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POLICY DEPARTMENT A
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EU Industrial Policy: Assessment of Recent Developments and Recommendations for Future Policies

Study for the ITRE Committee

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EU Industrial Policy: Assessment of Recent Developments and Recommendations for Future Policies

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EU INDUSTRIAL POLICY: ASSESSMENT OF RECENT DEVELOPMENTS AND RECOMMENDATIONS FOR FUTURE POLICIES

STUDY

Abstract

Following disregard in the 1980s, industrial policy has recently attracted policy attention at EU level. The objective of this study provided by Policy Department A at the request of the ITRE Committee, is to establish the state of the art of a coordinated and integrated EU industrial policy. It assesses current initiatives, policies and arrangements and proposes an overview of stakeholders' positions at EU and national levels in order to feed into the debate on how to improve competitiveness and growth in Europe.

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AUTHORS:

Julie Pellegrin, CSIL Centre for Industrial Studies (Italy)
Maria Letizia Giorgetti, University of Milan (Italy)
Camilla Jensen, CASE (Poland)
Alberto Bolognini, Economisti Associati (Italy).

RESPONSIBLE ADMINISTRATOR

Frédéric Gouardères
Policy Department A Economic and Scientific Policy
European Parliament
B-1047 Brussels
E-mail: Poldep-Economy-Science@ep.europa.eu

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ABOUT THE EDITOR

To contact the Policy Department or to subscribe to its monthly newsletter please write to:
Poldep-Economy-Science@ep.europa.eu

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EXECUTIVE SUMMARY

This report provides an overview of the different initiatives and policies devised at EU level to foster competitiveness and growth, and their assessment by selected stakeholders and experts.

Key findings

The report finds that there is renewed interest in industrial policy in general, and at EU level in particular, but there is not always a clear-cut and explicit idea of what purpose an EU industrial policy would serve. There are general references to objectives such as competitiveness, growth and jobs, but sometimes without explicit mention of possible tensions or overlaps between such objectives and how exactly an industrial policy can help to achieve these objectives.

Parallel to some uncertainty around the very notion of industrial policy – its definition, objectives and target, there are new developments suggesting alternative frameworks of analysis. Indeed, theoretical developments and recent practices point to new units of analysis and action frameworks for outlining an industrial policy, such as industrial systems, production chains, networks, global value chains, "eco-systems", smart specialisation, etc. They are all notions that offer an opportunity to overcome old dichotomies at the origin of seemingly irreducible and unproductive controversies characterising the debate between proponents of an industrial policy and critics. In particular, they question the validity of the opposition between horizontal and sectoral approaches to industrial policy, between top-down and bottom-up policy developments, and between industrial policy targeting manufacturing in the strict sense and industry at large.

In this context, new paradigms are proposed like the "new industrial policy". In contrast to the "old" approach characterised by top-down initiatives pursuing clearly defined (sectoral) priorities, the new industrial policy is implemented through a process of trial and error, implying institutionalised dialogue between public authorities and private agents, pragmatic public–private partnerships, and the ability of policymakers to learn from mistakes (which in turn requires monitoring and evaluating). The *capabilities* of both policymakers and businesses acquire a special relevance in this context.

In concrete terms, significant resources are mobilised by policies and programmes contributing to an "EU industrial policy", and the policy coverage is extremely wide. Some of the initiatives with a budget envelope are (in order of importance): Cohesion Policy, Horizon 2020, Connecting Europe Facility and COSME, representing slightly less than €200 billion. Two recurring priorities across these programmes are SMEs and innovation. In addition, the EU exercises regulatory power in a number of areas, which contributes to levelling the playing field and facilitating business in Europe: competition, internal market, business environment, intellectual property rights, trade and energy.

The stakeholders reviewed in this study generally call for better integration of initiatives and programmes in order to best exploit synergies. In particular, some suggest better aligning conceptual underpinnings and intervention logics at the basis of policy developments in some areas, including, for example, environmental policy and other initiatives aimed at fostering competitiveness. The majority of respondents believe that a proper mandate in the field of industrial policy should be more clearly defined at EU level.

Stakeholders appear to place quite distinct expectations on an EU industrial policy. Business associations acknowledge the fundamental role that the EU plays - and could further play – in terms of "levelling the playing field". Another added value of EU action put forward by EU

policy stakeholders is when the EU fulfils the role of knowledge-broker, or knowledge platform.

A review of practices and approaches in six Member States shows quite distinct positions. Distinct socio-economic institutional features determine different growth paths, and contribute to shaping specific responses to varying types of challenges. This means that there are different incentives for Member States to take part in an active EU industrial policy. "Peripheral" Member States dependent on Cohesion Policy, for example, place high expectations on an EU industrial policy. The fact that these countries were hardest hit by the crisis and that they are experiencing relatively more rapid de-industrialisation calls for specific attention and possibly distinct approaches in their cases.

Recommendations

The EU should fully endorse its role of knowledge-broker and facilitator of interaction in order to stress its added value. In particular, the promotion of pragmatic public-private partnerships could acquire greater and institutionalised importance. A possible model could be the existing Specialised Partnerships. Another area where the EU could improve current practices is in the field of monitoring and evaluation, for example on the basis of experience accumulated through the implementation of Cohesion Policy.

A proper governance setting should be in place at EU level. For instance, the most should be made of the newly established vice-presidency for "Jobs Growth Investment and Competitiveness" in order to ensure optimal coordination among the concerned DGs, building on synergies and complementarities between programmes and initiatives.

A Strategic Document could be adopted that would not be so much about what to do, but about how to do it. This Document could make explicit the mission of a facilitator endorsed by the EU, indicate clearly who's in charge, spell out the adopted approach and method, clarify the preferred overarching strategic options, and delineate possible specific priorities or policy domains where appropriate actions should be decided at relevant levels of action (i.e. not in the Document itself). In this way, such a Document would propose a sound strategic and action framework as well as a menu of possible areas of initiatives or priorities, which would be picked up by relevant stakeholders at appropriate levels of action. The Document should take a clear position with respect to the very distinct national expectations placed on an EU industrial policy and the differentiated needs of Member States. It is also necessary for the Document to explain how the current policies, programmes, initiatives and arrangements at EU level articulate and form a coherent policy system contributing to the overarching objective. As to specific priorities, these could range from eco-innovation, to digital infrastructure, to SME support, to innovation financing, etc.

This Document would be the result of an intense consultation process bringing together different stakeholders, in particular Member States, business organisations, trade unions and other non-governmental organisations, at the EU level, but also from the national, regional, transnational, cross-regional and local levels. Such consultation should foster *ownership* around the strategy. It is conceivable that a process of *ramification,* comprising a series of related Documents deepening issues in some of the identified policy domains, could be adopted at relevant levels of action, following a variable geometry.

The European Parliament should validate the Main Document and scrutinise its implementation (which entails the formulation of a monitoring/evaluation process). The European Parliament should also be actively involved in monitoring the progress achieved through specific actions.

Without relinquishing their prerogatives, and while pursuing their own strategic lines, Member States should acknowledge the added value of the EU action thus defined in the

area of industrial policy. They should endorse the EU mission, which they themselves contributed to forging and validating, indeed a necessary condition for an EU industrial policy to develop and be successful. They should also throw their weight behind the recent investment plan decided at EU level to foster public and private investment.

1. INTRODUCTION

While in the 1990s European institutions were focusing mainly on the creation of a Single Market, the start of the Monetary Union and European enlargement, industrial policy has recently returned to the European vocabulary and has attracted the attention of governments. Interest in European industrial policy resurfaced at the turn of the century and played a specific role in the shaping of the Lisbon Strategy. However, a renewed strong appetite for industrial policy did not emerge until the effects of the credit crunch and the ensuing prolonged economic slowdown became manifest with dramatic consequences on the manufacturing industry in some EU countries. Nowadays, we observe a complete change of mood towards industrial policy intervention, as a result of a combination of factors such as: fear of rapid de-industrialisation following the crisis, limited European growth, new opportunities and constraints related to climate change, competition from emerging economies where significant planning is taking place, etc. Overall, great expectations are placed on industrial policy, which is seen as a central tool for promoting economic transformation and sometimes even as a way of helping Member States to recover from the global financial crisis.

Aware of the extent of the challenges faced by the European economy, the European Commission has taken a number of steps in the context of its 2020 strategy in order to promote an "industrial renaissance". These include a "flagship" entirely dedicated to industrial policy (and three others closely related), and several Communications delineating an "Industrial Compact". Not least, the objective was set for EU industry to represent 20% of EU GDP by 2020 and the new President of the European Commission announced an ambitious investment plan of more than €300 billion in 2015-2018.

The objective of this report is to establish state-of-the-art industrial policy at EU level: why is it attracting renewed interest, what is its form, instruments and underlying thrust and what are its expected and recorded effects? In the following, we look at ideas, interests and institutions shaping industrial policy at EU level. "Ideas" refer to the scholarly and public policy discussions, "interests" are about the gainers and losers from policy shifts, and the "institutions" are the forums in which negotiations take place, with the resulting policy arrangements forming an EU industrial policy. Chapter 1 presents the nature and extent of the challenges facing Europe in terms of competitiveness, together with different options justifying the activation of an EU industrial policy and a set of available instruments; it reviews *ideas* at the basis of the development of an EU industrial policy. Chapter 2 establishes the contours and contents of the current initiatives, programmes and policies that contribute (or could contribute) to the formulation of an EU industrial policy: as such it deals with the institutional and policy framework where an EU industrial policy could develop. Chapter 3 draws a conceptual map of the positions of stakeholders on the merits and weaknesses of the present arrangements and desired improvements; it tries to determine where *interests* could sway policy developments. A concluding chapter sums up the main findings and puts forward some suggestions for the future.

2. THE CHALLENGES FACING AN EU INDUSTRIAL POLICY: THE TERMS OF THE DEBATE

KEY FINDINGS

- Industry is the backbone of the European economy. Although declining in the overall economy, manufacturing accounts for a disproportionate share of exports and R&D.
- The decline in manufacturing's share of GDP is a worldwide trend that has undergone rapid deterioration following the financial crisis. This is especially true in some European countries.
- Member States are characterised by marked differences in terms of overall level of competitiveness as well as share of manufacturing in GDP. Regional variations are also pronounced.
- An industrial policy could in principle deal with negative trends in industrial employment and output. International practices show that there is a range of objectives assigned to industrial policy, there are multiple orientations, and many different policy instruments are available.
- A new paradigm of industrial policy is emerging. It emphasises the role of the public-private partnership and blurs old dichotomies such as the opposition between horizontal and vertical/sectoral industrial policies, top-down and bottom-up policy designs, and manufacturing vs. broader targets.

This chapter is intended to set the scene in which the debate about an EU industrial policy takes place. It examines factual evidence on the nature of the challenges that an EU industrial policy needs to tackle in terms of growth and competitiveness, opens the toolbox available in principle to policymakers wishing to develop an industrial policy at EU level, and reviews different arguments in literature on the need for an industrial policy that could be used to justify an EU industrial policy.

2.1. The challenges at stake

This section provides concise and up-to-date evidence on the state of EU competitiveness in general, and of that manufacturing in particular.

As reported by several studies, industry[1] is the backbone of the EU economy and a driver for its international competitiveness. It significantly contributes to economic growth, employment and innovation activities and, thanks to its spillover effects on other sectors, it benefits the overall economy[2].

The role of industry as the hub of the European economy and competitiveness is underlined by the fact that the manufacturing sector accounts for 49% of intermediate input transactions in the EU economy, while its shares of the total EU value-added and

[1] For the purpose of this study, a broad definition of industry is adopted, which means that it is defined not only as manufacturing, but it covers a broader set of activities, including mining, quarrying and energy activities.

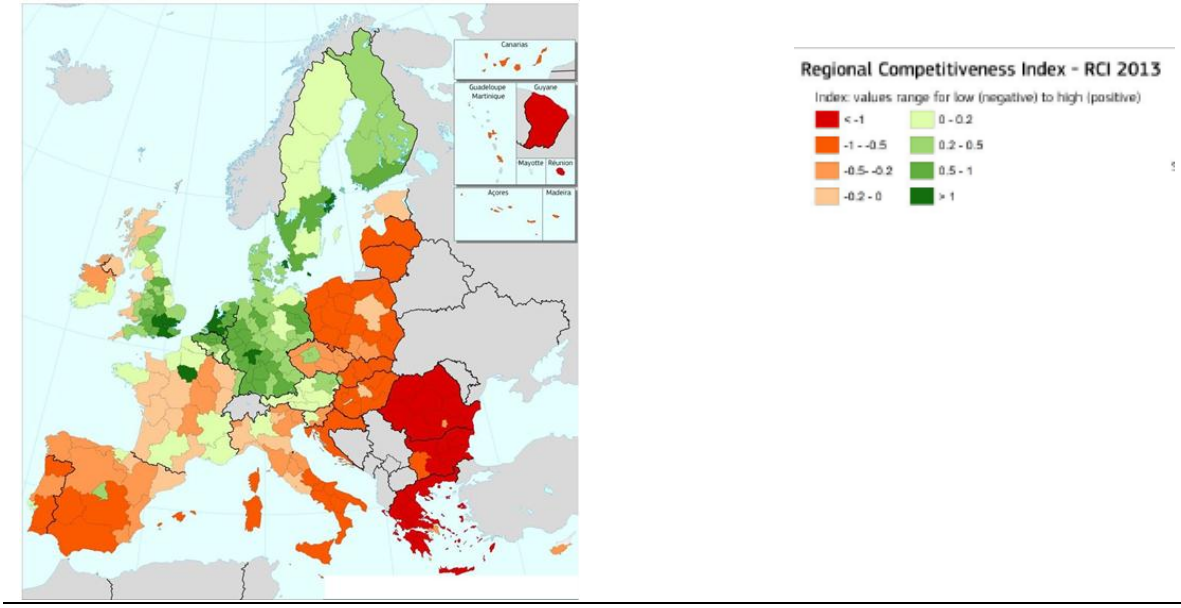
[2] Business Europe (2014), Industry Matters: Recommendations for an Industrial Compact, Brussels. Institute der deutchenWirtschaft Köln (2013), Industry and a Growth Engine in the Global Economy, Cologne. European Parliament (2014) How can European Industry Contribute to Growth and Foster European Competitiveness?, Study for the ITRE Committee.

employment amount to 15% and 14%, respectively.[3] Regarding employment, manufacturing directly provides 32 million jobs in the EU and indirectly accounts for an additional 20 million jobs in related sectors.[4] The productive level of the manufacturing sector is about 15% higher than in the service sector (an hour generates nearly €32 of added value). Moreover, it is responsible for 65.3% of R&D and 49.3% of innovation investments and, accounting for 75.6% of merchandise exports and 57% of total exports, industrial companies clearly drive Europe's international economic performance.

Several indicators show unfavourable or negative trends, which are particularly worrying given the importance for the EU of industry in general, and manufacturing in particular. However, the picture is variegated. First, as far as measurement of competitiveness is concerned, the WCYB2014 results[5] show that EU28 countries such as Sweden, Germany and Denmark are significantly competitive by ranking 5th, 6th and 9th, respectively, among the 60 countries considered.[6] Conversely, there are countries such as Croatia, Slovenia, Greece, Hungary, Portugal and Italy, which still lag behind in the WCYB competitiveness ranking. Interestingly, there is also a regional dimension to differences in competitiveness levels.

The 2013 edition of the Regional Competitiveness Index (RCI) developed by the European Commission reveals substantial differences in competitiveness within some countries. The map below shows a polycentric pattern with strong competitive capital and metropolitan regions in many parts of Europe. With the exception of the less developed Member States in Central and Eastern Europe, some capital regions are surrounded by similarly competitive regions.

Figure 1: Figure 1: Regional Competitiveness Index, 2013. Results across EU Regions



Note: The higher the class, the higher the level of regional competitiveness.
Source: Annoni P. and Dijkstra L.(2013)

[3] Calculations by Institute der deutchenWirtschaft Köln (2013) on the basis of Eurostat (2013), OECD (2013), WIOD (2013), WTO (2013).

[4] Including Agriculture (3,737), Mining (180), Utilities (513), Communication (362), Financial Services (405), Private and Public Services (6,483), Business Services (4,092), Logistics (4,339) and Construction (293). Calculations by Institute der deutchenWirtschaft Köln (2013) on the basis of Eurostat (2013) and WIOD (2013).

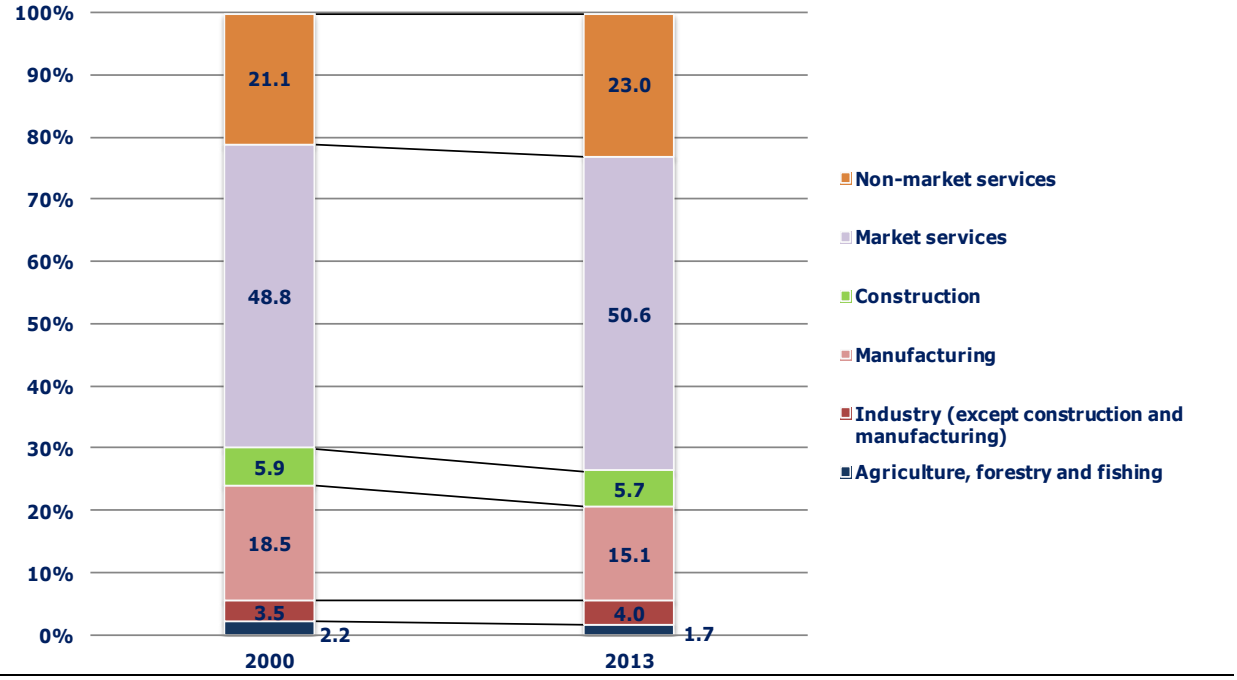
[5] IMD World Competitiveness Centre (2014), *IMD World Competitive Yearbook 2014*, Lausanne, Switzerland.

[6] 60 countries are ranked from the most to the least competitive.

In what follows several key features characterising the added value of the EU industry sector, and manufacturing in particular, are briefly presented.

A first remark concerns the continuing long-term shift from agriculture and manufacturing towards services. This is a worldwide trend, which has accelerated in the last decade, but the largest decline is recorded in the EU. Market services have grown to a point where they account for nearly half of the EU gross value-added. The share of non-market services[7] increased in 2013 to 23% of EU28 GVA, while manufacturing activities declined to around 15%. Construction, and mining and quarrying remained roughly stable at 6% and 1%, respectively.

Figure 2: Growth in value-added, by sector (2000-2013)



Source: Eurostat.

Data from the World Input-Output database (WIOD) allow for a comparison between the European economies and those of other countries. They show that Asian economies (China and Japan) and BRII countries (Brazil, Russia, Indonesia and India) are more specialised in manufacturing than European countries (see Figure 3 below).

Figure 3: Specialisation in EU and in other countries, 2011

	EU28*	BRII	USA	Japan	China	Rest of the World
Agriculture, Hunting, Forestry and Fishin	0.53	1.93	0.43	0.38	1.54	1.41
Mining and Quarrying	0.15	1.14	0.45	0.09	0.73	2.65
Manufacturing	0.92	0.99	0.65	1.03	1.70	0.90
Electricity	1.16	1.18	0.49	1.12	1.22	1.00
Construction	0.95	1.19	0.54	0.89	1.31	1.17
Market Service	1.17	0.91	1.33	1.08	0.52	0.89
Non Market Service	1.11	0.84	1.53	1.19	0.47	0.82

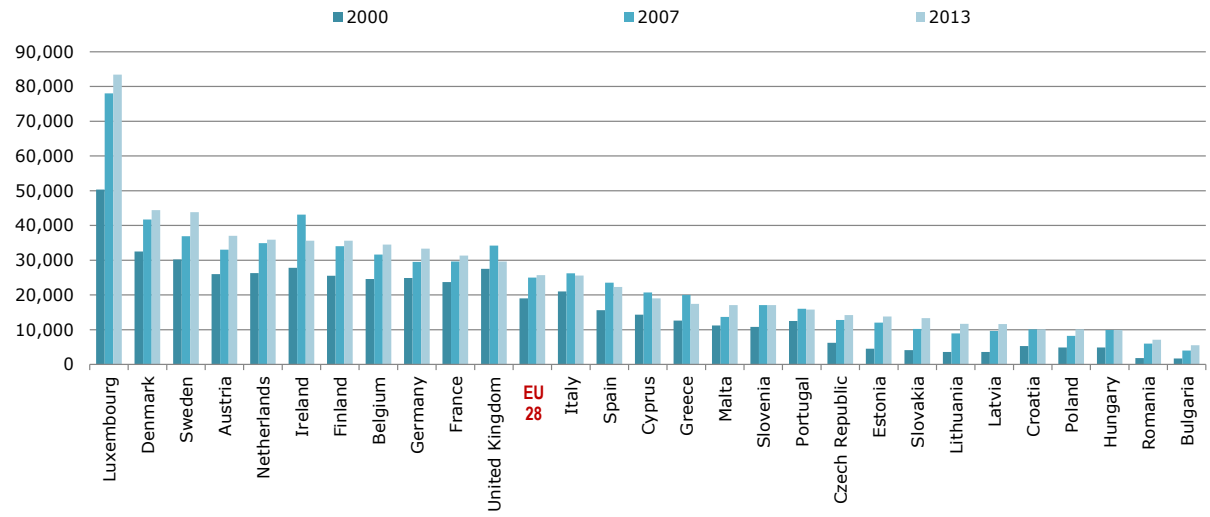
Source: WIOD
Note: *Croatia not included.

[7] They include branches covering general public services, non-market education, research and health services provided by general government and private non-profit institutions, domestic services and other non-market services.

A large variation can be observed in the percentage of EU Member States' output claimed by manufacturing and market services. Generally, many European economies (e.g. Romania, the Czech Republic, Hungary and Ireland) boast relatively large manufacturing sectors compared to the EU average. Conversely, there are countries such as Luxembourg, Greece, Cyprus and the UK that have a very small manufacturing sector and a large market services sector[8].

Manufacturing and services appear to be increasingly interlinked (e.g. by including activities such as R&D, software design, market research, etc.). The advantage of using services as part of their business processes (such as development of products, sales, accounting, logistics) means an increase in industrial competitiveness, thanks to the increase in productivity and the reduction in production costs (more efficient manufacturing processes).

Figure 4: Gross Domestic Product per capita: historical overview across EU Countries

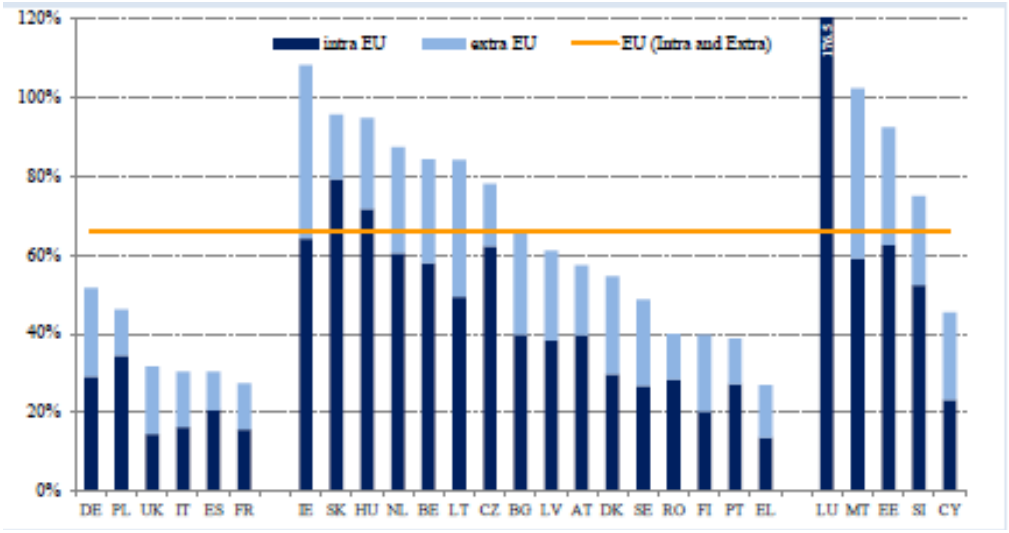


Source: Eurostat

As far as openness to international trade and the ability to integrate in global value chains are concerned, there is evidence that smaller countries tend to be more integrated in international trade, whilst the larger ones normally have lower trade-to-GDP ratios.

[8] European Commission (2013), Competing in Global Value Chains: EU Industrial Structure Report 2013, DG Enterprise and Industry.

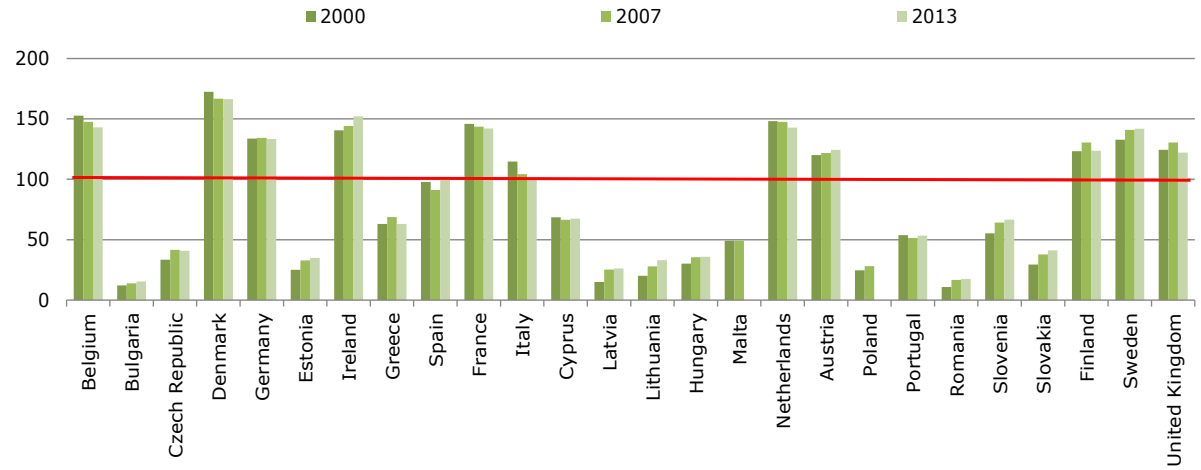
Figure 5: Total exports as a percentage of GDP, 2012



Source: European Commission (2013)[9]

As shown in Figure 6 below, a rise in labour productivity occurred in Ireland, Sweden and Austria. Conversely, decreases were recorded for the Netherlands, France, Italy and Belgium.

