



The Open Method of Coordination in the European Research Area: A New Concept of Deepening Integration?

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New modes of governance such as the open method of coordination (OMC) have gained much attention to develop the European polity more effective and more democratic. The Lisbon European Council in 2000 and the succeeding Councils applied the OMC to several policy areas and it is now considered an important new governance mode. However, assessing a ‘lack of application’ — as compared to what the European Commission has been initially expected — in the case of the European Research Area, this article questions the method as it is currently applied as a general tool to improve effectiveness and legitimacy in European policy-making. We argue that the boundaries for applying the OMC mainly stem from the multi-level character of the policy field, the structural diversity of national innovation systems, as well as from varying system performances and their competition for resources. Our conclusions point to the conditions to enhance effectiveness and legitimacy of European Union governance — that is, to deepen integration — by open coordination.

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Introduction: the OMC as a New Concept of Deepening Integration?

Propelled by challenges of globalization and enlargement, the European Union (EU) is in search of new modes of governance in order to develop the European polity in a more effective, more efficient and more democratic way (e.g., Jørgensen, 1997; Kohler-Koch and Eising, 1999; European Commission, 2001a; Héritier, 2001a; Jachtenfuchs, 2001). New modes of governance avoid the classical form of legislation through directives and regulations as they are ‘guided by the principles of voluntarism (non-binding targets and the use of soft law), subsidiarity (measures are decided by Member States), and inclusion (the actors concerned participate in governance)’ (Héritier, 2001b, 3). Consequently, new modes of governance are characterized by new actor



constellations as well as new steering modes such as learning, arguing and persuasion, repetition and setting positive incentives (Börzel and Risse, 2005).

Policy coordination representing such a new mode of European governance was for the first time codified in the Maastricht Treaty in the field of fiscal policy. In 1997, the application of policy coordination was further extended to economic and employment policies. The Lisbon European Council in 2000 introduced an open method of coordination (OMC) to a number of other policy areas, such as innovation policy. Since then, the expansion of policy coordination in European politics has attracted much attention especially in the academic field. Most authors judge the OMC as an important new mode of governance (Héritier, 2001b; Hodson and Maher, 2001; Regent, 2003; Borrás and Greve, 2004), or have even argued that the OMC could prevent the EU from ‘overstretching’ its resources and capabilities in policy areas in which the Community is heavily engaged in the implementation and management of policy measures even at the regional or local level, as in the case of structural policies. With the OMC in place, the EU would be able to reduce its density of regulations by using framework directives that allow for different transpositions at the national or sub-national levels ‘in the shadow of legislation’ (Scharpf, 2001a). Besides this efficiency argument, several authors found that policy coordination is a serious alternative to the Community method of integration because of its potential to improve policy output — thus enhancing the output-legitimacy of the EU — while relying on the legitimacy basis of the national policy process — thus enhancing the input-legitimacy of the EU (e.g., De la Porte *et al.*, 2001; Scharpf, 2001b, 2002). Additionally, authors argued that ‘it offers an answer to the challenge of democracy in Europe’ because it ‘relies on local deliberation’ (Eberlein and Kerwer, 2004).

According to the European Commission (2002a, 236), however, the open method of coordination may especially deepen integration in three cases: first, in areas touching upon national identity or culture which are closely tied either to constitutional or historical peculiarities of a Member State, for example, education; second, where national legislation and structures are too diverse or too complex to be harmonized (e.g. social protection, employment); third, policies where Member States are reluctant to embrace common legislation immediately, but do have the political will to take some steps towards a common objective, for example, asylum or immigration. Indeed, EU Member States seem to apply the OMC preferably to policy areas that are ‘half way’ to being ‘communitarized’. In such policy areas, decisions are taken at the EU level, the national level and to a varying degree at the sub-national level.

