Towards Sustainable Industrial Competitiveness policy

Issues paper to EU Ministers of Industry
Part II A

SMEs, Innovation and Growth

Client: Ministre de l'Economie, des PME, du Commerce extérieur et des Technologies nouvelles du Gouvernement Wallon

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Preface

In the current economic climate, and with a new European Commission just starting, expectations about the EU's ability to advance in the development and implementation of coherent and coordinated economic and competitiveness policies is high. There is a clear need to revisit the key components of an integrated industrial policy for sustainable competitiveness. It is important to further define the Europe 2020 ambitions and translate them into concrete policies that will contribute to recovery and long-term competitiveness of EU industry as a whole. Within this context the EC is preparing a Communication on Sustainable Industrial Competitiveness Policy in the autumn of this year.

This issues paper is being prepared on request of the Belgian Presidency. It aims to inform the preliminary conclusions of the Industry Council of the EU, based on evidence which can be confronted with the European Innovation Plan and the Commission's Communication on Industrial Policy. The study results will be integrated in the programme of the Belgian Presidency.

This Issues paper consists of the presentation of a general framework for Sustainable Industrial Competitiveness Policy (Part I), followed by two contributions where this framework is applied to specific situations: SMEs, Innovation and Growth (this Part IIA) and Transformation and Resource-intensive Industries (Part IIB).

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SMEs, innovation and growth

1.1 Background and general context

Increasing competitiveness by reducing costs and stabilising public finances, while essential, will not be sufficient to ensure that the EU reaches a higher, sustainable growth path necessary to meet the economic, social and environmental challenges it is facing. Ultimately, this requires increasing productivity, which is the key driver of long-run economic performance and sustainability. In turn, innovation – by both generating and exploiting ideas – is crucially important because it is a key driver of productivity growth. Thus, innovation policy is a critical subset of any Sustainable Industrial Competitiveness policy.

Any attempt towards Sustainable Industrial Competitiveness Policy is doomed to fail if not specifically aligned to SMEs...

Economic simulations show, for instance, that, to keep the costs of tempering and adapting to climate change within acceptable limits, we need a sufficiently broad spectrum of implemented technologies[1]. Although much can already be done with a more effective diffusion and implementation of 'best available technologies', new technologies (in particular 'zero-emissions' technologies that are also not dependent on constrained resources) also need to become available. Today, these technologies are either not yet available or far from large-scale implementation.

Small and medium sized enterprises (SMEs) represent the overwhelming majority of European enterprises (more than 95%). In the EU-27, they also account for more than two-thirds of the non-financial business economy workforce and for almost 60% of the non-financial business economy's value added[2]. Therefore, any attempt towards Sustainable Industrial Competitiveness Policy is potentially doomed to failure if it is not aligned to the SME population. To put it bluntly: achieving a 10% improvement of 'sustainability' among SMEs is likely to have a far larger impact on society than a 50% improvement among large companies. Finally, SMEs do not only adopt sustainable modes of production (demand-side), they can also generate 'green' innovations and are often critical in the value chain (supply-side). Accordingly, SME's – and specifically their innovation behaviour – can play a crucial role in achieving the EU's economic, environmental and social ambitions.

In assessing the actual and potential importance of SMEs innovation behaviour, it is important to recognise at the outset that the vast majority of SMEs do not actively engage in research and technology development in a formal sense. For example, EURAB (2004)[3] indicates that the vast majority of SMEs, about 70%, undertake no or little formal R&D

[1] Aghion, Ph., Veugelers, R. and Serre, Cl., "Cold start for the green innovation machine", Bruegel Policy Contribution 2009/12, November 2009; Bosetti, V., Carraro, C., Duval, R., Sgobbi, A. and Tavoni, M. (2009) 'The role of R&D and technology diffusion in climate change mitigation: new perspectives using the WITCH model', OECD, Economics Department working paper 664.

[2] Eurostat, "Enterprises by size class – Overview of SMEs in the EU", statistics in focus, 31/2008, p. 1.

[3] European Research Advisory Board (EURAB), report on "SMEs and ERA), EURAB 04.028-final

activities. At the other extreme, a very small number, less than 3%, is involved in leading-edge research. In between these extremes, some 30% of SMEs regularly develop, apply or acquire technology. An obvious implication is that one policy objective may be to move SMEs up the research "stairway" towards higher engagement with, and involvement in, technology developments.

Although most SMEs do not engage in research in a formal sense, the vast majority of SMEs do innovate. Where innovation is understood as a much wider concept that goes far beyond technological development:

> "Innovation entails investment aimed at producing new knowledge and using it in various applications. It results from the interaction of a range of complementary assets which include R&D, but also software, human capital, design, marketing and new organisational structures – many of which are essential for reaping the productivity gains of and efficiencies from new technologies"[4].

Innovation needs to be understood in a broad sense – as most SMEs do not really engage in research in a formal sense...

From a policy perspective, therefore, it is important to recognise that SME innovation does not just concern 'high-tech' innovation but also encompasses production processes, business models and organisational design as well as technologies, and it is of application in both the manufacturing and the services sector. This broad understanding of innovation – and implications for competitiveness and sustainable development – can be applied to domestic as well as internationally-traded sectors, public and private sectors, manufacturing and services industries.

A large part of innovation in SMEs is motivated by the almost daily struggle to survive rather than by a long-term strategic development plan. Time horizons are short, resources are lacking, and solutions have to be practical and quick[5]. Typically, SMEs improve their existing products, processes and services in small step-by-step ways (incremental innovation). More rarely, they take a major risk and introduce a new product, process or service (radical innovation). Although 'new' knowledge required for innovation can sometimes come from research, more frequently, it comes from listening to customers and suppliers, observing competitors, talking to potential customers, experimenting with present products, processes and services, visiting fairs etc.

Although much of innovation in SMEs may be incremental and lacking long term strategic direction, a number of recent studies highlight the significance of highly innovative, high-growth SMEs for economic growth and industrial transformation[6]. In the US, for instance, this type of companies nowadays account for a disproportionate share of net job creation[7]. There is evidence, however, that in the EU the typical growth path of innovative SMEs lacks critical dynamism, to that extent that this explains part of the structural EU-US growth performance gap. In the US, and to an increasing extent in Asia as well, many 'Young Innovative Companies' (YICs) are able to grow rapidly and become key economic players worldwide. This occurs to a much lower extent in the EU.