Figure 6: Labour productivity per hour worked (EU28=100)

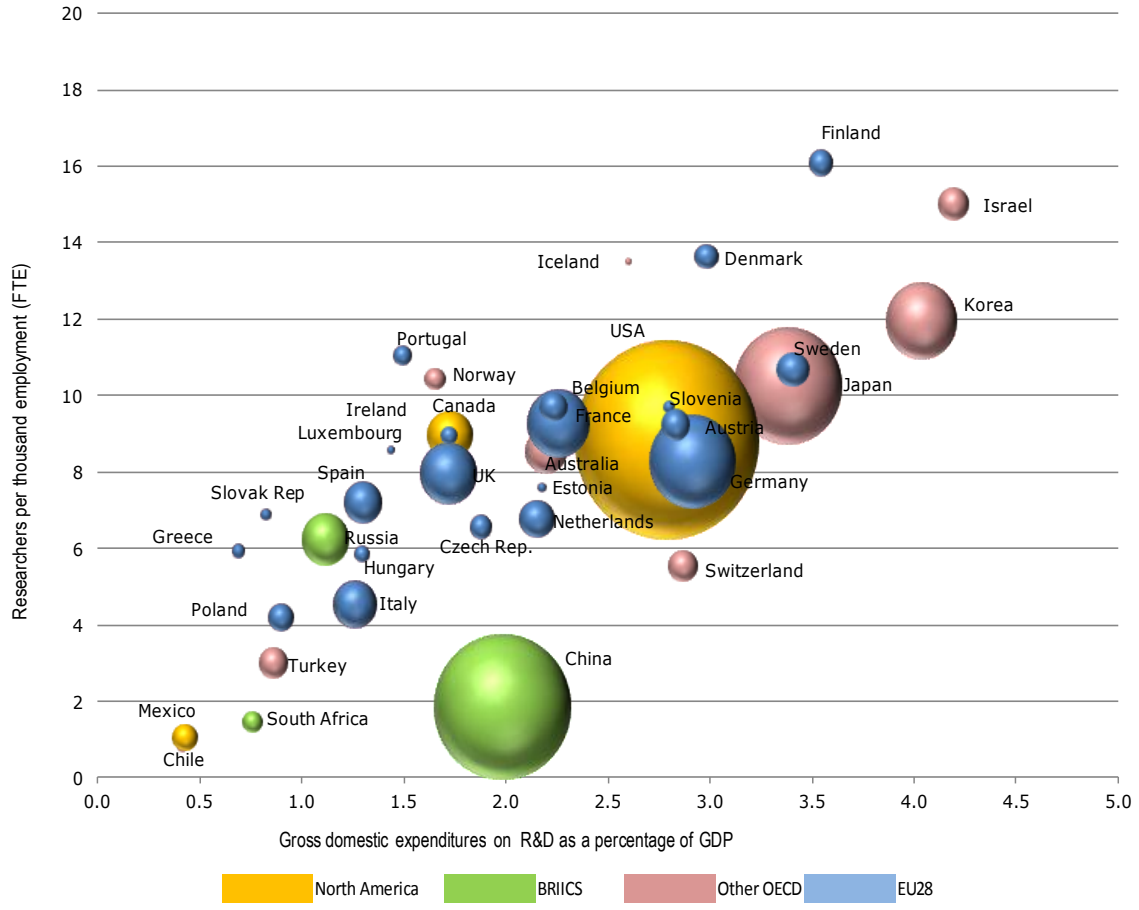


Source: Authors based on Eurostat data.
Note: Data are not available for Croatia or Luxembourg.

Over the last decade investments in R&D have significantly increased across Europe, but, overall, the volume of human and financial resources devoted to R&D in European countries is relatively smaller than that of the EU's main competitors (see Figure 7 below).

[9] European Commission (2013), Commission staff working document, Industrial Performance Scoreboard and Member States' Competitiveness Performance and Implementation of EU Industrial Policy: A European 2020 initiative, Brussels.

Figure 7: Human and financial resources devoted to R&D, 2012



Source: OECD, Eurostat.
R&D volumes in million 2005 US$ - constant prices and PPP.

Generally, the EU as a whole faces considerable challenges in terms of competitiveness, mainly arising from a worrying trend characterising the evolution of its manufacturing basis, which is so important as a source of growth and development. That said, there appear to be considerable variations within the EU at country and regional levels, which show distinct diagnoses and would possibly call for distinct remedies.

2.2. An industrial policy: what is it for and how does it work?

Against the background depicted above, what could an industrial policy do? What are its main objective(s)? Is it competitiveness, growth, jobs? What are the intermediate objectives to reach these main objectives? Is it a new specialisation profile, structural changes? What are its targets? Is it just manufacturing? And what are its main instruments? This section reviews different possibilities and options – as identified empirically through an examination of international practices – to establish a sort of ideal toolbox at the disposal of policymakers wishing to develop an EU industrial policy.

A valid starting point is to acknowledge that no generally accepted definition of industrial policy exists in literature. Some definitions are very broad, like "all policies designed to support industry" (Pinder, 1982)[10], while others are quite narrow, such as "set of

[10] Including fiscal and monetary incentives for investment, direct public investment and public procurement programmes, incentives for investment in research and development, major programmes for the creation of

governmental actions designed to support industries that have major export potential and job-creation capacity, as well as the potential to directly support the production of infrastructure" (Reich, 1982)[11]. Differences can be found in the definitions adopted by international organisations. For instance, the UNCTAD[12] defines industrial policy as a "concerted, focused, conscious effort on the part of government to encourage and promote a specific industry or sector with an array of policy tools";[13] the World Bank considers industrial policy as "government efforts to alter industrial structure to promote productivity-based growth"[14].

A commonly used and widely cited definition is that of Pack and Saggi (2006),[15] which is adopted and slightly revised by the OECD in order to encompass the variety of uses that are commonly made of the term industrial policy. In the spirit of a broad and inclusive definition, the OECD identifies industrial policy as "*any type of intervention or government policy that attempts to improve the business environment or to alter the structure of economic activity towards sectors, technologies or tasks that are expected to offer better prospects for economic growth or societal welfare than would occur in the absence of such intervention*"[16].

Bearing in mind this definition, a large number of variations are observed. For a start, it is possible to classify industrial policies on the basis of *objectives* such as a) economic objectives: improving the efficiency; b) social objectives: enhancing equity; c) environmental objectives: ensuring sustainability; and d) political objectives: protecting specific interests (Pianta 2009). However, policies often have multiple aims and may not fit neatly into one category or another. A useful classification looks at whether the instruments used for industrial policy operate mainly on the product market or whether they are focused on factor markets – labour, capital, land and technology. Other differences are found in the *orientation* of the policies: whether they are horizontal/functional or vertical/selective, time-constrained or longer term, strategically targeted or in response to market pressure, conditional or unconditional, dealing with comparative advantages or exploring new areas, etc.

It is still conventional to distinguish between 'horizontal' and 'selective' industrial policies (Crafts et al., 2013)[17]. The latter are aimed specifically at improving the performance of particular industries, firms or sectors (e.g. manufacturing, tourism, creative industries, business services, etc.), while the former are designed to benefit the economy more generally and to improve the 'framework conditions of the policy'. However, this distinction is not always clear-cut. The OECD report stresses that horizontal industrial policies often have a selective equivalent, e.g. targeted inward investment promotion or targeted skills

"national champions" in strategic sectors, and policies to support small and medium-sized enterprises. See Pinder, J. (1982), Causes and Kinds of Industrial Policy, in J. Pinder (ed.), (1982), National Industrial Strategies and the World Economy, Croom Helm, London.

[11] Reich, R. (1982), Making Industrial Policy, Foreign Affairs, Vol. 60, No. 4.

[12] The United Nations Conference on Trade and Development was established in 1964 as a permanent intergovernmental body of the United Nations. See UNCTAD and ILO (2014), *Transforming Economies: Making Industrial Policies Work for Growth, Jobs and Development*.

[13] UNCTAD (2009), *The Relationship between Competition and Industrial Policies in Promoting Economic Development*, TD/B/C.I/CLP/3, available at http://unctad.org/en/docs/ciclpd3_en.pdf.

[14] OCED Private Sector Development Synthesis Note: Industrial Policy, August 2013. World Bank (1993), The East Asian Miracle, Washington DC: The World Bank.

[15] Pack and Saggi (2006), *The Case for Industrial Policy: a Critical Survey,* available at http://www.ycsg.yale.edu/focus/gta/case_for_industrial.pdf.

[16] Warwick, K. (2013), *Beyond Industrial Policy: Emerging Issues and New Trends, OECD Science, Technology and Industry Policy Papers*, No. 2, OECD Publishing.

[17] Crafts, N. and Hughes, A. (2013), *Industrial Policy for the Medium- to Long-term*, Centre for Business Research, University of Cambridge Working Paper No. 455

policies, or sector-specific advisory services. Also, horizontal policies may turn out to be highly selective in their impact. For example, general support for an input or activity that is used more intensively in some sectors than others (e.g. the impact of R&D tax credits is highly concentrated in the manufacturing sector).

Generally, the instruments used in industrial policy range from direct and indirect support to specific firms and industries (e.g. grants, subsidies, loans and tax credits) to support for knowledge institutions, infrastructure and skills. Various attempts have been made to categorise the instruments used in industrial policy. For example, it is possible to distinguish between three sets of instruments: (a) external market interventions, including import tariffs, quotas, licensing and local content programmes, and export promotion measures such as export subsidies, export processing zones and subsidised credit; (b) product market interventions aimed at promoting competition in domestic markets, competition policy and law; and (c) factor market interventions: FDI performance requirements and restrictions in the capital and finance markets, labour market and equity objectives (Pangestu, 2002)[18]. A list of possible policy instruments contributing to an industrial policy is proposed below.

Table 1. Classification of instruments for an industrial policy

Economic signals and incentives	Intellectual property rights Price regulation Exchange rate policy (e.g. under-evaluation) Monetary (interest rate) policy Countercyclical fiscal policy Tax breaks
Scientific and technological innovation	Scientific policies High-tech lead projects Funding university research Establishment of research centres R&D subsidies and/or tax credits
Learning and improving technological capabilities	Education and training policies Foresight exercises (to identify national research priorities) Labour training subsidies and/or tax breaks Skill formation and upgrading schemes International educational and research collaboration Incentives for foreign direct investment
Selective industry support	Impose import tariffs and/or quotas Provide export subsidies/credit/support Establish special economic zones Use of state-owned enterprises/privatisation Create public utilities providing inputs (e.g., electricity) Directed finance/subsidies Provide public guarantee Direct state procurement policy

[18] Pangestu (2002). Mari Pangestu. *Industrial Policy and Developing Countries*. In Bernard Hoekman, Aaditya Mattoo, and Philip English (eds.) *Development, Trade and the WTO: A Handbook*. World Bank. Washington, D.C.

Selection mechanisms	Entry and exit regulations for firms "live and let die" principle (political will to end support to failing firms) Anti-trust and competition policy Support national trading companies Preferential access to finance Long-term development finance
Distribution of information	Collective action mechanisms Promotion of standards Use of consultative forums Use of business chambers Encouraging firms' cooperation/links Marketing of export industries Dissemination of successful experience
Improving productivity of firms and entrepreneurs	Providing or subsidising management training Firm (SME) monitoring and assistance Infrastructure, funding and management for incubators and cluster formation Promotion of public-private partnerships Location marketing and enhancement Upgrading of economic infrastructure Creation of venture capital funds

Source: Authors based on Warwick, K. (2013).

Defining the sectors an industrial policy affects is a delicate issue since its instruments cover a wide range of economic areas. In general, it is observed that industrial policy is not only about manufacturing, although it represents a key part of what it defines as industry, namely "a broad set of activities including also mining and quarrying and energy activities"[19]. There is evidence supporting the concept that industrial policy can apply also to agricultural or service sectors[20]. For instance, Dani Rodrik (2007)[21] states that industrial policy "is not about industry *per se*", but that "policies targeted at non-traditional agriculture or services qualify as much as incentives for manufacturers". In particular, policies targeted at non-traditional agriculture or services, and non-traditional agricultural products - e.g. new crops such as pineapple or avocado, for call centres, tourism - are some examples. The rationale is that market failures that justify industrial policy can be found in virtually all kinds of non-traditional activities, and not just in manufacturing.

Overall, there are multiple possible combinations of objectives, domains and instruments, which suggest one should refrain from adopting simplistic oppositions or trade-offs to define industrial policy and different types of it. There is little agreement even concerning the definition of the very smallest denominator since one of the possible criteria – the alteration of the economic structure, i.e. in other terms, the effect that an industrial policy would have on the *specialisation* of the economy - is not acknowledged by the proponents of a very liberal approach.

[19] See European Commission (2014), *A Vision for the Internal Market for Industrial Products*, COM(2014) 25/2, Brussels.

[20] OECD (2013), *Industrial Policy – The Approach and Current Debates*, Private Sector Development Synthesis Note.

[21] Dani Rodrik (2007), *Normalizing Industrial Policy,* Harvard University.

2.3. Beyond old dichotomies: some arguments in favour of a "new" EU industrial policy

This section puts forward a series of arguments found in economic academic literature in favour of a "new" industrial policy. These arguments question old distinctions and dichotomies, and could be used by proponents of the development of an active industrial policy at EU level.

2.3.1. Beyond old dichotomies

The failures of industrial policies have been emphasised from different perspectives in recent years[22]. The discussion of such failures echoes in the debate today, in particular with reference to excessive government involvement in the private sector leading to favouritism and rent-seeking. The failures arise from the fact that in the past industrial policy was picking the winners, by selecting and promoting national champions. Such an "old" industrial policy consisted of vertical or sectoral top-down interventions. This type of intervention is subject to the criticism that governments are not particularly good at picking winners. In addition, governments may be captured by vested interests. The disrepute was thus primarily due to the lack of knowledge and ensuing bad judgment of policymakers.

In fact, the trade-off between a vertical and a horizontal definition of industrial policy is for many scholars a sterile controversy. There are different conceptual developments that suggest going beyond this apparent trade-off. A common way to overcome this dichotomy is to resort to notions such as *systems* or *networks,* which are increasingly pertinent to account for the organisation of economic activities at times of heightened worldwide competition. For example, in their analysis of *innovation systems* as a basis for policy in the science, technology and innovation policy domains, Lundvall and Borrás (2005) draw the familiar distinction from a system perspective between a neo-classical economic approach that focuses on market failures and a systems-based approach. In the latter a critical step is made by recognising that pure arm's length and anonymous relationships between producers and users is logically incompatible with what they regard as the 'real' world of markets. In that world, markets are organised and "constitute frameworks for interactive learning between users and producers". In turn, "technological systems" can be identified (Carlsson and Jacobsson, 1997), as well as "sectoral systems of innovation" (Malerba 2004), where sectors are not defined in a classic way along traditional statistical nomenclature, but across them, where the *systems* of innovation are, i.e. where users and providers of knowledge interact.

These different developments have direct policy implications. The interest for the regional level of action, in particular, illustrates such a shift in the units of analysis and actions. For example, one justification for industrial policy is the success of industrial clusters around the world. Some scholars suggest that promoting industrial clusters is a way to avoid favouring, in a discretionary manner, particular manufacturing industries. There are different ways of doing that, for example, by promoting architecture of institutions for bridging industries and universities (see Kline and Moretti, 2013 and Mazzuccato, 2013). In the same vein, more recent developments revolve around the notion of *smart specialisation* (see Chapter 2 below).

Interestingly, these policy developments not only go beyond the old horizontal vs. vertical dichotomy, but they also illustrate strategies to eschew the traditional top-down designs seen as a mistake of the past. According to many authors, the new industrial policy will have to "be embedded in private sector networks" (Rodrik, 2006; Crafts and Hughes,

[22] See for example, Ades and Di Tella (1997); Krueger (1990); Pack and Saggi (2006).

2013). This is in sharp contrast to top-down economic models in which the government, as "principal", provides the guidelines for the private sector, as "agent".

In a slightly different manner, the notion of "global value chains" also questions conventional units of analysis and action. As a reflection of the globalisation process, value chains are being reorganised across countries and continents (Crafts and Hughes, 2013, Berger, 2012). This motivates companies to invest in the valorisation of capabilities and calls for government intervention to sustain higher education and increase human capital skills. In this respect, a recent focus has been placed on *capabilities*. With the achievement of strong globalisation, companies are stressed by tougher competition, so competing in capabilities is one way of tackling the globalisation process. (Sutton, 2012). Companies should be able to pursue structural changes, this is possible by investing in capabilities, and it requires investments in higher education (D. Palma, 2014). This follows from the belief that increasing investment in education is necessary to compete in a globalised world, where human capital and the capabilities embedded in the workforce of each company will increasingly be the key assets with which to compete (Sutton, 2012). What are the company's capabilities? Literature identifies one key source of a firm's value in the organisational structure of the firm, as opposed to its proprietary knowledge, or its market position. In other words, capabilities consist of a team of people who work effectively together, within some framework of rules, routines and tacit understandings that have been put in place or have evolved over time[23]. The increasing role of capabilities as a competitive tool for companies shows the connection between investments in higher education and company performances.

Another dichotomy that is being increasingly blurred and which is particularly relevant in the European case is the alleged opposition between pro-competitive and industrial policies. In the EU the recent pursuing of pro-competitive policies often failed to deliver remarkable results in terms of employment, particularly so in the years following the recent and far-reaching financial crisis. Some scholars are finally considering competition and industrial policy as synergic tools as opposed to elements in necessary juxtaposition. The synergies appear attainable particularly in more competitive sectors (Aghion et al. 2011). The safeguarding of market competition is no longer perceived as an obstacle to sectoral industrial policy, rather it is acknowledged that in many cases it can have a positive effect on sectoral growth. An active industrial policy for the more competitive sectors can be growth-enhancing. This shows that in the longer run, especially, there is no conflict of competition and industrial policy, even when targeted subsidies are involved. This opens the door to one possible lever, namely the considerable weight and impact of public procurement on GDP. According to Florio (2005), a proper industrial policy at EU level should include huge public demand for infrastructure, high technology industries and services by revising the magnitude and the allocation of the EU budget, and learning the lesson of the impact of federal procurement on high-tech industries in the USA.

2.3.2. New approaches to industrial policy

Learning from these recent developments, new approaches to industrial policy are proposed. For example, some authors propose a "matrix approach" (Aiginger, Sieber, 2006). This approach will no longer focus on a sequence of disjointed and narrow sectoral interventions. Rather, critical and challenging multi-sectoral interventions are proposed

[23] "To see what this implies, consider, for example, the Aquafresh company in Ghana (Sutton and Kpenty, 2012). This company began life in the clothi and textiles sector, but when this sector came under intense competition from Chinese imports, the firm reinvented itself as a maker of soft drinks. Its expertise in clothing and textiles was secondary to the fact that it was a well-functioning, medium-sized firm, which could reorient itself in the product market as market circumstances changed" (Sutton, 2012).

with specific incentives for a range of key macro-sectors[24]. This is to reduce the risks connected with intervening randomly in specific sectors and allow policymakers to take into account differences among countries in the EU (as different macro-sectors need different actions and different countries have specialisations in different macro-sectors). In this approach, an industrial policy for Europe should intervene holistically, focus on the environment and on innovation, and aim to generate systemic impacts[25]. This approach should affect the structure of the economy as a whole, not only the manufacturing sector. Industrial policy is a series of 'high-road competitiveness strategies' based on advanced skills, innovation, supporting institutions, ecological ambition and activating social policy (Aiginger, 2006).

Focusing on the method of implementation of an industrial policy, the "new" industrial policy approach proposed by D. Rodrik also goes beyond traditional dichotomies (see Box 1 for an illustration of specific implications on the possible methods adopted to carry out such a "new" industrial policy).

Box 1. New experimental approaches to industrial policy

One possible approach to industrial policy can be based on randomized trial and error experiments not supported by any other preliminary consideration aimed at identifying strategic priorities. This new approach requires processes of information discovery, policy experimentation and networking. These are partly built on the premise suggested by Rodrik that "...the task of industrial policy is as much about eliciting information from the private sector about significant externalities and their remedies as it is about implementing appropriate policies." These new approaches seek to tackle one of the main challenges in policy, namely the information asymmetry between government and business. In eliciting more information from the private sector, more informed policy-making is made possible. Examples can be found of the use of techniques such as random assignment in the industrial and innovation policy sphere.

Source: Warwick, Nolan (2014).

In the "old" paradigm, it is assumed that the solutions to problems are known. A set of sectoral priorities are defined, to which specific policy instruments are dedicated. Top-down interventions are carried out, which require high quality bureaucracy. Instead, in a modern model of industrial policy, the dialogue between public and private agents taking place through pragmatic public private partnerships becomes central. It is useful to identify constraints and opportunities, and to find solutions to specific issues on a case by case basis[26]. This framework justifies an industrial policy at the EU level that is no longer top-down, but based on the interplay among networks, actors and institutions with a continuous interwoven learning process.

2.4. Concluding remarks

This chapter shows that in the face of the daunting challenges faced by the EU economy as far as its competitiveness and growth levels are concerned, there are numerous options available in terms of both strategic underpinnings and concrete instruments. Some, however, are possibly more promising routes than others. In particular, a move away from the traditional top-down centralized approach is probably desirable, if only in order to be able to deal with one marked feature characterizing the challenges to be tackled and which

[24] For example: food and life science, machine and systems industries, fashion and design industries, basic and intermediary industries.

[25] See Aiginger (2005, 2006, 2007, 2014), Crafts, Hughes (2013), (Malerba, (2004), Carlsson and Jacobs (1997).

[26] See a presentation by D. Rodrik at the First Industrial Economics Day organised by DG Growth in December 2014. See also Warwick, Nolan (2014).

has to do with the extreme variability of national and regional circumstances within the EU. In such a context, the next chapter explores the actual responses and choices made at EU level to deal with the challenges described above.

3. CONTOURS AND CONTENT OF THE "EU INDUSTRIAL POLICY"

KEY FINDINGS

- Different phases characterise the strategic framework adopted by the EU in the field of industrial policy. Industrial policy came back in the 1990s pursuing horizontal priorities. In the 2000s renewed expectations were placed on it, and to an even greater degree following the effects of the financial crisis. It comprises a blend of horizontal and cross-sectoral or thematic initiatives. It is now considered to be a central instrument to achieve the modernisation of the European economy. An ambitious target has been set to reach 20% of GDP dedicated to industry by 2020.
- The current policies, programmes and initiatives contributing to an EU industrial policy are numerous, covering a wide variety of fields. Some initiatives with a budget envelope are (by order of importance): Cohesion Policy, Horizon 2020, Connecting Europe Facility and COSME, representing slightly less than EUR 200 billion euro. Two recurring priorities across these programmes are SMEs and innovation.
- In addition, the EU exercises regulatory power in a number of areas, which contributes to levelling the playing field and facilitating business in Europe: competition, internal market, business environment, intellectual property rights, trade and energy.

The objective of this chapter is to provide an accurate and factual account of the shape(s) that an industrial policy deployed at EU level may take. Evidence is provided on strategic orientations, dedicated budgets, initiatives that the EC takes to incite Member States take specific steps and endorse varying approaches, as well as available evidence on the performance of the different policies programmes and arrangements reviewed. All these issues are addressed in a dynamic perspective, i.e. identifying the evolution path that led to the current state of affairs.

This chapter adopts the industrial policy perspective to account for different pertinent initiatives of the EU in this field that would normally be considered separately. Here it is impossible to capture the aggregate effects of the different initiatives reviewed[27], but scattered evidence on the performances of single initiatives is drawn from available evaluation and impact assessment reports. This is to pave the way for an assessment of the different programmes and initiatives seen as forming an "EU industrial policy" as a whole on the basis of *perceptions* of stakeholders presented in the next chapter.

3.1. The Strategic Framework: development and recent progress

Nowadays, the role played by industrial policy at EU level is essentially considered to be the provision of framework conditions for enterprise development and innovation in order to make the EU an attractive place for industrial investment and job creation, taking into account the fact that most businesses are small and medium-sized enterprises (SMEs).

[27] For example a document lists the main initiatives and records economic performance – but does not provide a proper evaluation of an EU industrial policy. See European Commission (2013), Commission staff working document, Industrial Performance Scoreboard and Member States' Competitiveness Performance and Implementation of EU Industrial Policy: A European 2020 initiative, Brussels.

However, this strategic choice is the outcome of different redefinitions in the history of the EU which are worth recalling, as this helps to shed light on current tensions and evolutions. In fact, the concept of an industrial policy at EU level became explicit only in the 1990s, although some firsts attempts can be traced back to the Treaty establishing the European Coal and Steel Community (1951) and the foundation of EURATOM (in 1959). Five broad phases can be identified.

- **First Phase**

The 1951 treaty establishing the European Coal and Steel Community (ECSC) provided a first attempt to implement an EU-wide industrial policy, albeit in an implicit form and focusing only on one particular sector. The ECSC can be seen as the predecessor of today's EU (J. Jolly, 1978). The principal aim of the ESCS was to improve the provision of coal and steel, which was then in short supply. To reach the objective of expanding supply, during this phase many interventions were allowed in the coal and steel market: minimum prices, quotas and trade protection. When the coal and steel sector later shifted to over-supply, the policy was maintained as a form of community coordination.

- **Second Phase**

The European Economic Community (1957) treaty marks the beginning of the second phase. The treaty does not mention industrial policy explicitly; however, this phase is characterized by remarkable interventionism and was labelled by many researchers as the phase of sectoral industrial policy or even "French industrial policy" with reference to the tradition of sectoral planning in France (Darmer & Kuyper, 2000, Owen, 2012). In this phase, sectoral restructuring and policies favouring specific sectors or even 'grand projects' dominated the policy scene in most countries. Such developments occurred even though one of the main goals of the 1957 treaty establishing the European Economic Community (EEC) was to increase competition and to promote the creation of an internal market with the free flow of goods. In order to do so, the treaty encouraged the lowering of tariffs and trade barriers alongside a reduction in subsidisation and in national assistance.

The first steps towards an explicit industrial policy at the community level are mentioned in a memorandum on industrial policy dated 1970 consisting of two documents: (1) A first document outlining the principles that guided the Commission and setting out the general guidelines that it proposes; (2) A second document consisting of four parts. The first part describes the situation of industry in the Community. The guidelines put forward in the first document are developed and explained in the following three parts: the improvement of the conditions in which firms operate in the Community, the ability of the Community's industry to adjust, and the promotion of technologically advanced industries." (Supplement to Bulletin 4 – 1970 of the European Communities, Brussels, 18 March 1970).

- **Third phase**

The third phase began in 1990 with the European Commission communication to the Council and European Parliament entitled "***Industrial Policy in an Open and Competitive Environment: Guidelines for a Community Approach***"[28]. This communication reflects a convergence of views and an implicit agreement between Member States on the guiding principles for Community industrial policy, namely "openness of markets", "horizontal approach" and "subsidiarity". In particular, it pointed out that sectoral

[28] Commission of the European Communities (1990), Communication of the European Commission to the Council and European Parliament: "Industrial Policy in an Open and Competitive Environment: Guidelines for a Community Approach, COM(90) 556 final, Brussels, 16 November 1990.

policies of intervention were not effective in fostering structural change[29] and proposed that industrial problems be solved through **horizontal measures.** This phase seems to mark the end to the sectoral approach (Darmer & Kuyper, 2000), identified as a distortion of competition. The term industrial policy started to be used in a purely functional sense that is very close to general competitiveness or productivity policy. Industrial policy in this sense is similar to growth strategy – or to what used to be referred to as supply-side policy.

