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Working Paper

Executive governance of EU research policy: An organisation theory perspective

WZB Discussion Paper, No. SP IV 2012-502

Provided in Cooperation with:
WZB Berlin Social Science Center

Suggested Citation: Gornitzka, Åse (2012) : Executive governance of EU research policy: An organisation theory perspective, WZB Discussion Paper, No. SP IV 2012-502, Wissenschaftszentrum Berlin für Sozialforschung (WZB), Berlin

This Version is available at:
https://hdl.handle.net/10419/70786

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WZB
Wissenschaftszentrum Berlin
für Sozialforschung

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Executive governance of EU research policy – an organisation theory perspective

Discussion Paper
SP IV 2012–502
December 2012

Wissenschaftszentrum Berlin für Sozialforschung
Forschungsschwerpunkt
Zivilgesellschaft, Konflikte und Demokratie
Forschungsabteilung
Schumpeter-Nachwuchsgruppe
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*Introduction**

A robust governance system requires executive capacity supporting the initiation and preparation of policy, as well for implementing and translating political decisions into concrete results. This is the case for public involvement in any policy area and at any governance level. For the execution of European Union (EU) policies this is especially challenging as policy formulation and implementation in most policy areas take place at the intersection between the supranational and national politico-administrative systems. In all phases of the policy process there is intense interaction between administrative actors from the member states and the EU (Trondal 2010), and the division of labour between EU institutions and national governments has become increasingly blurred (Hofmann and Türk 2007; Marks, et al. 1996). At the core of executive governance in the EU is an emerging multi-level 'Union administration' with the following central characteristics: 1) a consolidated European Commission (Commission) at its centre, 2) the establishment of new EU-level executive bodies outside the Commission, and 3) governance by committees and organised links/networks between administrative actors from different levels (Curtin and Egeberg 2008).

These three characteristics have been observed in the executive governance of most areas covered by EU policy (Egeberg 2006).

Research policy has been a fairly unchartered territory as far as the study of executive governance and administration is concerned. With increased policy activities and ambitions at the European level, the inquiry into the executive capacity of European research policy is both of relevance to the growing literature on executive governance and for understanding the dynamics of integration in European science policy. We argue here that any research policy ambition on the part of the EU, be it for realising the 'European Research Area', 'Innovation Union' or knowledge as 'the fifth freedom', depends essentially on the organisation of executive capacity. The rationale of this paper is to start unpacking this aspect of European research policy: What kind of executive governance and what elements of a 'Union administration' can be observed in this policy domain? What have been the dynamics spurring and countering its development? How does it compare to executive governance in other policy domains and how do the characteristics of research policy shape executive governance of this field? Beyond shedding light into the capacity of the executive governance of EU research policy, this paper therefore contributes to the current debate on the dynamics that shape the organisation of European executive capacity in general.

This exploration does not start from a clean slate. Key, insightful studies of EU research and technology policy have directly and indirectly addressed central issues relevant to executive governance. Moreover this scholarship has made strong claims about the nature of research policy that should lead us to expect executive governance in this

area to be both particularly *technocratic*, *segmented* according to sector and *path dependent*. The core argument is that there are some key characteristics of this policy domain that give rise to a particular kind of executive governance. This paper revisits each of these arguments in light of developments in the executive governance of EU research policy since the turn of the millennium. The analysis rests on documentary evidence, reviews of the literature, and quantitative data on patterns of participation in EU executive governance (own data base on Commission expert groups retrieved from Commission expert group register in 2007).

The paper proceeds as follows: The first section sketches some main theoretical arguments concerning the dynamics of executive governance: first a set of arguments based on organisation theory is developed, after which we look into how policies can determine politics. The subsequent section outlines how executive governance has developed in EU research policy, reviewing the studies that form the basis for claims of technocratic dominance, segmentation and path dependence particular to EU research policy. Finally an overview is given of some main developments in the executive governance of research policy in the last decade, looking first into change and stability in its structure and capacity at the European level and then on empirical patterns of executive governance in committees and networks as evidenced in data on the Commission's expert group system .