Innovation policy has been declared a central element of the Lisbon strategy, which is aimed at making Europe ‘the most competitive and dynamic knowledge-based economy in the world’. Since the mid-1980s, innovation policy has gradually acquired multi-level characteristics since the European



Union has not only increased its efforts to support research and development (R&D) at the European level but also broadened its efforts towards a more comprehensive innovation policy financing related activities even at the regional level (cf. Peterson and Sharp, 1998; Borrás, 2003; Kaiser and Prange, 2004a). Integration will continue as the EU plans to establish a European Research Area (ERA) applying the OMC as the main instrument of vertical policy coordination in order to achieve greater convergence of innovation policies at different territorial levels 'to the main EU goals' (European Commission, 2000a). However, it is debatable whether the OMC can be interpreted as a first step towards a genuine Community dimension, although policy coordination among the EU Member States comprises a variety of instruments designed to foster compatibility, consistency and convergence of national choices with a view to deeper European integration (European Commission, 2002a, 237).

As for now, the contribution of policy coordination to the achievement of the Lisbon goals has been very weak. A most recent report presented by a High Level Group established for the mid-term review of the Lisbon Strategy (European Communities, 2004) concludes that 'the open method of coordination has fallen far short of expectations', especially because the Member States did not enter the spirit of peer pressure, mutual benchmarking and the exchange of best practices. In order to overcome existing deficits, the High Level Group proposed a radical improvement of the process in a way that allows for 'praising good performance and castigating bad performance' by naming, shaming and faming. Moreover, the Group recommended using budgetary incentives to encourage member state achievement of Lisbon targets (European Communities, 2004, 42–43).

In this article, we argue that Member States' reluctance in the application of the open method of coordination comes neither as a surprise nor is it likely that increasing political pressure or budgetary incentives will significantly change their behaviour (also Kaiser and Prange, 2004a). By focusing on the application of the OMC in innovation policies, we will show that this reluctance is rooted in the following specific characteristics of the policy field: (a) the multi-level character of the policy field, (b) the structural diversity of Member States' national innovation systems,¹ and (c) the variations in Member States' innovative performance including their competition for resources. Furtheron, we seek to reveal central boundaries for applying the OMC to innovation policies. Here, we do not strictly question open policy coordination as a tool to improve coherence and consistency between Member States' policies. However, we will conclude that increasing political pressure and budgetary incentives are not suited to reach this goal. Instead, we will identify four preconditions that have to be met for a more effective use of policy coordination in EU innovation policies. These are the requirements of



more precise benchmarking tools, the conversion of open policy coordination from a top-down to a bottom-up method, the preference for ‘market coordination’ (i.e. actors behaviour is conditioned upon the rules of the market) rather than ‘policy coordination’, and the notion that open policy coordination should reflect the specific functions different government levels have in an innovation system.

The following section, confronts the ‘ideal-type’ OMC (Radaelli, 2003, 18) with actual measures taken in innovation policies. In the third chapter, we unfold our argument by revealing and explaining those central boundaries that contributed to a ‘lack of application’ of the OMC. The final section draws some conclusions by setting out the preconditions for applying the OMC to innovation policies. We will recommend ways on how to reconcile an efficient use of the OMC with the boundaries for its application we have been identified in chapter three.

Open Coordination of Innovation Policies in Europe: Ideal-Type vs Real Measures

While policy coordination is not unprecedented in the European Union, the open method of coordination was codified for innovation policies at the Lisbon European Council in 2000. According to the Presidency Conclusions (2000, point 37) the method comprises four central instruments:

- (i) guidelines for the Union combined with specific timetables for achieving the goals that they set in the short, medium and long run;
- (ii) establishing performance indicators and benchmarks against the best in the world and tailored to the needs of different Member States and sectors as a means of comparing best practice;
- (iii) translating these guidelines into national and regional policies by setting specific targets and adopting measures, taking into account national and regional differences;
- (iv) periodic monitoring, evaluation and peer review organized as mutual learning processes.