The Maastricht Treaty (1992) consolidated the achievement of the communication of 1990, and set up the legal basis for Community Industrial Policy. It established industrial policy explicitly as an area of Community responsibility and calls for the Union and the Member States to "*ensure the conditions necessary for the competitiveness of the Union's industry*" (see Box 2)[30].

Box 2. Article 173.1 of the Maastricht Treaty

"The Community and the Member States shall ensure that the conditions necessary for the competitiveness of the Community's industry exist. For that purpose, in accordance with a system of open and competitive markets, their actions shall be aimed *at: i)* speeding up the adjustment of industry to structural changes; *ii)* encouraging an environment favourable to initiatives and to the development of undertakings throughout the Community, particularly small and medium-sized undertakings; *iii)* encouraging an environment favourable to cooperation between undertakings; *iv)* fostering better exploitation of the industrial potential of policies of innovation, research and technological development. **2.** The Member States shall consult each other in liaison with the Commission and, where necessary, shall coordinate their actions. The Commission may take any useful initiatives to promote such coordination. **3.** The Community shall contribute to the achievement of the objectives set out in Paragraph 1 through the policies and activities it pursues under other provisions of this Treaty. The Council, acting unanimously on a proposal from the Commission, after consulting the European Parliament and the Economic and Social Committee, may decide on specific measures in support of actions taken in the Member States to achieve the objectives set out in Paragraph 1.
This Title shall not provide a basis for the introduction by the Community of any measure that could lead to a distortion of competition."

Source: Maastricht Treaty.

This phase is characterized by an acknowledgement of the importance of new technologies generally, and of information technologies specifically. Important documents on this subject are the publications on the global information society (published in 1994) and all the EU policy attempts to promote the information society. "Industrial policy and innovation policy were twin strategies during this phase" (Aiginger and Sieber, 2006)

- **Fourth Phase**

Starting approximately at the turn of the century, a renewed interest in industrial policy developed within Europe. This interest was stimulated by globalisation, EU enlargement, fear of deindustrialisation and slow European growth. Both the European Councils in Lisbon in 2000 and in Gothenburg in 2001 recognised the key role of industrial policy in helping

[29] "They have failed to make industry competitive by delaying the requirement to implement necessary adjustments, this led to grave misallocation of resources and exacerbated problems of budgetary imbalances…. Sectoral approaches to industrial policy can work for a period, but they inevitably entail the risk of delaying structural adjustments and thereby creating job losses in the future."

[30] Treaty on the Functioning of the European Union, Title XVII, Industry, Art. 173 (ex Article 157 TEC): http://eur-lex.europa.eu/resource.html?uri=cellar:ccccda77-8ac2-4a25-8e66-a5827ecd3459.0010.02/DOC_1&format=PDF

the European Union meet its objectives. In this context, four main communications were issued[31]. During this phase a more sophisticated sectoral perspective was added to the horizontal approach, in a so-called "matrix approach"[32] to industrial policy[33]. Thus, in July 2005, for the first time, a Commission communication on *'Implementing the Community Lisbon Programme: A Policy Framework to Strengthen EU Manufacturing — Towards a More Integrated Approach for Industrial Policy'* (COM(2005) 0474) set out an integrated approach to industrial policy based on a concrete work programme of cross-sectoral and sectoral initiatives. With this communication, the Commission committed to the horizontal nature of industrial policy and to avoiding a return to selective interventionist policies. The idea suggested by this communication is that for industrial policy to be effective, horizontal policies have to take into account the specific context of individual sectors and therefore a combination of horizontal and sectoral policies is needed. Seven major ***cross-sectoral policy initiatives*** (see Box 3) were announced in this communication in order to address the common challenges across groupings of different industries and to reinforce the synergies between different policy areas in the light of competitiveness considerations.

Box 3. Cross-sectoral policy initiatives

1. Intellectual Property Rights and Counterfeiting Initiative (since 2006)
2. High Level Group on Competitiveness, Energy and the Environment (2006-2007)
3. External Aspects of Competitiveness and Market Access (since 2006)
4. New Legislative Simplification Programme (2005-2008)
5. Improving Sectoral Skills (since 2005)
6. Managing Structural Change in Manufacturing (since 2005)
7. Integrated European Approach to Industrial Research and Innovation (since 2006)

In addition to these cross-sectoral initiatives, a number of new political sector-specific initiatives were identified, based on their nature or particular importance (the full list is in Annex II of the Communication, COM(2005) 0474). Sectoral initiatives existing before the issue of this Communication include:

- Follow-up to CARS 21 High Level Group on the automotive industry
- LeaderSHIP 2015
- Follow-up to the STAR21 report of the European Advisory Group on Aerospace and the STAR21 Communication (COM(2003) 600)
- High Level Group on textiles and clothing

As part of the renewed Lisbon Partnership for Growth and Jobs strategy (in 2007), EU industrial policy was geared towards more sustainable production and consumption,

[31] The first was a document regarding industrial policy in the enlarged EU "*Industrial Policy in an Enlarged Europe*" (European Commission, COM 2002, 714). The second document was a communication from the Commission on "*Some Key Issues in Europe's Competitiveness*" (European Commission, COM(2003) 704 final). The third document was a communication on "*Fostering Structural Change: an Industrial Policy for an Enlarged Europe*" (European Commission, COM (2004) 274). Finally, a communication dated 2005 (European Commission, COM (2005) 474 final), entitled "*Implementing the Community Lisbon Programme: a Policy Framework to Strengthen EU Manufacturing - Towards a more Integrated Approach for Industrial Policy*," proposed a taxonomy of clusters of sectors to assess and fine-tune industrial policies.

[32] The term "matrix approach" appears for the first time in the Report on the Competitiveness of Manufacturing 2005 provided by WIFO and partners for the EC.

[33] See Aiginger and Sieber, (2006), Warwick, K. (2013), *"Beyond Industrial Policy: Emerging Issues and New Trends"*, OECD Science, Technology and Industry Policy Papers, No. 2, OECD Publishing. http://dx.doi.org/10.1787/5k4869clw0xp-en.

focusing on renewable energies and low-carbon and resource-efficient products, services and technologies. In this regard, a number of measures were adopted by the Commission in the following years[34].

- **Fifth Phase**

As of March 2010 industrial policy has been explicitly related to macroeconomics goals. Industrial policy is redefined for industrialised countries as a strategy to promote "high–road competitiveness" understood as the ability of an economy to achieve "beyond-GDP" goals, (Aiginger, 2014). In March 2010 industrial policy became a flagship of the Europe 2020 strategy (replacing the Lisbon strategy)[35]. The flagship initiative 'An industrial Policy for the Globalisation Era' aims to promote European industrial competitiveness, thus placing more emphasis on factors such as the growth of SMEs, the supply and management of raw materials and well-paid jobs. It encompasses a whole range of EU policies such as competition, trade, innovation and energy and puts special emphasis on industrial property rights.

The main milestones are:

1) The Commission communication '*Industrial Policy: Reinforcing Competitiveness*' (COM(2011) 0642), adopted on 14 October 2011, calling for deep structural reforms as well as coherent and coordinated policies across the Member States points out several key areas: Smart Regulation, access to finance, single market etc.
2) Commission Communication "*A Stronger European Industry for Growth and Economic Recovery*" (COM(2012) 582/3). Focusing on four pillars as means of promoting industrial competitiveness: investments in innovation, better market conditions, access to finance and capital, and human capital and skills. As far as investment in innovation is concerned, the focus is on six priority action lines selected after public consultation: advanced manufacturing technologies for clean production; key enabling technologies; bio-based products; sustainable industrial and construction policy and raw materials; clean vehicles and vessels; smart grids. For each of these priority lines, a specialised partnership, made up of relevant Commission services, and involving key stakeholders (industry, labour unions, observers, etc.) was established to ensure the timely delivery of reforms (see Box 4).
3) a new communication was adopted on 22 January 2014 as a contribution to the 2014 European Council debate on industrial policy, called '*For a European Industrial Renaissance*' (COM(2014) 0014). One of the key messages of the new communication is that Europe needs to urgently lay the basis for post-crisis growth and modernisation. To achieve this, the Commission calls on Member States to recognise the central importance of industry for creating jobs and growth, and of mainstreaming industry-related competitiveness concerns across all policy areas.

[34] These include 'An Industrial Property Rights Strategy for Europe' (COM(2008) 465 final), 'Sustainable Consumption and Production and Sustainable Industrial Policy Action Plan' (COM(2008) 0397), 'The Raw Materials Initiative' (COM(2008) 0699), 'Preparing for Our Future: Developing a Common Strategy for Key Enabling Technologies in the EU' (COM(2009) 0512).

[35] Out of the seven flagship initiatives, four are especially relevant to making the EU's industry more competitive: 'Innovation Union' (COM(2010) 0546), 'A Digital Agenda for Europe' (COM(2010) 0245), 'An Industrial Policy for the Globalisation Era' (COM(2010) 0614) and 'New Skills for New Jobs' (COM(2008) 0868).

Box 4. Specialised partnership established in the context of COM(2012) 582/3

- The task force on *advanced manufacturing* technologies address related issues by providing support for market oriented pre-competitive research in manufacturing and in process development via public-private partnerships ('Factories of the future' and 'SPIRE')[36]. It also supports demand for advanced manufacturing technologies, e.g. by organising matchmaking events and awareness-raising activities on advanced manufacturing technologies for clean production.
- The task force on *clean vehicles* is addressing these issues by contributing to policy initiatives such as developing and harmonising at global level type-approval legislation for electric and fuel cell vehicles making them at least as safe as those with a traditional powertrain; by publishing guidelines on financial incentives that will serve as a reference for Member States wishing to introduce demand-side measures promoting clean and energy-efficient vehicles.
- The task force on *bio-based products* started work by informing public purchasers and raising their awareness. A compilation of lists and databases of bio-based products is now available. Standardisation is in progress in different areas ranging from nomenclature, via measuring bio-based contents, to sustainability assessment and certification of bio-based products.
- The task force of *Key Enabling Technology* aims to leverage the funding instruments at the EU's disposal. The priorities of Horizon 2020, the Structural Funds and the European Investment Bank have been aligned to support the deployment of *KETs* into products and services. In February 2013 a memorandum of understanding was signed between the European Commission and the European Investment Bank with the aim of improving access to finance for investments in KETs.
- The Task force on *sustainable construction* set up a high-level forum and five thematic groups, involving more than 150 representatives from national administrations and sector associations in order to streamline and coordinate various initiatives currently underway at EU, national and sectoral levels with respect to the strategy.
- With the help of industry stakeholders, the *smart grids* Task force identified a number of areas requiring policy attention in order to speed up the deployment of smart grids and is in the process of recommending actions to be taken in these areas. Amongst others, the policy actions suggested by the members of the expert group include actions to promote investment in smart appliances and legislative action (Directive/Regulation) for low voltage side networks.

"A number of **key priorities** are raised for consideration and for policy guidance at the highest political level, the **European Council**: to continue deepening the mainstreaming of **industrial competitiveness** in other policy areas; to maximise the potential of the **internal market**; to decisively implement the instruments of **regional development** with national and EU instruments in support of innovation, skills, and entrepreneurship; to encourage investment, businesses require access to **critical inputs**; to further facilitate the integration of EU firms in **global value chains**; to endorse **reindustrialisation** efforts in line with the Commission's aspiration of raising the contribution of industry to GDP to as much as 20% by 2020." (COM(2014) 0014).

The new Investment Plan worth more than €300 billion proposed at the end of 2014 for 3 years by the new President of the European Commission takes place in this context. Based

[36] SPIRE: Sustainable Process Industry through Resource and Energy Efficiency.

on initial public EU investment worth €21 billion (corresponding to funds already allocated to programmes such as Connecting Europe Facility, Horizon 2020 as well as a contribution from the European Investment Bank), it is expected to leverage private investment up to €300 billion. It raises expectations concerning the intention of the European Commission to engage an active growth strategy based on public and private investments.

Overall, in this phase, industrial policy merged with innovation policy and environmental policy has become a subset of a broader design for post-crisis growth and modernisation in Europe.

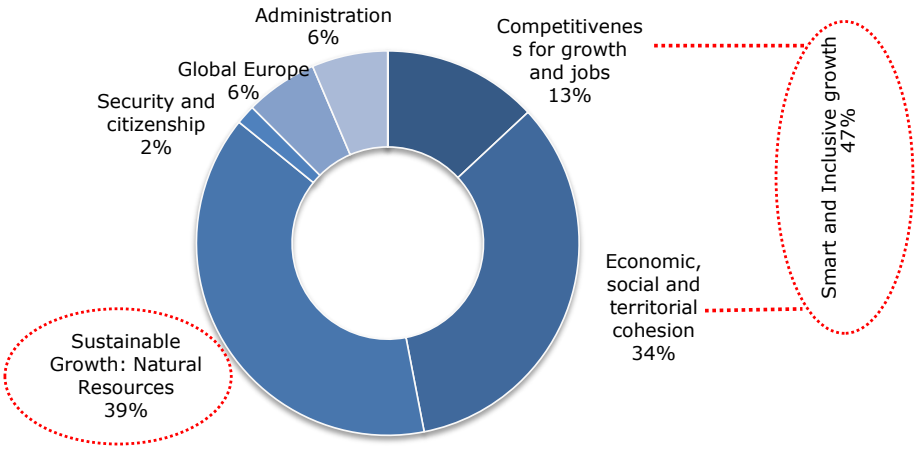
3.2. Policy fields and means of action

This section carries out a detailed inventory of the different initiatives taken at EU level that contribute (explicitly or not) to an EU industrial policy. It distinguishes between policies and programmes for which a budgetary endowment is granted, and initiatives aimed at steering Member States' actions on an imposed basis, but without any financial contribution. The result is a detailed picture of the areas of intervention, the means mobilised and the weight of the EC's influence in these areas.

3.2.1. Initiatives with a budget envelope

The European Union has put an increasing share of its policy, regulatory and financial levers at the disposal of Member States, regions and industry to foster investment in innovation and to enhance competitiveness. For the period 2014-2020 the EU is committed to investing up to €960 billion[37], of which around 87% will be addressed to implementing the EU 2020 strategy through the objectives of smart, inclusive and sustainable growth[38].

Figure 8: EU budget 2014-2020 by financial headings, in commitment appropriations (%), price 2011



Source: Authors' processing of EU data[39]

The EU 2020 strategy allocates a significant amount of resources to initiatives directly and indirectly contributing to the achievement of the EU industrial policy's objectives.

The table below provides a snapshot of the main programmes and initiatives expected to contribute to improving European competitiveness and which, as such, form part of an "EU industrial policy".

[37] €908.4 billion in payments (0.95% EU GNI). Source: European Commission (2013), Multiannual Financial Framework 2014-2020 and EU budget 2014: the figures, Brussels.

[38] €450.7 billion will be allocated to smart and inclusive growth and €373.2 billion to sustainable growth (2011 prices).

[39] on http://ec.europa.eu/budget/mff/figures/index_en.cfm?viewas=table.

Table 2. Relevant programmes from an industrial policy perspective

	EU Initiative	Budget (Euro)	Sub-initiative relevant for an EU industrial policy	Budget (Euro)	DG	Theme
Competitiveness for growth and jobs (EUR 125.6 billion, 13% of MMF budget)	**Horizon 2020**	77 billion (56%)	KET	6.6 billion	Research and Innovation	Innovation
			SME instrument	2.8 billion	Research and Innovation	SMEs/ICT
			Eurostars	287 million	Research and Innovation	SMEs Internationalisation
			Fast track to innovation	200 million	Research and Innovation	Research and innovation
			SILC II	20 million	Research and Innovation	Technological/non-technological innovation
	Connecting Europe Facility	19.3 billion (15%)	Energy infrastructure	5.1 billion	Connect	Energy connections - Single Market
			Broadband infrastructure	1 billion	Connect	Digital connections - Single Market
			Transport infrastructure	13.2 billion	Connect	Transport connections
	COSME	2 billion (2%)	Access to finance	163 million	Enterprise and Industry	Loan guarantee facility, equity financial instruments,
			Access to market (e.g. EEN)	57 million	Enterprise and Industry	Internationalisation
			Framework conditions (e.g. SBA performance review, REFIT, etc.)	34 million	Enterprise and Industry	Simplification measures
			Entrepreneurship	9 million	Enterprise and Industry	Entrepreneurship
	EaSI	815 million (1%)	Progress	497.1 million	DG Employment, Social Affairs and Inclusion	Employment
			EURES	146.7 million	DG Employment, Social Affairs and Inclusion	Employment services
			European Progress Microfinance Facility	171.1 million	DG Employment, Social Affairs and Inclusion	Microfinance

	EU Initiative	Budget (Euro)	Sub-initiative relevant for an EU industrial policy	Budget (Euro)	DG	Theme
Economic social and territorial cohesion (EUR 325.1 billion, 34% of MMF budget)	**Cohesion Policy**	322 billion (99%)	ERDF	100 billion	DG Regional and Urban Policy	Innovation and research, the digital agenda, support for SMEs and a low-carbon economy
			ESF	n.a.	DG Employment, Social Affairs and Inclusion	Active labour market policies
			Cohesion fund	66.3 billion	DG Regional and Urban Policy	Digital infrastructure, energy, transport infrastructure
Sustainable growth and Natural resources (EUR 373.2, 39% of MMF budget)	**Community Agriculture Policy (CAP) – Pillar II**	84.9 billion (23%)	European Agricultural Fund for Rural Development (EAFRD)	84.9	DG Agriculture and rural development	Diversification and development of non-agricultural SMEs in rural area
	European Maritime Affairs and Fisheries	6.6 billion (2%)	European Maritime and Fisheries Fund (EMFF)	6.6 billion	DG Maritime Affairs and Fisheries	Fishing industry – adaptation to changing conditions

Source: Authors

In quantitative terms, the primary instrument at the disposal of the EU to foster European competitiveness appears to be the Cohesion Policy, under the heading *Economic Social and Territorial Cohesion*. In turn, the heading *Competitiveness for Growth and Jobs* includes initiatives relevant for industry such as the "Key Enabling Technologies" Programme, the SME instrument, the **Connecting Europe Facility** Programme and the programme for **Competitiveness of Enterprises and SMEs (COSME).** The most important initiatives are described in some details below.

ESIF/Cohesion Policy

A contribution to the achievement of EU industrial priorities is provided by the **European Structural and Investment Funds (ESIF)**[40] under the headings of *Economic, Social and Territorial Cohesion* and *Sustainable Growth and Natural Resources*. Roughly 99% of the heading Economic, Social and Territorial Cohesion (around €322 billion) will be allocated to European regions in the framework of Cohesion Policy through the ERDF, ESF and Cohesion Fund[41].

Through the principle of thematic concentration, the Commission will allow the concentration of ESIF funds in the EU 2020 flagships initiatives, which include Industrial Policy. These investments will be guided by the concept of "Smart Specialisation" (see box below) to allow Member States and regions to concentrate investments on their competitive advantages and to encourage the creation of cross-European value chains.

[40] Including the European Regional Development Fund (ERDF), the European Social Fund (ESF), the Cohesion Fund (CF), the European Agricultural Guarantee Fund (EAFG), the European Agriculture Fund for Rural Development (EAFRD), and the European Maritime and Fisheries Fund (EMFF).

[41] Transnational Cooperation Regions will benefit from the support of the ERDF, while more developed, transition and less developed regions will be supported both by ERDF and ESF. The Cohesion Fund will only target Transition Regions.

Box 5. The principles of Smart Specialisation

The notion of **smart specialisation** establishes a link between regional policy and the Innovation Union of the EU 2020 agenda. It is a strategic approach to economic development through targeted support for research and innovation. It was announced in the 'Innovation Union' flagship initiative of the Europe 2020 Strategy as the key action of Cohesion Policy in the field of innovation. The legal basis of the smart specialisation can be found in Regulation (EU) 1301/2013 of the European Parliament and of the Council of 17 December 2013, which provides the following definition:

"Smart specialisation strategy means national or regional innovation strategies which set priorities in order to build competitive advantages by developing and matching research and innovation own strengths to business needs in order to address emerging opportunities and market developments in a coherent manner, while avoiding duplication and fragmentation of efforts. A smart specialisation strategy may take the form of, or be included in, a national or regional research and innovation (R&I) strategic policy framework. Smart specialisation strategies shall be developed through involving national or regional managing authorities and stakeholders such as universities and other higher education institutions, industry and social partners in an entrepreneurial discovery process".

The development of "research and innovation strategies for smart specialisation" was proposed as a pre-condition for countries and regions availing themselves of the ERDF and EAFRD with the aim of maximising the impact of EU investments. The idea is to focus on what regions (already) do best, and do it better by combining existing innovation from underlying regional strengths and assets (e.g. existing competitive advantages). It is not necessarily about specialisation, rather about helping to create innovation that may end up linked to an existing industrial structure and which focuses only on a few priorities and thus creates sufficient critical mass to actually make a difference. More than EUR 40 billion is expected to be channelled into Smart Specialisation from community funds, leveraging funds from the public sector and the private sector, too.

Source: Authors.

Of the ESI Funds, the ERDF will specifically focus its investments on the first four of the 11 thematic priorities of the Cohesion Policy (see box below) that directly and indirectly relate to industrial policy, namely innovation and research, the digital agenda, support for SMEs and a low-carbon economy. Around €100 billion will be dedicated to these thematic priorities, of which €26.7 billion will support the shift to a low-carbon economy (energy efficiency and renewable energies).

In particular, 80% of the ERDF allocation for more developed regions, 60% of that for transition regions and 50% of that for less developed regions will be concentrated on at least two of these four priorities. The Cohesion Fund will also support infrastructure projects (including digital infrastructure) under the Connecting Europe Facility, as discussed above.

Box 6. Thematic objectives of Cohesion Policy

THEMATIC OBJECTIVES OF THE 2014-2020 COHESION POLICY

(1) strengthening research, technological development and innovation;

(2) enhancing access to, and the use and quality of, ICT;

(3) enhancing the competitiveness of SMEs, of the agricultural sector (for the EAFRD) and of the fisheries and aquaculture sector (for the EMFF);

(4) supporting the shift towards a low-carbon economy in all sectors;

(5) promoting climate change adaptation, risk prevention and management;

(6) preserving and protecting the environment and promoting resource efficiency;

(7) promoting sustainable transport and removing bottlenecks in key network infrastructures;

(8) promoting sustainable and quality employment and supporting labour mobility;

(9) promoting social inclusion, combating poverty and any kind of discrimination;

(10) investing in education, training and vocational training for skills and lifelong learning;

(11) enhancing the institutional capacity of public authorities and stakeholders and efficient public administration.

Source: Authors

The role of the ESF with regard to industrial policy will be to support the implementation of active labour market policies. The EC Communication on integrated industrial policy[42] calls for close coordination between the public sector and industrial partners in education and training policies. The number of medium-skilled workers also needs to match the demand from fast-growing industries such as the environmental and energy sectors.

Horizon 2020

With a budget of about €70.2 billion, **Horizon 2020** is the financial instrument (replacing the Seventh Framework Programme) addressing the implementation of the EU 2020 flagship 'Innovation Union', and thus securing Europe's global competitiveness. The Horizon 2020 Programme will contribute to the achievement of EU industrial policy[43] goals through its industrial leadership pillar. Important programmes are the EU Strategy for Key Enabling Technologies (KETs)[44] and the SME instrument.

- ***Support for key enabling technologies.*** The programme is expected to redefine global value chains, enhance resource efficiency and reshape the international division of labour. A budget of €6.6 billion has been earmarked to finance KETs of photonics, micro- and nano-electronics, nanotechnologies, advanced materials, biotechnology and advanced manufacturing and processing. To facilitate the commercialisation of research results, Horizon 2020 is also committed to financing

[42] European Commission (2010), Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions: An Integrated Industrial Policy for the Globalisation Era Putting Competitiveness and Sustainability at Centre Stage. COM(2010) 614.

[43] ' An Integrated Industrial Policy for the Globalisation Era' (COM(2010) 614).

[44] Preparing for our future: Developing a Common Strategy for Key Enabling Technologies in the EU' (COM(2009) 512); and 'A European strategy for Key Enabling Technologies – A Bridge to Growth and Jobs' (COM(2012) 341).

more closer-to-market prototypes and demonstration projects than to date. Also, space research is identified as one of Europe's 'key industrial technologies' with a potential for enabling EU innovation and competitiveness. In this regard, the programme is committed to fostering a cost-effective, competitive and innovative space industry (including SMEs) by supporting the development of innovative space technologies and operational concepts (from the project idea to demonstration in space). A key element of the Horizon 2020 Programme is to join forces with the private sector through public-private partnerships in key industrial domains, so as to leverage further private investments.

- ***SME instrument*** managed by the Executive Agency for SMEs (EASME)[45]. More than €2.8 billion has been allocated for the SME instrument from 2014 to 2020, representing around 7% of the total budget of the Societal Challenges and Leadership in Enabling and Industrial Technologies (LEIT) blocks of Horizon 2020. Of this total amount, €90 million has been allocated for ICT in 2014 and 2015. The SME instrument comes in addition to the support provided through the participation of SMEs in collaborative projects continued within Horizon 2020, as well as other measures related to SMEs, such as the Eurostars programme.

Other programmes are the **Eurostars programme** aimed at R&D-performing SMEs that wish to exploit the benefits that come with international collaboration; the **Fast Track to Innovation (FTI)** scheme, which provides funding for close-to-market, business driven projects that is open to proposals in any area of technology or application; and ***SILC (Sustainable Industry Low Carbon)***, a practical, industry-based initiative aimed at finding technological and non-technological innovation measures that would allow energy-intensive manufacturing and processing industries to reduce the GHG emissions of their production processes while maintaining their competitiveness.