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[4] OECD (2009), Interim report on the OECD Innovation Strategy, Paris, 2009, p. 4.

[5] EURAB report on "SMEs and ERA", Report and Recommendations, EURAB 04.028-final

[6] Cunningham, P. (2008), "Policies in support of High-Growth SMEs" – Thematic report, INNO Policy Trendchart, July 2008; Veugelers, R. (2009), "A Lifeline for Europe's Young Radical Innovators", Bruegel Policy Brief 2009/1, March 2009

[7] *"Fast-growing young firms, comprising less than 1 percent of all companies, generate roughly 10% of new jobs in any given year"*, in: Stangler, D. (2010), "High-Growth Firms and the Future of the American Economy", Kauffman Foundation Research Series: Firm Formation and Economic Growth, March 2010.

Using a sample of the largest companies in terms of market capitalisation and research and development spending, Veugelers (2009) shows that in the US (and also other non-European countries) young companies make up a much larger proportion of leading innovators than in Europe. 22% of the US companies which are now in the world top 1000 in terms of market capitalisation were created after 1975, compared with only less than 5% of their European counterparts[8]. Most of these US companies (created after 1975) are ICT companies, but similar trends can be seen in other emerging high-tech sectors, such as in the biotech sector. It seems that the US and some Asian economies have, to a larger extent than the EU, the flexibility to re-orient themselves towards new promising sectors, especially through the rapid growth of new innovative companies.

In addition, if we focus on radically new innovations that have the potential to generate new markets, young innovative companies become even more pivotal, as incumbent companies tend to concentrate their innovative activities relatively more on incremental innovations that build on their existing competences[9].

A need both for young companies to develop new products and for existing SMEs to absorb new innovations...

In a nutshell, for a Sustainable Industrial Competitiveness Policy to be effective – i.e. supporting the transformation to a green(er), sustainable economy – we need to have both:

- More young innovative companies able to develop new businesses up to a minimum critical mass (cumulative process);
- More innovative SMEs able to absorb new (sustainable) technologies and innovations, or at least able to absorb the 'best available technologies'.

1.2 Overview of key issues

1.2.1 Constraints on SME innovation

SMEs encounter specific constraints when it comes to engaging in innovative operations or using and exploiting innovations (from others). Although available evidence is not conclusive about which types of 'constraints' have the most impact on SMEs[10], the most commonly mentioned ones referred to are:

- Limited access to finance for innovation;
- Difficulties in appropriating the benefits from research and innovation;
- Lack of innovation absorption capacity;
- Regulatory and administrative burden;
- Lack of effective training and education programmes.

[8] This figure does not include creation of companies through mergers and acquisitions, but only *ex nihilo* creations. Veugelers, R. (2009), "A Lifeline for Europe's Young Radical Innovators", Bruegel Policy Brief 2009/1, March 2009, p. 2. These results correspond also to earlier findings by Cohen, E. and Lorenzi, J.-H. (2000), « Politiques industrielles pour l'Europe », *Conseil d'Analyse Économique*, 2000, Paris, p. 122-126.

[9] Veugelers, R. (2009), Op cit., p. 2 (based on earlier findings).

[10] Notably because the SME population is very heterogeneous and some constraints are not applicable to all types of SMEs, and because there may be regional or national differences at stake here.

Limited Access to finance for technology development and innovation

Innovation is by definition riskier for SMEs, while they have less access to capital markets to fund it...

There are multiple reasons why SMEs encounter specific difficulties to access innovation funding and finance. Veugelers (2008)[11], for instance, points to the following factors:

- Innovative projects undertaken by small firms are, *ceteris paribus*, riskier than if done by larger firms. This is due to the fact that SMEs can be disadvantaged in terms of lacking the wide range of complementary competencies and experience – such as marketing, pure management, organisational fine-tuning, access to complementary know how – needed for reaping the full benefits of, for example, a technological improvement.
- Imperfections in capital markets usually affect SMEs more than large firms for two reasons: (i) the availability of internal financing is normally less constraining for older/larger firms than for smaller/younger ones and (ii) access to global capital markets is easier/cheaper for larger firms.

Difficulties to appropriate the returns from investment

SMEs often lack the scale to take all measures necessary to capture the value of their innovations...

Beyond the issue of more difficult access to finance, one can also mention the difficulty of appropriating the benefits from innovation. For instance, even in the presence of a patent system, SMEs may find it more difficult to appropriate the returns from their innovations, notably because the cost of patenting may be too high for a SME. Moreover, appropriation requires complementary strategies to patents (e.g. trademarks, secrecy, lead time, complexity), but SMEs may lack the necessary critical scale to effectively implement these types of strategies. In addition, SMEs may be unable to appropriate the surplus created by subsequent innovations that build on the knowledge introduced by the initial innovation.

Limited innovation absorption

… and to develop the necessary absorptive capacity...

Evidence points to the need for an own absorptive capacity for SMEs that allow them to benefit from RDI cooperation. SMEs may again lack the necessary scale to develop such absorptive capacity. Moreover, compared to larger companies, SMEs have also specific constraints with regard to their ability to keep abreast of the latest developments affecting their sectors. Timely information can be crucial to the success of businesses. Inadequate knowledge or access to new technologies and know-how represents, given the limited resources at their disposal, a constraint affecting SMEs to a greater extent than for larger companies.

A disproportionately high regulatory and administrative burden

Implementing regulatory duties can cost SMEs up to 10 times more than large companies...

One of the most burdensome constraints reported by SMEs is compliance with administrative regulations. Indeed, SMEs bear a disproportionate regulatory and administrative burden in comparison to larger businesses. It has been estimated that where a big company spends one euro per employee for implementing a regulatory duty, a small business might have to spend on average up to 10 euros. 36% of SMEs report that red tape had a significant dampening effect on innovation as well as on broader

[11] Veugelers, R., "The case of SMEs in innovation in the EU: a case for policy intervention?", (Memo for BEPA), March 2008.

entrepreneurial activities over recent years[12]. SMEs also are particularly vulnerable to overly complicated patent procedures and property right laws.