Additionally, the OMC implies three principles: it is intended to be ‘open’, it is legally ‘non-binding’, and based on peer-pressure. First, it is intended to be ‘open’ because it allows for kinds of different implementation in different policy areas, the method leaves it to the Member States to implement coordination defined at the European level, and the development of this method in its different stages should be open to the participation of civil society actors. Taking these points into account, the OMC can also be seen as a more flexible instrument, leaving broader space for closer cooperation between Member States that wish to pursue deeper integration. Second, the OMC is



‘non-binding’ because the defined goals are not mandatory, and non-performance, measured through benchmarking indicators, peer review, and monitoring, is not accompanied by sanctions (cf. Héritier, 2001b, 9). However, one could argue that it is more than simple cooperation, since it contains the intervention of Community authorities and the methods of soft regulation mentioned above. Even more important, multilateral surveillance and the fixing of common targets put pressure on the Member States to achieve these targets (e.g., Regent, 2003, 203). Third, the OMC is similar to policy transfer and diffusion through a process of mutual learning based on peer pressure (Radaelli, 2000; Hodson and Maher, 2001, 727). Hence, the OMC could favour a bottom-up approach to convergence in which ‘governments study each other’s different methods, gauge the success of various policy alternatives and mimic best practices employed elsewhere’ (Bomberg and Peterson, 2000, 6).

In the case of innovation policies, the rationale behind the application of the OMC is that public policy actors at the European, the national, the sub-national and even the local levels should become more involved to ensure that their measures taken are mutually consistent. Under this premise, innovation policies implemented at various levels in Europe are expected to become considerably more integrated in a multi-level governance structure. The open method of coordination can be characterized as a two-dimensional process that is primarily based on a continuous benchmarking of national innovation policies against best performing countries (i.e. major competitors) in the world. Accordingly, benchmarking firstly serves to identify specific needs that exist for individual Member States or industrial sectors (horizontal dimension). In order to overcome existing deficits of national innovation systems, benchmarking also refers to best practices that have been successfully implemented elsewhere. Secondly, on the basis of the benchmarking results, EU Member States might agree on common European guidelines that have to be translated into specific short-, medium- or long-term targets for national and regional innovation policies (vertical dimension). Consequently, those guidelines concern measures that are designed to strengthen coherence of innovation policies at different territorial levels and to improve Europe’s innovative performance in general. The whole process is accompanied by periodic monitoring, evaluation and peer-review pursued under the auspices of the European Commission (European Commission, 2000c, 16).

The responsibility to enforce the method lies both with the European Commission and the Member States. Whereas the Commission is primarily engaged in the establishment of an institutional framework for coordination and the publication of quantitative performance data and qualitative issue-oriented assessments (European Innovation Scoreboard; European Trend Chart on Innovation), the Member States are responsible for the creation of



'internal' coordination mechanisms both horizontally between the respective governmental departments and vertically between the national and the regional administrations. This means, that local and regional actors are not directly involved in the coordination process at the European level.² As a consequence, vertical implementation of the OMC in innovation policies largely depends on the existence of coordination mechanisms within Member States and the willingness of subnational actors to comply with targets, which have been defined at the European level.

However, since the year 2000 coordination in innovation policies has been clearly focused on benchmarking of Member States. This process has been institutionalized through the establishment of a High Level Group (HLG) of national representatives nominated by the Ministers in charge of research. Together with the Commission, the HLG coordinates four benchmarking expert groups responsible for specific themes. In a first cycle of benchmarking exercises (September 2000 until January 2003), activities were concentrated on human resources, public and private R&D investments, the impact of R&D on competitiveness and employment, productivity in science and technology, and the promotion of an R&D culture. These topics have been discussed with national experts in a number of workshops in order to identify implications for national R&D policy planning. However, the benchmarking activities revealed that the same national problems very often have different causes that can hardly be assessed by quantitative data (European Commission, 2002b). Consequently, benchmarking of national innovation policies still suffers from a lack of qualitative indicators suited for illustrating the diversity of the institutional environment in which innovation processes and performers are embedded.

