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Clusters, unlike diamonds, are not forever

The European way to global competition

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Introduction

The ‘European way to global competition’ appears to be narrow and burdensome. Manufacturing of the labour intensive variety, no matter the tax subsidies, will never return to EU-15, while ‘talent’ and creative skills are what matters most.

It is precisely the role played by innovative workers that changes the economy of cities and regions and enables them to attract further skilled workers, until territories leap into the knowledge-based world and become ‘winners’.

While Europe is still discussing how to repay those huge budget deficits that are the legacy of the 2008 financial crisis, it is quite clear that many existing EU clusters of SMEs will either need restructuring in depth, or will fade away. One major problem is that there is limited room for dramatic changes in production costs: microeconomic efficiency is largely under control. Differently, major problems are hidden in the total factor productivity (TFP) issue (see § 1) and the perception that millions of work places are at risk – under the pressure of low cost products from extra-EU countries – is basically right (Farshchi et al. 2009; Dettori et al. 2013). The European dilemma cannot be, therefore, ‘austerity’ versus ‘no austerity’. It is rather about Europe phasing in a long-term plan that balances its need to protect the most vulnerable in this generation, while funding most opportunities for the next generation, and still creating growth.

And to do so Europe has to change its policy, and to go quickly and fast towards a new season of place-based policies (PBPs), within a shared frame of simplified taxes, simplified regulations and more accountable government (Barca 2009). It is typically a multilevel governance policy problem, with a strong role for regions as main actors in the process, as they are the subject best positioned to manage such new policies: large enough to matter and small enough to care.

The ‘European way to global competition’ needs to better exploit the existing specific assets Europe is endowed with: the presence of Islands of Innovation (IoI) (Hilpert 1991; Caragliu and Nijkamp 2012) strongly intertwined with SMEs (also) operating in low-medium and medium-tech (LMT) industries (Cappellin and Wink 2009; Robertson et al. 2009).
The present chapter is structured into six sections. The first section offers a view on the major problem of TFP which plunges its roots well before the recent global downturn and sees Europe (on average) striving with America. The second section looks at the R&D and patent issue in a quite critical way, showing that R&D is not the only (nor the most fruitful) means to innovate, and these considerations open the way to discuss two features characterising the European landscape (the third section): soft innovation and LMT sectors.

The next section is dedicated to the territorial dimension of innovation systems and the emergence of ‘IoI’. While strong reinforcing mechanisms are surely at work within those ‘Islands’, the section raises doubts about the trigger elements that can allow an accumulation process to start when a territory is positioned well below a minimum threshold. An implication of these difficulties is that Europe should balance an ‘endogenous innovation pattern in scientific network’ with the ‘creative application pattern’ (see the previous section) in order to fully exploit its manufacturing competences.

The fifth section throws light on the need for a new PBP, discussing its economic rationale and the need for a European governance of the process, while the final section shortly resumes the main conclusions of the chapter.

**Scanty productivity and the role of technological innovation**

The recent global downturn has definitely brought into the light major problems in European competitiveness and, particularly, a scanty trend in productivity that dates back at least twenty years.

During the decade 1995–2005, ICT investments contributed twice as much to aggregate labour productivity growth in the USA as in Europe: earlier adoption of ICTs in the USA, largely related to a more intensive use of high-skilled labour, contribute to a gap in labour productivity between the EU market economy and the USA of 37 per cent (Timmer et al. 2010).

A large part of the enduring gap is explained by the differences in the efficiency with which labour and capital are used, as measured by TFP, and within this aggregate measure, it has clearly emerged that business services account for a significant part of the difference, so that we can surely conclude that future growth in Europe will crucially depend on the path taken by market services. Also within Europe we have to record important national differences. Estimated TFP levels point out a concentration of high values around Switzerland, the Netherlands, Western Germany and Norway, while Mediterranean countries are falling short.

While the declining European employment trend was reversed in the first half of the 1990s – due to a widespread deregulation process of labour markets – a malicious trade-off between jobs and productivity has rapidly grown: it is frequently argued that the price paid for the European ‘employment miracle’ was a drop in labour productivity growth.

Different experts have also insisted on institutional characteristics of educational and innovation systems in Europe (Niosi 2010), arguing that European slowdown is mainly related to difficulties in switching from growth based on ‘imitation’ to growth based on ‘innovation’, but this idea is largely controversial, particularly if we assume a narrow view of innovation, mainly considered as a barely technological problem.