More than 60% of companies think that schools do not provide the competences required....

Lack of effective education and training programmes

While it is widely accepted that effective education and training programmes are fundamental to a country's innovative capacity, there is also a consensus that many educational systems in the EU fall short in delivering the technical and managerial skills required to develop or take advantage of new developments. More than 60% of companies consider that schools do not provide the competences needed by the entrepreneurs and their staff. SMEs suffer in particular from the lack of skilled labour in the field of new technologies[13].

1.2.2 Constraints on growth of innovative SMEs

In addition to constraints on innovation within SMEs, as noted above, SMEs in the EU seem to suffer from a less dynamic growth profile than observed elsewhere, notably in the US. Again, the reasons that may explain this lack of dynamism are many-fold, but two explanatory factors are often mentioned:

- Market fragmentation and market access barriers;
- Financial market functioning, notably for venture capital.

The EU remains a fragmented market

Differences in market integration are usually mentioned when assessing the differences in growth path between companies at both sides of the Atlantic. An SME in the US has much more growth potential due to the economies of scale and scope that the integrated US market (including common standards, more coherent legislation with regard to public procurement rules, trade mark rights etc) offers. In the EU, SMEs are more affected by the fragmented nature of aggregated demand and institutional frameworks than large companies which have the infrastructure for trading and exporting. The evidence suggests indeed that new EU firms face higher barriers to entry, exit and growth compared to their US counterparts[14]. This implies a strong link to the Single Market policy.

Innovative EU firms face higher barriers to entry, exit and growth than their US counterparts...

Limited interest from financial markets to support innovative SMEs

There is evidence of less willingness (or ability) on the part of the EU financial markets to fund innovations or new innovative companies (e.g. venture capital) than is the case in the US[15]. In spite of some recent initiatives (such as the joint EC-Eureka 'Eurostars' initiative, the EC-EIB Risk-Sharing Finance Facility or the EC-EIB Jeremie Joint Initiative), a key ingredient is still missing here: an EU-wide financing solution for fast-moving European companies. This has been repeated recently by the European Commission, pointing to the fact that European venture capital markets are still functioning below their potential, reflecting a long-standing market failure in equity

[12] Report from the Expert Group on "Models to reduce the Disproportionate Regulatory Burden on SME"', May 2007 (available at http://ec.europa.eu/enterprise/policies/sme/files/support_measures/regmod/regmodex_en.pdf) .

[13] "Think Small First". A "Small Business Act" for Europe, COM(2008) 394 final, p.15.

[14] Philippon, T. and Véron, N. (2008), «Financing Europe's fast movers », Bruegel Policy Brief 2008/1, March 2008.

[15] EC (2007), "Key Figures 2007 on Science, Technology and Innovation. Towards a European research Area", (EUR 22572), Brussels, p. 36-37.

finance at both the demand and supply side of venture capital[16]. This lack of funding for innovation within SMEs is currently being aggravated by both the financial crisis and economic downturn and the associated increased risk awareness.

An EU-wide financing solution for fast-moving European companies is still missing...

This structural lack of funding in the EU also implies that young, innovative companies looking for growth financing may be in the EU more rapidly bought up by larger companies able to finance their commercial development. This in turn has different implications in terms of growth and employment as compared to internally driven growth of SMEs. One implication is that international buy-outs are more likely to lead to international relocation of innovation activity, or to 'technology outsourcing', while internal-driven growth of SMEs is more likely to remain embedded in the region of origin. Therefore, beyond the structural lack of innovation funding, there is also an aggravated risk that the return on EU innovation is captured by non-European firms rather than remaining in the EU.

1.3 Policy responses

1.3.1 Implications of a 'paradigm shift' for SMEs

The previous section elaborated some of the key issues seen as constraining the degree of innovation within SMEs and the potential growth of innovative SMEs. The types of constraints facing SMEs are not new, but they are exacerbated by the challenges facing SMEs. These go beyond the present economic situation and touch upon more fundamental changes (e.g. globalisation, energy and environment, technological change etc.) that are exerting significant adjustment pressures. The challenges facing SMEs will require significant changes to the ways in which businesses operate. The extent of the necessary adaptations required to these challenges has led some commentators to argue that a fundamental 'paradigm shift' is needed in the way in which businesses – and policy-makers – address competitiveness, economic growth and job creation, most notably in relation to moving the a sustainable ('green') long term growth path.

For SMEs, the risks of adjusting wrongly may be higher than for large companies, but the gains of adjusting correctly may be higher as well...

In terms of the capacity of firms to make the sorts of radical changes implicit in a 'paradigm shift', SMEs may have greater flexibility to adapt than larger firms that are 'locked-in' to existing business practices and production processes. However, as pointed out earlier, larger firms may be more able than SMEs to spread risks associated with shifting to a new growth path. For individual SMEs, with a smaller portfolio of activities or markets over which to effectively spread risks then the consequences making a 'wrong' decision could be more dramatic (e.g. in terms of business failure); although, conversely, the return on making a 'right' decision could also be higher. At an aggregate level, if the 'paradigm shift' argument is right, then on balance this has to favour shifting to new production process and ways of doing business, rather than retaining 'old/traditional' approaches. Overall, from a policy perspective, the aim would be to encourage existing firms to undertake the necessary adjustments to shift to a new sustainable growth path – even if this may imply a transition that could raise the number of business (particularly among SMEs) while encouraging the creation of firms based on

[16] European Commission (2009), Commission Staff Working Document. "Financing Innovation and SMEs", Brussels, Sept 2009, SEC(2009) 1196 final.

'sustainable' growth practices. This would imply that higher 'churn' (more company formation and closure) could be the necessary counterpart to achieving the shift to a new (sustainable) growth pattern.

From the above, it follows that there is an important connection between industrial adaptation and shifting to a new sustainable growth path, and the discussion of policy in relation to entrepreneurship and risk-taking behaviour. In particular, how can policy act to stimulate entrepreneurs and SMEs to take the (individual) decisions required to bring about the necessary changes in production processes and business behaviour (i.e. to increase the 'up-side' of making the right decision while reducing the 'downside' of making the wrong ones).

