Theoretical analysis of the relevance of the concept of path dependence for regional analysis has made progress. This has occurred on the spatial process (or regional paradigm) dimension of spatial evolution Progress has also occurred after further reflections on the roles of ‘conventions’ in understanding the ‘soft institutional’ dimension of regional regime formation and change. This adds considerably to the more common ‘institutions and organisations’ aspects of governance structures for innovation regarding the typical analytical content of regional regime and innovation system analysis. In this paper the concepts of ‘relatedness’ and ‘transversality’ capture the processes of knowledge recombination for innovation classically introduced by Schumpeter. Two live cases are presented whereby regional relatedness of industry regarding ‘green’ competences, on the one hand, and engineering and materials processing, on the other, have resulted in new clusters or cluster trajectories. The exemplar cases come from either end of Europe, Sweden, in the first instance, Italy in the second. Both clearly support the new ‘transversal’ theory of cluster emergence.

Keywords: Region; Maritime Clusters; Relatedness; Transversality.

RESUMO

As análises teóricas da relevância do conceito de dependência de trajectória para a análise regional progrediram. Tal tem ocorrido numa dimensão do processo espacial (ou paradigma regional) baseado na evolução espacial. Este progresso ocorre com as reflexões sobre a função das ‘convenções’ na compreensão da dimensão institucional ‘soft’ na formação e mudança de regimes regionais. Assim as instituições e organizações mais comuns são adicionadas de outros aspectos das estruturas de governação para a inovação em relação ao conteúdo analítico típico de um regime regional e da análise de um sistema de inovação. Este artigo apresenta os conceitos de ‘vinculação’ (relatedness) e ‘transversalidade’ que tentam capturar os processos de recombinação de conhecimento para a inovação, introduzidos desde os textos clássicos de Schumpeter. Dois casos são apresentados onde, por um lado, a vinculação regional da indústria em relação a competências ‘verdes’ e, por outro, a engenharia e o processamento de materiais, resultaram em novos clusters ou trajectórias de clusterização. Os exemplos vêm de pontos extremos da Europa, Suécia, em primeira instância, e Itália, em segunda. Ambos os casos suportam claramente esta nova teoria ‘transversal’ sobre emergência de clusters.

Palavras-chave: Região; Clusters Marítimos; Vinculação; Transversalidade.

JEL Classification: A14, O33, R11, R58
1. INTRODUCTION

In this paper, we shall explore new ideas about regional development in which clusters are utilised not in order to drill down deeper in a vertical manner following the seam of gold that may have become exhausted but, much more intelligently, by seeking the goldmines in the heads of workers and entrepreneurs in neighbouring clusters. This approach is newly theorised but has been practised for some years by certain accomplished regional development agencies. These include the Bavarian innovation agency Bayern Innovativ, the Lower Austrian development agency responsible for Clusterland, and the Scanian and Gothenburg regional development agencies in Sweden (Cooke & Eriksson, 2011). The first of two cluster exemplars reported in this paper that refer to maritime industries is in the Gothenburg region of Sweden (Västragötaland) managed by the Swedish Maritime Technology Forum. The Forum (SMTF) is a not-for-profit organization, established in 2007, beginning its work in June 2008. It has resources of €1.2 million in public and private sector funding through Tilväxtverket (the Swedish Economic Development Agency), bank investment, services to the market and membership fees. SMTF has 200 companies involved in all projects with which it is involved and has a regular membership of 40. Membership is growing moderately well. The cluster focuses on heavy shipbuilding equipment and components, on the one hand, and leisure yacht design and construction, on the other. The second exemplar is in the Marche region of Italy, where the regional development agency (SVIM), three industrial district Technology Centres and a number of entrepreneurs utilised their strong business networks in the region to connect the furniture, leather and white goods industries to evolve a new cluster at Ancona based on luxury yacht building and marine services. The paper proceeds with a discussion of the theoretical and practical rationales behind these initiatives. It then provides an account of the SMTF cluster, followed by one for the SVIM cluster. Finally, conclusions are provided.