The convergence between human capital and technological innovation leads to the idea of ‘IoI’ (Hilpert 1991, 2003) and the role of territories in shaping firms’ competitiveness.

Specifically, a distinctive advantage of winning territories is their ability to produce, attract and retain those workers who provide the ideas, know-how, creativity and imagination crucial to economic success.
There is a large debate on the role of high-tech – jobs, firms, sectors – on regional performance and this debate is particularly vivid in the US. Enrico Moretti (2012) explores the ‘brains hubs’ phenomenon, offering an answer to the old but still intriguing question: why are some places more prosperous than others? That can be doubled with: why does American urban renaissance look more effective (and conducive to growth) than the still lagging Europe response?

The shareable starting point of the analysis is that the future and the destiny of urban areas will depend heavily on the degree of education of their citizens, and the difference among even similar urban areas has increased more rapidly over the last decades.

The powerfulness of American high-tech markets – hauled by state-of-the-art technologies and the research and patents system staying behind – is concentrated in no more than two dozen communities of innovators. A handful of cities (see Table 24.1) with the ‘right’ industries and a solid base of human capital, keep attracting good employers and offer them high wages: all of them share high-skilled professionals, innovative firms and a thick professional labour market.

European clusters actually result in fast innovation-takers and slow innovation-makers and, in addition, we have to remark that clusters are not forever, as they can no longer compete by squeezing productive costs while they rather need to strongly innovate.

As directly experienced in the last downturn, European regions with the ‘wrong industries’ and a limited human capital base have been struck with dead-end jobs and low average wages. Moreover, a great divergence in education levels – as witnessed by the most recent OECD study (2013) – is causing an equally large divergence in labour productivity (and therefore in salaries). Obviously, these territories evidence some worrisome lock-in, and it is by no means easy to plan a new development for them.

The bright side of the moon: R&D and patents

R&D, notwithstanding its important role as a determinant of innovation, accounts for barely a quarter of the total expenses aimed at obtaining product innovation (Kleinknecht and Mohen 2002) and the choice of other innovation activities, beyond formal R&D effort, is all the more important for the innovation process of a large number of industries.

Anyway, when we concentrate on R&D activity as an input of the innovation process – and on patents as the main output deriving from R&D – there are many unavoidable points to be mentioned, and because discussion on these themes without hard evidence will inevitably be constrained to simple speculation, let the numbers tell us a story.

The PatVal EU survey delivers different enlightening interesting information, to some extent ‘contra intuitive’ for non experts in the field. We would like to simply summarise three main points (Gambardella 2009).

1 30 per cent of the overall European innovations are not the result of specific R&D projects and, within this group, 8 per cent of the patents are the outcome of pure creativity without any investment; 70 per cent are the expected results of R&D projects but, again, a good half of this 70 per cent represents a by-product of the principal investigation line. Ultimately, half of the research effort comes up from unexpected innovation: pure serendipity! That’s to say only one third of the innovations comes out exactly where scientists, researchers and technicians are searching, and – even more important – where investors are putting their money, while at least two thirds of the innovations are less formal and unstructured, and they also count for a large share within structured R&D projects.

2 Large firms (more than 250 employees) hold more than two thirds (70.2 per cent) of all registered patents – while universities as well as individual inventors play a very marginal role.
role, with a share of 3.3 per cent and 3.1 per cent, respectively – and they use only a short half of their patents portfolio.3 So, once again, we have many more ‘ideas’ (patented innovations) than the number of applications actually delivered to the markets. If we could only find out good market applications for at least one fourth of the already patented inventions we would be able to increase the productivity of the whole R&D system dramatically.

3 A final point is related to the value of patents.4 There exists a very small number of great value innovations and a huge number of low value innovations: the greatest number of patents share a value around 6,000 euros (mode), while 380,000 euros is the median on the distribution. High value innovations more frequently belong to large firms because they systematically invest in research activities, and we know from the literature (Gambardella et al. 2008) that the value of patents primarily depends on R&D expenditures.