The second benchmarking cycle is dedicated to vanquish these deficits by placing emphasis on so-called 'intelligent' benchmarking (cf. Lundvall and Tomlinson, 2002). The benchmarking process will take a systemic approach and broadens its scope in a bifocal perspective. First, all aspects that may have an impact on the success of innovation programmes, such as the education and research systems or the modes of financing innovation, will be included. Second, policy areas that have at least an indirect impact on the behaviour of actors in the innovation process, such as education and tax policies, will be taken into account. This benchmarking model better acknowledges the context-specific variables that are responsible for 'best practice'-solutions. Moreover, it will likely demonstrate that the success of innovation policy especially depends on local particularities and specific modes of interaction among actors. Such a perception would militate in favour of a 'bottom-up' benchmarking process, in which actors, innovative clusters or industrial sectors benchmark themselves with respective units on a European or even global scale.



Apart from benchmarking exercises, the application of the OMC in innovation policies has led to the formulation of a strategic goal to be achieved by the Member States. The Barcelona European Council in March 2002 agreed that, by the year 2010, Member States invest at least 3% of their GDP in research and development. Moreover, two-thirds of this investment should be provided by private sector industry. The Commission reacted to the Council's decision by drafting a Communication that laid the foundation for subsequent consultations with the Parliament, the Economic and Social Committee and the Committee of the Regions as well as with European business associations, such as the Union of Industrial and Employers' Confederations (UNICE) and the European Round Table of Industrialists (European Commission, 2002c). On this basis, the Commission specified the OMC measures applied to the 3% objective in April 2003 (European Commission, 2003b, 31ff).

Herein, the Commission proposed a number of guidelines that comprehensively address the issue of Member States' investment in innovation. They are centred on three thematic areas that are considered to be crucial for the improvement of the framework conditions for R&D investments in Europe. In accordance with those guidelines, the Member States are, firstly, expected to enhance the effectiveness of public support for research and innovation primarily through the implementation of new financing instruments and the development of human resources. Secondly, Member States are also called upon to redirect their public resources to innovation, especially through better use of public procurement and the adaptation of state aid rules. And thirdly, the Member States are asked to improve innovation output at large through their measures related to intellectual property rights, product regulations, tax conditions, financial markets and competition rules (cf. European Commission, 2003a).

The Commission monitors Member States' measures regularly on the basis of a set of 22 indicators that measure both the investments in R&D and the innovation output. Participating countries are obliged to report their respective data on an annual basis to the Commission who reports them, possibly along with proposals on further measures, to the Spring European Councils. Additionally, the Commission set up a benchmarking process for Member States' representatives on a number of strategic issues, such as university–industry relations, new public financing instruments or intellectual property rights in publicly funded research.

Whereas the open coordination as it takes place through guidelines, monitoring and benchmarking activities primarily involves the Commission and the Member States, participation of stakeholders is planned through so-called European technology platforms. Those platforms are organized in a sector-specific way thus reflecting that the framework conditions for



successful innovations vary significantly across industries. Through the establishment of those platforms, private sector industry should be enabled to define common agendas and to raise attention for specific burdens for innovation, which might originate from regulatory or standardization issues.

In sum, since 2003 the Commission aimed at developing the OMC process further. Firstly, the revised OMC process calls on all relevant actors, in particular on public administrations, to develop a systemic perspective on the various policy dimensions which favours policy mixes instead of single-solution measures. Secondly, it involves private sector industry, which is the main producer of innovations, in a way which reflects sector-specific conditions for innovation. And thirdly, the agreement on well-established monitoring indicators may not only minimize administrative costs of reporting, but also prevent political actors from initiating short-term policy measures aimed at reducing political pressure through better performance in view of only a few specific indicators.

Nevertheless, even with this OMC process in place, the Barcelona target is in view of the present R&D-performance in the European Union still a highly ambitious goal. In recent years, the average R&D-intensity of EU Member States amounted to only 1.9%, while just a few Member States came close to the 3% target or even exceeded it, such as Sweden and Finland (European Commission, 2003a, 4). Variations are even greater at the sub-national level. While at the regional level (NUTS 1) R&D intensity ranges from 0.5% to close to 4%, R&D intensities at the local or subregional levels (NUTS 2) span from 0.2% to more than 6% (European Commission, 2003b, 5).