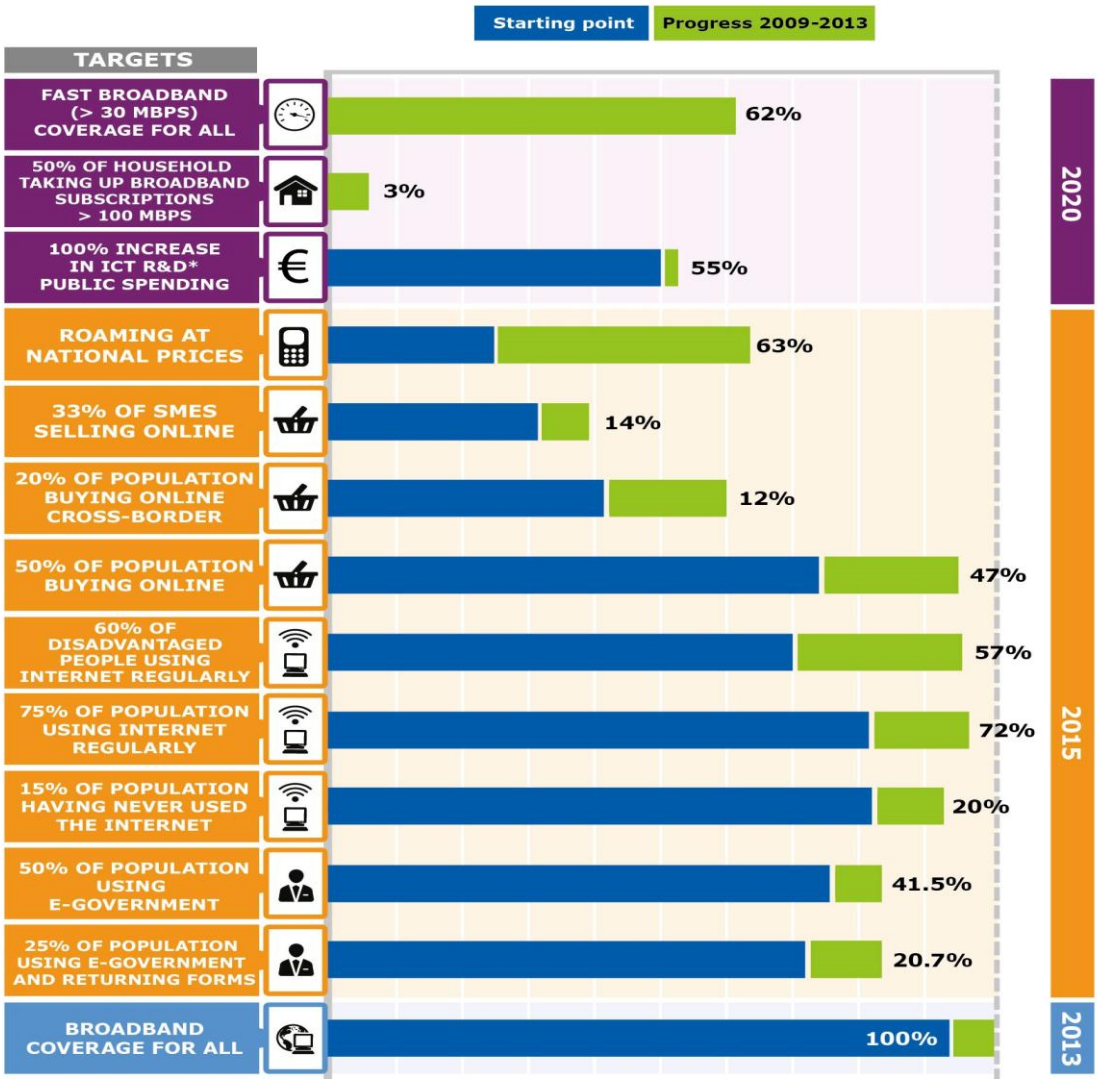
Connecting Europe Facility

The **Connecting Europe Facility -** with a budget of around €19.3 billion - is a further key EU instrument financing targeted infrastructure investments. Over the 2014-2020 period €5.1 billion will be allocated to finance energy infrastructures, €1 billion for broadband infrastructures and €13.2 billion for transport infrastructures (of which €10 million will be earmarked from the Cohesion Fund). Energy, transport and digital connections are expected to create a truly integrated Single Market enabling both citizens and businesses to be connected. In particular, as part of the 'Digital Agenda' flagship initiative of the EU2020 strategy, the CEF programme supports the deployment of fast and ultrafast broadband networks and their uptake, including by SMEs. It also promotes the interconnection and interoperability of digital service infrastructures as well as access to such networks, including 'Safer Internet for Children', 'eProcurement', 'Open Data', 'Multilingual', 'eHealth' and 'eID'.

[45] Over the period 2014-2020 EASME will manage, on behalf of the European Commission: most of COSME, including Enterprise Europe Network (EEN), Your Europe Business and the European IPR Helpdesk; part of Horizon 2020, and in particular the SME instrument; the Energy Efficiency part of the challenge 'Secure, Clean and Efficient Energy'; calls for proposals in the fields of waste, water innovation and sustainable supply of raw materials under the challenge 'Climate action, Environment, Resource Efficiency and Raw Materials'; some areas of the 'Industrial Leadership' challenge, part of the Leadership in Enabling and Industrial Technologies; innovation in SMEs; the Sustainable Industry Low Carbon Scheme (SILCII); the EU programme for the Environment and Climate action (LIFE); part of the European Maritime and Fisheries Fund (EMFF); the legacy of the Intelligent Energy – Europe programme; the legacy of the Eco-innovation initiative.

The latest European Commission Report on the targets achieved by the Digital Agenda[46] shows, for instance, that there are some areas where progress is insufficient (see Figure 9).

Figure 9: How the EU scores on the Digital Agenda targets



Source: http://ec.europa.eu/digital-agenda/en/digital-agenda-scoreboard.

COSME

In addition to Horizon 2020, another EU measure that is relevant for industrial policy is the **COSME Programme** managed by DG Enterprise and Industry, which aims to boost competiveness for growth and jobs in Europe. The Programme is expected to continue on the path set out by the Competitiveness and Innovation Framework Programme (CIP) during the 2007-2013 programming period[47]. With a proposed budget of €2 billion, it is

[46] European Commission (2014), *Digital Agenda Targets Progress Report: Digital Agenda Scoreboard*, https://ec.europa.eu/digital-agenda/en/news/scoreboard-2014-progress-report-digital-agenda-targets-2014

[47] CIP included three sub-programmes – the Entrepreneurship and Innovation Programme (EIP), the Information and Communication Technology Policy Support Programme (ICT-PSP) and the Intelligent Energy Europe Programme (IEE). According to the CIP Performance Report (published in March 2012), with an overall budget

estimated that COSME will contribute to an annual increase of €1.1 billion for the EU's GDP through a leverage effect. According to the 2015 COSME work programme, a budget of €264 million will finance 27 actions under the Programme's four objectives, namely:

i. improving access to finance for SMEs in the form of equity and debt;
ii. improving access to markets, particularly inside the Union, but also at a global level;
iii. improving framework conditions for the competitiveness and sustainability of Union enterprises, particularly SMEs, including the tourism sector;
iv. promoting entrepreneurship and an entrepreneurial culture.

Employment and Social Innovation (EaSI)

Resources for the industry sector will also be provided by the **EaSI programme** (the proposed budget amounts to €815 million for the 2014-2020 period), which integrates and extends three existing programmes, namely *Progress* (Programme for Employment and Social Solidarity), *EURES* (European Employment Services) and European Progress Microfinance Facility[48].

Additionally, under the heading of *Sustainable Growth* (see Figure 8 above), the European Union will direct around €373.2 billion of its budget to exploiting the potential of its environmental goods and to helping industries to become more sustainable. A very significant share will be dedicated to the First Pillar of the Common Agriculture Policy (CAP), but a share will also be dedicated to SMEs in rural areas and in the fisheries sector (through the European Agriculture Fund for Rural Development (EAFRD)[49], and the European Maritime and Fisheries Fund (EMFF), respectively).

Lastly, the overall picture should be completed by mentioning the significant means available from the European Investment Bank (see Box 7 below).

of EUR 3.6 billion these sub-programmes have been helping the start-up and growth of SMEs throughbetter access to finance, offering business support services, creating a favourable environment for SME cross-border cooperation and promoting innovation.

[48] They will be allocated 61%, 18% and 21% of the budget, respectively.

[49] 74% and 23% of the sustainable growth budget, respectively.

Box 7. The contribution of the European Investment Group

The European Investment Group – including European Investment Bank and the European Investment Fund – significantly stepped up its financial support in 2013 to promote growth and jobs in Europe. It provided around EUR 75.1 billion (an increase of 37% compared to 2012). Access to finance was significantly enhanced for SMEs. The European Investment Bank signed loans worth EUR 18.5 billion for SMEs and mid-caps, while at the same time the European Investment Fund committed EUR 3.4 billion. This allowed the Group, together with private investment partners, to mobilise more than EUR 50 billion to support SMEs. Overall, a total of 230 000 companies employing 2.8 million people across Europe received direct or indirect support through EIB Group activity. In addition, the EIB Group focused on research and innovation, providing EUR 17.2 billion in financial support to increase the competitiveness of Europe's economy. Also, in July 2013, the EIB launched a dedicated youth employment programme "Skills and Jobs – Investing for Youth" to complement Europe's fight against youth unemployment. The programme had an initial lending volume of EUR 6 billion.

Focusing on the European Investment Bank alone, it is worth noting that in 2013 there was project financing of EUR 72 billion in support of the objectives of the European Union, of which EUR 64 billion in the Member States of the Union and EUR 8 billion in the partner countries. The EIB provided around EUR 5.5 billion to industry and EUR 25.9 billion to credit lines.

Source: http://europa.eu/rapid/press-release_BEI-14-33_en.htm, http://www.eib.org/projects/loans/.

3.2.2. Regulatory power

To create a better environment for its manufacturing industry and to boost its competitiveness, the EU makes use of several regulatory binding instruments in different policy fields including: ***competition policy, internal market, research and innovation, trade policy, energy policy, and enhancing the business environment***.

Competition policy

Both industrial and competition policies share the same objective of improving the competitiveness of the industrial sector. Since the first policy communication, EU industrial policy has always emphasised the principle of market competition; on the other hand, the target of the competition policy – which is primarily the responsibility of DG Competition within the European Commission - is to protect the competition order favourable to industrial development. State aid prohibition, merger control[50][51] and antitrust policy[52][53] are the main instruments of the EU competition policy to enable companies to innovate and to increase their productivity and thereby to improve their position in the global market.

[50] Council Regulation (EC) No. 139/2004 of 20 January 2004 on the control of concentrations between undertakings (the EC Merger Regulation), Official Journal L 24, 29 January 2004, pp. 1-22.

[51] Consolidated version of Commission Regulation (EC) No. 802/2004 of 21 April 2004 implementing Council Regulation (EC) No. 139/2004 on the control of concentrations between undertakings (Text with EEA relevance) (the "Implementing Regulation") and its annexes (Form CO, Short Form CO, Form RS and Form RM) (Official Journal L 133, 30 April 2004, pp. 1-39), as amended by Commission Regulation (EC) No. 1033/2008 (Official Journal L 279, 22 October 2008, pp. 3-12) and by Commission Implementing Regulation (EU) No. 1269/2013 of 5 December 2013 (Official Journal OJ L 336, 14 December 2013, pp. 1-36), more recent changes made to the text of the Implementing Regulation and to three of its annexes (the Form CO, Short Form CO and Form RS) as part of the Commission's Merger Simplification Package, which came into force on 1 January 2014.

[52] Between actual or potential competitors operating at the same level of the supply chain.

[53] Between firms operating at different levels, i.e. agreement between a manufacturer and its distributor.

State aid control, regulated under Arts. 107 and 108 of the TFEU, has an important bearing on the form an EU industrial policy takes, since it prohibits targeted public support. It is intended to avoid distortions in the Single Market and to ensure that subsidies promote the competitiveness of sectors and companies. The European Commission has strong investigative and decision-making powers in this field. To implement the Aid measures, Member States must indeed follow a notification procedure - except in certain instances[54] - which requires the approval of the Commission. An ambitious state aid reform programme was set out by the European Commission in May 2012 in the "Communication on State Aid Modernisation (SAM)" which introduces reforms of state aid rules to foster the internal market and promote economic growth. Its objectives also include increasing the focus on those cases with the largest impact on the internal market, streamlining the rules and accelerating the decision-making process. The Commission proposed identifying common principles for assessing the compatibility of aid with the internal market and revising a series of state aid guidelines and regulations in order to make them consistent with those common principles, including rules concerning investments in research, development and innovation by SMEs and rules regulating SMEs' access to finance[55]. The SAM initiative and its objectives are strongly supported by the European Parliament, which, in January 2013, adopted a resolution on state aid modernisation. The latter underlines the need for less but better targeted state aid that will support the shift to a knowledge economy. The resolution also called on the Commission to provide detailed criteria for distinguishing between important and less important state aid cases.

Internal market

Since Maastricht, the ***Internal Market*** has constituted a key instrument for achieving a competitive Europe. The Commission provided new impetus to market integration across the EU through the Single Market Acts I and II and initiatives such as the market surveillance and product safety package. In particular, the Single Market Act II put forward four actions[56] to foster the development of maritime, air and rail transport, as well as an initiative to strengthen the implementation and enforcement of the Third Energy Package to liberalise and integrate European energy markets.

The fact that the internal market is not fully integrated (especially in terms of services) is considered to be an important factor holding back productivity gains. In this regard, it is worth stressing that in order to foster the smooth functioning of the internal market, the European Commission obliged Member States to implement the Service Directive[57] by 28 December 2009. The Service Directive for European industrial competitiveness is relevant because the simplification measures foreseen by the Directive significantly facilitate life and increase transparency for SMEs and consumers when they want to provide or use services in the Single Market.

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[54] These include: aid covered by a Block Exemption (giving automatic approval for a range of aid measures defined by the Commission), *de minimis* aid not exceeding €200,000 per undertaking over any period of three fiscal years (€100,000 in the road transport sector), aid granted under an aid scheme already authorised by the Commission).

[55] Other revisions include: rescue and restructuring aid; regional aid; agriculture; environmental and energy aid; promotion of important projects of common European interest; broadband; aviation guidelines; general block exemption regulation; enabling regulation; *de minimis* regulation.

See:http://ec.europa.eu/competition/state_aid/modernisation/index_en.html.

[56] Developing fully integrated networks in the Single Market; Fostering the mobility of citizens and businesses across borders; Supporting the digital economy across Europe; Strengthening social entrepreneurship, cohesion and consumer confidence.

[57] Directive 2006/123/EC of 12 December 2006 on services in the internal market.

Box 8. The implementation of the Service Directive

As reported by a European Commission working document[58], the implementation of the Service Directive has been challenging particularly because of its broad scope. It covers around 65% of service activities within the services sector. The activities covered represent around 45% of total EU GDP and employment. In addition, the Services Directive required Member States not only to assess and where necessary adjust their laws in many areas, but also to take very concrete and practical steps such as setting up Points of Single Contact and making administrative procedures available in electronic form. Significant progress has been made in this regard, but efforts still need to be stepped up to finalise the required changes in legislation and to set up fully operational Points of Single Contact.

Source: Authors.

The proper functioning of the Single Market is one of the objectives pursued by DG Internal Market and Services and DG Enterprise and Industry within the European Commission. While the former is entrusted with policies concerning the protection of intellectual property rights, the services sector and public procurement, the latter is committed to managing measures ensuring the free movement of goods in the internal market (required by arts. 34 to 36 of the TFEU, which prohibit Member States from maintaining or imposing barriers on intra-EU trade in goods).

[58] European Commission (2012), Detailed Information on the Implementation of Directive 2006/123/EC on Services in the internal Market. Accompanying the Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions on the implementation of the Services Directive. Brussels, 8 June 2012, SWD(2012) 148 final. A partnership for new growth in services 2012-2015

Box 9. The implementation of Single Market rules by Member States

Single Market rules can have their intended effects if they are completely and correctly transposed into Member States' national law by the agreed deadline. The figure below shows the results of the proper functioning of the Single Market as recorded by the monitoring of transposition on the basis of five indicators, namely: 1) the transposition deficit (the gap between the number of Single Market directives adopted at EU level and those in force in Member States); 2) progress over the last six months (measuring changes in outstanding directives); 3) number of directives overdue by two years or longer; 4) delay in terms of transposition of overdue directives; and 5) the compliance deficit (number of incorrectly transposed directives).

As shown in the figure below, countries such as Austria, Belgium, Cyprus, Romania and Slovenia still have deficits in the transposition of directives concerning the Single Market. Major delays in the transposition of directives are recorded by Belgium, Bulgaria, Ireland, Hungary, Luxembourg, the Netherlands, Poland, Slovenia and Finland. In terms of compliance, under-performances are recorded in Italy, Poland, France, Spain, Czech Republic, Bulgaria and Belgium.

Single market review: Performance overview

	BE	BG	CZ	DK	DE	EE	IE	EL	ES	FR	HR	IT	CY	LV	LT	LU	HU	MT	NL	AT	PL	PT	RO	SI	SK	FI	SE	UK	EU
[1]	1.3	0.6	0.5	0.2	0.8	0.2	0.6	0.2	0.7	0.6	0.1	0.7	1.3	0.6	0.4	1	0.6	0.2	0.4	1.5	1	0.8	1.1	1.4	0.6	0.3	0.4	0.3	0.7
[2]	1	-1	2	-1	3	-2	-1	-2	0	0	-6	-9	-1	0	-2	4	-1	0	-2	7	0	4	1	-1	2	-3	1	-4	0
[3]	1	1	0	0	0	0	2	0	0	0		0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0
[4]	9.2	9.6	7.7	3.7	7.3	4.5	16	3.8	5	5.7	10	4.4	6.1	5.3	6	10	7.5	3.6	10	7.7	14	6.3	8	9.4	5.2	9.2	8	4.8	7.5
[5]	0.9	1.1	1	0.2	0.8	0.6	0.6	0.7	1	1		1.6	0.1	0.4	0.3	0.6	0.6	0.3	0.4	0.8	2.5	0.7	0.3	0.6	0.6	0.6	0.4	0.7	0.7

[1] Transposition deficit (in %) [2] Progress over the last 6 months (change in the outstanding directives)

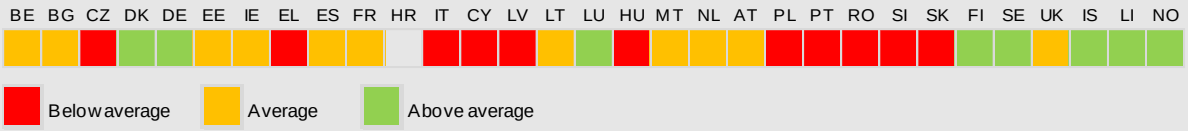
[3] Number of directives two years or more overdue [4] Transposition delay on overdue directives (in months) [5] Compliance deficit (in %)

Under Performance Caution zone Good Performance n/a

Source: Authors' processing[59]

The latest traffic light chart shows that there are Member States that are still underperforming in key Single Market policy areas, such as public procurement (see chart below). Only a few countries, including Denmark, Germany, Luxembourg, Finland and Sweden, record a performance above the average of the countries observed.

Traffic light chart: public procurement



Source: Authors' processing[60]

[59] http://ec.europa.eu/internal_market/scoreboard/performance_by_governance_tool/transposition/index_en.htm Note: Indicator [1]: Measures the level of fulfilment with the 1% target established by the European Council: transposition deficits above 1% were rated as "red", those below or equal to 1% were "green"; no "yellow" designation. Indicator [2]: An increasing number of outstanding directives were given a "red" rating, with an unchanged number rated as "yellow" and a decreasing number as "green". Indicator [3]: Measures the level of fulfilment with the 0% target established by the European Council for directives overdue by two years or longer: one or more long overdue directives were rated "red"; those with no long overdue directives were rated "green"; no "yellow" rating was designated. Indicators [4] and [5]: An average (+/- 10 %) score was rated as "yellow"; a score below it as "red" and a score above it as "green".

[60] http://ec.europa.eu/internal_market/scoreboard/performance_overview/index_en.htm.

Enhancing the business environment

There are many business environment initiatives adopted by the European Commission to enable access to finance, support to new market openings and the boosting of entrepreneurship, skills upgrading and innovation. The ***Small Business Act*** for Europe (SBA) – launched in June 2008 and monitored by DG Enterprise and Industry - is one example. At the heart of the European SBA is the idea that achieving the best possible framework conditions for SMEs depends mostly on the recognition of entrepreneurs by society. Therefore, the aim of the SBA is to improve the overall policy approach to entrepreneurship, to irreversibly anchor the "Think Small First" principle in policymaking from regulation to public service, and to promote SMEs' growth by helping them tackle the remaining problems that hamper their development. The "Think Small First" principle specifically calls for legislation to take into account the needs of small businesses and dedicates particular attention to micro-enterprises and the specific challenges they face especially during the start-up phase. It lays down real, binding, legal rules, such as three days and EUR 100 to set up a business, 30 days to obtain a trading permit, and shorter deadlines for recovering debts.

Box 10. The ten principles of SBA

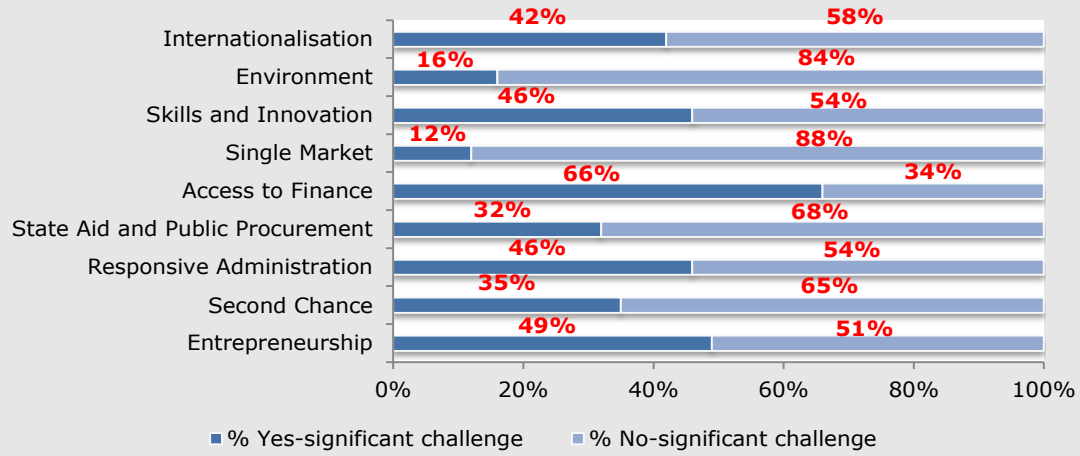
1. Create an environment in which entrepreneurs and family businesses can thrive and entrepreneurship is rewarded
2. Ensure that honest entrepreneurs who have faced bankruptcy quickly get a second chance
3. Design rules according to the "Think Small First" principle
4. Make public administrations responsive to SMEs' needs
5. Adapt public policy tools to SMEs' needs: facilitate SMEs' participation in public procurement and better use State Aid possibilities for SMEs
6. Facilitate SMEs' access to finance and develop a legal and business environment supportive of timely payments in commercial transactions
7. Help SMEs to benefit more from the opportunities offered by the Single Market
8. Promote the upgrading of skills in SMEs and all forms of innovation
9. Enable SMEs to turn environmental challenges into opportunities
10. Encourage and support SMEs to benefit from the growth of markets

Source: Authors.

Box 11. SME performance review

The recent SME Performance Review 2013/2014[61] recognises that specific measures for improving the SME business environment play an important enabling role in ensuring that SMEs are able to reap the full benefits of a return to solid and sustainable macroeconomic growth. However, there are still key issues and challenges currently faced by SMEs, which hamper their growth and competitiveness. Amongst the 10 principles of the Small Business Act, SMEs find significant challenges in meeting requirements in terms of Accessing Finance, Entrepreneurship, Responsive Administration, Skills and Innovation. Under Access to Finance, credits or loans and the excessive bureaucratic procedures to access EU funds have been identified as the main barriers. As far as Entrepreneurship is concerned, the lack of financial support measures was the main underlying barrier, which also correlates to the Access to Finance. For Responsive Administration, the main challenge is the administrative burden, and more specifically the difficulty in managing all of the administrative requirements and requests from various authorities. Finally, issues related to the Skills and Innovation principle focused on the lack of strategic support in converting an innovative idea into a commercial product/process/service.

Most challenging SBA principles to SMEs at national level – EU28



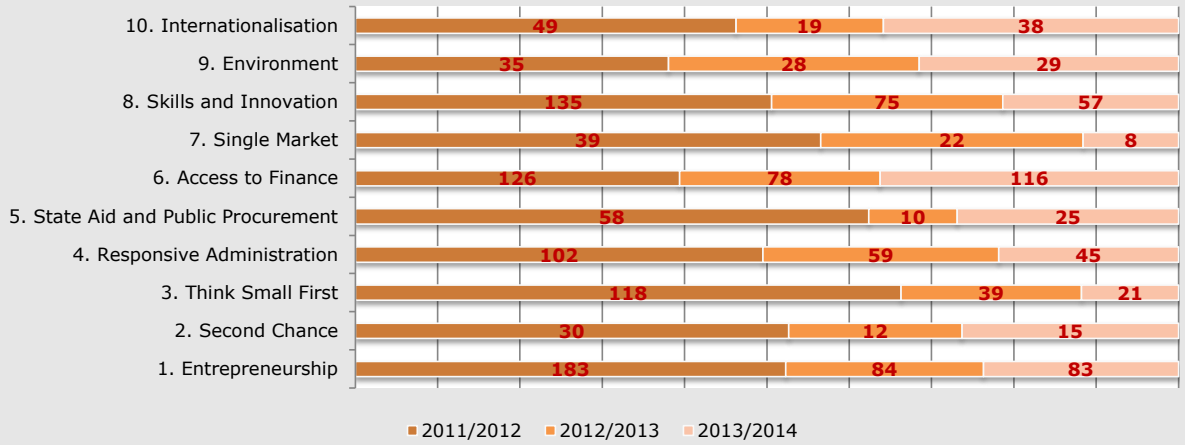
Source: Authors processing of European Commission data (2014)

Overall, the number of SBA-related policy measures adopted/implemented during 2013-2014 in EU28 was slightly higher than the previous reference period (422 measures), but still lower than the 2011-2012 reference period, during which 735 measures were adopted/implemented. The highest policy progress was recorded for measures related to Access to Finance (116), followed by Entrepreneurship (83), and Skills & Innovation (57), while Single Market and Second Chance were the two laggard principles, with only 8 and 15 measures, respectively.

If reporting the total number of measures adopted/implemented for each SBA principle (by dividing with the number of existing sub-measures), it is worth noting that Access to Finance (13) still remained at the top, followed by Internationalisation (10), Entrepreneurship (8.3), Skills and Innovation (8), and Responsive Administration (6).

On the basis of the challenges and issues recognised above, it should be pointed out that during the 2013-2014 reference period Access to Finance, Entrepreneurship, Skills & Innovation, Responsive Administration and Internationalisation had the highest implementation rate.

[61] European Commission (2014), A Partial and Fragile Recovery: Annual report on European SMEs 2013/2014. SMEs performance review 2013/2014. http://ec.europa.eu/enterprise/policies/sme/facts-figures-analysis/performance-review/files/supporting-documents/2014/annual-report-smes-2014_en.pdf



Source: Authors processing of European Commission data (2014)

Source: Authors

As part of the simplification process, in October 2013 the European Commission launched the '**Regulatory Fitness and Performance Programme'** (REFIT)[62], whose aim was to simplify and reduce regulatory burdens in existing legislation, with a particularly focus on supporting SMEs. Overall 100 actions were identified and are currently being implemented. Examples include the introduction of a standard EU VAT Declaration,[63] the improvement of the European small claims procedure[64], the amended Directive on recognition of professional qualifications (facilitating access to information), a new legal framework for public procurement[65] (including shorter deadlines for procedures, the possibility of modifying contracts, better access for SMEs, etc.), and the intellectual property rights Regulation (EU Regulation 608/2013). Several legislative changes have been introduced to facilitate the access of enterprises, particularly SMEs, to finance. The Late Payments Directive[66] is one example. Additionally, there are the Capital Requirements Regulations including a correcting factor lowering the capital requirements related to credit risk on exposures to SMEs; the revised Market in Financial Instruments Directive (MiFID) aimed at creating dedicated trading platforms labelled "SME growth markets"; the revised Transparency Directive abolishing the requirement to publish quarterly financial

62 European Commission (2014), *Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee of the Regions. Regulatory Fitness and Performance Programme (REFIT): State of Play and Outlook* (SWD, 2014, 192 final).

63 European Commission (2013), Proposal for a Council Directive amending Directive 2006/112/EC on the Common System of Value Added Tax as regards a Standard VAT Return, Brussels, 23 October 2013, COM(2013) 721 final.

64 European Commission (2013), Proposal for a Regulation of the European Parliament and of the Council amending Regulation (EC) No. 861/2007 of the European Parliament and the Council of 11 July 2007 establishing a European Small Claims Procedure and Regulation (EC) No. 1896/2006 of the European Parliament and of the Council of 12 December 2006 creating a European order for payment procedure, Brussels, 19 November 2013, COM(2013) 794 final.

65 The existing public procurement legislation (Directive 2004/17/EC) has recently been revised. The new directives (Directive 2014/24/EU, Directive 2014/25/EU) were voted by the European Parliament on 15 January 2014 and adopted by the Council on 11 February 2014. The Member States have until April 2016 to transpose the new rules into their national law (except with regard to e-procurement, where the deadline is September 2018).