To cut a very long story short, most large firms and research institutions have drawers full of unexploited patents, and the value of used patent is, on average, quite small. R&D, therefore, it appears is not the only way to be innovative (nor necessarily the most fruitful). This is to underline that R&D is far from being an ‘efficient process’; it is rather characterised by a very high component of ‘serendipity’ and randomness: a too exclusive attention on R&D is not that interesting for knowledge exploitation, and patents are only a starting point towards a successful market adoption.

At the European level, the simple comparison of the geographical concentration (at Nuts 2 level) of R&D expenditures on GDP (a standard input indicator of the innovative effort) and the spatial dispersion of the share of firms introducing product and/or process innovation (a standard measure of innovative outcome) is quite enlightening. A largely expected result is that the geography of knowledge and the geography of innovation do not necessarily overlap in space (Caragliu and Lenzi 2013).

It is a further evidence that a dramatic increase in the generation of ideas has not been matched with a corresponding increase in the exploitation of such ideas (Gambardella 2009). What we need exactly is not a simple increment of R&D investments but an increase in the productivity of research activities, as it is typically a field in which the simplistic judgement ‘the more the better’ is not true.

The Norway case is quite enlightening (Bhidé 2008). Its national innovation system does not perform particularly well on a benchmark basis. R&D intensity is relatively low, the number of patents is modest, the share of scientific publications has been decreasing since the mid 1990s, and the scientific productivity is evidently not outstanding. Nevertheless, Norwegian productivity per hour worked is among the highest in the world. Norway has been able to fully integrate ICTs in its economy, dramatically increasing the service sector contribution to total factor productivity: a promising case of being outstanding users of innovative technologies while being late comers as producers of them.

A generalisation of the Norway experience can be condensed into a simple statement: in order to grow, European countries should better increase the TFP rather than further enhance the frontier of already advanced sectors. And in Europe, to address backwardness (especially in the services sector) may be a very fruitful way to close the still persisting productivity gap with other non-EU competitors, especially advanced ones (USA, Canada, Japan, Israel, etc.).

**European assets: LMT industries and soft innovation**

Two major issues clearly emerge at this stage. First, the high-tech debate has fallen short in interpreting what is going on in many advanced, well developed, industrial economic systems,
where technology and innovation are playing a major role in rejuvenating mature regions and mature sectors. **Second**, there is a type of innovation, labelled ‘soft innovation’, primarily concerned with change in products of an aesthetic or intellectual nature. This soft innovation – for which R&D is not a good indicator at all – has emerged to play a major role in the innovation map of a large number of developed countries (NESTA 2009; Stoneman 2010).

Following Capello and Lenzi (2013) we can distinguish three conceptual archetypes of territorial patterns of innovation: i) an *endogenous innovation pattern in a scientific network* that frequently takes the form of ‘IoI’; ii) a *creative application pattern* in which innovation performances consist of the skillfulness to exploit knowledge spillovers in a creative way, by recombining, integrating and enriching the local knowledge base with new knowledge coming from outside. It is precisely this creative application pattern that quite often generates ‘soft innovation’; and iii) an *imitative innovation pattern* that mainly consists in adopting and imitating different innovations developed elsewhere. This last one is a kind of innovative profile strongly present in the most proactive firms in LMT industries.5

Starting from the last territorial pattern of innovation (iii), it is worthwhile stressing the role of LMT sectors that are an overwhelming presence in the European manufacturing scenario. Not only are they the dominant sectors for European exports into the global markets, but they are still the fastest growing sectors in international trade (Cappellin and Wink 2009). In different cases these LMT industries are characterized as ‘mature’ regions that experience industrial restructuring and transformation and are populated by SMEs.

At the same time, LMT sectors are far from being internally homogeneous. We can find a number of well performing firms, focusing on an expansion of knowledge that goes beyond maintaining the absorptive capacity that LMT firms need for successful adoption of innovations developed elsewhere. Innovation has in fact evolved from context-free linearity to embedded complexity, and effective innovation within LMT firms is often rooted in the exploitation of their problem solving capabilities, deriving from a long history of learning-by-doing processes. European LMT firms have largely contributed to the competitive race with ‘integrative technologies’ that are the bridge to applying general insights of high-tech to concrete and very specific engineering problem solutions (Robertson et al. 2009).

Innovation is therefore an expression of capabilities gained with interactions with other actors, through the processing of experience and tacit knowledge. It is not easy to put together forms and materials, and the way to do so – the only way to do it – is to build objects, to be a ‘maker’ and this is undoubtedly a very strong asset of European firms and clusters.