Countries with a leading role in R&D intensity have in common that they are relatively small economies that accommodate research-intensive multinational companies. By contrast, larger economies as well as small economies in which multinational companies do not play a significant role show considerably lower business R&D investments. Thus, there is a strong correlation between business R&D expenditures and the existence of large firms, which are engaged in research-intensive industries, such as telecommunications or pharmaceuticals. Given the fact that the amount of private R&D investments primarily depends on the industrial structure of a country, it is plausible to argue that some current (e.g., the cohesion countries) as well as the group of future EU Member States will hardly be able to reach the Barcelona target by 2010 (cf. European Commission, 2004, 11). Therefore, it comes not as a surprise that some countries, for example, Slovenia and Spain, are not expected to raise their R&D investments above 2% by 2010 (European Commission, 2003b, 6).



Boundaries for Applying the OMC to Innovation Policies

Towards a European research area

Since the early 1980s, the EU has significantly widened the scope of its activities for research and technological development as it has increased its related investments. Starting with sectoral technology programmes, such as ESPRIT, RACE or BRIDGE, which financed collaborative research projects in areas like information and communication technologies or biotechnology, the European Community has subsequently expanded its engagement after the Single European Act gave it the explicit competence to develop its own policy for research and technological development (RTD policy). Since the mid-1990s, the EU has refocused this policy both towards a regional dimension as well as towards additional actions aimed at fostering the European innovation capacity.

However, in comparison to RTD-related measures taken by the Member States, the EU's engagement is still limited. On the one hand, the EU's budget for RTD is only about 5% of the total EU-wide public investments in research and development (Banchoff, 2002, 2), while over 80% of public sector research is conducted under national or regional R&D programmes. On the other hand, European RTD measures are still suffering from a lack of coordination both horizontally across various policy areas as well as vertically in view of the policies of the Member States and their sub-national entities (Peterson and Sharp, 1998). In order to cope with these coordination deficits, the European Commission proposed to establish a European Research Area in which policy coordination — primarily on the basis of the OMC — will be the main instrument of integration (European Commission, 2000a).

The ERA concept breaks with traditional approaches of the present European RTD policy at least in two points. First, instead of financing and managing a large number of research projects at the micro-level, measures will now be focused on networking existing centres of excellence and financing integrated projects in scientific areas that have been considered to be of strategic importance, such as biotechnology, information and communications technologies or nanotechnology. Second, instead of supplementing national and regional RTD programmes, European funds will now be available to co-finance networked national programmes. Moreover, the European RTD policy will be incorporated in a much broader context of benchmarking national (as well as regional and local) research, technology and innovation policies in order to set up consistent innovation strategies that are supported by Community policies (European Commission, 2001c). This strategy deviates significantly from the present situation in which regional and national innovation policies are defined and implemented under a considerable amount of autonomy (European Commission, 2001c).



In this section, we highlight a combination of factors that essentially contribute to the low performance of the OMC — which means, the real measures deviate from the ‘ideal-type’ to a large extent — in innovation policies: first, the existence of innovation policy competences at different territorial levels; second, the structural diversity of Member States’ innovation systems, and third, the variations in the performance of Member States’ innovation systems and their competition for resources.

Innovation policy competences at different territorial levels

The Member States of the EU not only differ significantly in terms of their innovation capacity and innovation policies at the central state level, even more variations can be identified with a view to subnational or regional programmes (cf. Kaiser and Prange, 2004b). A detailed index by Hooghe and Marks (2001) measuring regional governance in Europe indicates that many EU Member States have decentralized authority since the 1980s. This trend certainly holds true for innovation policies. As Braczyk *et al* (1998), Cooke (1992, 2001) and Cooke *et al* (1997, 2000) showed, there is today a significant amount of autonomy in innovation policies at the regional level, even though the degree to which regional actors are able to pursue their own policies varies considerably among Member States.