The theoretical arguments

Organisational factors in executive governance

An organisation theory perspective gives privilege to organisational factors as explanations for political life (Egeberg 2004). Organisational structures have implications for policy making and implementation. Firstly, establishing formal executive organisations creates capacity for action. Secondly, organisations structure the attention of decision makers, they filter information in and out, and regulate the access of participants to decision making (Egeberg 1999; Simon 1976[1945]). In this way organisational structures have behavioural implications. The principle of specialisation, according to which executive organisations are structured, makes some behavioural patterns more likely than others. Vertical specialisation increases and elaborates the number of executive levels in a polity or within an executive body and has consequences, amongst other things, for the agency autonomy, exercise of political leadership and the relationship between political and administrative layers of the executive (Egeberg 2012). Horizontal specialisation can follow different principles, such as territory, sector, or policy function. Executive organisations that are arranged according to territory will activate a spatial perspective among decision makers. Sectorally arranged organisations will emphasise sectoral concerns over territorial ones in its decision making, i.e. it will operate according to a sectoral logic (Egeberg 2004). The Commission, for instance, is mainly specialised according to a sectoral-functional principle, contributing to making the EU a

highly segmented multi-level system (Cram 1994; Kohler-Koch 1997; Trondal 2011). Policy making takes place within sectorally arranged 'silos' and efforts to coordinate *across* sectors are resisted (Hartlapp, et al. Forthcoming). The Commission's structure thus emphasises sector as a basic principle of organisation.

How 'policy determines politics'

Although we can expect the organisational structures to heavily influence the nature of executive governance of a sector, the type of policy domain constitutes a further conditional factor. Policy types affect the characteristics of the policy process, such as patterns of interest mediation. This idea can be traced back to the theoretical argument made by Lowi (1972). He distinguished between different policy types – redistributive, distributive, and regulatory – according to their (expected) impact on society, arguing that each type causes the politics associated with it. Redistributive policy, for example, triggers a polarised pattern of conflict between those broad groups of society who will benefit and those who will bear the cost of a public policy, as in the case of social policy and taxation. A correspondingly high degree of conflict often calls upon the involvement of a state's political leadership. Distributive policies on the other hand can be decided upon without identifying who will carry the costs in the short term, i.e. without causing clear 'losers' that are activated in political decision making. Distributive policies further cause a patronage relationship between the state's administration and those to whom resources are distributed. This implies that the type of policy also

determines whether policy making is more dominated by politic leadership involvement or by the administrative level.

Radaelli (1999) also identifies different policy types and elaborates this vertical dimension. He distinguishes between different logics of policy making under varying policy *uncertainty* and *salience.* He identifies two types of politics of expertise, which both occur when saliency is low, but differ according to the level of uncertainty – a technocratic versus a bureaucratic logic. A logic of technocracy is likely to prevail when, next to a lack of public attention (low saliency), a high level of policy uncertainty exists, that places high demands on specialised expertise and knowledge. The bureaucratic logic of policy making is likely to dominate in low-salient areas where policy uncertainty is low. Policy making is introvert as the bureaucracy responsible for the policy domain will be self-sustained and therefore leaves little room for external experts to contribute to policy making.

Executive governance and EU research policy: Background and build-up

Building executive capacity for European science

In the post-WWII period research has become a distinct area of public policy with a dramatic increase in the number of countries establishing a national science policy (Drori, et al. 2003). This period is marked by high-velocity institution building – e.g.

observable in the number of public research institutions – and a specialisation of research policy instruments and national bodies for regulating and funding research (Van der Meulen 1998). Worldwide, governments have developed executive capacity, visible in state bureaucracies to coordinate scientific research, as the norm that states should direct science had been spreading, regardless of whether these states had any science to coordinate (Finnemore 1993). [1] At the same time science is largely portrayed as a policy area with little party-political salience and contestation as well as little general public and media attention (Banchoff 2005)[2].

At the European level, as well, we can observe the presence of the executive capacity in the area of research is first and foremost in the structure of the Commission portfolios and administrative Directorates General (DGs), which include a DG for research policy. However, capacity building at the supranational level was not supported by a common norm and did not happen overnight or without kindling controversy. The issue was not only *whether* to develop a European level involvement or not, but *what kind of* involvement this should be: supranational versus intergovernmental, science policy as an instrument for industrial policy or as a domain of its own, and which re-

[1] Finnemore (1993) argues that UNESCO actively became the teacher of the norm that governments should organise science for their national benefit and the consequent need for a science policy bureaucracy at the national level.