One of the main challenges for the future therefore regards innovative products, highly customised, manufactured on very small lots, supplied by a new generation of firms in between high-tech enterprises and craftsmen (Micelli 2011). So, products are no more sold as simple objects: they are stories, technologies, culture and even art; they are the true expression of a territory.

In a recent study on EU regional innovation patterns (Caragliu and Lenzi 2013), it emerges that regional structural elements matter more than sector-specific characteristics in shaping a region’s innovation pattern. The implication is the emerging need for a place-based approach to innovation and industrial policies rather than supporting their non-neutrality.

We have previously referred to a *creative application pattern* in which talented, smart and creative entrepreneurs are able to identify new needs and unmet demands, and it is precisely here that ‘soft innovation’ may be an appropriate answer.

Two main implications derive from this innovative behaviour. First, soft-innovation is frequently interlinked with more consolidated technological innovation, in the sense that the first derives from the second and that, for any new true technical innovation, we can discover a whole family of descending soft-innovations.
Second, we need a new metrics to measure the dimension and the impact of soft innovation on the productive system and on society. Due to a very high intra-sectoral heterogeneity, we need to conduct firm level analysis rather than sectoral level analysis (Bramanti 2015).

So, if we think that soft innovation may also produce good performances for firms, and enhance good jobs for society, we have an answer reversing the standard technological approach towards a new inclusive one: in order to prosper, European clusters should exploit talent and creativity to make wonderful new objects that meet new needs and the unknown wishes of affluent consumers, so that they ‘will buy like crazy when they see them’.

The emergence of ‘IoI’: agglomeration and networking

To some extent, ‘hard science’ and ‘soft innovation’ should and could proceed hand in hand, that’s to say that an endogenous innovation pattern in a scientific network and a creative application pattern may walk side by side, towards a converging territorial perspective and this seems to be a particularly promising path for European competitiveness future.

The traditional top-down, linear innovation model has come to an end. It was a perspective in which knowledge supply played the major role without a real function for demand articulation.

Differently, more cyclical and open innovation models look at the triangular structure incorporated in the Triple Helix model (Etzkowitz 2008) in which knowledge sector, industry (the productive platform) and government are linked together.

When adding the spatial dimension to innovation systems we are stressing economies of scope, tacit knowledge, communities of practice and thick labour markets. We can recognise the existence of a ‘local buzz’, that is a knowledge and communication ecology created by face-to-face contacts and the co-presence and co-location of a variety of stakeholders in the local milieu, which cannot be easily reproduced at any location.

All these ingredients, interacting together, shape what have been called ‘IoI’, where local networks and open access to modern technology give rise to a local cooperative learning process. Here emerges a reinforcing co-existence of scientific and industrial expertise (Caragliu and Nijkamp 2012).

It is quite easy to understand that – in order to preserve their dynamic control of evolving technologies and knowledge accumulation – such IoI have to bridge, to strengthen horizontal linkages, to network together at least at a continental scale.

Peter Nijkamp (et al. 2011) suggests calling these networks among nodal areas ‘creative hotspots’, where creativeness is a cognitive ability that may lead to new ways of thinking and acting, while connectivity among clusters of innovation plays a central role in implementing a regional innovation policy. A creative hotspot derives its innovation and growth potential from three major sources: i) economies of density in a given ‘IoI’ or metropolitan knowledge region; ii) economies of synergy as a result of complementarities among different areas; iii) economies of linkages in satellite locations through specialised supply of, or demand for customised goods, not available in the core agglomerations themselves.

A fundamental implication of this joint presence of leading research institutions, and competitive firms able to fully exploit the available innovation potential, is that such ‘IoI’ – or creative hotspots – are able to educate, attract and retain not only a ‘creative class’ but also ‘star scientists’ (Zucker and Darby 2006; Tripl 2012, 2013). It is important to highlight that scientific elite is highly mobile and tends to concentrate geographically in only a few places worldwide; a handful of major urban areas in both the US and Europe are connected by such unique conditions and – even more important – they seem to be rather stable over time (Hilpert 2009).
It is instructive to compare US and Europe ‘IoI’ as top researchers have surely a strong potential to be key drivers of science-based innovation. Following a recent empirical study (Trippl 2012), the US and Europe together account for 85 per cent of all star scientists included in the sample and the large majority is densely concentrated in the top 8 + 8 creative hotspots (see Table 24.1). Top Islands are major locations of star scientists with a concentration that is higher in the US than in Europe (also for the persistent differences among twenty-seven national innovation systems).