1.3.2 Innovation in SMEs, entrepreneurship and the "Small Business Act"

Following from the above, there is a clear link between SME innovation policy and entrepreneurship, hence a link to the Small Business Act (SBA)[17].

The Small Business Act addressed most of the key issues...

The SBA and its effective implementation by Member States have the potential to make an important contribution to innovation in SMEs, because it addresses several of the constraints identified above[18]. For instance:

1. *Access to innovation financing*: for instance, the new General Block Exemption Regulation adopted as part of the SBA consolidates and harmonises previous support rules and raises aid intensity for SMEs (i.e. 20% higher aid proportion for small enterprises and 10% higher for medium-sized enterprises). Member States have also adopted in 2008 and 2009 policy measures to enhance SMEs' access to liquidity, especially to bank lending, through the creation and extension of loan and guarantee schemes. Within the 7th FP, an SME can now keep the benefit of SME treatment even if it exceeds the SME ceilings during the project. Despite these improvements and as pointed above, recent evidence shows that the lack of funding for innovation remains a problem[19].
2. *Market fragmentation – access to markets – access to property rights protection*: the SBA bundles and re-focuses initiatives with regard to an easier or larger access to the Single Market for SMEs. For instance, in May 2009, the EC and the Member States jointly decided to lower the fees for EU-wide trade mark rights by 40%. The SBA also invites Member States to take most of the so-called 'European Code of Best practices' to facilitate SMEs' access to public procurement contracts adopted as a part of the SBA in June 2008. The EC also increased EU financial support in 2009 to improve SME information on, for instance, the use of European standards etc.
3. *Regulatory and administrative burden*: the SBA re-invigorates the general trend towards administrative simplification. According to the 2009 SBA implementation report, all Member States have now adopted targets for reducing administrative

[17] "Think Small First". A "Small Business Act" for Europe, COM(2008) 394 final; European Commission (2009).
[18] Ibidem; see also Report on the implementation of the SBA, COM(2009) 680.
[19] European Commission (2009), Commission Staff Working Document. "Financing Innovation and SMEs", Brussels, Sept 2009, SEC(2009) 1196 final. See also European Commission (2009), "Summary of responses to the public consultation on Community Innovation Policy", Dec 2009 (available on http://ec.europa.eu/enterprise/policies/innovation/future-policy/consultation/results_en.htm .

burden and have been continuing to simplify the administrative environment for SMEs. For instance this has led to a substantial reduction of the average time and cost to start-up a private limited company between 2008 and 2009. There is however still room for improvement, for instance under the form of expanding electronic one-stop-shop systems like in Slovenia.

4. *Effective Education systems*: the SBA promotes the exchange of best practices in enterprise education, and invites Member States to introduce entrepreneurship as a key competence in school curricula. According to the 2009 implementation report, a number of EU countries have already anchored entrepreneurship education in their curricula, while others have decided to do so in the future. In Austria, Denmark and Sweden, Entrepreneurship education is currently the object of a new national strategy or action plan. The challenge however, is to combine these curricular changes with innovative learning methods, as well as to increase the cooperation with the SME community.

Above all, the SBA increases coherence in policies towards SMEs...

Probably the major overall contribution of the SBA is to stimulate the streamlining of the large spectrum of relevant policies to reflect the specific needs and constraints of SMEs (i.e. 'to irreversibly anchor the *"think small first"* principle in policy-making'[20]). If effectively implemented at all levels, the SBA will not only increase the coherence of policies towards SMEs, but also increase the level playing field in which SMEs operate (and can grow). The introduction in the course of 2009 of an 'SME-test' by the Commission and a few Member States to assess the impact on SMEs of major legislative and policy proposals indicates the willingness to re-orient the whole policy-decision approach in this regard. Moreover, while some Member States may focus on the implementation of some axes of the SBA, some others have 'transposed' the SBA as a whole in their national policy programmes (e.g. Italy, Ireland).

… but its 'innovation dimensions' should be reinforced...

If effectively implemented, the SBA will contribute to improving the growth conditions of European SME's. However, in view of the potential role of innovation for achieving the transformation necessary to shift towards higher, sustainable growth paths, there might be need for even more major efforts to reinforce the 'innovation dimension' within the SBA (or to launch a specific 'SBA for innovation'). Certainly, it will remain very important to pay a particular attention to the articulation between the SBA and its implementation on the one hand, and the upcoming Innovation Act on the other hand[21].

On top of this, some elements that may play an additional role in this context are discussed under the following sections.

1.3.3 The role of competitive innovative clusters

Paradoxically, globalisation increases the importance of local situations and local anchorage. Therefore it also increases the importance of the framework conditions and policies to attract economic and innovation actors and stakeholders to build powerful cooperation networks. Policies stimulating innovation networking such as innovative

[20] "Think Small First", op cit., p. 3.

[21] "Research and Innovation Strategy", Communication of the European Commission (forthcoming, expected Sept-Oct 2010).

clusters are also critical in the context of nurturing, transferring and implementing on a large-scale new, key enabling technologies[22]. The pervasive character of these key enabling technologies (e.g. nanotechnologies, biotechnologies, bioinformatics, new materials etc) and the blurring boundaries of traditional 'sectors' (i.e. the traditional view that considers industrial sectors as 'homogeneous' and independent no longer holds as adequate basis for policy development) call for the development of multidisciplinary cooperation. It is thus all the more important that the EU stimulate fair competition and the development of the necessary framework conditions to allow for the development of highly-competitive, multidisciplinary innovative clusters. In this regard the work carried out by the EC on clusters (in terms of e.g. supporting cross-border clusters or diffusing information on international best practices) is welcome and needs to be continued.

Clusters must have the possibility to reach a sufficient critical mass in order to be internationally competitive …

While the bottom-up approach is important to align the object and missions of a cluster with the relative strengths, weaknesses and opportunities of the regional innovation systems (following the principle of 'smart specialisation'[23]), it is important to recognise that these clusters must have the possibility to reach a sufficient critical mass in order to be internationally competitive. This may imply the potential evolution from local to interregional clusters active at EU-level. Moreover, 'smart specialisation' also implies an improved interaction between levels of governance to ensure full complementarity between local clusters and EU developments such as European Technology Platforms or Joint Technology Initiatives.