2. THEORETICAL PERSPECTIVES

Recent theoretical analysis of the relevance of the concept of path dependence for regional analysis has made progress on the spatial process (or regional paradigm) dimension of spatial evolution (Martin, 2010; 2011; Martin & Sunley, 2006; 2011). Moreover, Sunley’s (2011) and Tödtling & Trippi’s (2011) further reflections on the roles of ‘conventions’ in understanding the ‘soft institutional’ dimension of regional regime formation and change add considerably to the analytical content of regional regime and innovation system analysis. In a complementary manner Cooke & Rehfeld (2011) have analysed the relations between such conventions - meaning relational ‘soft institutions’ - and firmer structural institutions and organizations that compose regional regimes. Here a set of comparative and contrastive ‘frames’ were drawn up to capture different densities of regime narrative. These could be seen ranging from ethnic to urban, political, labour and business ‘framings’ in accounting for variety in the intersections of regional and corporate cultures. The integrated regional paradigm and regime is referred to as the regional socio-technical system.

Two recurring themes in this co-evolutionary spatial analysis are relatedness of industry, by means of which regional growth is assisted, and path dependence, by means of which it can be constrained. Exploration of the first is a relatively recent phenomenon, pioneered by Frenken et al., (2007) but already it is a core body of theory and empirical research in evolutionary economic geography (Boschma, 2005; Boschma & Frenken, 2003; Boschma & Wenting, 2007). The main mechanism by which relatedness influences regional growth
is through knowledge transfer between firms, one result of which can be innovation. The key agents of such transfer are employees developing their careers by changing jobs in neighbouring areas and new companies being formed by the spin-off process that may also be a vehicle for innovations. Path dependence is a more established concept arising in economic history, particularly the branch interested in the history of innovation (David, 1985). It has been analysed fruitfully in the context of evolutionary economic geography and particularly regional development, adaptation and change.

The champions of ‘relatedness’ indicate the pivotal position occupied by the idea of ‘related variety’ in evolutionary economic geography. Comparable to ‘proximity’, it has numerous dimensions, notably the cognitive, social, organizational, institutional and the geographical. Much research effort is exercised in relation to both concepts seeking to assess the relative importance of each in understanding the evolution of agglomerations or clusters, the core problematic of economic geography. In doing this, light is cast on the role of numerous other of the key process elements of interest to evolutionary economic geography, such as: innovation, technology, knowledge spillovers, learning and the creation of new regional developmental pathways. Foremost, authors take the two most frequently identified types of relatedness; geographical and cognitive as their main focus. Not a new idea, this distinguishes the base meaning of ‘proximity’ as ‘shared space’ from a distortion of that meaning, which allows a spaceless ‘community of interest’ kind of cultural closeness or ‘proximity’ to evolve (Webber, 1963). They then apply these perspectives to issues of externalities and regional growth, on the one hand, and technological change in new path creation, on the other.

With respect to externalities and regional growth Boschma (2005) and Frenken et al. (2007) note that a key research question has been the extent to which firms in agglomerations benefit most, if at all, from ‘Romer externalities’ of localisation or ‘Jacobs externalities’ of urbanisation. Specialisation and diversification are the key differentiating dynamics respectively of these two perspectives on growth and agglomeration. Specialisation has been a mantra of the supply-side, clustering and cluster policy era, with which, as ‘Smart Specialisation’ European Union regional policy makers remain obstinately obsessed. Even as key neo-liberal proponents abandoned ship after the financial crisis of 2007-2009 there was little policy recognition of the perils of unreflective advocacy of ‘regional specialisation’ (Porter & Kramer, 2010). This was doubly ironic since every policy body from the International Monetary Fund and European Union on down was calling for post-crisis economic re-balancing away from specialisation in financial ‘securitisation’ towards meeting ‘Grand Challenges’ like climate change. This was to be achieved by supporting greater economic variety in diverse forms of ‘Sustainable Economic Development’ of the kind facilitated by ‘urbanisation’ processes of knowledge cross-fertilisation. According to textbook perfect market conditions, specialisation would logically require low inter-industry knowledge transfer effort. This is because similar specialist technologies being utilised mean lateral absorptive capacity among incumbents would be accordingly high, requiring little policy intervention. However, because of market failure, especially in inter-sectoral knowledge transfer, such is seldom the case. Therefore, the gains from efforts by intermediary agencies to assist knowledge transfer among similar and different industries might yield a greater regional reward than awaiting intermittent market signals for firms to react to. Beyond sectoral relatedness, evolutionists also place strong emphasis on technological relatedness, even among diverse industries, as being a necessary but not sufficient condition for cognitive proximity, meaning clarity of understanding of the other’s business model, processes and potential, possibly leading to innovation-led profitability (Kaplan, 2008). The empirical research of Frenken et al. (2007) shows advantage accrues from the absorption of knowledge spillovers from
regional (and extra-regional) industry that is cognitively relatively proximate in some way (technological, inputs, skills) whereas gains from Romer externalities (specialisation) are less so.