One further point is that an important number of European star scientists have been working in US Islands for a while (on average six years) and finally they have chosen to relocate back home. In doing so, they reinforce networking relations between transcontinental Islands, while linkages between European Islands are almost negligible.

In addition, within ‘IoI’ multinational firms in recent years have started offshoring R&D activities. This new behaviour – jointly with ‘super stars’ mobility – has allowed some form of reverse technology transfer. A recent study on 262 EU regions (Castellani and Pieri 2013) has shown to what extent productivity growth is related to the creation of R&D labs abroad. The main result is that there is a positive correlation and European regions are still in the phase of increasing returns of the process.

From a policy perspective, European ‘IoI’ – which already act as gateways and hubs towards external research excellence – should play a role as facilitators of the participation of EU firms to global R&D projects.

Table 24.1 Number of star scientists employed in US and European ‘IoI’

<table>
<thead>
<tr>
<th>Top Islands</th>
<th>Total</th>
<th>Natural Sciences</th>
<th>Medical and Health Sciences</th>
<th>Engineering and Technology</th>
<th>Social Sciences</th>
<th>Agricultural Sciences</th>
</tr>
</thead>
<tbody>
<tr>
<td>USA</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>New York, NY</td>
<td>35</td>
<td>14</td>
<td>10</td>
<td>4</td>
<td>6</td>
<td>0</td>
</tr>
<tr>
<td>Los Angeles/San Diego, CA</td>
<td>32</td>
<td>13</td>
<td>8</td>
<td>7</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>San Francisco Bay Area, CA</td>
<td>29</td>
<td>17</td>
<td>4</td>
<td>6</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Washington, DC/ Baltimore, MD</td>
<td>29</td>
<td>13</td>
<td>13</td>
<td>2</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Boston, MA</td>
<td>21</td>
<td>10</td>
<td>4</td>
<td>1</td>
<td>5</td>
<td>0</td>
</tr>
<tr>
<td>Chicago, IL/ Milwaukee, WI</td>
<td>14</td>
<td>7</td>
<td>3</td>
<td>2</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Raleigh-Durham, NC</td>
<td>12</td>
<td>7</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td><strong>Total for top US Islands</strong></td>
<td><strong>191</strong></td>
<td><strong>91</strong></td>
<td><strong>48</strong></td>
<td><strong>26</strong></td>
<td><strong>21</strong></td>
<td><strong>2</strong></td>
</tr>
<tr>
<td><strong>Total for the United States</strong></td>
<td><strong>390</strong></td>
<td><strong>197</strong></td>
<td><strong>94</strong></td>
<td><strong>44</strong></td>
<td><strong>45</strong></td>
<td><strong>5</strong></td>
</tr>
<tr>
<td>Europe</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>London, UK</td>
<td>26</td>
<td>13</td>
<td>9</td>
<td>1</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>East Anglia, UK</td>
<td>12</td>
<td>9</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Munich, D</td>
<td>8</td>
<td>5</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Copenhagen, DK</td>
<td>7</td>
<td>3</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Glasgow/Edinburgh, UK</td>
<td>7</td>
<td>3</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Paris/Île-de-France, F</td>
<td>6</td>
<td>4</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Amsterdam/ Rotterdam, NL</td>
<td>5</td>
<td>3</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Milan/Turin, IT</td>
<td>4</td>
<td>2</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>Total for top European Islands</strong></td>
<td><strong>75</strong></td>
<td><strong>42</strong></td>
<td><strong>22</strong></td>
<td><strong>4</strong></td>
<td><strong>2</strong></td>
<td><strong>4</strong></td>
</tr>
<tr>
<td><strong>Total for Europe</strong></td>
<td><strong>197</strong></td>
<td><strong>113</strong></td>
<td><strong>51</strong></td>
<td><strong>17</strong></td>
<td><strong>5</strong></td>
<td><strong>9</strong></td>
</tr>
</tbody>
</table>