[2] As demonstrated by Banchoff (2005) this aspect of research policy has changed when it came to value-laden issues, such as the controversy over stem cell research that especially in recent decades has sparked considerable political struggles over the governance of science.

search sectors to prioritise. Hence both the vertical and horizontal principles for how to organise executive capacity in this area were at stake.

Tensions in defining the role of Europe as a governance level in scientific research were also running high within the Commission, and not only between the Commission and the member states. When Altiero Spinelli became Commissioner for Industry and Research in 1970 he proposed a common supranational model with .R&D policy explicitly linked to the industrial policy of the European Community (Schredardus and Telkamp 2001). His position signalled that European involvement in this field was to be subordinated to industrial policy rather than being a generic policy area. Whereas Spinelli had retained industry in his portfolio, his successor Ralf Dahrendorf became the Commissioner for Research in 1973. Next to its link to economic growth and industrial development, Dahrendorf also sought to put research into a context of cultural development, calling for a 'European Scientific Area'. Unlike Spinelli's position, Dahrendorf envisioned a European research policy that was based on national policies, and the Community effort should be to coordinate these policies. Although Dahrendorf's ambition for creating such an area did not materialise in any significant way, member states started to show more commitment to the idea of a European research policy in words, if not in action. The organisational model for research cooperation in the 1970s was intergovernmental rather than supranational, visible in the establishment of intergov-

ernmental pan-European, publicly funded big-science cooperation measures (Borrás 2003).

However, with the general reorganisation of the Commission in the wake of the 1973 enlargement a new DG XII for research (and education) was established that severed the tight organisational connection between industrial and R&D policy at the European level. This was a formative event in the development of an executive capacity for a European research policy. Establishing a sector specific, full-time administration in the Commission services established European research as a policy in its own right and provided it with an organisational memory and policy-making capacity. Other DGs continued to have stakes in developing EU R&D policy for their sectors (especially DG XIII dealing with telecommunications and information market), yet this establishment made one DG the lead, self-standing administrative body.

The major quantum leap in EU research policy instrumentation came 10 years later with the introduction of the multiannual Framework Programme (FP). The FP became institutionalised as the epitome of European research policy in the latter half of the 1980s and in the 1990s as the FP broadened in disciplinary scope and funding. With the introduction of the FP supranational capacity for policy development expanded. The FP machinery grew to encompass a complex web of organisational structures to support the development and implementation of the consecutive programmes. In this FP de-

velopment, DG XII (research)[3] was at the heart of the decision making and implementing machinery at the supranational level, by the beginning of the 21st century totalling more than 1,000 officers (Spence and Edwards 2006).

The administrative rules of the FPs were based on the principle of direct management by the Commission, a principle that stands in contrast to principles of indirect implementation that had been the hallmark of implementation of EU legislation. As it addressed its activities directly towards the research performing level FP governance could bypass the national executives. Researchers could submit their proposals directly to the Commission not having to go through national filters/clearinghouses or having to apply for funds to programmes whose management was transferred to the member states. National administrations did not have to be integrated and involved in order to have researchers and research institutions across Europe adapt their activities, research efforts, or patterns of cooperation according to the incentives and rules of the FPs. Through Comitology Committees (FP 'Programme Committees') the member states' authorities responsible for R&D at the domestic level could oversee the Commission's FPs implementation[4]. However, DG Research was placed at the hub of trans-

[3] After the Commission's reorganisation and renaming of DGs in 1999, DG XII was renamed DG for Research and Technological Development (for short DG RTD or DG Research). In 2010 this DG took over the innovation portfolio and was renamed DG for Research and Innovation (see below). This paper predominantly refers to this DG as DG Research.

[4] FP programme committees have been criticised by scientists and Commission officials for being an entry point for national *juste retour* concerns in the allocation of funds (Metz 2011).

national networks in the implementation of the FPs, due to the principle of direct management, which included the running of a vast system of experts involved in assessing and peer reviewing project applications.