66 European Directive 2011/7/EU on combating late payment in commercial transactions of 16 February 2011. The directive requires debtors to pay interest and the reasonable recovery costs of the creditor if they do not pay for goods or services on time. The limits are 60 days for businesses and 30 days for public authorities.

information; and the new rules on European Venture Capital Funds and European Social Entrepreneurship Funds creating a special EU passport for fund managers investing in start-up SMEs and social businesses.

Box 12. Member State reforms in the area of business environment

The EC report on the implementation of EU industrial policy[67] confirms that Member States are continuously implementing reforms in the area of business environment and entrepreneurship. Roughly 771 reforms took place over the period 2001-2008 and 351 over the period 2009-2011. More than a third of these reforms concern administrative regulation (including measures to rationalise and reduce costs, improve quality and promote e-government) which have increased over recent years (by an annual average of 44% over the period 2009-2011). However, a significant increase was recorded also for measures concerning access to finance (+25% annual average growth 2009-2011), followed by measures supporting businesses.

Yearly average number of Member States' reforms in the business environment and entrepreneurship

	Annual average 2001-2008	Annual average 2009-11	% change
Administrative regulation	35.3	44.7	26.7%
Access to finance	8.5	25.0	194.1%
Business support services	15.4	14.3	-6.8%
Business taxation	12.6	11.3	-10.2%
Reducing administrative burdens for start-ups	8.0	8.0	0.0%
Access to finance for start-ups	10.3	5.0	-51.2%
Efficiency of the legal system	2.9	3.7	72.5%
Rules for a second start	2.1	3.7	72.5%
Transfer of ownership	1.4	0.7	-51.5%
Total	96.4	117.0	21.4%

Source: Authors[68].

Intellectual property rights

Also, optimising the regulatory environment for ***research and innovation*** can enhance the international competitiveness of EU industry. There are a number of EU regulatory instruments aimed at fostering the competitive advantage of EU enterprises and increasing profitability in global markets. The most emphasised and successful one is Intellectual Property Rights (IPRs) protection. These rights include patents, trademarks, design rights and copyrights. As of 1 January 2014 the relevant legal framework applicable for the customs enforcement of intellectual property rights is covered by EU Regulations 608/2013 (basic regulation establishing the legislative framework for the enforcement of IPR) and 1352/2013 (implementing regulation, establishing the forms to be used to request the enforcement of IPR by the customs authorities). DG Enterprise and Industry has launched

[67] European Commission (2013), *Commission Staff Working Document, Industrial Performance Scoreboard and Member States' Competitiveness Performance and Implementation of EU Industrial Policy: A European 2020 initiative*, Brussels.

[68] based on European Commission (2013), *Commission Staff Working Document, Industrial Performance Scoreboard and Member States' Competitiveness Performance and Implementation of EU Industrial Policy: A European 2020 initiative*, Brussels.

different initiatives in the field of intellectual property rights (e.g. support to national intellectual property offices, improving their business support services for IPR, etc.)[69].

Trade policy

The *EU Trade policy* conducted by DG Trade of the European Commission is designed to prevent the building of barriers to European exporters. Trade defence instruments, such as anti-dumping or anti-subsidy duties[70], are ways of protecting European production against international trade distortions. With the aim of creating a favourable external competition environment for the manufacturing industry, the EU is pushing for the formation of industrial standards and the extension of Single Market rules to neighbouring and other countries[71]. Supporting SMEs' economic activities outside the EU is also embedded in the Union's overall competitiveness strategy as outlined in the Europe 2020 Communication on Industrial Policy and the EU 2010 Trade, Growth and World Affairs strategy[72]. The European Union is currently negotiating the Transatlantic Trade and Investment Partnership (TTIP) with the United States with the aim of tackling the barriers behind the customs borders, such as differences in technical regulations, standards and approval procedures.

Energy policy

Pressure for a 'greener' industrial policy arises from the ***20/20/20 energy goals and from the roadmap for 2050***, which sets European goals to reduce greenhouse gases by 80%-95% by 2050. There is some debate about whether environmental standards are an obstacle for a competitive manufacturing sector, or a potential driver of growth. Reducing greenhouse gas emissions, increasing energy efficiency and changing the energy mix from carbon based to "clean" energy (solar/wind) have become top priorities in the EU and these endeavours take on many different forms, including for instance: the Kyoto protocol, emission trading regimes, research programmes, the subsidisation of firms and households, energy taxes, taxes on the carbon content, and joint research programmes.

3.3. Concluding remarks

This chapter shows how the development of an EU industrial policy is characterised by a sort of path-dependency effect in which past strategic choices still have a bearing on present decisions. It appears clearly that the development of an industrial policy has not been on the EU policy agenda for long, and the relatively recent surge in interest is not matched by a corresponding purposive strategy. That said, the EU appears to have

[69] http://www.ipeuropaware.eu/ European Commission (2014), DG Internal Market and Services Management Plan 2014, http://ec.europa.eu/dgs/internal_market/docs/management-plan_en.pdf. According to the latest management plan of DG Internal Market and Services a major priority for the coming year in the area of intellectual property will be to finalise the review of the EU copyright system on the basis of in-depth preparatory work and legal and economic analysis.

[70] Council Regulation (EC) No. 1225/2009 of 30 November 2009 on protection against dumped imports from countries not members of the European Community; Council Regulation (EC) No. 597/2009 of 11 June 2009 on protection against subsidised imports from countries not members of the European Community.

[71] In this regard, a new Regulation on European Standardisation came into force on 1 January 2013 with direct applicable effects on Member States. Standardisation is seen as a key tool for achieving a more integrated and harmonised internal market and also for facilitating international trade and strengthening the competitiveness of SMEs, by facilitating the free movement of goods and services, network interoperability, means of communication, technological development and innovation.

[72] Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions – "Trade, Growth and World Affairs – Trade Policy as a Core Component of the EU's 2020 Strategy", COM (2010) 612 final, 9 November 2010. Brussels: European Commission.

considerable resources at its disposal – both in financial terms and non-pecuniary – to contribute to restoring the competitiveness of its industrial basis. If taken separately, the initiatives reviewed show reasonable evidence of relative efficiency and effectiveness, the issue at stake is whether they form a whole triggering synergies able to make a difference in the definition of EU competitiveness level and growth paths. The next chapter takes the views of stakeholders and identifies their positions in this respect.

4. OPTIONS AND SCENARIOS

KEY FINDINGS

- The stakeholders interviewed acknowledge the fundamental importance of keeping a strong industrial basis in Europe as a source of development and resilience. However, the target of an EU industrial policy should not be too narrow; rather, it should encompass whole value chains and related sectors.
- Business associations recognise the fundamental role that the EU plays in terms of "levelling the playing field". By contrast, the added value of EU action put forward by EU policy stakeholders is when the EU fulfils the role of knowledge-broker, or knowledge platform.
- Some stakeholders suggest better aligning conceptual underpinnings and intervention logics at the basis of policy developments in some areas, including, for example, environmental policy and other initiatives aimed at fostering competitiveness. Some initiatives are considered to be under-funded (e.g. the SME instrument) and achieving a critical mass is generally called for.
- The notion of Smart Specialisation put forward by DG Regio is often endorsed by other policy stakeholders as a potentially pertinent model to underpin the development of an EU industrial policy.
- The majority of respondents believe that a proper mandate in the field of industrial policy should be more clearly defined at EU level.
- Member States are characterised by distinct socio-economic institutional features determining different growth paths, and contributing to shaping specific policy responses to varying types of challenges. This constitutes different incentives for Member States to take part in an active EU industrial policy. "Peripheral" Member States place high expectations on an EU industrial policy.

This chapter explores options and identifies possible scenarios for the future development of an EU industrial policy. To this end, it turns to the *interests* at stake, and the *institutions* where these interests are mediated, and casts the analysis at the level of the *perception* that the main stakeholders have of an EU industrial policy. The hypothesis is that besides rational arguments defended by economists, experts and informed observers, the positions of relevant stakeholders determined by the perceived gains and losses expected from policy shifts, are fundamental factors impinging on the future development of an EU industrial policy.

The chapter will browse a schematic and concise (not exhaustive, but representative) conceptual map of the positions defended by the main categories of stakeholders: policymakers and business associations at EU level, Member States, experts and informed observers. The purpose is to provide readily accessible information on the perceptions and positions held by these stakeholders in the wider debate on EU industrial policy, and thus pave the way for the identification of a possible scenario for the future.

4.1. Stakeholders' perceptions

This section reviews the positions of the main stakeholders at EU level, i.e. business organisations, business support organisations and policymakers at the European

Commission, and in other EU institutions (see the Annex for a full list of the stakeholders consulted).

4.1.1. What does industry encompass?

On the issue of what "industry" encompasses, there is a wide consensus among the stakeholders reviewed.

There is, first, a strongly converging assessment of the importance of manufacturing as a fundamental element at the heart of economic growth and resilience to external shocks. It was noted that a solid manufacturing basis is the best antidote to withstand the effects of the crisis. On these grounds, the goal set by the new president of the European Commission for manufacturing's share of GDP to reach 20% by 2020 is generally endorsed.

At the same time, there is also general agreement on adopting a broad definition of manufacturing, or on encompassing different elements. This is expressed in different ways, which reveal some contrasting positions beyond the consensus.

First, the role of services and their growing link to manufacturing is emphasised. There is a common view that industry is already embedding services, and that what is sold on the market is increasingly a set of services rather than a simple manufactured product, or in other terms, a *solution*. "To be competitive in Europe today means not just producing a good, but rather selling a solution, which of course comprises giving services to customers as well" (UEAPME).

A step forward in this respect is made by those who refer to the 'servitization of industry', or the fourth industrial revolution, which clearly goes beyond manufacturing *per se* to include services in the concept of industry itself. "Fast-expanding business services are already dominant in manufacturing. A wide and growing range of companies – both manufacturing and service – are now involved in designing and delivering new generations of business services. New technologies make services still more relevant to manufacturing." (EESC Opinion of the Consultative Commission on Industrial Change (CCMI) on the Impact of Business Services in Industry (own-initiative opinion)).

Second, the dematerialisation/digitalisation of the economy is invoked as accompanying – not substituting - re-industrialisation. The issue of industry becoming more innovative is often seen as manufacturing involving digital and dematerialised components. The influence of digitalisation is acknowledged, both on manufacturing and on creating new needs and products.

Third, the notion of the value-added chain is often put forward. It is probably appropriate to adopt an approach that distinguishes between the different segments that make up the manufacturing sector and that participate in the "value-added chain". In this respect, a thin dividing line emerges between those who focus their attention on the higher end of the value chain and those who are in favour of a balanced approach in which Europe would also concentrate on some strategic traditional and less technologically developed sectors. Among the latter are business associations; for example Business Europe insists on the need for Europe to nurture a diversified manufacturing sector, comprising both basic, raw material industries and higher value added activities. It is not a matter of choice: while the framework conditions must be set to keep the former in the EU, the latter are also to be promoted. On the face of it, others think that the primary objective is to keep those parts of the production process with the higher value-added in Europe. Focusing on innovative and creative industries, smart specialisation and high value-added sectors is one of the ways in which Europe can try to be competitive and assure the good quality jobs its citizen want.

4.1.2. A general aversion to a sectoral approach

Another point of convergence among stakeholders and across categories (business associations and policymakers) is the rejection of what is considered to be a feature of past industrial policies, namely a sectoral approach. Most respondents underline that an EU industrial policy should not target specific industries or sectors as indeed, "picking winners" might be risky. The "old" approach to industrial policy was abandoned, it is argued, because it was often associated with state interventionism and protectionism. A "silos" approach is blind to fruitful cross-fertilisation arising from cross-sectoral relations (CoR). According to DG Regional and Urban Policy (DG Regio), industrial policy should no longer be organised along sectoral lines, it is not top-down and it is not about picking winners. Industrial policy should be horizontal and technology neutral (CEMEET).

Yet, there are different nuances, and a number of stakeholders point out some developments that correspond to "soft" forms of sectoral approaches. For example, it is indeed justified and necessary to identify strengths and weaknesses, and to carry out foresight analyses. Also, although essentially cross-sectoral, **Key Enabling Technologies** have been identified as "enabling the development of new goods and services and the restructuring of industrial processes needed to modernise EU industry and make the transition to a knowledge-based and low carbon resource-efficient economy". The **Specialised partnerships** (see Chapter 2) developed on the initiative of the European Commission are also a way of taking sectoral considerations into account.

Finally, some successful examples of sectoral approaches are (timidly) put forward; for example, in the automobile sector with the (successful) introduction of environmental standards (Euro 4, 5, 6) or in the shipping and space industries.

The table below summarises the promising sectors that should be promoted according to the stakeholders overviewed.

Table 3. Examples of promising sectors – or areas of policy intervention identified by stakeholders

DG Enterprise and industry	Construction, upscaling cars, steel
DG research and innovation	Big data, 3D printing
CEMEET	Clean production, advanced manufacturing, smart grids, energy efficiency, digitalisation
EBN	Not just creative industry and virtual part of the Digital Agenda
ERRIN	Advanced manufacturing and knowledge economy Infrastructure, logistic, training, education, clustering
Committee of the Regions	Climate change and clean technology. Industrial policy and climate policy, e.g. Smart city integrated agriculture, bio-economy

4.1.3. European added-value

On this basis, the EU is expected to develop a policy aimed at putting in place the right conditions for industries to develop, taking into account market opportunities and needs. Unlike in the past, public authorities should only intervene to set a level playing field, fostering a conducive business environment and coordinating actors. This approach was paralleled by one of the interviewees to a new economic writing strand: while the issue was once to find the optimum allocation of resources on markets (shifting and rearranging of

rights), now it is increasingly one of finding the best way to solve a problem. Equilibrium does not exist in reality; it is about probabilities and the adoption of a systemic approach putting in place the right framework conditions for the system to work optimally.

The business viewpoint

The key issues for the business associations are a level playing field and business-friendly environment that is conducive to private investments. In general Europe should contribute to generating an attractive area where both private European and foreign investors would find it interesting to start new businesses (or bring businesses back from other geographical areas through re-relocation).

Before dealing with initiatives to foster competitiveness, the first step should be how to ensure that present policies do not harm it. In particular, the notion of ***competitiveness proofing*** (or mainstreaming competitiveness) is put forward by all the business associations interviewed. Some differences lay in the identification of which EU policies have a potentially detrimental effect in this respect. For example, there is much concern about environmental regulations/policy, which is often invoked as a potential factor raising the (already high) cost of energy and is implemented at the expense of the survival of some (polluting) industries. Another example mentioned is the EU attempt to establish a complementary pension scheme. The solution would be to carry out impact assessments applied to all new legislation.

Business associations systematically referred to the ***Single Market***. They see it as a major driver of growth and a powerful instrument to ensure homogeneous access to European markets. There were calls for its completion in all areas, especially in the fields of services and energy, but also in the labour market. When comparing production costs between Europe and other geographical areas, the two striking differences are those of labour and energy costs. Competition based on labour costs is not considered realistic in general (Europe has to maintain the value-added parts of the value chain so that high quality jobs can be offered to its citizens), and it was thought that more should be done at EU level with regard to energy costs.

By the same logic, access to third markets and the mobilisation of **trade policy** was generally called for by business associations. One European strength is when negotiating a (trade) partnership with third parties. Europe should be capable of claiming respect for certain standards from those countries that want to sell on its market, e.g. regarding labour or the environment. In this respect, the completion of the Transatlantic Trade and Investment Partnership (TTIP) is an issue where there is not shared agreement, since it is viewed both as an opportunity and a threat for European SMEs. "The TTIP has many positive elements, but we shall keep high those standards where Europe is at the top. The US and EU will also provide standards to all other economies" (CoR).

"Taking the Transatlantic Trade and Investment Partnership as an example, it is clear that trade negotiations should be undertaken by Europe on behalf of its Member States. A single common voice will be stronger in setting "level playing fields", i.e. competing under the same rules, meaning that competitors wanting to sell in Europe should be ready to accept European rules on labour protection and safety, and on environmental standards" (EESC).

Skills and education is also an area where the business community expects the EU to contribute by providing framework conditions conducive to business development. A number of interviewees drew attention to the need to have enough skilled people in order to nourish the knowledge economy and the high value-added industries Europe is deemed to be competitive in. To this end, European policies in the field of education can play a role.

In particular, reference is often made to the need to remedy a current (and future) lack of skills in the STEM disciplines (Science, Technology, Engineering, and Mathematics).

Finally, one area where Europe should act is in the creation of a **new mindset** in the European private sector, or set the conditions for this to arise. Historically, European companies have been very much risk-averse, partly because of a culture in which failure was perceived negatively. The change of mentality is also envisaged at a more general level, when speaking about new technologies whose development is sometimes hindered in the view of some respondents because of a too strong precautionary principle. Media and communications have a role to play here.

"There is a strong stand in Europe with the precautionary principles: even if people want to innovate sometimes they're stopped because of the risk of negative impacts. The precautionary principle should be balanced with an innovation principle: whenever you develop a policy or initiate a legislative action, you have to look at the effects on innovation" (Business Europe).

Policymakers' vision of a conducive environment

The policymakers interviewed broadly endorse the mission assigned to the EU to deal primarily with framework conditions and to secure a favourable environment. But they have a slightly different interpretation of their mission in this respect and they acknowledge a more active definition of the EU role.

For a start, the EU is expected to ensure complementarity and cooperation between different countries and regions. Instead of duplicating efforts, the objective is to cooperate on the basis of territorial specificities. One facet of this is the distinctive role of "**knowledge platform**" that the EU can play. Indeed, Europe has at its disposal a huge mass of information that should be used to benchmark, make studies, forecast, identify and diffuse best practices.

"One unexplored area, where Europe could do a lot is that of *information sharing* on smart specialisation and value chains across countries." (ERRIN)

In turn, the role of knowledge-broker brings together relevant stakeholders, and can help to reach a **critical mass**. Innovation and technological development, which are crucial factors for competitiveness, are examples where EU intervention can indeed help to develop scale economies. The main value-added of an EU industrial policy is that it can reach the critical size needed for expensive or risky technologies to develop. Clustering and joining people together are areas in which Europe has already demonstrated its potential should be developed further.

"The role of Europe is identified as that of a coordinator, a hub for national and interregional learning, making international connection easier. It has to facilitate different companies and research centres in different regions to generate a larger critical mass to join forces and pull together resources to become collectively more competitive at an international level." (DG Regio).

In the same vein, the EU is seen as a **catalyst**. Besides bringing together stakeholders and diffusing knowledge, a critical mass can also be reached by leveraging other types of funding from other administrative levels or from private actors who decide to invest because they share the risk.

The EU role is also to overcome fragmentation and ensure all countries speak with a **single voice**, for example in areas like international trade agreements, patenting, the labour and energy markets.

Finally, a recurrent argument put forward by policymakers – which, interestingly, tends not to be echoed in the business community - concerns the different roles that the public and the private sector have to play. They think that the EU should promote a **new public-private partnership**. Setting up good policies is not enough if the private sector is not involved. This is true in terms of bottom-up development, for example, where clusters and new technological domains should be supported only when market conditions pre-exist. It is true for investments: public funds should leverage private funding and act as a catalyst (see above). And it is also valid for policy development in general: companies should be aware of and participate in the whole policy development process. Consultations are held in some areas, but sometimes the views of small companies are not represented, also because it is difficult to find suitable representation channels.

"A factor hindering a really successful industrial policy is the scarce participation and political awareness of companies themselves, also because of their difficulty in creating a critical mass, their being small and micro-enterprises in the majority of cases. They should be supported in this activity, as well as in R&D, internationalisation, clustering" (ERRIN).

This concept of a renewed public-private partnership goes much further than consultation to become involvement, and expands beyond policy formulation to policy implementation. The idea is that the public sector does not know best how to place public money in the economy, and it has to work hand-in-hand with the private sector and with knowledge institutions to place the money more effectively. Constant interaction is needed, based on trust and transparency. While business people know how the market operates and risk their own money, public authorities should ask "Would you invest if I invest? What would you need to invest more in this risky area if we back you up as the public sector? How do you build international alliances? How do we create an ecosystem which facilitates technological take-up?" (DG Regio).

Another dimension of such a public-private partnership is the practice of **public procurement**. Comparisons between Europe and the USA were made several times during the interviews. This does not necessarily mean that interviewees envisaged a reproduction of the US situation in Europe, since conditions are clearly different. It helps, nonetheless, to reflect on specific instruments and possibly adapt some European practices to more competitive policies. Innovative pre-commercial public procurement is an interesting instrument (CoR). In general, it is a matter of political will.

4.1.4. Multi-level governance

Relations between the EU and Member States

There is agreement across categories of stakeholders in acknowledging that the role of the EU is reduced or hampered by the prerogatives of Member States - and this is generally considered to be an undesirable state of affairs. Member States are a "weak link" in this respect. Different reasons are put forward, however, depending on the viewpoint (business associations or policymakers).

One specific concern expressed by business associations is whether Member States will contravene the efforts of the EU in providing harmonised conditions to undertake business activities throughout MS. Decisions taken by country Ministers, at the European Council level, might then not be respected or enforced by Member States. Examples are the SBA or the Youth Guarantee. Member States are also considered to be by themselves a source of inhomogeneous business conditions, for example in terms of labour costs and associated taxation systems. Another example is SME's access to finance. Many sources are available,

for example from the ECB, but the *information* is missing because Member States are not diffusing it.

Deciding on common measures at the European level is therefore considered to be insufficient. It is necessary either to force Member States to comply (this is possible only if sanctions are used, and in turn this requires that budgets be engaged), or to raise awareness at the political level and create a momentum to mobilise national and local actors. In this respect, there should be political support (UEAPME). Business Europe also invokes a risk of gold-plating "MS should grant a uniform and proper implementation of what is suggested/decided at EU level". An absence of common standards in fields such as patents, training, service markets and IPR is regretted, and calls for smart regulation.

From the perspective of policymakers, the EU is generally expected to deal with horizontal measures of industrial policy and to establish instruments to support clusters, innovation, SMEs, etc., but it is the responsibility of Member States and Regions to implement those policies in a coherent way. Europe can provide high level objectives and directions, but actors at national, regional and local levels have to take up such guidance and adapt the use of support to their situation and needs. In this respect, the fact that Member States keep pursuing individual industrial policies/agenda/strategies is considered to be an obstacle (see below). The EU cannot solve all problems in the face of national specific circumstances.

Regions

The Regions are *unevenly* identified as critical actors. According to policymakers (DG Regio especially, but to some extent also DG Enterprise), they should be able to create high quality development strategies capable of integrating EU support such as the European Regional Development Fund for Smart Competitiveness, or H2020 research funds (see below), which respect local specificities and comparative advantages. In a way, there is a need for local industrial policies as well, based on the excellence of Regions, and on the possibility of creating clusters and collaboration between different business sectors and between different geographical areas, too (smart specialisation). That said, without coordination, Regions might develop competing or overlapping strategies. Cross-Regional cooperation is called for by some respondents (CoR).

On the face of it, business associations at EU level rarely refer to this level of governance as a pertinent level of action. This feature unveils the potential conflict of objectives between territorial and business strategies (respectively attracting or preserving business in a given territory, and characterised by a somewhat "footloose" approach).

"The basic need is, of course, the alignment of European, Member States' and Regional policies on industry, clarity is needed on who does what, transparency is needed in policy development, and stability of policy is needed for companies to understand their environment and invest accordingly" (ERRIN).

4.1.5. DGs' perspective: looking for a vision

Among the DGs of the European Commission, the view of **DG Enterprise and Industry** (DG ENT, significantly renamed DG Internal Market, Industry, Entrepreneurship and SMEs or "DG Growth" in the new European Commission) is probably the closest to the Business views. It focuses on the Common Market and the notion of "scalability" that goes with it (i.e. the exploitation of scale economies around an initial public investment), as well as on entrepreneurship. It advocates a systemic approach in the sense that it aims to establish the right framework for the system to work. It refers to industrial systems and networks as

appropriate units of analysis, and proposes an approach that is both horizontal (SBA, Refit, Think Small First, innovation funding) and sectoral.

"(..) there is another (..) important priority: the single market, which is the biggest unused European asset, where there are a lot of low hanging fruits. It has to be completed and improved, making it fully operational. Scalability is a key concept here; new technologies need scalability to be developed. Innovation and competitiveness are concepts that are more traditionally mentioned, they are complex areas which require a lot of conditions to be put in place, including scalability." (DG ENT).

DG Enterprise bridges the different perspectives on industrial policy and endeavours to take into account input from other DGs, for example DG Regio in terms of smart specialisation, for which there is room in the notion of industrial system.

"An industrial policy which focuses on costs abatement is a fragile, not committed and short term one: once others realise lower costs than Europe then we have lost our position. Flexibility is more important than costs, and scalability with it. The innovative thought in industrial policy is the need to develop a business-conducive environment, to think about all the actors in the value chain: customers, suppliers, business services, logistics… Europe has to put in place a real industrial system where all players nicely coordinate with each other, feeding their own needs. It is this network of relations that allow an industry to thrive and root it in a specific environment. This is the opportunity; the creation of clusters is the way in which you keep industries in a territory since you create a network you can't disentangle. The coordination element is an argument for industries to stay where they are." (DG ENT).

DG Regional and Urban Policy takes the perspective of local/regional development and formulates a very *sui generis* approach to forging an EU industrial policy. For DG Regio industrial policy is seen through the lens of the so-called place-based approach; it is cross-sectoral, based on generic technologies, and operationalised through clusters. The place-based approach, which lies at the basis of the smart specialisation strategy, promotes bottom-up dynamics and rests on initiatives developed at the regional level. The role of proximity is underlined around the notion of clusters, bringing together different stakeholders (finance for technological development, companies and MNCs, the public sector, incubators, universities, etc.). DG Regio proposes moving away from an approach where *single SMEs* are supported to an approach where the objective is to generate and maintain an innovation "ecosystem" – building on proximity. DG Regio particularly stresses the need for a new relationship between public and private actors, sharing and exchanging knowledge, which facilitates technological take-up and develops know-how about how markets operate.

DG Research and Innovation focuses on research and its link to business. The current European research programme, **H2020**, raises high expectations in terms of procedural improvements with better involvement of business, and because of a stronger focus on companies' needs. As such, it is about industrial competitiveness and technological development.

"Europe is very good in research, but not in bringing the products of research to market. Industries and SMEs should be much more involved, since they have the incentive of commercialising the products of research. There has to be a real cooperation with universities and not just a façade to justify research funds by having industries in the consortia. The **SME instrument** is promising in this sense: technologies already have to be at a certain stage of development in order to receive funding, a business model has to be prepared to have business angel models and go for venture capital, in a logic of long-term sustainability, products on the market and profitability." (G. Huemer)

The SME instrument is generally positively valued, but a dissenting view considers that in the face of considerable expectations, it might produce deceptions and frustration. True, the instrument was designed to reward excellence. Perhaps, this is telling of the fact that the real needs of SMEs are not sufficiently grasped (ERRIN).

Overall, there is some convergence among policymakers at the EC level around notions such as smart specialisation, industrial system, eco-system and proximity. These are considered ways of embedding businesses in networks of stakeholders, which are part of the value chain – or eco-system – and thus of anchoring companies and avoiding their re-location. This level is also thought to be best for dealing with the coordination of different existing instruments and funds and for synergies to be obtained.

4.1.6. Who's in charge? Governance and horizontal coordination

There is broad agreement about the lack of a clear mandate in the field of industrial policy. DG Enterprise (now DG Growth) is a natural candidate for such a role, but industrial policy instruments have been developed by other DGs who have a vision of the matter, such as DG Regio (with its Smart Specialisation Strategy), DG Research and Innovation, as well as many other DGs or agencies (DG CNECT etc.).