Source: our elaboration on Trippl (2012).
In order to reach the planned objective, policies should go beyond past experience, not entirely satisfying. Over recent years innovation policy has frequently become an ‘umbrella policy’ where functional dimensions and traditional policy areas have become mixed in a disappointing mess. Scholars and practitioners have repeatedly observed major shortcomings of the past experience of regional innovation policies in Europe (Bellini and Landabaso 2005):

- too narrow in scope and small in resources, with the interesting exception of the French experience of the pôles d’innovation;
- too ambitious, too unrealistic, and too uncertain in their results. Ultimately, they have seemed too vague and with an over emphasising of best practices syndrome;
- too difficult to manage, even for the significant presence of financial and legal constraints.

When we widen the horizon of our observations beyond such well performing ‘IoI’, a further critical question will arise. We can help a cluster fairly well with ‘after care’ policies – once it is already established – but we will have a hard time in the start-up and upgrading phases, till the cluster reaches its critical mass. In addition, and equally worrisome, clusters, unlike diamonds, are not forever! The current winners can be losers unless they manage to adapt, perpetually: they too are subject to Schumpeterian ‘creative destruction’ and to the competitive pressure arising from a rapid diffusion of technological standardisation and a growing quality in follower regional competitors.

So, the main challenging questions for policy makers are related to the possibility of nurturing a creative hotspot. It is the theory of ‘big push’ and we have to recognise that, in recent years, a large number of cities and regions have tried in their personal way to reach a critical mass in whatever sector or cluster is representing at least a potential winner. In doing so in the past few decades, the world has been mantled with ‘draft copies’ of Silicon Valley, none of which has been shown to work properly: there are always some missed ingredients or linkages. In the end serendipity, luck and the good fortune to have a successful, innovative, platform company located in your region, is what creates a ‘brain-hub’.

Towards a new PBP

Global competition delivers the same challenges to America and Europe, and a number of converging trends are framing the developing paths of both the Atlantic shores: i) the clear spatial clustering of innovative ventures with an increasing density of the agglomeration process; ii) the role played by top research universities in producing, attracting and retaining star scientists; iii) the relative stability over time of top ‘IoI’, both American and European ones; iv) the overwhelming difficulties met in replacing manufacturing sectors that have eroded their competitive advantages in relation to the new global ‘division of labour’ (with some difference between the US and Europe).

Beyond these shared features, deep differences also appear (Hilpert 2009). The shift from America to Europe plunges the analyst in a world populated by so many SMEs, frequently operating in LMT sectors, with a remarkable presence in the light industries (clothing, furniture, household appliances, rubber and plastic products, etc.), many of which are bravely facing global competition, but restlessly asking for new injections of creativity and novelty.

Moreover, Europe is the sum of twenty-seven different national innovation systems and markets that are still marked by significant differences in terms of purchasing power, tastes and preferences, consumers’ habits, communication strategies as well as advertising sensibilities (Niosi 2010).
The American system has been always connoted by a high flexibility in capital and labour markets – the ‘hire and fire’ feature that makes creative knowledge workers more footloose – and the result is the possibility of experiencing new combinations of factors but, at the same time, also quick competence destruction. As a consequence, the American system is much more prone to radical innovation and new sectors, where firms need to be able to change strategies at short notice.

When the pace of technical changes is so accelerated, a standard consequence is the rising of increasing diversities. A large number of regions seem to be in a difficult position towards evolution, and will probably be swept away by the rising concentration of valuable immaterial assets in a small number of ‘state-of-the-art’ places (Moretti 2012).

To remain prosperous, a society needs to keep climbing the innovation ladder, but not all cities (or regions) have been able to attract some innovative workers (or firms) to begin the process of growth. In addition, focusing on R&D investment, or on human capital, is not perse a solution for European clusters competing in light industries and with small firms.

Europe mostly needs ‘embedded policies’ since institutional and technological regimes are deeply interrelated, where institutions may be differently designed, according to the respective nation’s framework.

Within such a scenario, a good policy, enhancing productivity and fostering competitiveness, cannot be based on the simple idea of softening traditional factor costs, labour and capital. European firms have already at their disposal the best machinery in the world (mostly produced in Germany, Switzerland and Italy), the availability of excellent designers and a very high skilled workforce.