When it comes to SMEs, innovative clusters are an important link within European innovation systems between technology and innovation producers, small and large companies, high-tech and low-tech companies. They facilitate the transfer of technology within and towards the SME population and they contribute to the internationalisation of SMEs by linking them more effectively to large companies or other international partners. At the same time, although clusters benefit from the presence of large multinational companies, the integration of dynamic and innovative SMEs into clusters is particularly important for helping clusters achieve high levels of excellence and innovation. Clusters and cluster organisations can offer a wide range of business services – in particular to SMEs (e.g. facilitating cooperation with research institutions, managing IPR, supporting internationalisation activities) – which supplement current innovation support mechanisms towards SMEs.

Local clusters (and participating SMEs) need to be better linked to EU-level initiatives, such as European Technology Platforms...

Recent reports show, however that there is a need to better integrate SMEs into innovative clusters[24]. Many cluster initiatives and cluster organisations, for instance, lack a critical mass and strategic orientation to fully exploit the potential of SMEs. This is partly because SMEs are not fully integrated in clusters and do not participate enough in cluster initiatives. The same holds for other initiatives such as European Technology

[22] "Preparing for our future: Developing a common strategy for key enabling technologies in the EU", COM(2009) 512/3.

[23] Foray, D., David, P.A., and Hall, B., "Smart Specialisation – The Concept", Knowledge Economists Policy Brief nr. 9, June 2009 (http://ec.europa.eu/invest-in-research/pdf/download_en/kfg_policy_brief_no9.pdf?11111).

[24] "The concept of clusters and cluster policies and their role for competitiveness and innovation: main statistical results and lessons learned", Europe INNOVA / PRO INNO Europe Paper nr 9, Commission Staff Working Document SEC(2008) 2637, October 2008; "Towards world-class clusters in the European Union: Implementing the broad-based innovation strategy", COM(2008), 652 Final/2, October 2008; European Commission (2009), "Summary of responses to the public consultation on Community Innovation Policy", Dec 2009 (available on http://ec.europa.eu/enterprise/policies/innovation/future-policy/consultation/results_en.htm.

Platforms (ETPs), Joint Technology Initiatives (JTIs), Lead Market Initiatives (LMIs), or the recently launched Knowledge and Innovation Communities (KICs) of the EIT. For example, according to a recent evaluation of the ETPs[25], there is need to better involve SMEs (in all their variety) in the definition of the strategic research agenda, especially in sectors with a large concentration of SMEs. Limited resources and absorption capacity often prevent them to use the outcomes of platforms[26]. Better, customized services offered by cluster organizations and targeting SMEs should be tested and implemented, and these initiatives can be part of the European Cluster Alliance Initiative[27].

1.3.4 Targeted support towards sub-sets of SME population

Policies may take the option of targeting sub-sets of the SME population, such as 'high-growth / high-tech' SMEs. Arguably, the heterogeneity of SMEs as well as the relative importance of high-growth, high-innovative companies for both aggregate growth and the introduction of radical innovations call for more tailored approaches[28]. The topic of high-growth start-ups, spin-offs and SMEs (and the need for a differentiated approach between them) do form a focus for policy discussion in many EU countries. However, few countries have policies or initiatives that explicitly target support for high-growth companies; the majority of policies that are applicable to such companies tend to be generic SME support policies[29]. Recently, new State Aid rules for innovation have identified young innovative enterprises, which can be a big step towards more targeted national level policy.

Few countries have policies that target support to high-growth SMEs...

This of course raises the issue of the extent to which policy should, and is able, to differentiate between various segments of the SME population. Comparing SMEs with large companies, the latter are indeed far easier to identify and target (not only for innovation policy initiatives). Moreover, policies aimed at somehow supporting the emergence of high-growth companies may be something of a blunt and static instrument acting on a dynamic target. Provided that differentiating between SME sub-groups and 'favouring' some of them is politically accepted, one has to investigate first what can be done to better identify those types / groups of SMEs that would have the greatest 'value-added' if their innovation capacity was enhanced (and accordingly could be targeted through innovation policy). Secondly, we should be sure that the current innovation 'themes' (e.g. eco-innovation, biotech) are actually the most relevant and with the most 'value added' for SMEs. In particular, if we are talking about sustainable innovation

[25] Idea Consult, "Evaluation of the European Technology Platforms (ETPs)", final report, August 2008 (available at: http://cordis.europa.eu/technology-platforms/home_en.html) .

[26] 'European Technology Platforms' (ETP's) bring together technological know-how, industry, regulators and financial institutions to develop a strategic agenda for leading technologies. They were set up as industry-led stakeholder forums with the aim of defining medium to long-term research and technological objectives and developing roadmaps to achieve them. The definition of Strategic Research Agenda's in specific areas is key for structuring the efforts and may result into the launch of a Joint Technology Initiative (JTI) for its implementation. For a status report, please consult: European Commission (2009), "Fourth Status Report on European Technology Platforms. Harvesting the Potential", (DG RTD), EUR 23729, June 2009.

[27] In this context we can note the initiative to hold a session on 'fostering international cluster cooperation with a focus on mechanisms for SMEs' during the upcoming 2010 European Cluster Conference (Sept-Oct 2010). See: http://www.proinno-europe.eu/clusterconference2010/content/european-cluster-conference-2010.

[28] See for instance the proposal by Veugelers for "A (Green) EU Programme for Young Innovative Companies" (Veugelers, R. (2009), "A Lifeline for Europe's Young Radical Innovators", Bruegel Policy Brief 2009/1, March 2009, p. 7-8).

[29] Cunningham, P., "Policies in support of High-Growth SMEs" – Thematic report, INNO Policy Trendchart, July 2008.

policy / eco-innovation, are current concepts and initiatives broad enough to have a substantial impact on SMEs (and contribute to a transformation towards a new sustainable growth path)?

Green technologies need to be transferred to mainstream SMEs on a much wider scale...