Despite some timid examples[73], there is clearly a lack of leadership and coordination. This leads to fragmentation, which is detrimental to coherence and impedes reaping synergies between policies, programmes and instruments.

"ERDF and H2020 are a bit disconnected with each other, they are built on different visions and do not have the same beneficiaries. Research programmes are interesting for foresighting the dematerialised industries of the future maybe, but in the meantime things happen in the regions. There is a need for a leverage effect on the basis of these two large funding programmes; otherwise we will never reach the re-industrialisation objective. These programmes are just catalysts for other administrative levels and private actors to invest in. Some regions link them in a fruitful and effective way, but it is only on the basis of their local capacity. The optimum ecosystem is one in which all funds are used in a coordinated manner, the EC should push for regional authorities to integrate policies. Management authorities are sometimes disconnected with some people dealing with economic development and others dealing with research" (EBN).

Achieving a critical mass requires the strategic coordination of different interventions to overcome fragmentation. Many underline how the proliferation of many small initiatives is not sufficient and a more strategic approach should be adopted. It is important to scale up the importance of interventions (EBN) and ensure the critical size of support. The SME instrument and Knowledge Alliance (DG EAC), for example, are deemed by different interlocutors to be examples of underfunded initiatives.

However, such alignment and scaling up should not happen at the expense of flexibility, i.e. it should take place without leading to excessive centralisation. Examples are: EASME was identified as not so effective because it centralises too much control of funds without specific knowledge of the sectors of application; and the EEN was criticised on similar grounds. Nor should it be at the expense of transparency: on the contrary, information should be made more visible and available to citizens and companies (CoR).

From an operational viewpoint, "on the ground", this translates into a lack of harmonisation of procedures, which should be imposed as a minimum.

[73] For example, a steering committee on Smart Specialisation is at work that involves all the DGs. Also on H2020, a Formal Programme Committee groups together all the stakeholders from other DGs allowing for wide consultation.

Overall, a common request from the concerned actors was for clarity of responsibilities across the different DGs at the European level, which should function in a more coordinated and transparent way.

Evaluation and policy competence

In general, the issue of the (policy) competence needed to carry out an effective industrial policy is often mentioned. First, it is necessary to learn from mistakes (e.g. Youth guarantee, SBA). For example, more assertiveness for Europe is advocated in terms of quality of spending of available funds, something which may have been learnt via the Structural Funds, and that may be leveraged for other funds, for example in relation to research and SMEs.

It is also necessary to acquire and master the necessary knowledge (of local conditions, of relevant markets, etc.) at EU, national and especially regional/local levels. Importantly, this does not only concern public policymakers, but also private entrepreneurs. The capacity of entrepreneurs to undertake organisational change and carry out innovation management is fundamental in this respect (EBN on entrepreneurship).

Finally, speed is called for (CoR): policy should be reactive and adapt rapidly to new challenges. There is too much planning and too little experimenting. This should correspond in the public sphere to the imperative of "speed to market" that companies face.

4.1.7. Concluding remarks

Overall, there is some consensus about the need for a long-term EU industrial policy, beyond a mere response to the crisis. It is also seen as a necessity in the face of heightened worldwide competition and the policy practices of major competitors (USA, Japan, China, etc.).

There are some converging views about the main weaknesses of the current arrangements, namely a lack of clear mandate and of coordination between DGs resulting in fragmentation and missed opportunities for synergy. Interestingly, business representatives join EU policymakers in considering the Member States level as a source of potential difficulties for carrying out an EU industrial policy, while the regional level is unevenly acknowledged as an appropriate level of action. Finally, there is some uncertainty concerning the thrust guiding the development of the EU industrial policy. While there is a clear and shared aversion for anything that could resemble a sectoral approach across the different stakeholders reviewed, business representatives seem to be particularly interested in keeping a level playing field, whereas unsurprisingly, policymakers have a more active vision of their role in promoting a favourable business environment, as a knowledge-broker for example. It is also worth noting that the notion of Smart Specialisation put forward by DG Regio is often endorsed or taken over by other policy stakeholders as a potentially pertinent model to underpin the development of an EU industrial policy.

4.2. The perspective of Member States

This sections draws lessons from an analysis of industrial policy carried out in six Member States (UK, France, Italy, Greece, Poland and Germany – see Annex for a full account) chosen for their representativeness[74]. It describes the main characteristics, similarities and

[74] The countries chosen for the country fiches are representative of the diversity or 'policy space' in terms of geography and institutional makeup of the current EU Member States. Represented are the North (Germany, Poland and the UK)-South (Greece and Italy) and East (East Germany and Poland)-West (France, Italy, Greece, West Germany and the UK) differences; differences between the continent and the British Isles; and, last but not least, differences in economic systems ranging from the mixed economies of Poland and France, to

differences in industrial policy in the selected countries and underlines determinants of policy preference and policy spillovers in each Member State. The purpose is to indirectly reveal the preferences of Member States for strengthened collaboration in the area of EU industrial policy, also captured through interviews with stakeholders, such as industrial confederations and ministries.

4.2.1. Different approaches to industrial policy and the main drivers

Even though the collected data is qualitative in character, what emerged was the following ranking of countries on the relative weight of using a horizontal or sectoral approach:

Figure 10: Dominant objective of industrial policy in the six countries studied

Horizontal →------→------→------→------→------→------→------→ **Sectoral**					
Germany	Greece	UK	Italy	Poland	France

Source: Country fiches

This was revealed through studying a combination of factors, such as the budget assigned for different areas (when available), emphasis on direct support to sectors (here support to the energy sector in Germany is seen as a horizontal policy since it feeds into overall energy sustainability and actually hampers industry in terms of cost competitiveness), the underlying motives for attracting investors to clusters or via economic zone type policies, and also official communications and statements made by governments on their web pages and in government documents.

It is also important here to add that the sector emphasis in both Poland and France comes mostly from a combination of how they have used their place-based policies and the fact that state ownership is most prevalent in these two Member States at present.

It can be seen then that there is no direct relationship between the relative preference or dominant approach to industrial policy and the competitiveness ranking of the countries studied (see below)[75].

Figure 11: Relative competitiveness ranking of the six countries studied

Germany----→	UK--------→	France-----→	Poland------→	Italy-----→	Greece
5th place	9th place	23rd place	43rd place	49th place	81st place

Source: Country fiches.

At present there are a number of other major influences on industrial policy-making in the EU. One is the fundamental economic system of each country (including federal arrangements) which, not surprisingly, has a rather strong bearing on how economic policy, including industrial policy, is carried out. This is especially true for the relative preference for using the horizontal or sectoral approach. The mixed economies are more likely to have a sectoral approach. Germany, as a social federation of Lander, has an administrative setup that appeals more to horizontal policies overall. Northern Italy seems much more similar in its economic system to Germany, whereas Southern Italy has an entirely different economic system. The large spread in economic systems and economic development across the EU (also related to innovation, see below) should be considered as one of the main

the social economic model of Germany, the entrepreneur-based system of Northern Italy, the Anglo-Saxon model of the UK, and the Mediterranean economies of Greece and Southern Italy.

[75] In this relative competitiveness ranking Italy in reality is situated at either end if separated into North and South, and East Germany is closer to Poland.

barriers to developing a common EU industrial policy. There is a clear historical lineage in industrial policy in these countries, only occasionally interrupted by periods of stronger coordination or synchronisation during periods of crisis. A common policy would at least have to be adaptable or flexible with regard to such differences.

Another influence is the level of development, or how much each country depends relatively on indigenous innovative capacity (West Germany, France, the UK and Northern Italy) vis-à-vis technology transfer through trade and foreign direct investment (Greece, Poland, East Germany and Southern Italy).

However, there are also signs of policy convergence and spillovers from the technology-leading countries to the technology-dependent and policy-following countries (the latter often also more dependent on EU funding for their industrial policies, such as Poland, Greece, Southern Italy and East Germany). This can be seen by comparing the chronologies of industrial policy in the countries studied.

A certain synchronisation of industrial policy appears to have occurred at certain points in time. This is especially true during or after a crisis (such as the oil crises of the 1970s and 1980s and the present global financial crisis) when most of the Member States have found themselves in a similar situation of declining competitiveness, though currently with Germany as the positive outlier and Greece as the negative outlier. One example is the move towards horizontal policies, which was initiated by Thatcher's reforms right after the UK became a member of the EU (and could be interpreted in fact as a reaction to that decision by the previous government). There are also most likely national imprints on particular EU industrial policies during a particular country's governing periods in the Council of Ministers (such as the possible influence of German national policy on the move towards subsidising SMEs in the EU). Hence, spillovers could occur from one Member State to another, from a Member State to the EU-level and from the EU-level back to another Member State.

4.2.2. Domains and instruments

Table 4 below shows the main initiatives in place in each country, divided up according to the main policy domains covered by the various arrangements and measures. It shows that both horizontal and sectoral objectives inform industrial policy-making across all the six country cases studied.

The most important domains covered in industrial policy are: 1) Key Enabling Technologies, 2) place-based policies and 3) barriers to innovation with SMEs. Some domains are lagging behind or are almost entirely neglected at present, the domain of labour in particular. A lot of initiatives under the product market domain belong under the Single Market and are not mentioned here as they are the same across all Member States. The presence of the three similar initiatives mentioned above (Key Enabling Technologies, place-based policies and barriers to innovation with SMEs) across almost all the six countries studied suggests that besides those pertaining to the Single Market, there is already a significant element of common and evolving industrial policy in the EU. This is most likely due to the influence of Cohesion Policy on industrial policy and general policy spillovers.

Table 4. Comparing specific industrial policy initiatives in the six countries by objectives and domains

Type of initiative	Motivated by horizontal objectives	Motivated by sectoral objectives
R&D tax incentives (the domain is technology)	UK France Germany Italy	
Place-based policies (the domain is land or place)	UK (24 zones) Greece (Structural Funds) Italy (triple helix coordination)	France (competitiveness clusters) Poland (SEZs with elements of sectoral strategy) East Germany (clusters with a sectoral focus)
Key Enabling Technologies, energy (the domain is systems/institutions)	Germany (energy) Greece Italy (five cross-sectoral priority areas) UK (some cross-sectoral) France (some of the 34 sectors)	
Barriers to finance and innovation with SMEs (the domain is capital markets and systems/institutions)	Germany France Poland Greece Italy UK	
Creating national champions in particular industries (the domain is product markets)	UK and Poland conduct their independent exchange rate and monetary policy	UK (car industry, aerospace) France (some of the 34 sectors)
Programmes that target skill gaps (the domain is labour markets)	UK (skills programme, but lowest minimum wage) Germany (highest minimum wage for unskilled labour, long contracts)	

Source: Country fiches

There are two areas of policy in which there is an almost complete overlap among the high innovation performers: the first is in R&D tax incentives (rarely used in the non-innovation performing economies such as Poland and Greece), and the second is across all six countries in the area of land development through special zones or cluster initiatives (even though the underlying objectives that motivate these policies vary significantly). The real difference comes mainly in the spending patterns, which tended to show (when figures were available) that budgeting gives a stronger preference to traditional industrial policies (e.g. in France), or to specific and also quite traditional national priorities (e.g. in Germany).

4.2.3. Concluding remarks

Overall, the findings from Member States lead to the observation that industrial policy-making in the EU appears to be driven by the high innovation performing economies of Germany, France, the UK and Italy, and that policy preference is first and foremost driven

by their economic systems. In the more technology-dependent parts of Europe (including South Italy and East Germany) policy seems currently to be driven by general spillovers and Cohesion Policy. These regions appear to be weaker-positioned in terms of capability for developing their own internally coherent industrial policies (including setting up systems for evaluating these policies).

Another observation is that these particular patterns of policy preference and spillovers drive the domains covered by current industrial policies. The most prominent mechanisms are R&D tax incentives (emanating from the emphasis on innovation in the policy-leading economies), entrepreneurship policies (again emanating from the policy-leading economies) and, finally, place-based policies (emanating partially from policy preference or tradition in some economies such as the UK and France, combined with a heavy emphasis on Cohesion Policy in the EU).

The interviews indicated that the policy-leading countries currently have a low stake in the formulation of a common EU industrial policy because they are already formulating their own version. Instead, the policy-following countries have a very high stake and interest in making the relative influence over such initiatives more even. Their relative dependency on EU funding for industrial policy-spending suggests that they are not likely to take a lead in changing the present situation either via their own national policies or through the EU institutions. In this respect, a recent initiative led by France to bring together "Friends of Industry" (i.e. Italy, Greece, Spain, Bulgaria, Luxembourg, Belgium, Czech Republic, UK) shows the relative inertia characterizing the positions of Member States[76]. They called for a more active EU industrial policy, but their initiative had no specific concrete influence and no further developments took place.

4.3. The view from outside: scholars and experts

This section summarises the results of a mini-survey on certain features of the current EU industrial policy and perspectives for possible development conducted with a Delphi-like approach[77] among nine industrial policy experts and scholars worldwide[78].

4.3.1. Two schools of thought?

As far as their analytical framework is concerned, respondents can be broadly classified into two groups: a) followers of the EU approach and, conversely, b) those that, to varying degrees, are critical of it because it is deemed too biased towards supply-side considerations. In oversimplified terms, those with a neo-liberal economic bias maintain that industrial policy can be justified only in the case of market failures, because otherwise it would disrupt the efficient allocation of resources. Others point to the fact that there is a need to have an industrial policy in place precisely to redress the "missed growth" failures produced by the neo-liberal approach itself and its insufficient recognition of the factors behind growth. Those belonging to the first group agree with the current paradigm, but note that more should be done to monitor progress in key enabling technologies (including eco-innovation) and to foster synergies with education and research policies. They therefore emphasise the lack of a clear overall vision supported by appropriate compensatory measures where necessary (e.g. investing in energy efficiency to compensate for the US advantage with fossil fuels).

[76] Initiative led by France, including Italy, Greece, Spain, Bulgaria, Luxembourg, Belgium, the Czech Republic and the UK (October 2013).

[77] It is a "Delphi-like" survey inasmuch as it does not aim to establish a consensual position among the experts.

[78] The survey was carried out between 14 and 30 October 2014 and its aim was to identify areas of agreement and disagreement among respondents through a quantitative scoring mechanism and a qualitative section where scores could be elaborated upon. See in Annex the list of participants.

The criticism of the second group is much more radical and can be summarised in the following terms. The approach followed by the EU is the product of the dramatic mistakes of the 1970s when demand management policies totally neglected the supply-side. Now the problem is the fact that the current policies are conceptualised in purely supply-side terms. So, if problems remain unsolved despite policy intervention, this spurs the need for even more of a supply-side approach, which would only aggravate problems in the long run, in a sort of vicious circle. According to this second group, the current strategic approach is lacking an analysis of the reasons behind the failures of past policies (both demand-side and supply-side driven) as a starting point for new thinking. In the words of one commentator, to get out of this conundrum a new articulation of industrial policy language and concepts would be required, because the current one - based as it is on the old supply-side demand-side debate - is intrinsically misleading, or at least, exceedingly one-sided.

4.3.2. Strategy and governance

Respondents generally give a low score to the overall quality and clarity of the strategy and related governance aspects, although they might differ substantially in their underlying assessment of the main reasons why. Assessments differ depending on whether the respondent is broadly aligned with the EU approach so far (see Chapter 2), or a supporter of a more radical paradigm shift and a fresher approach. In both cases it is noted that several policy areas that are relevant for setting up a proper industrial policy are being tackled separately within the Commission and the Council of Ministers, which leads to evident inconsistencies. Not only does this extend to obvious examples such as climate change, innovation and taxation, but also to crucial monetary policy aspects (interest and exchange rates) that can represent a sort of precondition for putting any industrial policy in place, because there is general agreement that no industrial policy whatsoever can fix wrong monetary policy framework conditions.

Respondents tend to concede that industrial policy at the EU level is too biased towards horizontal approaches and exceedingly neglects more targeted sector- or segment-based instruments that would allow for more targeted and effective interventions. In current conditions, there seems to be a certain consensus that any horizontal strategy is bound to be vague and limited in the results it can achieve, although, as noted above, any move towards more analytical approaches would require skills not always to be found at the national/local level and therefore faces serious capacity constraints. Ideally, the right balance between horizontal and vertical policies depends on the territorial peculiarities of the different regions, their strengths and weaknesses and their underlying strategic industries, and should be assessed at the local level if the right capabilities are available.

Dissenting views more aligned with the supply-side approach insist that the purpose of policy intervention should be to build enabling conditions and support innovation, although some concede that interventions specifically targeted at certain emerging technologies or specific clusters could possibly be justified, even if the OECD itself has acknowledged a lack of "robust tools to measure whether or not such policies are successful" and warned that Governments should limit support to existing and emerging clusters rather than trying to create them where they do not already exist. There were also instances, as previously noted, where the horizontal-vertical dichotomy was deemed poorly framed and in need of fresh rethinking, and actually a part itself of the problem to be solved. This horizontal/vertical distinction can be blurred in cases where nominally horizontal support has *de facto* vertical effects – and vice versa. For instance, while support for research and development (R&D) is available to all sectors of the economy, at the end of the day it ultimately flows mainly to R&D-intensive sectors.

4.3.3. Policy instruments

The distinction between the two schools of thought identified above can be found in the perceived degree of adequacy of the industrial policy tools currently available. While scholars and experts supportive of the current approach deem them fully adequate and may comment on the way they have been implemented or even suggest more focused education-related tools, critics of the "supply-side biased" policies would like to strengthen and widen the range of tools available that are currently too biased towards horizontal measures, and to reform current competition/state aid regulations as enshrined in the Treaties, by allowing ways to provide more support to strategic/high growth/high potential sectors and industries.

The main constraint to this more proactive approach is recognised to be the lack of a clear theoretical framework to guide European policymakers in creating entrepreneurial possibilities, and the lack of experience of most EU Member States in building organisational capabilities to advance their production capacity, compared to other global competitors. This would require a deep knowledge of production systems - including inter-European production links - and of the strategies to develop distinguished production capabilities that only the public can provide, as financial institutions in the private sector are not skilled at due diligence to identify early stage technology development activities, and venture capitalists do not have the scale to support the crafting of sector strategies. So, more generally speaking, tools and active policies would be required to improve the capabilities of economic actors to participate in competitive dynamics.

The current support instruments are conceived in response to perceived specific market failures and therefore cannot (or should not according to others) address systemic challenges. Moreover, the various aids to enterprises tend to have different effects depending on the sectors they are applied to and it can therefore be difficult to make generalisations. While much stronger evidence from evaluations than is currently available would be needed to draw solid conclusions, it appears that the effectiveness of access to finance and of policies to support apprenticeships and support to labour mobility is believed to be greater than that of cluster policies or innovative procurement, particularly as far as SMEs are concerned. In contrast, support to exporting companies is generally deemed the least effective of all possible instruments.

In one notable dissenting opinion, support to exporting companies is deemed by far the most effective at the firm level, because it encompasses all the others. Getting firms into exporting indirectly supports a wide-ranging set of actions that improve innovation and productivity, as there are significant barriers to entry into exporting. Radically diverging views were recorded on matters such as the potential effectiveness of social and eco-innovation and indirect support measures such as the establishment of marketplaces to attract venture capital or publicity for inventors and creative firms. According to some, these measures simply do not address the fundamental problem that public support is needed until the risk/return metrics of a given activity are sufficiently clear to the private sector and deemed financially affordable. So any support provided at the margin of this threshold is irrelevant.

Although with small variations, most respondents agree that mainstream support instruments such as support to access to finance, support to innovative SMEs, innovative procurement and support to exporting companies, are broadly provided in line with needs and justified by available evidence of their effectiveness or, in the worst of cases, slightly underfunded in the light of the peculiar current crisis conditions. In any case, nobody feels that there is any need for a substantial strengthening of purely horizontal and untargeted measures.

There are more radically diverging views as to the appropriateness of the financial effort devoted to cluster policies and support to apprenticeships and labour mobility. While also in these cases the majority agrees that the right level of effort has been broadly reached in the light of available evidence, there remain radically diverging opinions as to whether these policies are substantially underfunded or, conversely, substantially overfunded compared to perceived needs.

4.3.4. Framework conditions

There is a general, but not unanimous, consensus that the greatest potential for a transformative strategy today probably lies in making EU energy and climate policies more competitive-oriented, although this does not mean there is underlying agreement on the direction these should take. Another area of substantial agreement can be found in assessing the potential for industrial growth provided by a deepening of the European Single Market as lower than the potential possibly offered by opening up foreign markets and removing existing barriers to trade.

There remains a minority of respondents who maintain that the impact on manufacturing of any trade-related policy – both internal and external to the EU - would, at this stage, be almost negligible. Needless to say, radically diverging judgments are given to the potential for industrial growth hidden in a reformed state aid and competition policy. While this is deemed almost non-existent by those aligned with the current EU practice, the others see the need for a more radical reform in this area. Again in an oversimplified form, state aid regulation should be much lighter on strategic industries with potential for growth and substantial investment risk and, unlike in the past, based on European rather than national champions. The difficulties that the current EU definition of SME would create in fine-tuning policies are generally deemed as slightly overstated and a political argument rather than a real policy concern. However, also in this case, there is a radically diverging opinion maintaining that a change in the definition of SME would be one of the key and more urgent reforms to put in place as soon as possible as a precondition for improving the effectiveness of industrial policy in Europe.

4.3.5. Multi-level governance

It is often noted that it is not so much the balance between the different levels of policymaking *per se* that matters, but rather the existence of conflicting or contradictory goals between them. However, most respondents believe that too much is left to Member States' interventions and some failures in using available instruments – for instance in the field of Structural Funds or support to labour market mobility – are not really addressed. This creates a very unbalanced condition where certain States or Regions can silently manage quite effective industrial policies and have developed good capacities to do so, while others are increasingly lagging behind. The conundrum here, however, is that without local involvement industrial policies have little chance of success, but many local or even national governments appear simply not up to the task.

As already noted above, a minority of respondents object to any European intervention on subsidiarity grounds and would like to reduce EU competencies in this area. This is even more so after the 2008 economic crisis showed the ineffectiveness and slowness of European interventions and related decision-making process and led some to regret that Member States had been left more sovereignty on matters such as industrial policy.

4.3.6. Specific issues

Realism and feasibility of the Europe 2020 objectives

Most respondents agree that the Europe 2020 objective of getting back to a 20% share of manufacturing in GDP is hardly realistic or feasible in current conditions. Both increases in labour productivity and shifts in demand towards services are generally assumed to continue as a structural trend over the next few years, which would make the achievement of the target extremely unlikely or eventually possible, in the best of cases, only under a very broad definition of manufacturing also inclusive of business services downstream and product development upstream. To this end, the identification of the target itself appears exceedingly driven by the need to convey the message politically, but not adequately supported by a rigorous underlying analysis and quantification of a suitable set of measures to reach this aim. A clearer and more elaborate assessment would be needed of the impact of the share of manufacturing on the economy, as well as of the extent of the interventions required to reach the 20% target (a real *Copernican revolution* in the words of one commentator), as it would allow for better strategic understanding and overall steering of the process.

Moreover, it is also noted that capacity constraints in implementing such a *Copernican revolution* are poorly appreciated and taken into consideration when setting targets. For instance, so far no EU industrial policy document has tackled the issue of governance capabilities and of the highly diversified and sometimes limited range of skills and tools available within industrial policy agencies to manage such a daunting effort across Europe.

While the majority of respondents seem to agree that a set of European Industrial Policies to achieve that target would ideally be highly desirable and they therefore endorse the underlying political message, a minority either casts serious doubts on the very need to have a target for manufacturing alone, or challenges the policy on subsidiarity grounds and maintains that an EU goal does not make much sense as it would depend on a number of very heterogeneous situations at the national and local levels, which an EU strategy can hardly cover.

Need for a specific EU policy initiative aimed at reshoring industrial activities

Most respondents share the opinion that specific programmes aimed at attracting back manufacturing activities lost to China and other emerging countries in the last decade (so-called reshoring) and broadly mirroring the contents of the US *Make it in America* programme would not be desirable or feasible in Europe. The prevailing view is that such an approach would be backward-looking or even counterproductive, since it would distract the policymakers' attention from the need to invest in industries with a high potential for growth and in more promising technologies, irrespective of whether reshored or not. Moreover, some maintain there is no proof that this type of programme meets a concrete and actual demand and nor that it would not end up subsidizing businesses that would in any case reshore their activities, as this would require a much deeper analysis and understanding of current competitive dynamics and the incentives available elsewhere (rarely disclosed) than presently available.

There is a minority view strongly supportive of replicating something similar to the *Make it in America* programme in the EU, because this would provide a common framework of action for Member States who are allegedly trying to achieve the same objective through various fiscal measures and are driven to fiscal competition to achieve this aim. Hence,

some kind of coordination could help in mobilizing all European countries towards the same goal by providing a common reference framework and a development path. In the dissenters' view such a programme could be justified in terms of market failure by addressing and somehow balancing the growing IPR management and security concerns Europe faces in off-shoring too much of its technological base.

The merits of technological foresight and randomised experiments.

The vast majority of respondents continue to see the merits of basing policies on foresight exercises, following trends in research and spotting key emerging technologies as a basis for identifying strategic sectors or segments of the economy, although one radically dissenting opinion was recorded.

The recently proposed new industrial policy approach based on randomized trial and error experiments (see Chapter 1) not supported by any other preliminary consideration aimed at identifying strategic priorities, remains deeply divisive among respondents and elicits either strong support, or deep scepticism.

4.3.7. Concluding remarks

Participants in the exercise emphasised different key messages, which were not always compatible. These can be broadly summarised and highlighted in the following terms:

- There is little point in discussing EU industrial policy, unless the Treaty is changed.
- There is a widely unrecognised capacity problem in devising industrial policy based on smart specialisation, and there is little the EU can do to redress this, as it depends on uneven Government skills at the local level.
- Industrial policy is wrongly conceptualized in terms of market failures, while it should be understood in terms of the risk/return metrics the public or the private sector can bear.
- Competition rules at the EU level should be eased and conceived in EU strategic terms.
- Industrial policy should not be seen as a substitute for a GDP growth strategy, but as a tool to orient the economy towards desirable socio-environmental goals.
- Discuss industrial strategy with industrialists, and improve knowledge of their working conditions and competitive dynamics worldwide.
- Experiment new industrial policy tools including sector-specific education policies;
- The paramount importance of education, R&D support and finance of innovation strategies better declined at the sectoral level.
- Improve evaluation and knowledge of what is working.
- Increase complementarity between industrial policy and other policies.

The overall vision ahead is that the EU has rightly moved away from its previous exceedingly horizontal approach towards the current smart specialisation strategy, although there can be serious – and still poorly recognised - capacity constraints in its implementation. To a notable share of respondents this recent move is, however, far from being enough unless the key aspect of managing state aid and competition policy in a more proactive and strategic-oriented way is tackled. Interestingly, the so-called new industrial policy approach elicits some consensus across the different schools of thought and ideological orientations, while programmes specifically aimed at facilitating reshoring of manufacturing activities do not. Few indications emerge from the exercise of the need to reorient the effort devoted to the various industrial policy tools so far, but there was a request to focus even more on the human capital component by investing in apprenticeship

and support to labour mobility instruments. All in all, this appears – in spite of the recent financial crisis - a more important strategic tool than improving access to finance.