In old Europe, clusters of SMEs in LMT sectors would be better supported by public–private partnerships and by intermediate bodies representing the beneficiaries and being the subjects responsible for the implementation of a true cluster strategic programme (Florio and Ozzimo 2006).

The contemporary approach to PBP stresses: additionality; inclusiveness (strategy designed and delivered by a partnership between regional and local players); projects and solutions (bottom-up orientation with local actors proposing and accepting risk); and first rate quality.

This attention to enhancing competitiveness of clusters (also) in LMT sectors – and strongly connecting them with ‘IoI’ (the frontier of innovation research and patenting activity) – seems to be the only feasible goal in order to improve connectivity so that positive effects from such integration enhance the innovative potential of local economies. Such PBPs, without any deterministic view on the path that a single place should choose, have to recognise the values of a place’s own history, idiosyncrasies, endowments and capabilities.

An increased attention to ‘IoI’ – jointly with clusters of SMEs in LMT sectors – represents a sound declaration of what has been called a PBP: a programme to foster successful networks, or clusters of business, at the regional level. PBPs target the prosperity, equity, sustainability and liveability of places, how well or how poorly they function as places and how they change over time. They should promote the supply of integrated goods and services, tailored to contexts, as this triggers institutional changes; and leverage investments in targeted places, drawing on the compounding effect of cooperative arrangements.

If European territories need this new course of PBPs, within a multilevel governance approach, Europe represents the most appropriate layer for designing and monitoring them: why? Because: i) it is better able to take account of over-the-border interdependencies; ii) it can manage the need for rapidly produced techno-scientific progress intensifying the search for partners and trans-regional collaboration and allowing trans-Islands (of Innovation) collaboration to emerge; and finally iii) it can counterbalance the pressure of local interest groups that may distort or obstruct the development path pursued (Barca 2009).
Any experience of economic growth finds its enabling conditions in a rich set of complementary institutions, shared behavioural norms and public policies. Competitiveness oriented policies are not an exception; they offer their maximum contribution when technological progress is matched with innovation and changes in organisational models and institutions. The spring of productivity is almost always linked to complementary innovations in other technologies and in organisational routines (Dettori et al. 2013).

Concluding remarks

The chapter has developed an analysis of European disappointing productivity jointly with the role of innovation, broadly considered, as an answer to the challenges of global competition, passing through a discussion of some specific assets that Europe is endowed with – soft innovation and the making capability of clusters in LMT industries. Their future should be linked with the presence of ‘IoI’ which play a major role as hubs in the international networks of star scientists and science-based research.

To properly innovate Europe needs talented workers, endowed with high-skilled competences, a lively curiosity and imagination, and strong problem solving capabilities. European ‘IoI’ seem to be well positioned to contribute to both the creation and attraction of ‘smart human capital’ and to enable it to produce ‘smart new products’, provided they strengthen their networking with the largest number of SME clusters.

But theory is much further ahead than practice. While scholars and practitioners know many things about the innovation process, on the intertwined relations between ‘talents’ and technological advances, on the emergence of ‘IoI’, on the needs expressed by territorial SME clusters, they barely know how to design, implement and manage a supportive and competitiveness-oriented policy.

That’s why European PBPs are strongly needed, even when this looks like a trial-and-error approach, when they try to experiment and to open new ways of facing global competition.

Within this frame the chapter has introduced the idea of a ‘cluster strategic programme’, discussing the conditions for maximising its \textit{ex-ante} success possibilities. As specific innovation sectors, jobs, occupations and firms will come and go, live and die; there are no specific clusters that may be expected to prosper endlessly: a ‘Great Divergence’ is clearly in front of us.

A major consequence is a corresponding geographic rising inequality between the brilliant interaction of college educated, talented, innovative, highly skilled, highly waged, longest living, healthiest individuals, who gravitate to innovative brain hub metropolitan areas, and the other side of the moon: people living outside the brain hubs and characterised by mediocrity, lower wages, sickness and decline.