The German *Länder*, for example, have initiated their own innovation policy programmes since the mid-1970s in reaction to economic recession and structural change (cf. Scherzinger, 1998). Apart from that, the *Länder* are considerably involved in various joint policy coordination processes with the federal level. Coordination exists especially in research and education policies where several joint commissions were established. Furthermore, innovation policy coordination is supplemented by federal states’ co-financing arrangements that concern all major German research organizations as well as the university infrastructure.

Within this institutional set-up, the *Länder* have not only increased their expenditures for innovation in recent years, they also have concentrated on areas in which they are least encumbered by the constraints of joint policy-making. As a result, regional innovation policies gained importance as an instrument of competition and differentiation among the states, while the federal level focused its activities either on cross-cutting infrastructural programmes or specialized priority programmes funding technologies at a pre-competitive stage (Wilson and Souitaris, 2002, 1132).

However, a federal state structure does not necessarily indicate the existence of autonomous regional innovation policies. In Austria, for example, the key player is the federal government, which has increasingly initiated regionalized innovation programmes, that is programmes that emphasize the role of the



regional economic structure (European Commission, 2001b). In Belgium, innovation policies are pursued, even more intensely than in Germany, under the responsibility of the subnational governments. As a result of the constitutional reforms between 1970 and 1993, the Belgium communities and regions initiated a number of innovation policy measures. Today, they provide by far the largest share of public investments in research and development (cf. Cooke *et al.*, 2000, 120ff). The competences of the central government in innovation policies are restricted to federal research organizations and Belgium's engagement in international research programmes (Dresner, 2001, 110).

Even in considerably more centralized EU Member States, such as the Netherlands, regional innovation and technology policies emerged in the 1990s, partly motivated by the EU's regional innovation measures. Additionally, the Dutch Provinces intensified horizontal policy coordination at the sub-national level as they called on the central state government to provide for more regional competencies in innovation policies. Contrary to the example of the Netherlands, a regional dimension in innovation policies can hardly be recognized in other centralized or unitary countries such as France or Portugal. In France, for example, a decentralization of national institutions (e.g. regional boards of the Ministries of Research, of Industry, etc.) has taken place in recent years. However, regional initiatives in innovation policies mainly exist through the establishment of regional technology transfer centres under the authority of Regional Councils (European Commission, 2000c, FR-7). In the case of Portugal, not only administrative structures are considerably centralized but so are capabilities for research and development. About two-thirds of the country's financial and human R&D resources are located in the Lisbon area (European Commission, 2000d, PT-16).

The structural diversity of member states' innovation systems

In view of the proposed common research area, the most critical factor for policy coordination is the structural diversity of Member States' innovation systems. Those structural diversities can be observed in terms of various indicators, such as the technological orientation of private and public research organizations in different countries. Patent analyses have shown that at least the larger EU Member States (France, Germany, Italy and the UK) differ considerably in their technological specialization. Moreover, those patterns of specialization are not only remarkable persistent, they also influence the research activities pursued abroad by European firms as well as of foreign firms acting in different EU Member States (cf. Patel and Pavitt, 1997; Patel and Vega, 1999).



As for research and development activities of the private sector industry, the dominant actors in R&D vary considerably among EU Member States. In France, Germany and Sweden, for example, firms with more than 500 employees pursue a vast majority of R&D activities, whereas in Portugal roughly 60% of private sector research and development is conducted in small- and medium-sized companies (OECD, 2001, 27). Accordingly, the share of small- and medium-sized companies in publicly funded R&D programmes is comparatively low in countries like Sweden, Italy, France, Germany and the UK, but extraordinarily high in Ireland, Greece and Portugal (European Commission, 2001d, 28).

Significant variations among Member States also exist regarding their publicly funded research systems. Germany, for example, possesses a highly differentiated and decentralized public research infrastructure with various universities, technical universities and polytechnics on the one hand and specialized non-university research organizations on the other hand. In contrast to Germany, where a large proportion of public R&D is performed outside the universities in large research institutes, publicly funded research in Sweden and Austria is concentrated within universities (European Commission, 2001b). In Ireland, Spain and the UK, specialized institutes for applied research hardly exist. The French public research infrastructure is heavily based on national research institutes that are functionally organized around relatively few sectors and technologies like space, defence, railways and nuclear technology (European Commission, 2001e).