These early analyses were static so attention turned to the dynamics of technological relatedness and regional branching (new path creation). This invited discussion of relatedness in the short and long term, one hypothesis being that constructing advantage from related variety only brings short-term advantage. Long-term, some wholly new branches are needed to sustain regional growth. This is clearly an open question, warranting deep thought because at the heart of spatial evolution is a notion of an industrial ecosystem, which means complementarities foster growth while unrelatedness destroys it. As noted in ‘transversality’ analysis of regional innovation and growth, keeping industry conscious of regional relatedness is one of the key tasks of the advanced regional development agency (Cooke, 2011). This raises a key question about the strength and longevity of radical innovation. Many authors use the term ‘radical innovation’ to denote relatively short-term but regime shifting change, for example in fashion markets (Verganti, 2006). More typically it has been utilised to signify a major, long-lasting waveform transition in the dominant technological paradigm (eras of mechanisation, motorisation, informatisation etc.). Path dependence applies to the period of ‘normal science’ (Kuhn, 1962) or unpunctuated regional equilibrium, which is the short-term in ‘episodic’ or short term radical innovation. But multi-level interaction between regime elements and paradigm elements is far more diffuse and complex during long-term, more ‘epochal’ periods. Because the ‘relatedness’ perspective can appear ‘dis-embedded’ from neo-Schumpeterian concerns about innovation and policy, it can also appear to be vulnerable to randomness in its predictive qualities. However, this aspect improves with the introduction of a dynamic element into the analysis represented in such branching processes as entrepreneurship, merger & acquisition, and exploitation of industrial density. These are also mechanisms that contribute to regional path dependence, which impose a heavy effect on regional evolution such that new path creation is generally influenced by the industrial legacy. This makes the Silicon Valley phenomenon really an extreme exception rather than the rule of regional development, which is one reason why it has never been replicated.

The idea of the regional economy as a path dependent system is the subject research by Martin (2010; 2011) and Sunley (2011). Among the conceptual issues raised are questions such as the extent the regional paradigm and its ‘regime’ are uniform, or composed of elements on different paths; to what extent are paths articulated even if they are on different paths; indeed, can regional evolution be characterised as systemic at all? Clearly these are salient questions because articulation would suggest relatedness and disarticulation the opposite, namely chaos. Hypothetically, therefore, the disarticulated region would be expected to be weaker in economic terms than the systemically articulated one. Much depends on refinements of conceptual degree and intensity. Thus it may be unnecessarily misleading to inquire whether regions display path dependence in certain industries or not. Many are ‘externally-controlled’, some are endogenously so. As Cooke & Rehfeld (2011) show this makes a real difference in regional paradigm embeddedness. Thus Westphalia-Lippe in Germany remains endogenously path dependent on strong, internationally competitive, quality products produced in family firms. Wales, by contrast is path inter-dependent on both legacies and opportunities in engineering, energy and agro-food. This helps illuminate important aspects of what qualifies an economic region to be differentiated between displaying path dependent and path inter-dependent socio-technical system characteristics at the regional level. One element is clearly ‘agglomeration’, another may be ‘origins’, ownership or ‘embeddedness’ meaning when and why key events
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first occurred, evolved and diversified or ‘branched’ in a particular region. Martin (2011) suggests the predominant way in which regional path dependence has been conceived is either in terms of industry ‘selection’ of one from a number of candidate regions, or why regional ‘specialisation’ occurs in a specific industry.