Developing specific policy action towards high-growth / high-tech SMEs should go hand in hand with tailored action towards 'lower-tech SMEs'. Any Sustainable Industrial Competitiveness policy and a substantial shift towards a 'greener' economy cannot succeed if its impact remains limited to the top 1% of the SME population. Therefore, there is need to improve the current mechanisms for knowledge diffusion, co-development of innovations, technology transfer etc in the EU at all levels of governance. Technology transfer tools have been developed over the past 15 years in the EU at both the EU and the national / regional levels. In general, policy intervention comes under the form of funding 'intermediaries' (innovation agencies, public research centres, private consultants, universities) for the co-development of innovations of benefit to SMEs. Sometimes (as in the case of the FP7 SME-specific measures), the SME itself receives funding to 'buy in' research services from a knowledge provider. A recent evaluation shows, however, that intermediaries may have a too dominant role in the conception and execution of the innovative project, limiting implicitly the valorisation potential afterwards by the SMEs. Projects where the original idea came from the SME are more likely to result in successful commercial outcomes. Therefore -and this holds true for all technology transfer programmes- it is crucial that SMEs are encouraged to play an active role in the project from the outset[30].

1.3.5 Access to finance for innovation

As pointed above, and in spite of some recent improvements, the limited access to innovation financing remains a problem, especially in the current context of credit squeeze caused by the crisis. In this respect, it is very important to keep working on building a single market for venture capital; the fact that it is one of the major actions under consideration in the current preparation of the 'Innovation Act' is to be welcomed[31]. The idea of raising, in partnership with the EIB, additional capital funds for start-ups, innovative SMEs and growth businesses, is also very much welcome[32]. However, while building up a Single Market for risk capital is critical, it is also desirable that other financial instruments are broadened (e.g. guarantee schemes) to widen and expand the innovation trajectory of SMEs.

Towards a Single market for risk capital, reinforced by other financial instruments to expand the innovation trajectory of SMEs...

The most important source of external financing for innovation in SMEs is the commercial bank loan. A mid-term assessment of the joint EU-EIB 'Risk-Sharing Finance Facility' can be helpful to adapt the scope of this facility according to the new needs of the present situation. In particular, this may allow the EU to leverage public initiatives of regions or Member States providing guarantee, loans and other debt

[30] European Commission (2010), "Impact assessment of the SME-specific Measures FP5 and FP6", EUR 24290 EN, 2010; Idea Consult, "Impact Assessment of the SME-specific measures of the Fifth and Sixth Framework Programmes for Research on their SME target groups outsourcing research. Final evaluation report", 2010. Both documents available at http://ec.europa.eu/research/sme-techweb/index_en.cfm?pg=publications .

[31] "Towards an Innovation Union. Preparation of the new EU Research and Innovation Plan. Presentation to the Enterprise Policy Group", (EC, DG Enterprise, powerpoint presentation), May 2010.

[32] Ibidem.

financing for research and innovation to SMEs, for which these local initiatives become more easily accessible.

1.3.6 Reinforcing demand-driven policies: triggering the 'pull factors'

Policies supporting innovation and technological development have long been focusing on the supply side (i.e. increasing innovation in SMEs, increasing absorption capacity in SMEs). The trend towards more demand-driven policy tools is important and should be reinforced, because it offers another important way of reducing risk for SMEs by stimulating and expanding aggregate demand for new sustainable/green products and services (e.g. eco-innovations).

A stronger emphasis on demand-driven policies is essential, especially when promoting new green products and services ...

From the public side, public procurement markets (i.e. the public sector covering part of the risk associated with SMEs innovation by favouring innovative solutions) offer important leverage effects. With public procurement accounting for 16% of EU GDP**,** public authorities have powerful means of stimulating private investment in research and innovation, for instance by providing a 'test bed' for innovative solutions. While this may entail additional risks for public procurers (i.e. risk of projects not fulfilling expectations), it may be beneficial in terms of stimulating innovation and generating long-term gains. Initiatives from the European Commission to increase 'Green procurement' are in this context more than welcome and should be endorsed by Member States[33]. Current major actions under consideration in the context of the preparation of the 'Innovation Act' to overcome the fragmentation of procurement markets are very important in this regard[34].

A recent major initiative in this regard is the Lead Market Initiative (LMI). The LMI initiative was launched by the EC following the 2006 EU's Broad Based innovation Strategy[35] and the 2006 Aho Report[36]. The LMI is the first comprehensive effort at EU level for a coordinated demand-side innovation policy approach. It combines a number of policy instruments (e.g. regulation, public procurement, standardisation and complementary activities such as specific CIP measures supporting networks of clusters, and FP7 calls for technology development) to facilitate the uptake of new innovative products and services in the market. Six Lead Markets have been launched up to now, among which three are clearly applicable to the field of sustainable / green markets ('sustainable construction', 'recycling', 'renewable energy'). Even though the measure is very recent and therefore real impacts have not yet materialised, one of the major contributions of the initiative is that policy makers and stakeholders are engaged in a learning curve in the implementation and governance of this comprehensive demand-side innovation policy approach.

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[33] Recently (July 2008), the Commission adopted its 'Communication on public procurement for a better environment' (COM(2008) 400 final). The Commission proposed a political target of 50% Green public procurement to be reached by the Member States by the year 2010. The target was linked to a process for setting common Green public procurement criteria, recommended for inclusion in tender documents for a series of priority product and service groups. These criteria have been finalised and Member States have been invited to formally endorse them.

[34] "Towards an Innovation Union. Preparation of the new EU Research and Innovation Plan. Presentation to the Enterprise Policy Group", (EC, DG Enterprise, powerpoint presentation), May 2010.

[35] "Putting knowledge into practice: A broad-based innovation strategy for the EU", September 2006, (COM(2006) 502 Final).

[36] "Creating an Innovative Europe. Report of the Independent Expert Group on R&D and Innovation appointed following the Hampton Court Summit and chaired by Mr Esko Aho", EU 22005, Jan 2006.