Recent developments indicate that the diversity of European public research systems tends to increase rather than decrease. France, for example, used pollution-based taxes as a new source to finance research projects on AIDS, the environment, or gene therapy (Senker, 1999). In Germany, financial resources that were gained from the auction of third-generation mobile communications licenses (UMTS) have largely been invested in research and education. Moreover, Denmark, Portugal and Sweden have separated administrations or funds for basic and applied research to science foundations, whereas Norway and Iceland, which both are associated to the EU (and the ERA) through the European Economic Area, have done the opposite by centralizing responsibilities for these two types of research.

The variation in member states' innovative performance and their competition for resources

Given the structural diversity of EU Member States' innovation systems, it comes not as a surprise that the countries also vary in view of their innovative performance. Those variations can be assessed both at the national and the regional levels.



With regard to the output performance of EU Member States, one general trend concerns the scientific and innovative strength at the national level. Whereas Belgium, Denmark, the Netherlands, Sweden, Finland, France, Germany and the UK perform above the EU average, there are weaknesses especially in cohesion countries. This trend correlates with data on input performance, such as employment in high-technology industries, public R&D expenditures, and venture capital investments. The total number of researchers within national R&D systems is highest in Finland, Sweden and Denmark and lowest in Italy, Portugal and Greece. The highest R&D expenditures are invested in Sweden, Finland and Germany, whereas Spain, Portugal and Greece rank lowest. However, at least Ireland and Portugal have reached the highest annual growth rates in R&D expenditures since the mid-1990s. The availability of venture capital is highest in Sweden, the Netherlands and Belgium and lowest in Italy, Portugal and Austria. However, Austria has achieved the highest annual growth rate in venture capital since 1995 (European Commission, 2000b).

In terms of innovation potential at the regional level, variations are even more significant. A composite indicator of science and technology reveals that especially German regions, some Scandinavian regions and the metropolitan area of Paris have resources at their disposal that are far above EU average. Other Member States' regions reveal certain strengths only in view of individual indicators such as R&D personnel, employment in high-technology sectors, innovation products or number of patents (European Commission, 2000b). These data indicate that the existence of sub-national innovation policies supports a well-balanced provision of R&D resources at the regional level. Moreover, given the fact that Europe's most innovative regions perform significantly above EU average, it becomes evident that variations in innovative performance can be traced back primarily to different innovation potentials at the regional level. This holds especially true for Germany where R&D resources are much more decentralized than in other Member States. Nevertheless, German regions like Upper Bavaria, Stuttgart and Braunschweig perform best in view of all indicators mentioned above showing that considerable regional disparities exist not only between Member States, but also within best performing countries (European Commission, 2003b, 4f). It is important to notice that the level of performance depends on the actors involved. In contrast to other policy areas to which the OMC has been applied, the actors in innovation policies are mainly private actors, which compete with each other for globalized resources, such as R&D investments, researchers, and knowledge. Hence, market coordination seems to be more appropriate than policy coordination in this policy area in order to avoid 'over-coordination' (Scharpf, 1994, 238).



Integrating Research and Innovation Policies in Europe through the OMC: Some Recommendations

In this article, we have sought to explain why there is a 'lack of application' of the OMC in innovation policies. We have argued that the reasons for this situation can be found in (a) the multi-level character of the policy field, (b) the structural diversity of Member States' innovation systems, and (c) the variation in Member States' innovative performance including their competition for resources. Hence, we revealed central boundaries for applying the OMC to innovation policies. In this final section, we conclude that the application of the open method of coordination in innovation policies is contingent upon four preconditions if it should finally guarantee greater coherence and consistency of national or regional policies.

First, the significant variations in the institutional settings, the innovative performance, the industrial structure and the patterns of technological specialization restrict 'policy transfer' and 'policy diffusion' through a process of mutual learning (Dolowitz and Marsh, 2000; Hodson and Maher, 2001) to certain areas in which regions or Member States share similarities. Specific policy instruments, such as tax incentives for the employment of R&D personnel, may be suited to increase innovative performance in some Member States while in others respective deficits originate from a lack of graduates. In order to recognize those similarities the OMC requires more precise benchmarking tools, which allow for the qualitative comparison of different levels of the innovation systems in Europe and to identify so-called 'best practices'.