DG Research also took a leading role in policy initiation and preparation and developed strong relationships to a growing number of transnational research actors, such as academic associations or interest-based organisations, whose establishment peaked in the 1990s (Beerkens 2008). They were partly a bottom-up reaction to the intensified supranational research policy, and partly a result of the Commission actively promoting the build-up of organised interests to support Community level activities against the member states. Reflecting this, these associations developed interests in and capacity for taking part in shaping European research policy. In their study of transnational research groups, Grande and Peschke (1999) conclude that by the end of the 1990s this pattern of interest formation had further resulted in strong horizontal segmentation. This shows how sectoral differentiation is evident not only in the development of political-administrative capabilities within the EU Commission, but also in the creation of European level interest groups and associations specific to the sector.

Political-administrative relations and the 'politics of expertise'

By the mid- 1990s, executive governance of European research had assumed the key characteristics of a complex, multilevel governance system. This is studied in detail by Peterson (1995) who analyses the link between the type of policy and patterns of participation, interaction and conflict in EU research policy making. Without distinguishing between two types of 'politics of expertise' (Radaelli 1999) Peterson makes strong claims about the logic of EU research policy making, which he refers to as 'technocracy'. By addressing different levels of policy making he finds that next to a technocratic mode of policy making in the area the shaping of research policy may also be characterised by considerable political contention along the territorial conflict line: in particular when policy making reached the level of member states to decide over the overall volume of the FP research budget in Council, this pitched small members states against the big ones. The political contention around this issue overshadowed discussions on the content, strategy and direction of the FP. Moreover, with the empowerment of the EP through the use of the co-decision procedure, the inter-institutional decision making introduced a new and potentially significant veto point. At this level there is not much support for seeing EU research policy making as the politics of expertise. Yet, Peterson argues that rather than being the standard policy-making mode, these highly politicised decisions among political actors and between the EU's formal decision making institutions were exceptions at political peak-hours, such as the budget negotiations, that veiled the fundamental technocratic nature of EU research

policy making. Consequently, Peterson (1995) argues that 'technocracy' was more paramount in this area than in other policy domains of the EU.

This claim rests on three main observations. First, Peterson identifies a particularly strong role of the Commission's administration in research policy in the 1990s. In the Council member states had been less intrusive in EU research policy than elsewhere. Although the Commission's proposals for overall budget increases for the FPs were slashed by the Council, its proposals for FP funding priorities and thematic orientation met few Council amendments. Moreover, the major conflicts on the content of FPs were triggered *within* the Commission and along sectorial lines - i.e. as a result of bureaucratic politics between DGs more than as conflict over the distributional effects of the FPs on member states. Also the minimal intervention from the Commission's political level left its administrative level with considerable autonomy in priority setting and in shaping the operative content of the FPs, which is in line with Radaelli's concept of a bureaucratic policy making logic. This, Peterson (1995: 402) argues, has to do with the experience that the DGs have acquired in handling research funding. The technical complexity and specialisation of FP governance impede the political leadership's interest in and capacity for intervention.

Moreover, a second observation in support of the special technocratic nature of EU research policy can be traced back to DG Research's specific organisational demography: this DG's officers tended to have a degree in science and technology rather than

in law and social sciences, the dominant overall educational background of Commission officials. This made DG Research 'different' and more prone to a technocratic logic.

However, rather than acting in isolation, the DG for research operated in interaction with a significant body of committees of experts that constituted a key resource for the Commission. These committees include key stakeholders in EU research policy, such as scientists and industry. They were part of the DG's technocratic 'fiefdom'. Consultation with experts was a way of building a common position that was presented to the member states as a *fait accompli*.

Comparing Peterson's analysis to Radaelli's (1999) analytical scheme, we see that Peterson portrays a politics of expertise that *combines* the bureaucratic and the technocratic logics of policy making. On the one hand, the know-how, specialised experience and organisational demography of the DG for research shielded its operational policy making from political intervention, both from member states and the political level of the Commission (Commissioner and his/her Cabinet).