However, a second approach involves the conscious quest for regional path-interdependence between industries; in other words its entire ‘paradigm’ and ‘regime’ evolution such as would allow profiling systemic regional articulation. This question is also asked in investigations of ‘regional varieties of capitalism’ and ‘regional corporate cultures’. Regional path inter-dependence introduces the historical dimension quite profoundly. Cooke (2011) advances evidence for this in small, Nordic regions. Here early path dependence (e.g. ship’s propellers; milk coolers; plough design) remains embedded in later path dependent industry (wind turbine blades) in north Jutland, while forestry (pulp and paper) reveals early path dependence and flexography (packaging; printing; film scripts) are later emanations of an initial resource endowment in Värmland, Sweden. Connecting to the earlier discussion of ‘epochal’ and ‘episodic’ radical innovation both transitions described above have ‘origins’ in ‘epochal’ (long wave) exploitation of natural resources such as Schumpeterian ‘mechanisation’. But paradigms have been ‘episodically’ innovated according to opportunities arising from intersections of epochs (e.g. ‘mechanisation’ and ‘electrification’ for windmills; ‘mechanisation’ and ‘informatisation’ for flexographics). Of course, path dependence with renewal also applies to epochal long waves and their after-shocks. This seems more satisfying than the ‘randomness’ that some path dependence analyses share with some ‘relatedness’ perspectives (David, 1985; Arthur, 1994)

3. GReENsHIPPInG In sWEdEn

In this section an account is given of the emergence, focus, mode of operation and relatedness interactions of a shipping cluster in Sweden (SMTF) that is leading efforts on a global scale to produce ‘greenshipping’ practices among global maritime players. Other advanced ideas being deployed include gender dimensions of yacht design as Volvo initiated in the past in relation to its ‘Concept’ car.

SMTF Projects: The typical way to build the cluster is to engage firms in projects. Projects are ongoing among the shipbuilding community in general. Hence it may be that some potential members do not join SMTF because they have their own private projects with local or even more distant partners (e.g. Green Shipping project of Wilhelmsen). Or in the case of the Finns who want to sell a whole package rather than shipping components, which is what the region specializes in. Nevertheless the cluster is key to allow learning opportunities to evolve such as in the ‘Lean Marine’ project. This brings lean production methodologies developed in the automotive sector to ship building.

Clean technology (Cleantech) informs numerous SMTF projects. Thus Denmark’s BluDenmark initiative stimulated a clean shipping strategy by SMTF that aims to produce a Clean Shipping Index. It was found that many Swedish firms had developed Cleantech solutions but had not marketed them strongly. An advantage of the cluster is that it could encourage higher prioritization of these products and market them better at trade fairs. It was further realized early on that the future of shipping energy lay in gas (liquefied natural gas – LNG) rather than heavy diesel which is more polluting, in order to achieve the ‘Clean Ship’. Each such element feeds into the Clean Shipping Index. This Index will
be validated by Lloyds Register, Ericsson and IKEA, for example – all practiced in Green Production and Services. However, such bunkering of gas to replace diesel has as yet no regulations or legislation that would speed along Greenshipping development.

**Greenshipping** is one of the major projects promoted by SMTF. This has resulted in innovative designs being produced for two merchant ships, a Ro Ro Ferry and a Tanker. Key parts of these ships are capable of massive reductions in CO2. The skill of the Uddevalla and Gothenburg ship builders lies in making components that are assembled by final producers, many of which are in Asia, notably China and South Korea. **Maersk** alone generates 9 billion tons of CO2, for example. The Board of SMTF is generally supportive, but as in other Swedish cluster initiatives, attendance is variable. Companies are the best attenders at SMTF Board meetings. Politicians, however, are not regular attenders. It is noted by the SMTF managers that there is a communication problem between politicians and shipbuilders. Thus larger firms inquire why foreign firms can’t be SMTF members while W. Gotland sub-areas like Fyrbodal are unclear why SMTF has to be a national initiative since they prioritise actions that benefit their localities.

**SMTF Markets:** the current recession affects both shipping and leisure boats. SMTF continues to conduct meetings and organize or attend exhibitions (361 attended a recent one). They also engage in match-making events for Swedish firms, which work well and are known as the ‘meeting machine’. However, Swedish shipping businesses are less prominent at some international events than, for example Norwegians. Thus two Swedish representatives displayed at an exhibition at Archangelsk about the White Sea and North East Passage to China, whereas over 30 Norwegian firms attended, including two delegates from the Norwegian Foreign Office. SMTF considers Norway’s National Maritime Strategy to be an advantage for which there is no equivalent in Sweden.