4.4. Conclusion

One main message emerging from this chapter is the seemingly scant room for manoeuvre left to policymakers at EU level to develop an EU industrial policy in the traditional sense. Caught between competition policy seriously constraining state aid, on the one hand, and Member States' prerogatives and heterogeneous conditions and challenges, on the other, the development of an industrial policy at EU level in a top down and centralised fashion seems to be difficult. In addition, the lack of a clear mandate and of coordination is noted, together with the absence of a shared strategic vision. Yet, there is an emerging agreement around a set of principles and notions such as Smart Specialisation or (eco-)systems which could contribute to the formulation of a prevailing paradigm guiding the development of a decentralised EU industrial policy.

5. CONCLUSIONS AND RECOMMENDATIONS

This report provides an overview of the different initiatives and policies devised at EU level to foster competitiveness and growth, and their assessment by selected stakeholders and experts. In the absence of dedicated evaluations dealing with EU industrial policy as a whole, this report deliberately relies on this qualitative information. Furthermore, the hypothesis is that such positions and opinions are also part of the policy process, so it is important to take them into account to gauge where such a process is headed. A set of key findings emerges from this analysis, and some recommendations are formulated on this basis.

5.1. Key findings

In order to extract key findings from the wealth of material collected for this study, we find it useful to distinguish between ideas, institutions and interests, which are key variables characterising the policy-making process in the field of industrial policy at EU level.

5.1.1. Ideas

There is renewed interest in industrial policy in general, and at EU level in particular, but there isn't always a clear-cut and explicit account of what purpose an EU industrial policy would serve. In particular, there seem to be general references to objectives such as competitiveness, growth and jobs, but sometimes without explicit mention of possible tensions or overlaps between such objectives and how exactly an industrial policy can help achieve these very objectives.

For example, it is no coincidence that such a "renaissance" of interest takes place concomitantly with the current crisis and the dramatic impact it has been having on the EU manufacturing industry. At the same time, it is generally acknowledged that an EU industrial policy should not provide short-term responses to the crisis, but more structural and long-term objectives, such as a contribution to reshaping the specialisation profile of the EU towards higher value-added activities where the "good" jobs are. In the short term, this process of structural change could even cause adjustments with negative consequences on employment.

Also, progress in productivity and competitiveness might not be good for jobs if it is obtained through technological developments substituting labour with capital, or through relocating part of the production process abroad. In this respect, it might be a good idea to be clear about the very objective of an industrial policy: is it higher productivity/better paid jobs, or employment in general, including low skilled jobs?

In this report, the argument put forward in favour of a focus on manufacturing is that this is where the good jobs are, besides being a fundamental source of innovation and productivity. The stakeholders (and other evidence) reviewed generally point to the importance of keeping a strong industrial manufacturing base as a key factor of resilience and development. The latter is indeed necessary to apply technological developments, which in turn is a learning opportunity calling for further technological development, etc. Evidence shows the risk inherent in a strategy concentrating efforts on how to move up the value-added chain, promoting R&D intensive activities, if this is disconnected from the manufacturing base.

At the same time, an exclusive focus on manufacturing could bypass possible alternative or complementary sources of growth and competitiveness, for instance in some services characterised by high productivity. A certain degree of deindustrialisation seems to be inevitable (thanks to structural trends in the share of manufacturing, which is becoming more capital- and less labour-intensive in general, especially for low-skilled labour), and is

actually welcome if it corresponds to a relocation of low-skilled jobs towards more productive areas of the economy. What counts is the overall picture and whether the productivity of the economy follows an upward trend (corresponding to a most efficient allocation of resources towards higher wages and higher productivity jobs).

Overall, there is a vast consensus among stakeholders that the target of an industrial policy should indeed be manufacturing, but in its relationship to the value-added chain upstream and downstream. There must be considerations upstream for R&D input, but also raw material or energy costs, and downstream for marketing services, not to mention business services that contribute to the production process right across the value-added chain. This accounts for the fact that the boundaries between manufacturing and services are increasingly blurred.

As such, the term "industrial policy" appears to be a misnomer if it is taken literally: by suggesting an exclusive focus on industry, one risks losing sight of the broader picture and objective of improving the overall levels of productivity of an economy. Other names for an industrial policy could indeed be: innovation policy, growth policy, competitiveness policy, productive development policy, structural transformation policy, etc[79].

In parallel with some uncertainty around the very notion of industrial policy – its definition, objective and target - there are novel theoretical developments suggesting alternative frameworks of analysis that question old schemes and dichotomies. Indeed, theoretical developments and recent practices point to new units of analysis and action frameworks for outlining an industrial policy, such as industrial systems, production chains, networks, global value chains, "eco-systems", smart specialisation, etc. They are all notions that offer an opportunity to overcome old dichotomies at the origin of seemingly irreducible and unproductive controversies characterising the debate between proponents of an industrial policy and critics. In particular, they question the validity of the opposition between horizontal and sectoral approaches to industrial policy (also reconciled through a "matrix" approach), and between top-down and bottom-up policy developments.

In this context, new paradigms are proposed like the "new industrial policy" advocated by D. Rodrik. In contrast to the "old" approach characterised by top-down initiatives pursuing clearly defined (sectoral) priorities, the new industrial policy is implemented through a process of trial and error, implying institutionalised dialogue between public authorities and private agents, pragmatic public–private partnerships, and the ability of policymakers to learn from mistakes (which in turn requires monitoring and evaluating). The *capacity* of both policymakers and businesses acquires a special relevance in this context.

5.1.2. "Institutions": the policy framework

The recent surge in interest in an EU industrial policy relies on a policy framework that the stakeholders reviewed in this report characterise in the following way.

Considerable resources are mobilised, and the policy coverage is extremely wide. This calls for better integration of initiatives and programmes in order to take advantage of synergies. In particular, some suggest better aligning conceptual underpinnings and intervention logics at the root of policy developments in some areas, including, for example, environmental policy and other initiatives aimed at fostering competitiveness. It is acknowledged that, for a long time, competition policy has been providing a prevailing conceptual model influencing policy developments at EU level, which is still at work nowadays, but there is actually little call for a radical overhaul in this respect. Some

[79] See the presentation of Dani Rodrik at the First Industrial Economics Day organised by the European Commission on 15 December 2014.

initiatives are considered to be under-funded (e.g. the SME instrument) and achieving a critical mass is generally called for. Also, concerns arise from some strategic decisions like those not to allocate additional funds to technological development or to downsize the budget for the Connecting Europe Facility programme in the current Multiannual Financial Framework[80]. Finally, the majority of respondents believe that a proper mandate in the field of industrial policy should be more clearly defined at EU level.

5.1.3. Interests

Stakeholders appear to place quite distinct expectations on an EU industrial policy. Business associations acknowledge the fundamental role that the EU plays - and could further play – in terms of "levelling the playing field". Another added value of EU action put forward by EU policy stakeholders is when the EU fulfils the role of knowledge-broker, or knowledge platform. This might be not as anecdotic as it may appear at first sight in a context where the *competence* and *capabilities* of policymakers at all levels, and also of businesses (who need to be able to manage technological change and innovation) are decisive.

As to Member States, a review of practices and approaches in six of them shows quite distinct positions. It is no surprise to see how distinct socio-economic institutional features determine different growth paths, and contribute to shaping specific responses to varying types of challenges. The impact this has on the chance of developing an effective EU industrial policy should not be underrated as this constitutes different incentives for Member States to take part in an active EU industrial policy. "Peripheral" Member States dependent on Cohesion Policy, for example, place high expectations on an EU industrial policy. The fact that these countries were hit hardest by the crisis and that they are experiencing relatively more rapid de-industrialisation calls for specific attention and possibly distinct approaches in their cases.

5.2. Recommendations

There is undoubtedly a renewed political commitment in favour of industrial policy at EU level. The objective is not to miss this opportunity. Based on interviews with stakeholders and other evidence collected in this report and briefly summarised above, some suggestions on how to make the most of the current policy framework are proposed in what follows.

An important initial remark inferred from the report's findings is that *how* to do things appears to have some importance, perhaps even as much as *what* to do.

As far as the EU is concerned, it should fully endorse its role of knowledge-broker and facilitator of interaction: this is not a retreat or a sign of weakness, but, on the contrary, a way to stress the real added-value of the EU action. Replicating a centralised model at EU level does not fit well with the multi-level governance design lying at its heart, nor with the very prerogatives and specificities of Member States in this field. It is also not very much in line with trends in the "new" industrial policy. Instead, the EU could use its ideal position of a platform as leverage for exchange and learning. It could start by making the most of the mechanisms already in place. For instance, the promotion of pragmatic public-private partnerships could acquire greater and institutionalised importance following the example of the Specialised Partnerships set up in the context of COM 2012 '*A stronger European industry for growth and economic recovery'*. These Specialised Partnerships should be strengthened and multiplied. They aim to bring together relevant stakeholders from different horizons in areas defined along the lines of: sector, market, production chains,

[80] It is worth clarifying that the stakeholders were interviewed prior to the confirmation by the new President of the European Commission of an Investment Plan worth more than €300 billion.

industrial system, or a specific transversal theme, at the most appropriate level of analysis and action (trans-regional, transnational, cross-border, multinational, EU-wide, etc.). They should address issues at 360° where appropriate, from regulatory issues to energy costs, from trade issues to pertinent policy instruments, etc. This report illustrates other examples of initiatives promoting effective public-private partnerships, generally on a small or local scale (reflecting the local conditions for successful industrial policies) but, if pertinent with respect to the issues addressed, these networks could also be extended to a larger scale.

Another area where the EU could improve current practices is in the field of monitoring and evaluation. There is a lot to be learnt from the experience accumulated through the implementation of Cohesion Policy, which could be extended to the field of industrial policy.

A proper governance setting should be in place at EU level. There is a need to remedy the lack of mandate identified by the stakeholders interviewed. For example, more could be made of the newly established vice-presidency for "Jobs Growth Investment and Competitiveness". His office could ensure optimal coordination among the concerned DGs by extending and multiplying the mechanisms identified in this report and building on the synergies and complementarities between programmes and initiatives. Efforts should be made to ensure that this also has a counterpart "on the ground" where these programmes are implemented.

A Strategic Document could be adopted. It would not be so much about what to do, but about how to do it. This Document could make explicit the mission of a facilitator endorsed by the EU, indicate clearly who's in charge, spell out the adopted approach and method, clarify the preferred overarching strategic options, and delineate possible specific priorities or policy domains where appropriate actions should be decided at relevant levels of action (i.e. not in the Document itself). In this way, such a Document would propose a sound strategic and action framework as well as a menu of possible areas of initiatives or priorities, which would be picked up by relevant stakeholders at appropriate levels of actions. It is important that the Document puts forward the conceptual underpinnings of an EU industrial policy and the implications this has in policy terms. What is its overarching objective: Innovation? Employment? And what consequences does this have, for example, in terms of economic, social and territorial cohesion? In particular, the Document should take a clear position with respect to the very distinct national expectations placed on an EU industrial policy and the differentiated needs of Member States. It is also necessary for the Document to explain how the current policies, programmes, initiatives and arrangements at EU level articulate and form a coherent policy system contributing to the overarching objective. As to specific priorities, these could range from eco-innovation, to digital infrastructure, to SME support, to innovation financing, etc. (the stakeholders interviewed for this report actually identify a set of around 10 areas of interest).

This Document would be the result of an intense consultation process bringing together different stakeholders, in particular Member States, business organisations, trade unions and other non-governmental organisations. It is very important that these stakeholders not be exclusively from the EU level, but also from the national, regional, transnational, cross-regional and local levels. Such consultation should generate and benefit from general awareness, as well as political visibility. It should foster *ownership* around the strategy. It is conceivable that a process of *ramification,* comprising a series of related Documents deepening issues in some of the identified policy domains, could be adopted at relevant levels of action, following a variable geometry.

The European Parliament should validate the Main Document and scrutinise its implementation (which entails the formulation of a monitoring/evaluation process). The European Parliament should also be actively involved in monitoring the progress achieved through specific actions.

Without relinquishing their prerogatives, and while pursuing their own strategic lines, Member States should acknowledge the added value of the EU action thus defined in the area of industrial policy. They should endorse the EU mission, which they themselves contributed to forging and validating, indeed a necessary condition for an EU industrial policy to develop and be successful. They should also throw their weight behind the recent investment plan decided at EU level to foster public and private investment.

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ANNEXES

List of stakeholders and experts consulted

Business associations:

1) EU

- Business Europe
- European Association of Craft Small and Medium- Sized Enterprises UEAPME
- European Employers' organisation representing companies of the metal engineering and technology-based industries CEEMET

2) EU / others

- European Regions Research and Innovation Network ERRIN
- European Business Network EBN

3) Member States

- GR - SEV Hellenic Federation of Enterprise
- IT – Confindustria
- FR – Confédération Générale du Patronat des Petites et Moyennes Entreprises CGPME
- POL – Lewiatan
- DE – Zentralverband des Deutschen Handwerks ZDH

Policy makers:

1) EU – European Commission

- DG Regional and Urban policy
- DG Enterprise and Industry
- DG Competition

2) EU –others

- European Economic and Social Committee EESC
- Committee of the Region CoR

3) Member States

- IT – Ministry of Economic Development
- FR – Direction Générale des Entreprises

Experts

1) Delphi-like:

K. Ainginger,	Austrian Institute of Economic Research Wifo
M. Best,	Massachusetts Institute of Technology MIT
S. Labory,	University Ferrara
L.Schrefler,	Centre d'Etudes et de Prospective Stratégique CEPS
E. Cohen,	Institut d'Etudes Politiques de Paris Sciences Po
R. Stehrer	The Vienna Institute for International Economic Studies WIIW
M. Di Tommaso	University Ferrara
D. Ciuriak	C.D. Dowe Institute
S. Schweitzer	University of California Los Angeles

2) Others: S. Coulter (London School of Economics), M Czarzasty (Warsaw School of Economics).

Country fiches

France

Key competitiveness indicators	
Rank in the World Economic Forum's 2014 Competitiveness Report:	23rd place
Industry in GDP (OECD, 2014):	12.5%
Investment rate (WB, 2014):	20%
Manufactures of merchandise exports (WB, 2014):	77%
Hi-tech products of exports (WB, 2014):	25%
Top three manufactured exports (UN, 2013):	Machinery and transport equipment, chemicals, and food and beverages
Most important export activity (UN, 2013):	Machinery and transport equipment
Total national state aid in 2012 (EC, 2013):	EUR 14.9 billion
Budget allocation for 2020 regional and cohesion policy (over 7 years) (EC, 2014b):	EUR 15.9 billion

Main policy challenges and guiding principles underlying the formulation of an industrial policy

French industrial policy after the Second World War can be divided into three periods.

The golden period of industrial policy in France coincides with the fifth republic and the late post-war period (under the De Gaulle, Pompidou and Giscard d'Estaing governments). In particular Pompidou's rule is exemplary of the state-centred or mixed economy model that was dominant in this period coinciding with quite heavy state intervention in some capital-intensive manufacturing sectors such automobiles and more traditional state monopolies such as energy, infrastructure and telecommunications (Gregory and Stuart, 2004). Grand projects that involved public procurement to serve the needs of the national markets were formulated by the state in nuclear power in 1969, telecommunications in 1974, and high speed rail in 1976 (Cohen and Lorenzi, 2000). In this period the state played the triple role of shareholder, regulator and strategist (Buigues and Sekkat, 2009), following the model that is also sometimes termed Colbertist sometimes called 'state capitalism' (Groenewegen, 1997).

Austerity hit French industrial policy for the first time in the late 1980s and 1990s (under the governments of Mitterand and Chirac) and there was a significant retreat from the former state interventionist model. Public spending related to productive economic activity in industry was rolled back by at least 50% in the early 1990s (OECD, 1998). The role of the state as a shareholder was also significantly reduced as some waves of privatisation occurred in this period (Megginson and Netter, 2001), even though the state was known to retain control, or a so-called golden veto option, in many strategic enterprises (Pezard, 1995, Bortolotti and Faccio, 2009). Hence, with the shift from sectoral towards horizontal policies there was also an attempt to gradually withdraw the state's ownership stakes in the enterprise part of the economy.

In this period sectoral and export aid was reduced to more than half its previous size (from around 51% of the state budget to around 22%), whereas horizontal initiatives such as support for R&D, regional development and SMEs was increased from 21% to around 73%

of public support towards private enterprise or state aid (Buigues and Sekkat, 2009). There was also a complete shift in focus away from dirigisme and a strategising role of the state towards a very strong focus on competition policy as the main regulating force (Cohen and Lorenzi, 2000).

With France's new industrial policy from the mid-2000s, however, there was renewed interest in the active role of the government in the area of industrial policy (Beffa, 2005). What had formerly been achieved in the area of privatisation or state withdrawal was partly reversed under recent governments. This stance has only escalated with the Global Financial Crisis (Montebourg, 2013) and many of the new industrial policy initiatives launched back in the mid-2000s under Sarkozy have been scaled up, especially since 2013 (EUROACTIV, 2013). Government funding for private enterprise and/or direct involvement via state ownership has made a significant come back, especially now in the aftermath of the Global Financial Crisis and due to bailouts directly or indirectly via the banking system.

Principal measures and arrangements

The new industrial policy was introduced in France around the mid-2000s according to Beffa (2005). Currently it comprises five pillars, the last two having only recently been added with the ambitious 34-plan programme.

The first pillar focuses specifically on innovation policy and in recent years has had a renewed focus on new industrial development. To some extent this is overlapping and complementary to the latest addition and the fourth pillar on public procurement in emerging technologies. Instruments targeting innovation policy include special types of finance for SMEs, but otherwise it is focused mostly on incentivising private R&D (EC, 2014). The French system for innovation support has traditionally had a distinctive focus on so-called hi-tech industries and/or focusing on higher value-added activities.

The second pillar has a regional aim, which to some extent coincides with regional aid under the cohesion objectives of the EU. Since 2000 France has operated quite an extensive scheme for land development in combination with industrial policy objectives named the 'Pôles de Compétitivité' (see below for more details).

The third pillar concerns support for small and medium-sized enterprises. Initially the aim was to break down barriers to financing among this group of firms. However, recently there has been a strong overlap between the first and third pillar whereby similar instruments are being used by large enterprises and already existing R&D spenders. Recently R&D tax incentives that were typically focused on the larger firms have been extended to include SMEs under the 'Young Innovative Companies' initiative (Lelarge, 2008).

According to some observers, in terms of spending, the first three pillars are still moderate elements of the new industrial policy. For example, Buigues and Sekkat (2009) explain how a lot of aid in France is still sectoral rather than horizontal, that it supports *de facto* cost-cutting rather than innovative activities and that often, in practice, it is paid out to large-scale not small-scale enterprises.

The fourth pillar, in contrast, has an entirely sectoral aim and is very much a continuation of past public procurement policies, but in the realm of new emerging industries and potential future key enabling technologies. The 34-plan programme consists of a very ambitious plan for industrial renewal in a partnership between the private and public actors (Ministry of Economy, 2013, 2014). The fourth pillar is balanced by a fifth pillar that emphasises the regulatory role of the state.

Overall France conducts both horizontal and sectoral both horizontal and sectoral industrial policy. In one sense the current system is a reflection of a gradualist revision strategy and

a very difficult political economy that has left France today with a dual industrial policy reflecting the ideals of both the mixed and market economic systems (Buigues and Sekkat, 2009).

Example of a relevant policy initiative

The initiative on competitiveness clusters in France was first announced in 2002 officially launched with a call for prospective investors in 2004 (Brette and Chappoz, 2004). The budget for the first three-year phase was €4.5 billion (Fontagné et al. 2010). According to the official website: *A competitiveness cluster brings together large and small firms, research laboratories and educational establishments, all working together in a specific region to develop synergies and cooperative efforts. Other partners may be brought in, such as public authorities, either local or national, as well as firms providing business services.* The aim of the cluster initiative is to foster innovation by building collaborative ties and synergies among different actors in the innovation system – bridging the so-called triple helix of collaboration across industry, universities (including research institutes) and local government.

Originally the intention was to build 15 focused clusters. However, due to the political economy of regional development, the funds have been diluted into what have become in practice 66 different poles or clusters across France. Basically, selection took place via a two-step system of self-selection (Fontagné et al. 2010). While the initiative aims mainly to be a place-based type of policy, targeting land development combined with place-based aspects of the economies of innovation, such as externalities and public goods, it is clear that this type of policy often ends up having a sectoral aim due to its planning character of targeting specific activities towards locating in particular areas in a top-down manner.

This is also very much true of the French cluster programme. Martin et al. (2011) offer an initial ex-post evaluation of the cluster initiative. Their study suggests that the competitiveness clusters are generally located in regions of industrial decline and benefit overtly ailing firms, and that the policy has not been able to meet productivity (innovation) targets, although there has been some effect on employment. However, the research does not address innovation outcomes explicitly, which would appear to be the main objective behind the policy.

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Germany

Key competitiveness indicators	
Rank in the World Economic Forum's 2014 Competitiveness Report:	5th place
Industry in GDP (OECD, 2014):	25.8%
Investment rate (WB, 2014):	17%
Manufactures in merchandise exports (WB, 2014):	82.5%
Hi-tech products in exports (WB, 2014):	16%
Top three manufactured exports (UN, 2013):	Machinery and transport equipment, chemicals and goods classified chiefly by material
Most important export activity (UN, 2013):	Machinery and transport equipment
Total national state aid in 2012 (EC, 2013):	EUR 11.9 billion
Budget allocation for 2020 regional and cohesion policy (over 7 years) (EC, 2014b):	EUR 19.23 billion

Main policy challenges and guiding principles underlying the formulation of an industrial policy

Germany, like the rest of Europe has its own variant of capitalism allowing for a type of competitiveness based on high wages and social cohesion policies (Streeck, 1997). The state is described as facilitating rather than directly intervening in most aspects of industrial policy. The production system that accompanies this is labelled as one of diversified quality production (Vitols, 2004). But Germany still has a somewhat strong policy tradition in this area even though it is more difficult to spot due to the high level of decentralisation that accompanies the state's facilitating role and that exists in terms of policy implementation in the federal system of semi-independent states (Buigues and Sekkat, 2009). A specific characteristic of the German variant of capitalism are the special industrial relations that are based relatively more on long contracts (for workers) or long contractual borrowing schemes via a bank-based system (for capital or finance) (Gregory and Stuart, 2013, Vitols, 1997). Another distinctive feature of the German system is the low wage (and productivity) dispersion between skilled and unskilled workers compared to the Anglo-Saxon variant of capitalism. Different issues are worth considering as background information to understand the German position vis-à-vis industrial policy.

The first issue is horizontal industrial policy-making at the state or Länder level. The states themselves are budgetary units for most of the horizontal initiatives. Typically decisions are taken at the federal level, but the responsibility for implementation rests with the Länder. The special division of power in Germany is based on a cooperative form of Federalism. This is very much driven by the philosophy that a bottom-up approach to many of the schemes under the horizontal initiatives gets the incentives right. One example is finance for SMEs where there are considerable differences across states in Germany (Buigues and Sekkat, 2009). This state-level system for horizontal support to enterprise is amongst Europe's oldest in the realm of industrial policy. In many ways it replaces the need for local land-development schemes except in the case of the new Länder in East Germany (see below).

The second issue is Germany's green party politics and the push for sustainable solutions via policies such as industrial policy. Germany was at the forefront of thinking when in 2011 it took the final decision to dismantle its nuclear-powered parts of the energy sector and

instead placed a high priority on sustainable solutions based on natural and everlasting energy resources such as water, wind and sun (Ren21, 2013). Since 1997 the red-green coalition has pushed for an ambitious renewable scheme whereby Germany is expected to run on 50% renewable energy by 2050 (Lauber and Mez, 2004).

The third issue is German unification and the break that unification caused with some of Germany's established traditions in the area of industrial policy. German unification is of interest to anyone in understanding the clashes, differences and potentials that exists also in the greater scheme of European unification today. In principle Germany is a mini-experiment for understanding the long term benefits of having East and West work together in a greater industrial plan. One of the big problems has been that West German institutions are often not transferable in any direct way to the East (Wiesenthal, 2003). At the same time East and West Germany are also different. In particular it is labour rather than capital mobility that has been the main driving force behind the unification adventure, which had very high initial adjustment costs but today must be considered a tremendous success.

However, in some respects there are also losers, e.g. the new Länder in East Germany have been left behind and are today somehow caught between the traditional German Länder system and Poland's move to market economy. The new Länder now take an approach to land development that is in fact closer to the Polish than the traditional German state level model. Other losers include the old plants (that were located in the new Länder in East Germany), with this also followed a massive migration of the most skilled human capital from East to West.

Principal measures and arrangements

Most of Germany's current measures on industrial policy fall under the horizontal approach at the decentralised or state level (Buigues and Sekkat, 2009). Recent figures from the Ministry of Finance (2014) suggest that this is continuing, however, with a stronger weight on tax breaks over time and especially tax breaks that actually relieve businesses from paying electricity duty. A new budget rule that was made binding in 2011 puts a ceiling on new borrowing for subsidies at 0.35% of GDP (Ministry of Finance, 2014). Together the implementation of the budget rule and the increasing duties on energy explain the large shift towards tax breaks in the German system. In the overall subsidy structure the most recent figures show that two-thirds of all public support is via tax breaks and only one third via subsidies that are actually paid out (Ministry of Finance, 2014). It is also estimated that tax breaks make up around 5%-6% of the total tax base in Germany.

At the heart of this approach is a three-legged system of rendering support to all firms regardless of the industry, size or background in terms of alleviating their constraints in factor markets for capital (first leg) and skills (second leg). The third leg aims to overcome barriers to private R&D spending mainly through state provided subsidies for innovative activities. Often these schemes have a particular aim of fostering R&D with start-ups and hence provide for venture capital. In practice these support systems make up a rather small amount of the total budget – e.g. in the region of maximum 2%-3% of all public support tax breaks (Ministry of Finance, 2014). Funds are channelled via Germany's two-tiered banking structure where local co-operative banks play a central role in lending to SMEs under the support schemes (Deeg, 1998). However, as previously mentioned, in the reporting from the Ministry of Finance these horizontal policies only take up a minor part of the total budget for 'Trade and Industry'. It is interesting to note that a relevant share of tax breaks go towards alleviating energy duties levied by the state. Hence, the energy policy directly or indirectly absorbs the majority share of the German budget for industrial policy. A significant part of the budget also goes towards the German Länder Thanks to the

effective reunification policies combined with EU Structural Funds, the East German Länder have an entirely different economic basis than they had 22 years ago, where SMEs now dominate the economic landscape (Ministry of Interior, 2012). However, some regions have had very high adjustment costs, which is why there is a need for continued support and new measures and policy experiments such as developing clusters (Dohse, 2007).

Example of a relevant policy initiative

One of Germany's main strategies in the area of incentivising the production and usage of renewable energy equipment is the focus on solar panels. In principle this is a strategy that aims to create a so-called lead market (Von Hippel, 1986, Beise, 2004) for an emerging technology where there are identified bottlenecks in the system for technology development, adoption and exploitation. The main barriers to technology development are the economies of time, whereby subsidising an infant industry can become efficient because of learning and externalities. The main barrier for adoption is systemic and can only typically be alleviated by the state supplying new institutional solutions that can secure the transition from one type of technology to another. Finally, the main barrier to exploitation lies more in the commercial perspective of the private investor who needs to see a business case before exploiting the technology in commercial terms, e.g. it could be households that go from being only users to both users and producers of energy in the renewable energy system. In the latter perspective it is often necessary also to offer a support price leading to excess profits before all the combined bottlenecks are overcome and a *de facto* market-based system will take off. The German renewables system aims to alleviate all three bottlenecks and is arguably modelled very much according to the experiences of the Danish windmill industry, which came prior to the development of solar panels as a commercial and viable technology (Hansen et al., 2003).