Segmentation of executive governance in interest groups relationships

This logic of executive governance operated *in tandem* with the alloy that DG Research had with its issue specific constituency in committees and networks with men/women of science and academia and stakeholders from industry. Grande and Peschke's (1999) observe tight patterns of transnational interest mediation and interaction between

interests groups and EU institutions in 1990s EU research policy domain. Their survey of 18 transnational organisations representing national research organisations showed a highly segmented pattern of interaction between these organisations and the EU institutions. By that time the Commission had established and maintained a segmented structure of consultation with transnational organisations. Thus, the range of transnational organisations for universities, publicly funded research organisations, national research funding agencies/national administrations, and industrial R&D accessed EU policy making via separate venues. Industrially oriented R&D, for example, interacted with the DG for enterprise and industry or the DG for information technologies. Academic research, in turn, had closer links to DG Research. Consequently, Grande and Peschke claim that there were few bodies linking politics, industry *and* science (Grande and Peschke 1999: 56). The patterns of interaction in policy making and interest mediation were highly internal to the sub-systems in the knowledge policy domain. Transnational actors within the sector each interacted with their counterpart administrative units at the EU level.

The inertia of executive governance

Banchoff (2002), taking a more process oriented perspective, argues that the patterns of interaction and policy making that had become institutionalised by the end of the 1990s had created a situation of inertia. This undercut the politically articulated goals

of moving common EU research policy *beyond* FP-style distributive programmes. His arguments are relevant for understanding the nature and characteristics of executive governance in EU research policy. The sources of inertia he identifies lie in the very organisation of DG Research. In this executive apparatus the bureaucratic expertise and attention was developed around running increasingly voluminous FPs and a highly complex set of formal rules of FP formulation and implementation. Following a path-dependency argument a change of these established organisational structures would therefore have been extremely costly. In addition, he sees a perpetuation of the interaction patterns that Peterson (1995) and Grande and Peschke (1999) point to. He argues that sector-internal policy networks encompassing beneficiaries and administrators across levels of governance developed joint stakes in keeping the status quo (Banchoff 2002). When the FP was established it was thus such a key defining moment that it froze European science governance to distributive politics and hence also as a domain of executive dominance underpinned by strong, sectoral internal policy networks.

The organisation and logic of executive governance in EU research policy in the 2000s

Based on these observations from the late 1990s what can we expect to see as the key characteristics of executive governance in the 2000s? We are likely to observe the following: As long as the policy saliency and uncertainty of research policy, the organisation of the executive capacity have not changed, and the FP instrument remains at the heart of EU research policy making, the pattern established in the 1990s will also be predominant in the following decade. This includes) a sectorial introvert type of policy making, with little coordination between sub-systems of policy making (segmented pattern of interaction), anda pattern of participation in EU research policy making, which is less dominated by member states governments and authorities than in other policy areas.

Research policy of the 2000s: more political attention – same public saliency?

Research policy has generated little overall public attention and electoral competition in European countries. It is a domain left to a small core of research policy experts, with a highly technical content that impedes the general politicians and public from engaging in research policy debates. While controversy over science has engaged the electorate in cases such as climate change and biotechnology (Jasanoff 2005), research policy is rarely a key item in national electoral politics in Europe . 'Research in policy'

has had far more political saliency than a 'policy for research'. Drawing on data from the Nordic countries, Kallerud et al. (2011) argue that there has been an increase in the research policy debates in the mid-2000, but that it are the researchers themselves that drive and engage in these publicly mediated debates.

Against this background the developments at the European level since the 2000s are somewhat paradoxical. Many events at the European level in the 2000s have intensified the political rhetoric of the knowledge economy. The knowledge sectors are increasingly seen as a kind of 'transversal problem-solver'. Consequently most sectors of society directly or indirectly have stakes in knowledge production and dissemination. The attention attached to 'knowledge policy' areas is unprecedented in the history of the EU. In the framework of the Lisbon strategy the heads of state in the European Council had research and innovation repeatedly on their agenda. Attention to Europe's innovative capacity, economic and scientific competitiveness, and universities seems to have been at an all-time high, especially in the mid-2000s. This attention also included the apex of the Commission when for instance the Commission President, Barroso, got personally involved in proposing new initiatives, such as the establishment of the European Institute of Innovation and Technology (Gornitzka and Metz 2011). The

FP7 decision (2006)[5] was difficult, sparking considerable contestation and was more politically salient than its predecessor (FP6) (Metz 2011). Yet it were more the specific issues *within* the FP7 that fuelled some media attention rather than the overall profile and volume of EU research funding or the direction of the EU research policy. In the end it was the question of stem cell research that made a minority of member states cast a negative vote in the FP7 decision (Muldur, et al. 2006).