The ‘European way to global competition’ is still hindered by three main courses:

- the rapid transformation from manufacturing platform towards a service economy (with the derived problems of diminishing productivity) and a further shift towards the small dimension of enterprises (as the big ones are closing and delocalising);
- the dramatic rise of territorial differences (in opportunities, good jobs, and GDP per capita) with a small number of new winners and a large and widespread mass of losers (in terms of firms, cities and regions). Here the greatest divergences are all concentrated on the job market, showing unbelievable and unbearable, higher than ever youth unemployment rate;
- the emergence and consolidation of ‘Islands of Innovation’ (within an everlasting dialectic between agglomeration effects and networking) and their limited positive spillover effects towards surrounding territories.
This increased attention to ‘IoI’ – jointly with clusters of SMEs in LMT sectors – represents a sound declination of what has been called a PBP. It is a programme to foster successful networks, or clusters of business, at the regional level. European PBPs target the prosperity, equity, sustainability and liveability of places, how well or how poorly they function as places and how they change over time. They should promote the supply of integrated goods and services, tailored to contexts, which triggers institutional changes. They leverage investments in targeted places drawing on the compounding effect of cooperative arrangements.

We know that technological progress can contribute to meaningful changes in productivity if it is matched with innovation and changes in organisational models and institutions. The spring of productivity is almost always linked to complementary innovations in other technologies and in organisational routines. Many times positive productivity outcomes derive not only from technological upgrades but more deeply from new conditions to enable interactions and exchange of information within the work force.

The maximum degree of productivity change derives from the complementarities among three different kinds of investments: computer, high-skilled labour and organisational decentralisation. Overall productivity rises – both at the micro level of the firm and at the macro level of the productive system – when these three investments are soundly balanced, and this is the task and the challenge for the European Commission – to implement such a new PBP.

Notes

1 I’m deeply indebted to Nicola Bellini and Ulrich Hilpert for having discussed with me the advances of the chapter at different stages. The first idea has already been presented at a Workshop in Pittsburgh (June 25–26, 2009); many thanks to all the participants for their valuable comments and suggestions. I’m grateful to CERTeT, at Bocconi University which has supported my research programme during the last two years. The usual disclaimer applies.

2 The PatVal EU survey represents one of the more exhaustive and inclusive field analyses on patents in Europe. It was developed in 2003 focusing on European patents with priority years 1993–1997 (in order to allow the right delay for the exploitation of the patent). The final sample includes 9,550 patents gathered with a stratified sampling design that allows inference on the whole population (Giuri 2007; Gambardella et al. 2008).

3 When the main source of inspiration is innovators’ clients, the share of used patents rises up to 61 per cent. That is to say: if innovation is a clear answer to a specific problem (raised by potential clients) the likelihood of an effective exploitation is higher.

4 It is not easy to appreciate patents’ value, but there are two main ways to approximate it. The first is to ask the inventor what is the price at which he/she would sell the patent to his/her competitor (and we know that we normally gather overestimate values). The second is to look at the other side of the market, asking the buyer to express his/her willingness-to-pay or, better, collecting data on the prices registered in the patents’ auctions when they occur.

5 As a matter of fact, we should not fall into the trap of equating low-tech industries with low-tech firms. High, medium and low-tech firms are widely spread across high, medium and low-tech sectors.

6 Despite the little evidence on the commercial impact of soft innovation, there are important clues that soft innovations can generate significant returns.

This positive payoff from soft innovation casts doubt on the validity of analysis that concentrates on traditional business innovation alone. By excluding or ignoring soft innovation, they incorrectly attribute any benefits of soft innovation to changes in technological products and processes.

(Nesta 2009: 6)

7 Star scientists are identified by the number of citations in ISI journals (1981–2002). A worldwide survey accounts for some 720 top researchers, and among them the US hosts no fewer than 57 per cent, while the EU accounts for 28 per cent. As a matter of fact the US offers more favourable institutional conditions for attracting and retaining star scientists and it critically depends on the provision of excellent employment opportunities for outstanding researchers.
8 ‘A place-based policy is a long-term strategy aimed at tackling persistent underutilization of potential and reducing persistent social exclusion in specific places through external interventions and multilevel governance.’ (Barca 2009: vii).

9 A cluster strategic programme is characterised by some distinctive features aiming at: i) addressing the firms’ cluster and not the individual SME (also establishing a monitoring mechanism of its performance); ii) identifying a managing body in charge of the implementation of the strategy; iii) guaranteeing the presence of one (or more) financial investors ready to co-finance the project against a share in its future revenues; iv) allowing a cluster to experience a strong degree of freedom in selecting the specific interventions best suited to achieve its competitiveness targets.

References