The recession also means that SMTF could be assisting ship workers who become redundant into the leisure yacht business. High school training would be arranged but at present demand for leisure yachts is also low and firms are not hiring. So SMTF is negotiating with the Employment Agency with the incentive that if a person undertakes the conversion training programme they will get a job in 4 months. This may be speeded up by redundancies announced in January 2010 at SAAB where automotive engineers may be re-trained with Employment Agency assistance to enter the ship engineering business.

Growth barriers for the cluster include the following. There is an initial reluctance by firms to engage in networking. This is because they come from a highly independent tradition. So getting started on match-making can be hard. However the chances are high that a firm may at the second meeting get an order, in which case they become more willing. There are many such success stories. Connecting to Nordic exhibitions can also be valuable as in the case of the recent Norwegian exhibition on Greenshipping, which was of great relevance to the W. Gotland ship engineers. Russian business is thought promising by SMTF.

85% of Sweden’s shipbuilding is in W. Gotland and many firms and engineers already act as mentors to Russian firms. But below Sweden’s ‘Big Five’ SMTF lamented the absence of industry-wide representation which would make Swedish ship building a more proactive industry than at present. For instance, the Swedish Export Board was said to have to be paid to represent Swedish shipbuilders and this acts as a disincentive for a small organization like SMTF. SMTF manages a service cluster in shipbuilding. They seek to show designs of new ships to shipowners and shipyards e.g. through the Swedish-Chinese Maritime Association. China has for a long time (since 1980s) had what now
has evolved to over 70 Swedish firms present in that country. Russia, as noted is another target market.

**Foresight & Future:** SMTF is future oriented in both shipbuilding and leisure yachts. A project in the latter is the CONCEPT leisure yacht for women initiative. Neighbouring Volvo once designed a prototype CONCEPT car, many of whose innovations are now found embodied in modern cars. Yachts are a male preserve in design, image and practicalities. But women are a new market segment. SMTF did a survey to find out what women want from yachts. They identified over 20 current design weaknesses ranging from comfort and convenience to safety. These were exhibited successfully in cartoon form and agreed by the industry to be in need of attention. SMTF arranged for Stockholm Design College and Uddevalla’s nearby Industrial Design department to design modules for such as women’s yacht market. Servicing yachts for tourists is also seen as a new growth market. Making ships from composite materials is also being studied both for yachts and superstructures of large ships.

Shipbuilding is unlike automotives in being very horizontally integrated while automotives is vertically structured. Thus it is open to innovation by cross-fertilization or cross-pollination, which is a strength in this era of distributed knowledge flows from different hotspots around the world. Greenshipping designs recognize this, as does the Concept initiative for yachts, which connects to creative industries and probably Cleantech. Knowledge is also combined with energy providers on the LNG project. SMTF have built the first Swedish shipbuilder database. SMTF notes that as W. Gotland shipyards went down, so with them went any Swedish National Shipbuilding Strategy.

**Policies** – of most assistance here has been the Tillväxtverket support package for SMTF. W. Gotland region supplies even more financial support and has been very positive and committed to SMTF support. The European (ERDF & ESF) Structural Funds are in the picture supporting SMTF too. The ERDF fund is already successfully accessed while bids are being composed for ESF funding and also InterReg project support. The SMTF aim is to make the Forum an AB (private company) eventually. There would be immediate VAT savings of 25% if that happened. For the moment the future funding sources are expected to be as above with reliance on regional, EU and possibly private services sales as sources of support. Arranging exhibitions as at Stavanger, Sandefjord, Poseidonia and Hamburg could be services for which a fee is charged in future. Selling green services, the Green Index and so on would also contribute to SMTF coffers. Arranging yacht services for tourists, mainly from Germany, Denmark and Norway would be another. But no strategy for exiting Tillväxtverket support is yet in place or substantively under discussion.