In the solar panels sector, producers have been subsidised via the Länder-based horizontal support system, a system for buying up and distributing solar-based energy has been established, and a market support price is offered to supply potential investors with a relatively lucrative business case (Gawel and Purkus, 2013). However, weak points are the facts that Germany is not the optimum location for exploiting the solar panel option in renewables from a production efficiency viewpoint and other very strong producers have been fast to emerge and take over most of global production in a very short space of time. For example, over a five-year period China moved from producing almost no solar panels for export, to serving 80% of the world market for solar panels (Ren21, 2014, www.ft.com/globaleconomy.).

However, solar panels have features that other types of renewable energy sources do not have, because the panels can be exploited for both consumption and commercial purposes by individual households. Therefore, solar panels offer entirely different types of business models for future electricity consumption. Furthermore, the acceleration in all the aforementioned relationships (development, adoption and exploitation) makes Germany the lead market in all aspects except production (which has been taken by China, see Ren21, 2014). Some estimates suggest that solar panels are about to take off as 100% market viable and may lead to supplying 30% of energy consumption in Germany within the next two years. Added to that is the very sizeable reduction in cost (mainly due to subsidized production from outside the EU), which now promises to make the technology more viable overall than initially anticipated (Schleicher-Tappeser, 2012). In 2014 renewables were estimated to supply Germany with 24% of its energy needs, the majority derived from windmills and solar panels (Ren21, 2014).

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Greece

Key competitiveness indicators	
Rank in the World Economic Forum's 2014 Competitiveness Report:	81st place
Industry in GDP (OECD, 2014):	14.2 %
Investment rate (WB, 2013):	13%
Manufactures in merchandise exports (WB, 2013):	32%
Hi-tech products in exports (WB, 2013):	9%
Top three manufactured exports (UN, 2013):	Medications, goods "not elsewhere classified" and aluminium plates
Most important export activity (UN, 2013):	Transportation and travel
Total national state aid in 2012 (EC, 2013):	EUR 1.9 billion
Budget allocation for 2020 regional and cohesion policy (over 7 years, EC, 2014b):	EUR 15.5 billion

Main policy challenges and guiding principles underlying the formulation of an industrial policy

The prolonged economic and financial crisis in Greece has made industrial policy subject to several rounds of revision (see below). The main challenge for Greece has been to maintain competitiveness whilst adopting the Euro. The underlying cause for this is that following the breakdown of the Bretton Wood system in 1972, Greece resorted to devaluations of the drachma as a way to regain short-term competitiveness (Lazaretou, 2003). From a structural viewpoint this has left Greece in a very weak competitiveness situation that is too focused and reliant on price competitiveness and lacks an orientation towards the innovative potential of the country and its industry (EC, 2014).

The concentration of industry around the capital and the port of Piraeus has been one of the main challenges for industrialisation in Greece in the twentieth century. Greece has built a relatively successful base around the country's tourism industry, which today is the main contributing factor to a positive trade balance in services (UN, 2013, WTO, 2014) and overall balanced trade. However, dependence on economic activities that are more vulnerable to crises and to exchange rate movements, such as tourism, has recently pushed Greece to consider measures of selective intervention aimed at reindustrialisation (OECD, 2011). Thus, traditional industries such as food and machinery have been on the rise during the crisis. Despite this, there has been a constant and quite significant decline in manufactured exports especially since 2009 (WB, 2014). The fastest growing export items during the crisis were natural resources such as oil, fish and agriculture (UN, 2013).

The country is in a situation where temporary measures are sought that can help to put momentum into building a stronger and more export-oriented manufacturing base. Manufactured food products, pharmaceutical products, textiles and machinery for traditional industries such as food and textiles, are some of the areas that Greece can build on and seek to upgrade (WTO, 2014).

Principal measures and arrangements

The most important measures of industrial policy are: 1. to reduce energy costs in Greek industries; 2. to enhance the business environment for entrepreneurs; and 3. to connect scientific research with the production side of the economy (GL Digest, 2012). For example, business sector R&D is among the lowest in the EU (OECD, 2010). Another important

contemporary initiative concerns the introduction of spatially targeted and differentiated investment subsidies. This initiative was also followed up by the new Investment Incentives Law (see below).

Some of the above measures are implemented through the following investment incentives:

1. A general 100% tax break for all entrepreneurs irrespective of sector.
2. Regional cohesion aid for up to 70% of the investment (maximum allowance) (see also below).
3. Technological aid for up to 80% of the investment.
4. Youth entrepreneurship (20-40 years old) is supported by 100% of the investment and by up to €1 million for the first five years.
5. Large investors are subsidised by up to 60% of the investment.
6. Initiatives targeting the technological, administrative, organisational and business modernisation of existing enterprises are supported by up to 100% of the investment.
7. Partnership and networking initiatives leading to the formation of clusters (at least five or ten firms depending on the region) can also seek support for up to 100% of the investment (GoGreeceNow, 2014).

In short, very generous investment subsidies are available for almost any type of business investment, whereas tax incentives in Greece currently target only entrepreneurs.

The recent trends and initiatives related to industrial policy in Greece suggest that the country is seeking to align its policies with the horizontal policy stance of other EU countries, where the emphasis is on the areas of capital, land and institutions, related to entrepreneurship policies and alleviating barriers to finance among SMEs.

If policy has been selective in Greece it has been towards activities within the areas of technology and energy in particular.

Example of a relevant policy initiative

Greece's new investment incentive law includes a plan for regional cohesion. Given that Greece has been a long-term recipient of EU Structural Funds since becoming a member of the EU in 1981, this should be seen rather as a revised version of old cohesion plans and investment subsidies than a new initiative (Filippaios and Kottaridi, 2004, see also OECD, 2011 for an initial assessment)).

Greece offers a graduated scheme by both investor size (small, medium and large) and by region (A, B and C development level). Subsidies through these two dimensions vary typically from 15% to 50% of the investment. The ceiling for maximum allowable public support is 70% of the total investment for re-investors and 80% for new investors. The target group for subsidies under this scheme is investors that address local needs or capitalise on local competitive advantages.

In relation to this initiative focusing on regional cohesion, Greece has applied to the EU Commission to be allowed to adopt a policy similar to the Polish and British, using special economic zones as leverage in the endeavour to attract more investment into the country. However, it is uncertain whether the EU Commission will allow Greece to adopt the zones policy. It seems the present allowance discussed above towards regional cohesion and clusters is based on investment subsidies alone, whereas a tax incentive scheme as applied for would make public support a more permanent or built-in feature of the system.

Despite the generous public support for investment in Greek regions, over time the results of the incentive schemes have often been quite modest (Filippaios and Kottaridi, 2004). This also suggests that the current and revised plan for creating more regional cohesion with the new law of 2011 is likely to be futile unless it is combined with new and more radical plans for solving some of the fundamental problems of investors such as their need for transparency, rule of law and better provision of public goods including infrastructure (EC, 2014).

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Italy

Key competitiveness indicators	
Rank in the World Economic Forum's 2014 Competitiveness Report:	49th
Industry in GDP (OECD, 2014):	18,4% (2012 figure)
Investment rate (WB, 2014):	17%
Manufactures of merchandise exports (WB, 2014):	82%
Hi-tech products of exports (WB, 2014):	7,07%
Top three manufactured exports (UN, 2013):	Machinery and transport equipment, goods classified chiefly by material, miscellaneous manufactured
Total national state aid in 2012 (EC, 2013):	5,7 bn euro
Budget allocation for 2020 regional and cohesion policy (over 7 years) (EC, 2014b):	44 bn euro

Main policy challenges and guiding principles underlying the formulation of an industrial policy

During the 1950s and 1960s, the North of Italy faced a period of rapid growth – the so called "economic miracle" – during which the industrialisation process started. The leading instruments for Industrial Policy included state-owned enterprises, public holdings (in the 1950s) and a (government controlled) credit system in the 1960s (Rota, 2013). In particular, the development model in the South was characterised by the establishment of capital-intensive and large-scale (state-owned) industries (e.g. chemicals and metallurgy), which – due to their size and product specialisation – remained isolated entities and only in a few cases were able to create links with local SMEs. In the Centre-North the development of the mechanical and metallurgical industries allowed for a more diversified and balanced structure with small firms able to compete and cooperate thanks to a flexible organisational structure that facilitated their coordination, such as the district.

At the end of the 1960s dramatic changes affected the country in terms of the prices of labour, raw materials and energy. The South suffered most because of the inability of large firms to react quickly to external shocks. In contrast, the Centre-North was able to adapt to the new macroeconomic scenario thanks to the flexibility of the SME system.

In the 1970s while the other advanced European countries' strategies and merger alliances were creating large conglomerates able to compete in the oligopolistic European markets, the priorities of Italian industrial policy were to support firms in crisis and to enlarge the sphere of public sector intervention. This approach also continued in the 1980s.

In the 1980s and 1990s, the indications of the EC (e.g., the creation of a competitive environment with minimal government intervention and horizontal measures) had a significant impact on the way in which industrial policy was formulated in Italy. The Italian productive system experienced a deep regulatory reform from the 1990s onwards, characterised by a large privatisation programme (Bianchi Labory 2011)[81]. Also, direct subsidies and state aid decreased over the period 2002-2011 by around 70%

[81] On this occasion, the Institute for Industrial Reconstruction (IRI) was closed down. It was founded by the fascist government in the 1930s and played the role of a holding, owning most of the industrial system.

(Di Maio, 2013)[82] while the objectives pursued by state aid changed over the years, by shifting from supporting the accumulation of capital to promoting R&D and internationalisation activities.

The current approach recognizes different weaknesses of the industrial system that should be addressed:

1) the size of firms: Italy has a strong prevalence of micro-companies of fewer than 10 employees (46.1% of employment, compared to the EU average of 28.7%, see EC, 2013), a source of concern since firm size is strongly correlated with export-orientation and innovation.

2) the financial structure of SMEs, which are less capitalised than in other countries, a factor limiting SMEs dimensional growth and their capacity to make investments in new products and technologies.

3) the relatively underdeveloped Italian venture capital and private equity market, forcing SMEs to rely more on short-term borrowing than in other countries.

Principal measures and arrangements

Only recently has a structured national vision for industrial policy been developed in Italy, with the "**Industria 2015**" programme. Launched in 2006, the programme has brought to the forefront some issues reflected in the communications and initiatives recently adopted by the European Commission, such as the central role of the manufacturing sector and of technological innovation, as well as the aggregation and the creation of networks. The two specific objectives of the Programme are: *i)* to develop industrial activities in the field of high technology; and *ii)* to upgrade and strengthen SMEs through research and technical development, reduction in costs, promotion of investments, and increase in size. The two main pillars of the strategy are: 1) the deregulation of the service sector (e.g. insurance companies, banks, distribution, etc.) with the objective of promoting more competition in those sectors and improving productivity, 2) a national innovation policy strategy whose objective is to coordinate the policies of each region and to create five areas of economic activity (see below). The "Industria 2015" programme makes use of three innovative instruments: 1) *Projects for industrial innovation*; 2) *Networks of enterprises*; 3) *Innovative finance*.

At the end of 2013 the Italian Court of Audits declared the failure of the "Industria 2015" programme[83]. Six years from its launch only three projects (Energy Efficiency, Sustainable Mobility and Made in Italy) - out of the 303 presented - had received funds. Only 3% (€24 million) of resources allocated to the programme (around €800 million) had been spent. According to the Court's Assessment, the success of the programme was encumbered by administrative burdens (23-25 months to get an admission decree), the instability of the programmes (continuous changes of schedule), and the scarcity of necessary resources (inconsistency between technical and administrative data). Further challenges to the implementation of the programme included the economic crisis and institutional instability. The programme has faced a reduction of available resources (around €663 million reduced to €200 million) under the present government and is currently 'frozen'.

[82] Di Maio, M. (2013), *Industrial Policy in Italy: History, Results and Future Challenges*.

[83] http://www.ilsole24ore.com/art/notizie/2013_12_23/industria_2015_corte_conti_boccia_fondo_la_competitivita_e_sviluppo_154247.shtml?uuid=ABvI2nl. http://www.ict4executive.it/pmi/approfondimenti/industria-2015-i-numeri-di-un-progetto-mai-decollato_43672152463.htm.

In addition to "Industria 2015", there other measures worth mentioning including the Italian Investment Fund (*Fondo Italiano d'investimento*)[84] created in 2010 in order to support the capitalisation of SMEs, and the Central Guarantee Fund (CGF), introduced in 2000 with a loan guarantee programme to provide guarantees for SME loans granted by banks or Mutual Guarantee Institutions.

Example of a relevant policy initiative

The Mechatronics Technological Cluster in the province of Bari is a successful example of implementation of a place-based approach in Italy. It develops out of a long-standing industrial tradition in precision mechanics. Having identified mechatronics as a promising path to increase the competitiveness of Apulian firms, in 2007 the independent agency ARTI promoted the establishment of the Mechatronics Technological Cluster, a body named MEDIS. MEDIS involves private enterprises and universities that collaborate for the development of pre-competitive enabling technologies that are sufficiently generic to find application in a variety of sectors (from automotive to biomedical, among others), and that do not directly lead to commercially exploitable results. For the period 2011-2015 MEDIS decided to focus its activities on specific intervention areas, selected after a consultation process with its members and ensuring coverage of all their activities. MEDIS received in 2007 a first grant of €3 million from the Italian government for university research. In 2011 and 2012 the central government approved a further €50 million contribution. The projects started in 2012 and involve both public and private members. They are expected to be concluded by the end of 2015.

Existing quantitative evidence about the number of spin-offs generated and the number of patents and utility model applications submitted (changes in the functionalities of already existing processes or products), suggest that significant progress has been made since 2005 (Florio et al. 2014). One of the lessons drawn from this initiative is that the *development of Key Enabling Technologies* (KETs) - cross-cutting pre-competitive technologies, which in principle could be applied to a variety of sectors - favours the diversification of the industrial basis and maximises the utility of generated knowledge. The types of technology on which to focus the research and innovation efforts should be driven by the local industrial tradition, and selected through a participatory approach. This happened in the case of the Apulian mechatronics cluster, thanks to the initial important role of facilitator played by the regional agency ARTI.

[84] http://www.dt.tesoro.it/en/news/attivita_2011.html.

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Poland

Key competitiveness indicators	
Rank in the World Economic Forum's 2014 Competitiveness Report	43rd place
Industry in GDP (OECD, 2014)	24.6%
Investment rate (WB, 2014)	19%
Manufactures in merchandise exports (WB, 2014)	77%
Hi-tech products in exports (WB, 2014)	7%
Top three manufactured exports (UN, 2013)	Parts for cars, Cars and TV sets
Most important export activity (UN, 2013)	Transportation and Travel
Total national state aid in 2012 (EC, 2013)	EUR 2.7 billion
Budget allocation for 2020 regional and Cohesion Policy (over 7 years) (EC, 2014b)	EUR 89 billion

Main policy challenges and guiding principles underlying the formulation of an industrial policy

Polish industrial policy in recent times can be divided into three periods. The first period was under socialism leading up to Poland's transition from a centrally planned to a market-based economy in 1990. The second was under the new market economy until Poland became a full member of the EU in 2004. The last period is post-EU membership. Each period is marked by turbulence and shifting priorities due to the forthcoming changes that are overshadowing the investment climate and hence also the business environment within which industrial policy is conducted. Only very recently could Poland be described as having reached a stable political environment and market economy within which a modern industrial policy can be meaningfully formulated.

It is against the historical background of a centrally planned system that we should try to understand the reformation of industrial policy and in particular industrial relations in Poland. In some respects the 1990s and early 2000s took Poland very suddenly from a centrally planned economy to a market-driven economy (Poznanski, 1993). In this period, industrial policy was caught between different currents that moved Poland *de facto* more towards a mixed type of economic system with quite heavy state ownership in some sectors. Thus Poland came to resemble France in its industrial system and relations, Germany in terms of trying to decentralise decision-making to the regional level, and the UK in its austerity, central banking and financial systems (Gregory and Stuart, 2013). In terms of industrial policy, there was very heavy emphasis on attracting foreign direct investors (Jensen, 2001). It is the foreign investors and not the state that are starting to pick the winners in Poland. At the same time the problem for indigenous ownership and development is that there are very few capable local industrialists with the necessary capital and know-how to privatise the rest of the firms. This is one reason why the state prolonged the privatisation process for many of the industries that are considered either to be failing or declining or, at the other extreme, some of those considered to be Poland's most strategic (e.g. in particular natural monopolies and those related to the financial sector) (Baltowski and Mickiewicz, 2000). This new economy and entirely market-based system was fully cemented or stabilised only in 2004 when Poland's EU membership became a reality. The country was then considered prepared to compete fully on the free Internal Market. EU accession provided Poland with access to new avenues of funding for industrial policy such as the Structural Funds.

Some of the main challenges facing Poland today are the very low employment rate and the continuous significant structural bottlenecks in the labour market. Other challenges include insufficient market competition and heavy barriers to entrepreneurship (EC, 2014). Many industries are also marked by the extensive and continuous involvement of the state (such as networked industries or natural monopolies) either via prolonged privatisation procedures or golden veto provisions (Egert and Goujard, 2014). Further challenges are strengthening competition policy and improving public procurement procedures. The old debates on industrial relations have resurfaced with the financial crisis (Czarzasty and Owczarek, 2012). The innovation system is also characterised by different weaknesses. Poland is specialised in specific segments of industry which typically include a strong focus on past industrial strengths, cost structures and large investors, while relatively less attention is paid to SMEs, upgrading of past strengths and the emergence of new ones via innovation (Jensen and Winiarczyk, 2014, Wyznikiewics, 2012). There is now a debate about the more strategic need for an industrial policy to push such concerns. However, the EU seems to be the main driver due to the significant weight of structural funding in Poland.

Principal measures and arrangements

Besides continuous state ownership or golden veto provisions in some sectors of the industry, the principal measures and arrangements in Poland regarding active industrial policy take two forms that are not directly related to specific government formulated plans for an industrial policy[85]. The first main measure that can be identified is Poland's monetary and exchange rate policy, where the principal aim of NBP (nbp.pl) has been to keep the exchange rate competitive, maintain low inflation and also keep increases in labour costs to a moderate level. The other principal measure is related to Structural Funds spending in Poland. Typically, local, provincial or state government will be actively involved in co-investment related to Structural Funds spending. Hence, the priorities established for the Structural Funds programmes for Poland in the previous and present budget period (as set out in the partnership agreements between the EC and each Member State, e.g. as in EC, 2014c for Poland) *de facto* are the main investment factor contributing to industrial policy in Poland (see also Sluzarczyk, 2009 for a presentation of horizontal policy under Poland's first budget period 2007-2013; it is clear that this is entirely driven by the EU priorities in the area of industrial policy).

Example of a relevant policy initiative

The Special Economic Zones (SEZ) policy was first introduced in Poland in 1994 (Jensen and Winiarczyk, 2014). The SEZ policy was typically targeted at high unemployment regions at the outset of transition. The *ad hoc* construction of SEZs came about to help alleviate the situation and attract new employment opportunities, new technologies and investment, with the aim of building a new export base. The Special Economic Zones Act of 1994 set out the following policy objectives: 1) to develop the designated areas of economic activity, 2) to facilitate technology transfer to the zones, 3) to boost exports from the designated areas, 4) to increase the competitiveness of the goods and services produced, 5) to develop the existing industrial make-up and upgrade the economic infrastructure, 6) to create new places of employment and 7) to facilitate the adoption of sustainable technologies and energy sources.

[85] This strategy has yet to be finalised and published, but it is expected to be closely related to the forthcoming partnership agreement with the EC under the Cohesion Policy.

Over time the policy has been subject to many revisions including a constant enlargement in territorial terms, changes in specific rules concerning tax incentives, and changes in the transitory regime when the policy is expected to be phased out. Just recently the original deadline of 2017 for when the incentives had to be phased out, which was established upon Poland's joining the EU, was extended to 2026. For example, the initial idea of keeping the zones strictly concentrated to the very localised and originally designated areas was rejected in 1997, mainly for political reasons (KPMG 2009, Gwosdz et al., 2008). Subsequently, local governors, including zone administrators and also, in some cases, indirectly the foreign investors themselves, have been able to bargain for the policy to be applicable to areas adjacent to the original zones, thus over time the zones have become mobile. In other words, a supply-side policy, in terms of locations offered to potential investors with special incentives, developed into a policy that became dominated more by a set of demand-side processes, and the geographical delineation of the SEZs became fuzzy.

What was originally seen as a redundant supply of industrial land for development changed into a *de facto* demand for incentives to develop land (and sometimes now inclusive of existing state-owned enterprises) that was otherwise under threat of becoming redundant. Finally, with Poland's accession to the EU in 2004 many of the same regions became eligible for EU Structural Funds. The issue is whether SEZ policies and Structural Fund policies will lead to stand-alone development once the policy and public support scheme are phased out. Jensen and Winiarczyk (2014) document how the zones policy has been moderately successful in some of its development objectives such as new business formation and attraction of FDI.

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United Kingdom

Key competitiveness indicators	
Rank in the World Economic Forum's 2013 Competitiveness Report:	9th place
Industry in GDP (OECD, 2014):	14.6 %
Investment rate (WB, 2013):	15%
Manufactures in merchandise exports (WB, 2013):	66%
Hi-tech products in exports (WB, 2013):	22%
Top three manufactured exports (UN, 2013):	Machinery, cars, goods not elsewhere classified, and chemicals
Most important export activity (UN, 2013):	Machinery and cars
Total national state aid in 2012 (EC, 2013):	EUR 4.9 billion
Budget allocation for 2020 regional and cohesion policy (over 7 years):	EUR 12 billion
Estimated dependency ratio:	0.3

Main policy challenges and guiding principles underlying the formulation of an industrial policy

The UK is now very actively involved in the formulation of an industrial policy or what the UK government announces as the country's official 'industrial strategy' (BIS, 2014, House of Commons, 2014). The revival of industrial policy in the UK in the aftermath of the financial crisis can be seen as a reflection of lessons learned from past waves of industrial policy in the UK (Crafts and Hughes, 2013).

A series of labour governments in the 1950s and 1960s left the country with the perception of a history of picking winners that had gone wrong. Margaret Thatcher phased out the selective policies in the 1970s and horizontal policies were also downsized with privatisation, the main priority in the 1970s and 1980s. A renewed focus was placed on more traditional measures of competitiveness, such as monetary and exchange rate policy (Griffiths and Wall, 2004).

After EU membership in 1973 state aid fell considerably from 3.8% of manufacturing GDP to less than 1% (Crafts and Hughes, 2013). With EU membership also followed a strengthening of competition policy and an abandonment of protectionism. Labour governments since the late 1990s have introduced strengthened measures of R&D policy intact to the Thatcher stance of minimalist horizontal industrial policy combined with traditional monetary and exchange rate policy (Griffiths and Wall, 2004). Investments in public goods vital to private enterprise suffered the most during these decades. In the twenty-first century there has been a strong shift towards emphasising innovation and SMEs in the UK, and in particular targeting their barriers to growth via factor markets (access to finance and skills) (Crafts and Hughes, 2013, EC, 2014).

In recent years and especially in the aftermath of the financial crisis, the main challenge for UK competitiveness has been a slowdown in productivity, investment, trade and the overall growth of the business sector. Impetus, in terms of employment growth and innovation, is described as having shifted from larger firms to SMEs over the period of transition towards the UK opening up to much freer competition on world markets (BIS, 2012a). Hence, a particular challenge for policy seems to be the redirection of

initiatives to the new population of firms that drive growth. In this respect a major problem in the UK is the relative decline in business sector spending on R&D, making the UK the second lowest performer in R&D intensity in the G7 (BIS, 2012a, EC, 2014). This has encouraged the UK put a strong focus on R&D tax incentives for businesses in an initiative that is described in more detail below.

Principal measures and arrangements

The aim of the current industrial strategy in the UK is to build confidence in the UK economy and to secure investment and growth. Specifically the government has the following objectives (BIS, 2014, House of Commons, 2014):

i. to develop strategic partnerships between government and industry;

ii. to support emerging technologies;

iii. to improve access to finance for businesses;

iv. to work with businesses to help them develop the skills businesses need;

v. to publish government contracts (e.g. for public procurement) in order to provide confidence for business investment.

The key documents that spell out these strategies are: The Plan for Growth (BIS, 2011), the Growth Review (BIS, 2010), and Lord Heseltine's report on UK Competitiveness entitled 'No Stone Unturned' (BIS, 2012b). Most of the above measures work by using direct subsidies, creating improved finance access schemes, education or developing public-private partnerships. Subsidies are estimated to be a minor element except for land and industrial development in the more rural areas. The exact size of the budget for this type of state aid is unknown. Overall state aid in the UK is at the low end of spending in the EU at around 0.3% of GDP.

A specific report spells out the priorities related to the more sectoral aspects of the current UK industrial strategy (BIS, 2012c). Sectors under priority for government subsidies, investments and private-public partnerships include advanced manufacturing activities such as aerospace, automotives and life sciences, knowledge-intensive trade services, and enabling sectors such as energy and construction.

Most of these measures are horizontal in character and broadly target the different domains of industrial policy. In addition there is a specific R&D tax incentive scheme in place in the UK (as described below) that is administered by the Department for Revenue and Customs (RC, 2014), and the initiative of April 2012 to build special economic zones in the UK (Communities, 2014).

The zones initiative focuses on the domain of land development in relation to securing regional cohesion in the UK, whereas the other horizontal initiatives residing under the BIS economic zones initiative are organised by the Department for Communities and Local Government. The specific instruments used in relation to the zones initiative involve various tax reliefs, the most important being up to 100% business rate discount for the first five years, and in addition up to 100% enhanced allowances on initial capital expenditures (Communities, 2014).

Example of a relevant policy initiative

Since the late 1990s the UK has operated a scheme of R&D incentives that targets both the intensive (existing R&D spenders or large firms) and extensive (new R&D spenders or SMEs) margin of innovation (RM, 2014)

As of April 2012 SMEs can apply for a super deduction with up to 225% relief (up from 150% since 1 April 2008) from corporate taxation owing to R&D expenditure. In practice no minimum or maximum applies. The SME scheme (under this scheme a firm is considered an SME as long as it has fewer than 500 employees) has higher rates of relief. Effectively this means that for every £100 of R&D expenditure the company can save up to £225 in income tax. In some circumstances a credit is also payable, but at a maximum of £25 per £100 spent on R&D, and if the firm is making a loss.

If the company is not an SME it can apply for a super deduction (but never a credit) under the large company scheme. Large companies have to spend at least £10,000 a year on qualifying R&D costs. The rate has been 130% for large companies since 1 April 2008. Losses can be carried forwards and back.

To benefit from the R&D tax relief the company applying for it must make the case that the R&D investment is *de facto* targeting scientific and technological advance or innovation that goes beyond the firm itself, e.g. the investment should qualify in principle as an innovation that is new to the world and thus contributes to an advance in the global stock of scientific and technological knowledge. If the company receives a subsidy or grant towards meeting the R&D expenditure it will typically not be eligible for R&D tax relief on the same expenditure.

An official evaluation of the UK tax incentive scheme was conducted for the first time in 2010 (HMRC, 2010). The findings suggest that public spending via tax incentives crowd in R&D investment by a factor of 2. However, the evaluation found no evidence of specific R&D projects that were started up because of this particular channel of funding. Another positive finding was that 30% of the firms surveyed were newcomers to the group of small and medium-sized firms that spend money on R&D. Moreover, 90% of these companies were found to belong to the hi-tech start-up category. The same report estimates that the total annual budget for R&D incentives in the UK amounts to around 0.08% of national GDP. Hence, this can be considered to be an indirect form of state aid that makes up around 20% of the total UK budget for state aid before counting funding received from the EU (EC, 2013).

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