Second, as long as innovation policy measures are mostly in the competence of regional or national administrations (e.g., research and education policies), it is quite unlikely that coordination efforts will be successful if they are aimed to 'centralize' certain policies and competences. Thus, relating to Kuhlmann (2001, 967), we assume that a 'concentration and integration of European innovation policies in transnational arenas' is not likely to come true. Rather, we favour the notion of 'a co-evolution of regional, national and European policy arenas' (Kuhlmann, 2001, 970), which characterizes those emerging multi-level innovation systems, where political power does not crystallize only around one institutional core, one political arena, and one territorial level (Kaiser and Prange, 2004b). As a consequence, open coordination will hardly be effective as a top-down process, but has to be turned upside down. This means that the European Commission should provide the institutional environment in which actors from different levels (arenas) interact according to their resources and competencies.

Third, even if innovation policy coordination abstains from centralization, active participation of national and sub-national actors is unlikely if coordination efforts intervene into the competition that also exists among



Member States. This has become quite evident when EU Member States thwarted ambitious initiatives by the European Commission to open national R&D programmes for participation of other Member States and the European Union. Even within a European Research Area, Member States are likely to consider R&D expenditures as critical investments enhancing the competitive position of companies that offer employment opportunities in the member state. Additionally, in contrast to other policy areas to which the OMC has been applied, the actors in innovation processes are mainly private actors, which also compete with each other for globalized resources, such as R&D-investments, researchers, and knowledge. Hence, in this policy area market coordination seems in many cases to be more appropriate than policy coordination in order to avoid 'over-coordination' (Scharpf, 1994, 238).

And fourth, the process of open coordination in a multi-level innovation system could be improved if it would reflect the specific functions the different levels have within this system. The functions delegated to the European level are closely related with the so-called European added value in innovation policies. This means that the European Union, on the one hand, is the adequate level to finance R&D projects that overstrain the resources of individual Member States (as it is certainly the case in aerospace or nuclear research). On the other hand, it is the main task of the EU to coordinate Member States regulative measures in areas in which the EU is already the main actor at the international level (such as in the protection of intellectual property rights or in technical standardization). Besides that the Community should engage in the definition of strategic goals enhancing Europe's competitive position in general without intervening into intra-EU competition as well as in the establishment of an institutional framework for benchmarking and policy coordination of relevant actors. The Member States are primarily responsible for the framework conditions in fields where the EU lacks competencies (tax policy, education, employment, etc.), while sub-national authorities — if they own respective resources and competencies — are the adequate level to initiate and finance specific infrastructural measures that respond to the needs of regional employment and research and education. In this context, Member States and regions will continue to provide the majority of R&D funds that promote innovations at the national and regional level in fields where an intra-EU competition exist.

Finally, we conclude that the OMC could make a valuable contribution for creating a coherent European Research Area — and thus for deepening European integration — if these preconditions are met. Moreover, and with a view to the Lisbon Agenda, a proper application of the OMC could reconcile the strategic European goal 'to become the most competitive and dynamic knowledge-based economy in the world' with the boundaries the OMC faces in



this policy area, that is, first of all, the Member States' national and regional characteristics and patterns of economic specialization.

Notes

- 1 The concept of National Innovation Systems has been developed since the mid-1980s by Freeman (1988), Lundvall (1992) and Nelson (1993) in order to study the inter-relations between technological development and the institutional embeddedness of innovative organizations. According to Galli and Teubal (1997, 345) national systems of innovation are defined as 'the set of organizations, institutions, and linkages for the generation, diffusion, and application of scientific and technological knowledge operating in a specific country'.
- 2 In the case of employment policy Jacobsson and Vifell (2003, 18) found that the OMC is perceived as being even much more closed than other methods.

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