While demand-driven initiatives should be better connected to supply-side measures…

The 2009 mid-term progress report of the LMI, however, identifies the need for better coordination and links with supply-side measures (at both Community and national/regional levels), as well a better uptake by -and coordination with- national innovation policies[37]. In particular, the following areas for improvement are detailed:

- Momentum for implementation of the LMI's action plans needs to be further increased. In particular, it is clear that for a real impact, a **more active involvement of Member States** and corresponding policy take-up of the LMI at national level are needed;
- The challenges ahead will be to strengthen the links and coordination with national innovation policy measures, to achieve greater visibility and to establish **links with supply side measures**.
- At Community level, a better coordination between the measures under the LMI and **supply-side instruments** such as the Recovery Plan, European Technology Platforms, Joint Technology Initiatives and ERANets has great potential;
- The designated 'contact groups' could be enlisted more effectively **to increase visibility and dissemination** of the LMI's activities to businesses and other actors of the innovation 'ecosystem', such as regulators, professional bodies, sectoral stakeholders and civil society.
- In parallel, **national and regional lead market initiatives** with a strong international market potential could be encouraged **and benefit from Community support** through existing support mechanisms.

Parallel to this, 'sustainable consumption policies' that aim at redirecting or influencing consumption behaviour towards more 'green' or sustainable consumption have the potential to increasing the absorption capacity of consumers, and hence to increase aggregate demand for new green products, processes or services. A major step was the European Commission's Action Plan on Sustainable Consumption and Production (SCP) and Sustainable Industry Policy, published in summer 2008. The publication of this plan constitutes remarkable progress, but it also leaves room for further enhancement of public policies' efforts directed towards striving for the greening of European consumption patterns.

Sustainable consumption policies should indeed be differentiated according to their *contribution to changing consumer behaviour.* Looking at current policy developments in Europe, one can distinguish three major ways to foster sustainable consumption patterns: raising consumer awareness, making sustainable consumption easy, and greening markets. The more government policies can grasp these three dimensions, the larger their overall impact will be[38].

[37] European Commission Staff Working Document, "Lead Market Initiative for Europe. Mid-term Progress Report", SEC(2009) 1198 final, December 2009.

[38] « Promoting Sustainable Consumption. New Policy Approaches », Policy Brief, March 2009 (final report from the FP7 ASCEE ("Assessing the potential of various instruments for sustainable consumption practices and greening the market") research project), (available at http://cordis.europa.eu/fp7/environment/home_en.html) .

1.3.7 Improving multi-level governance of innovation towards more coherence and more co-ordination

On top of all the issues raised above, a further critical issue is to improve the multi-level governance of innovation policies by increasing coherence and coordination between policies and policy tools. This entails two types of increased coherence: one the one hand, more 'horizontal' coherence (i.e. between policies, policy tools), on the other hand, more 'vertical' coherence (i.e. across governance levels). We discuss first the former one at the level of Community policies / policy tools.

A joint thematic reference framework as tool for increasing coordination and coherence between policy domains…

One of the recurrent reactions to the public consultation following the EC 2009 communication on Community Innovation Policy[39] was the lack of coordination and of coherence between policy domains and policy instruments, namely with regard to SMEs and innovation[40]. In this respect, the increasing focus on societal challenges can provide a joint and shared thematic reference framework based on the endorsed EU2020 Strategy. This should facilitate the integration of the missions, objectives and programming of the various programmes for research and innovation within the overarching strategy for sustainable European growth.

Coordination between priorities and objectives of the various EU programmes and policy instruments should be more effective. This is all the more important as the governance of innovation policies has become much more complex and much more intertwined (across levels) over the past ten years. With the establishment of new instruments such as ERA-Nets, ETPs, JTIs, bottom-up Joint Programming (with or without involvement by the EC), the classical system with centralised, project-based funding at Community level and at national / regional level has evolved into a hybrid system with co-funding of initiatives by various levels of governance.

This brings us to the issue of multi-level governance. The fragmentation and lack of coherence of the innovation support policy in the different Member States and in the EU is often considered as one of the main obstacles to unleash the potential on innovative SMEs[41]. Therefore, the 'additionality' and 'complementarity' of support measures at different governance levels need to be better organised and assessed for a more efficient and effective use of the scarce resources. Both EU, national and regional instruments should reinforce each other to the maximum through leverage mechanisms in a common framework for sustainable economic growth, and within which innovative SMEs are at the core. The current trend towards more (ex-ante or ex-post) impact assessments of policy initiatives should be reinforced. In the context of the Better Regulation Agenda, the EU has an important role to play to stimulate the uptake by Member States of coherent methods for assessing impacts of policies. These impact assessments, moreover, should not remain limited to a specific policy tool or governance level, but should

[39] « Reviewing Community Innovation policy in a changing world », COM (2009) 442 Final, Sept. 2009.

[40] European Commission (2009), "Summary of responses to the public consultation on Community Innovation Policy", Dec 2009 (available on http://ec.europa.eu/enterprise/policies/innovation/future-policy/consultation/results_en.htm).

[41] European Commission (2009), "Summary of responses to the public consultation on Community Innovation Policy", Dec 2009 (available on http://ec.europa.eu/enterprise/policies/innovation/future-policy/consultation/results_en.htm).

More uptake of Impact Assessment practices as tool to improve multi-level governance …

increasingly take into account the interactions (synergies) between policy tools and governance levels[42].

Beyond the necessity of increasing coherence between *existing* support mechanisms across governance levels, there is also need for more coherence when setting up the strategic agenda's, defining the objectives of policies and designing their implementation. Recent experience indeed shows that improvements are needed here. In the case of European Technology Platforms, for instance, coordination and synergies with national stakeholders and policy-makers (via National Technology Platforms and the so-called 'mirror groups') vary largely between countries. For some of the Member States, there are missed opportunities in terms of coordinating strategies across levels of governance, in terms of integrating regional innovation strategies into the broader, global context[43].

New multi-level governance structures are needed to streamline all relevant instruments towards shared objectives…

The ideas currently under development at the European Commission for the launch of so-called "European Innovation Partnerships" (EIPs) in the context of the preparation of the 2010 'Innovation Act' deserve a lot of attention in this respect[44]. Under the current state-of-thinking, EIPs would be launched around specific themes and objectives (such as 'zero-emission cities'). Depending on the theme selected and the objectives associated, EIPs would bring together existing instruments (eg ETPs, JTIs, Era-Nets, clusters, FP7 Thematic priorities, Lead Market Initiatives, Public Procurement, Standards setting etc) and actors (researchers, companies, regulators, end-users, etc.) under a new 'umbrella' (the 'partnership'). EIPs would be ambitious in scale and scope and would bring together both supply-side and demand-side instruments. It would not be another new initiative, only a framework for integrating whatever existing initiatives are relevant.

