derive from innovation models geared to the standard market and to improving or facilitating upstream production market relationships. However, it is important to recognise the potential for innovation within downstream networks. Here there is a need to recognise the importance of symbolic or metaphor based knowledge. Understanding related to consumers' experiences has not generally been included in policy for the knowledge economy. As observed by HALKIER et al. (2010), there are opportunities for creativity and policy-entrepreneurship if different knowledge types are recognised and mapped. Given the need for many European industrial regions to upgrade their economic activity an examination of market positioning and potential to move towards status markets should be included within innovation policy.

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