At the level of public attention to EU research policy there is not much evidence to suggest that EU research policy in the same period experienced increased saliency among European citizens. The EUROBAROMETER's opinion polls do not indicate much change in citizen's attitudes to EU level involvement in research policy over the last 10 years [6] (see Table 1). These data suggest that research is a policy area where EU involvement is not contested. Whether this also reflects that the general public does not take much interest in this area, is another matter. However, among the public there is much less national *sensitivity* attached to research policy than to the education system. For decisions concerning education a large majority see the national governments as the appropriate level of decision-making. While Education is a much more salient

[5] Decision no 1982/2006/EC of the European Parliament and of the Council of 18 December 2006 concerning the Seventh Framework Programme of the European Community for research, technological development and demonstration activities (2007-2013)

[6] http://ec.europa.eu/public_opinion/archives/eb/eb56/eb56_en.pdf ; http://ec.europa.eu/public_opinion/archives/eb/eb66/eb66_en.pdf; http://ec.europa.eu/public_opinion/archives/eb/eb74/eb74_publ_en.pdf

issue also in national elections featuring often among the most important issues, research policy is not mentioned at all (Singer 2011).

Table 1: Support among European citizens for joint decision-making at the EU level in scientific and technological research and in education.

	2001 (EU 15)	*2006 (EU 25)*	*2006 (EU 15)*	*2006 (NMS 10)*	*2011 (EU27)*
Scientific and technological research	68%	70%	68%	80%	73%
The education system	36%	29%	28%	35%	34%

Question: In the following areas, do you think that decisions should be made by the (NATIONALITY) Government, or made jointly within the European Union?
Sources: Standard EUROBAROMETER 2001, 2006, 2010.

Stability in executive governance, but less technocracy?

The core structure of the formal policy making institutions at the EU level has been fairly stable in the last ten years, with as the major exception having been the change of the Council configuration for Research into the Competitiveness Council[7]. The two-layered decision making processes determining the core of the EU research policy, as observed by Peterson (1995) have continued, as was evident in the case of FP7 decision. A combination of bargaining in the Council and brokering for obtaining an agreement on the EU's financial perspective is a valid description of how this process unfolds also in the 2000s. These were highly politicised, contentious issues (Muldur, et al. 2006; Schild 2008). The legislative process of the FP6 and FP7 followed the regular,

[7] To our knowledge there are no academic studies of the impact of this reorganisation.

already established procedures, allowing for the active participation of the two legislative Chambers of the EU, the Council of the EU and the European Parliament (EP). Today the Commission's policy proposals are followed closely by the EP in the relevant Standing Committee (ITRE) and in close informal interaction between the EP and the relevant DG and Commissioner (Egeberg, et al. 2012). This 'everyday' parliamentary scrutiny implies less technocratic executive governance. Representatives from member states' *administrations* are involved in shaping the thematic emphases and development of new instruments in the FPs (especially through CREST[8]/ERAC) and in overseeing the implementation, through the Comitology Committees[9] (Muldur, et al. 2006).

Still, also in the 2000s DG research has followed a familiar path: the Commission's role was central in initiating and preparing the overall FP guidelines, proposals for the FPs specific programmes, rules of participation, as well the annual 'work programmes' of the FPs. In preparing for the FP6 and FP7 bureaucratic politics *within* the Commission (between different 'research family' DGs) was dominant in forming the Commission's position, alongside a more technocratic approach involving extensive use of external expertise (Metz 2011). In this respect executive governance shows the same signs of bureaucratic and technocratic logic that Peterson (1955) pointed to. This combination

[8] CREST was the strategic policy advisory body assisting the Commission and the Council in policies for research and technological development. In 2009 this committee was renamed ERAC (European Research Area Committee) and given a new mandate.

[9] Of 304 comitology committees registered in the EU Comitology register 2012 – DG research is responsible for 19, of which most serve the programmes under the FP7. This is more than in education and culture (7) and employment (7), but fewer than the number of comitology committees for e.g. DG Enterprise (33) DG energy Health and Consumer protection (33).

of logics is rooted in the basic set of rules for how to shape and implement the FPs and in the organisation of the main executive centre of EU research policy.