If endorsed, the EIP concept should be followed by initiatives defining a road-map or process for bringing the relevant instruments and actors together, depending on the list of themes chosen. In the light of the unleashing the full potential of innovative SMEs, it is important to guarantee high involvement by SMEs, especially for the themes where sectors characterised by a large concentration of SMEs are expected to play a major role.

1.4 Key conclusions

Context and background

1. Small and medium sized enterprises (SMEs) represent the *overwhelming majority of European enterprises* (more than 95%). In the EU-27, they also account for more than two-thirds of the non-financial business economy workforce and for almost 60% of the non-financial business economy's value added. Therefore, any attempt towards Sustainable Industrial Competitiveness Policy is potentially doomed to fail if not aligned to the SME population.

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[42] Idea Consult is currently advising 11 EU countries on 'Harmonising Impact Assessment practices of Research and Innovation Support' in the context of a FP7 OMC-Net Project led by the Belgian Federal Office for Science Policy (Project acronym: CIA 4 OPM).

[43] Idea Consult, "Evaluation of the European Technology Platforms (ETPs)", final report, August 2008 (available at: http://cordis.europa.eu/technology-platforms/home_en.html) .

[44] "Towards an Innovation Union. Preparation of the new EU Research and Innovation Plan. Presentation to the Enterprise Policy Group", (EC, DG Enterprise, powerpoint presentation), May 2010; Speech by European Commissioner on Research, Innovation and Science Máire Geoghegan-Quinn at the 2010 ETP Conference, 11 May 2010.

2. It is important to recognise that SME innovation does not just concern 'high-tech' innovation but also encompasses production processes, business models and organisational design as well as technologies. Although much of innovation in SMEs is incremental and lacking long term strategic direction, a number of recent studies highlight the *significance of highly innovative, high-growth SMEs for economic growth and industrial transformation*.

3. For a Sustainable Industrial Competitiveness Policy to be effective – i.e. *supporting the transformation to a green(er), sustainable economy* – there is a need both for more young innovative companies able to develop new businesses up to a minimum critical mass (cumulative process) and for more innovative SMEs able to absorb new (sustainable) technologies and innovations.

4. *Specific constraints on SME innovation* can be identified, when it comes to using and exploiting innovations. The most commonly mentioned constraints are: Limited access to finance for innovation; Difficulties in appropriating the benefits from research and innovation; Lack of innovation absorption capacity; Regulatory and administrative burden; and Lack of effective training and education programmes.

5. Furthermore, *particular constraints on the growth of innovative SMEs* can be mentioned. Indeed, EU-based SMEs seem to suffer from a less dynamic growth profile than observed elsewhere, notably in the US. The reasons that may explain this lack of dynamism are many-fold, but two explanatory factors are often mentioned: Market fragmentation and market access barriers and; Financial market functioning, notably for venture capital.

6. The extent of adjustments required to face today's external challenges has led some commentators to argue that a fundamental '*paradigm shift*' is needed in the way in which businesses – and policy-makers – address competitiveness, economic growth and job creation, most notably in relation to moving to a sustainable ('green') long term growth path. SMEs may have greater flexibility to adapt than larger firms that are 'locked-in' to existing business practices and production processes. Overall, from a policy perspective, the aim would be to encourage existing firms to undertake the necessary adjustments to shift to a new sustainable growth path.

7. As a starting point for a policy response, the *Small Business Act* (including its effective implementation by the Members States) streamlines the large spectrum of SME-relevant policies. It has the potential to make an important contribution to improving the growth conditions of European SMEs. However, there is a need to reinforce the 'innovation dimension' in the implementation of the Small Business Act, or to launch a specific 'SBA for Innovation'. Moreover, it will be necessary to pay particular attention to the articulation between the SBA (and its implementation) and the upcoming, 2010 'Innovation Act'.

8. Paradoxically, globalisation increases the importance of local situations and local anchorage. *Innovative clusters* are a response: they facilitate the transfer of technology within and towards the SME population and they contribute to the internationalisation of SMEs by linking them more effectively to large companies or other international partners. At the same time, the integration of dynamic and innovative SMEs into clusters is particularly important for helping clusters achieve high levels of excellence and innovation. It is therefore important to foster the

development of internationally competitive and innovative clusters that better integrate SMEs into their strategy and activities.

Implications for industrial policy

9. Generic policies towards SMEs should be combined with more *targeted instruments towards sub-sets of the SME population*. Specific support towards 'high-growth, high-innovative companies', however, should go hand in hand with tailored measures towards 'lower-tech SMEs' to ensure full deployment of innovations among the industrial texture. As part of such targeted policies, it is of utmost importance to foster dialogue between policy-makers and the SME population, for instance through an exchange of good practices about the instruments to be used.

10. It is essential to address the limited *access to finance for SMEs,* especially in the light of the credit squeeze caused by the crisis. It is very important to keep working on the construction of a Single Market for risk capital. However, it is also desirable that other financial instruments are broadened (e.g. guarantee schemes), allowing to widen and expand the innovation trajectory of SMEs.

11. Policies supporting innovation and technological development have long been focusing on the supply side. But the trend towards more *demand-driven policy* tools is also important and should be reinforced, because it offers another important way of reducing risk for SMEs by stimulating and expanding aggregate demand for new products and services. From the public side, procurement markets offer important leverage effects. There is also a need to better connect and integrate demand-side instruments and supply-side instruments.

12. As part of a new framework for policies towards SMEs, innovation and growth, the *multi-level governance dimension* needs not be overlooked. This dimension entails two types of coherence: one the one hand, more 'horizontal' coherence (i.e. between policies, policy tools), on the other hand, more 'vertical' coherence (i.e. across governance levels).

13. To improve the multi-level governance of innovation support towards SMEs, *several aspects* need to be taken into account. It is important to expand the use and application of impact assessments in the Member States, including the assessment of interactions between policies and governance levels. Furthermore, it is essential to agree on joint and shared thematic reference frameworks and common goals. Finally, it is important to better align regional innovation strategies with research and innovation agenda's set at EU level.