**SMTF Summary** – SMTF is a competent, hard working and well-informed cluster organization. It has good profile that could be enhanced by a public relations drive such as that conducted by some other Swedish clusters but efforts to promote shipping and yachting at local, national and international exhibitions are exemplary. Employees of SMTF are innovative, as the Greenshipping and Gender focus on products and services show. Future funding is an issue, though currently the budget - while a little on the low side – compares favourably with some, better-funded Vinnova (Sweden’s innovation agency) cluster projects. Local and regional support as well as EU will be crucial in future. Some of this brings unwelcome bureaucracy, so project management software to reduce this burden, as developed by the FPX ‘positioning’ cluster is recommended if it can be afforded. This would free-up valuable management time for more productive activities.
The Board needs reviewing – if representatives do not turn up, they should be replaced. More business representation may be necessary. But in general SMTF is an impressive and interesting organization. It should continue to be supported by Tillväxtverket.

4. TRANSVERSALITY & ORCHESTRATION IN CLUSTER RENEWAL: MARCHE REGION, ITALY

Marche region in Italy has branded itself with the grand narrative of being a classic, creative Italian industrial district economy. As farming declined from the 1950s and 1960s entrepreneurship and innovation grew in small-firm networks concentrating on agro-food processing; footwear and leather; textiles; white goods; and furniture. Like Värmland it is seen as peripheral, yet it has above-average regional GDP for Italy and sees itself as a quality economy, promoted with the ‘Made in Marche’ brand. However, in the depths of the global financial crisis of late 2009 the common perception of policy and representative economic actors with respect to the Marche regional economy was that it had been deeply, possibly fatally, undermined by the crisis. Many small firms had gone to the wall; even larger firms in the agro-food industry had been bankrupted. Globalisation had, in any case, made trading conditions for Marche firms considerably more difficult, not least because most were in traditional industries like footwear and leather, textiles, furniture and food. Only the substantial electro-mechanical industry, boasting such globally-recognised names as Indesit-Hotpoint and Ariston white goods production were at least somewhat future-oriented in their business planning. First, as is shown in regions that have long-established clusters, it is possible for cluster managers, for example those who manage the specific cluster Technology Centres, to scale up cluster activity by creating a ‘conversation’ about developing a new cluster. A regional development agency may be a crucial facilitator of such an initiative, but equally it may come from below, including from a single firm that perceives advantage in clustering its activities across normal company boundaries. The case to be discussed below is from Italy’s Marche region, but it has obvious relevance for VGR where a major part of Sweden’s yacht production is concentrated. Recently, SMTF VGR’s marine technology cluster has commissioned new modular designs for improved facilities such as bathrooms, kitchens, seating areas and so on in response to criticisms of traditional boat designs from women consumers.

The key economic development orchestrator is Sviluppo in Marche (SVIM). This is a small agency that interprets innovation strategy guided by the Laws passed by the regional government. These give ‘rules of the game’ for different policy areas and SVIM forms its sense of priorities and activities according to its interpretation of these. Hence, for example, most of the time of the thirty staff of SVIM is spent on the arduous task of tendering mostly successful bids for EU Structural and Framework Funds. The efficiency of Marche Region in disbursing such funds means that in 2009 it was the first Italian region in actually ensuring allocation of funds to recipient organisations and partners. Such funds as these form the largest part of the SVIM budget. In 2008 this was reflected in a global budget for projects of all kinds, numbering 150 approved, of €35 million. The annual budget of the organisation, by contrast, was of the order of €3-5 million. Seeking such funding is guided by five fields of activity: Innovation; Research; Energy; Credit Access; and Internationalisation. However, this focus had occasioned closure of the ‘Localisation (FDI) of Companies’ and ‘Sustainable Environment’ functions leaving Environment embedded – usefully – but secondarily in the Innovation function.

There is a widespread perception in Marche that the clusters that have served the region well for decades are in need of renewal. But the global financial crisis of 2008-9
had a more profound effect on Marche firms than previous downturns. This is almost certainly because of the fact that it was principally a crisis of the banks and specifically a crisis which froze credit, especially to small family businesses. Here is revealed, perhaps for the first time, a negative aspect of the Marche model. It was clearly built on the assumption that small, regular amounts of credit would be available through high trust, reputational links among small firms and regional or local banks. While that assumption prevailed the system could function in a flexible but specialised way within the distinctive clusters. But when even local banks, knowing their creditors for decades, experienced something akin to a collective nervous breakdown in late 2008, credit dried up, firms started to go to the wall and pressure on the regional government to respond with an extensive system of credit guarantees became irresistible.