Despite the observed continuity, attempts at creating another form of executive governance were made during the last decade. Coordination of member states' policy gained a renewed emphasis through the application of the Open Method of Coordination (OMC). This would involve national administrations and potentially also other levels of authority together with stakeholders and experts. OMC became the working methodology for increasing the combined national and supranational R&D investment within the EU-area to 3 per cent of GDP. It did to some extent create new, but fragile, venues at the European level. However, the concept was subject to multiple interpretations and in the end did not represent a centre-stage, radical break with the ways of co-operating inherited from the past (De Ruiter 2010; Expert Group OMC Research 2009; Gornitzka 2007; Kaiser and Prange 2004), even though in some sub-areas its application did make a decisive impact (see McGuinness and O'Carrol (2010), for an analysis of the application of the OMC for researcher mobility strategy). The research policy domain experience with the OMC-template shows some degree of change resistance along the lines argued by Banchoff (2002).

Increasing administrative complexity and recent attempts in joined-up governance

Is this stability in executive governance also observable within DG Research as the executive centre? EU research policy is still one of the most endowed areas in terms of Commission officers and remains the largest DG with the exception of DG translation.[10] A recent survey of the Commission shows that DG Research continues to be among the DGs with the highest concentration of scientists, i.e. its educational profile deviates from most of the other DGs (Kassim, et al. 2012). Furthermore, according to this survey, staff at DG research has a low rate of internal mobility. Both of these traits can be assumed to perpetuate a particular logic of executive governance and administrative culture in this policy domain at the European level.

However, in overall, a growing administrative complexity of executive governance is observed. The 2000s brought consecutive calls for stronger vertical and horizontal coordination in the administration of EU research policy. The launch of the European Research Area in combination with the Lisbon Strategy directly addressed the purported need for horizontal coordination of research policies in Europe. Several innovations inside and at the rim of the FPs have had implications for the executive governance of ERA, among them ERA-NETs[11] (in FP6) and Joint Programming Initiatives (JPIs[12] – first launched in 2010). These did not *replace* the existing organisation of the execu-

[10] For recent figures see http://ec.europa.eu/civil_service/about/figures/index_en.htm.
[11] ERA-nets created new links between national funding agencies and to some extent between these and the Commission.
[12] JPIs for instance each have a small but relative independent executive organisation of their own (see http://ec.europa.eu/research/era/areas/programming/joint_programming_en.htm).

tive capacity, but should be seen as smaller new elements that were *layered* onto it (Gornitzka 2009).

One clear sign of increasing vertical specialisation of Union administration is the 'out-sourcing' (vertical differentiation) of FP management from the Commission to a new Research Executive Agency. This was part of a trend towards agencification in the public sector in general. It builds on the assumption that the technical and the policy relevant aspects of administration can be identified and organised separately. Giving executive agencies the tasks of managing EU programmes was intended to create efficiency gains and unleash capacity within the DG to take on a more active policy making role. Thus, the expectation was that the DG Research's Research Executive Agency would 'free up' the staff capacity within the DG in order for it to take a 'more ministerial type approach'[13]. However, it is to note that the creation of DG Research's second Executive Agency, the European Research Council's Executive Agency (ERCEA), followed a different rationale. The establishment of this agency was more the result of political compromises resulting from the fact the ERC as a new path breaking institution was realised as part of FP7 and not as a formally autonomous EU institution (Vike-Freiberga et al. 2009). Yet, in sum these changes increased both the vertical and horizontal complexity in the executive governance of EU research policy.

[13] interview with former Commissioner for Research Potocnik, Cordis news 2008-01-25

Most recent developments have also entailed changes in the basic distribution of portfolios between the 'knowledge DGs'. When the Barroso II Commission took office, the administrative responsibility for the Marie Curie Actions (mobility) was transferred to DG Education and Culture. In addition, the Commission President asked the new Commissioner, Geoghegan-Quinn, to 'lead a cross-cutting approach to innovation'[14], giving her the responsibility for the renamed 'DG Research and Innovation'. This could be seen as an attempt to organisationally anchor the link between research and innovation in tune with the Lisbon Strategy's 'knowledge triangle' idea (a term gaining prominence from 2004 and onwards). The implications of these changes for the logic of executive governance remain to be studied. The same goes for potential executive coordination in the FP7-successor, the new funding framework Horizon 2020, a programme that can be read as an EU research policy attempt at exercising 'joined-up governance'.