The marine cluster project was launched by the Marche region in October 2004 with the goal of establishing a new, technically specialist yacht and shipbuilding system in Ancona. In 2008 agreement to implement this decision was reached among the relevant clusters and networks of enterprises in the region. The initiative will develop a system of goods and services related to navigation, namely shipbuilding, pleasure craft, accessories and infrastructure for tourism and commerce and horizontally connected to the other main regional sectors like wood-furniture, textile-clothing, manufacture, mechanics and electronics with the aim of further integrating the different clusters. The innovative dynamic of this cluster is that it utilises the existing skill sets and entrepreneurial strength from the diverse sectors in the Marche region and coalesces them into forming an effective manufacturing productive system in both shipbuilding and in the building of pleasure crafts. Competences, entrepreneurship and experience of cluster management in related industries means process management gains natural support but assistance from the RDA (SVIM) is crucial in accessing State and EU regional development funding. The innovation in the marine cluster is internally driven by the interaction between previously demarcated industries, a powerful example of the concept of related variety.

Support for process management is evidenced where several leading companies from other regional clusters have synergies with the shipbuilding and pleasure craft sector. The Group Poltrona Frau, for example, diversified towards the nautical sector such as the agreement with Ferretti Group for a set of innovative and research based products tailor-
made for the interior decoration of the Pershing yacht series. Mobilificio Meneghini (a furniture company) created a special brand “Meneghini Yacht Line” for the realisation of luxury yacht kitchens. The key conclusion to be drawn from this example is that clusters can revitalize themselves by cross-pollination to those displaying ‘related variety’ which in turn brings efficiencies due to knowledge spillovers and good absorptive capacity among neighbouring technology producers.

5. CONCLUSIONS

It is evident that this new perspective on knowledge flows introduces numerous new concepts. Most of these are not difficult. The key ones are ‘relatedness’ and ‘transversality’: ‘relatedness’ refers to industries or clusters in a region that cross-pollinate their respective knowledges. This happens in circumstances where they seek to create innovation. Thus an automotive firm might use an aerospace innovation in the simple version of ‘relatedness’. More interestingly, in exploring the unknown, firms might, together, create a new knowledge combination that leads to an innovation that founds a new industry. This occurred when steam engines were applied to wheeled vehicles, setting in motion an important new phase in the industrial revolution. It happened again when Daimler put an Otto internal combustion engine on a bicycle, creating the motorcycle in 1885, then with Maybach did it again in the same year with a four-wheeled vehicle. Because relatedness is so important to the knowledge recombination that creates innovation, some innovation agencies induce such ‘transversality’ from regionally neighbouring firms by organising ‘storytelling’ or ‘innovation theatre’ events where firms learn of innovations in related as well as unrelated industries. They then support early-stage exploration of the ‘preadaptation’ qualities to the new use (Kauffman, 2008; Schreyögg & Höpfl, 2004). ‘Framing’ is proposed by cognitive organisational theorists like Weick (1995). A frame packages the rhetorical devices in favour of certain interpretations of meaning and against others. Finally, a ‘paradigm’ is the predominant industrial or service ‘culture’ in a ‘domain space’ like a region and a ‘regime’ is its governance system.

What was shown in the material described and discussed for the two maritime clusters that were focused upon is that both were examples of resilience, influenced by the strong policy perception that making knowledge recombination connections from maritime to related clusters was an advanced ‘business model’ not being conducted by their competitors to any great extent. Accordingly looking out from traditional, obsolescent shipping that had been out-competed by Asian countries enabled SMTF to find ‘green engineering’, women’s yacht and general leisure boat design capabilities in neighbouring clusters and institutions. Lateral thinking helped the cluster identify production niches that were open for exploration. In Marche region the crisis and its expectation caused entrepreneurs and SVIM to put together a transversal plan based on the relatedness of neighbouring clusters of leather, wooden furniture and white goods to think up a new maritime cluster that would both design and construct luxury yachts but also supply services to the pre-existing and evolving maritime industries.
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