Commission expert groups in EU research policy

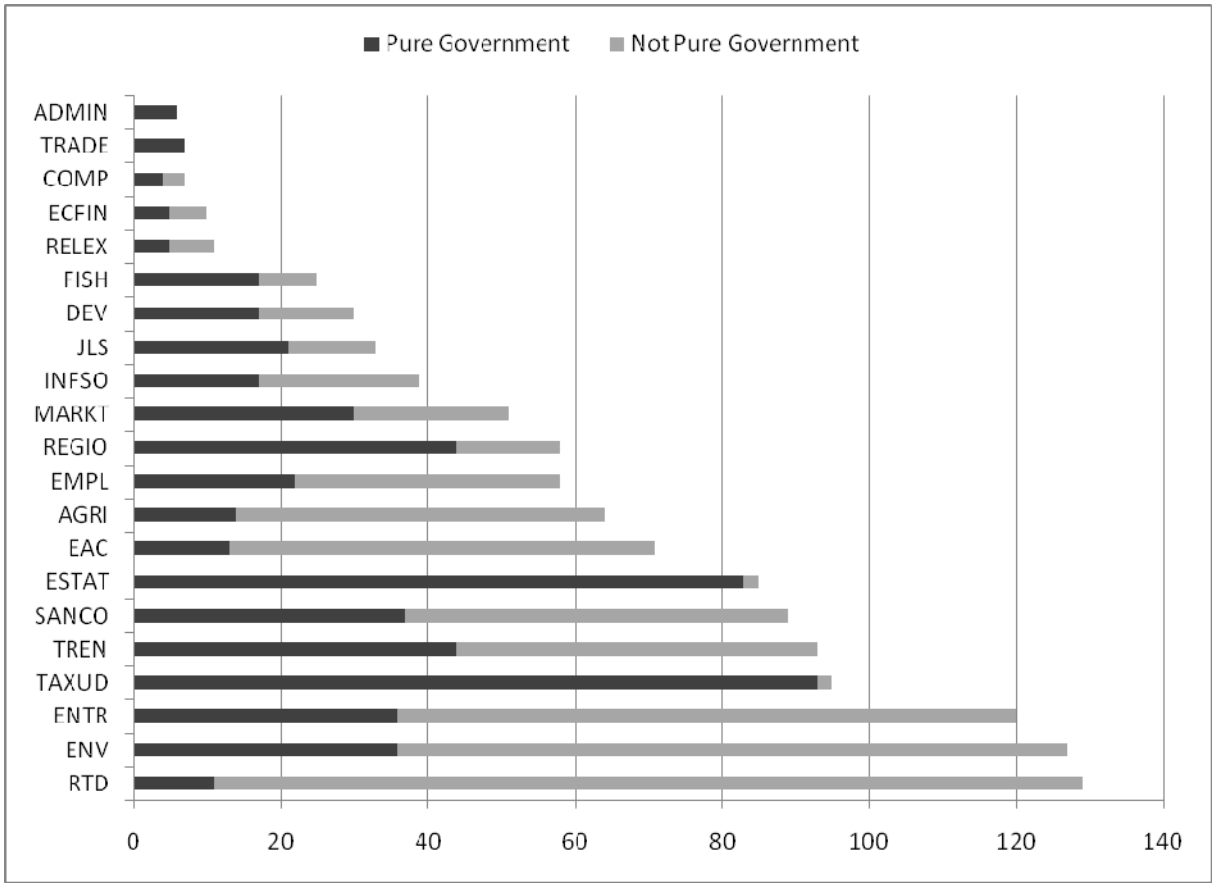
We have so far seen increased political attention, consolidation of the executive centre, administrative path-dependency and increasing administrative complexity. To what extent does the Union administration in this field still involve governance by committees and organised networks between administrative actors from different levels? In order to assess whether similar patterns as in the 1990s still exists today we take a

[14] Mission letter from President Barroso to the Commissioner designate, 27 November, 2009

closer look at the European Commission's expert groups in the area. This expert group system, which is sectorally organised according to Commission DGs, serves several purposes that are central to the functioning of an executive system. It feeds the DGs with information and technical expertise, but it also functions as a sounding board testing the reactions of Commission proposals. If research policy is more technocratic than other policy areas we should expect this to be reflected in the research DG's use of expert groups and in the configuration of participants in these organised research policy networks.

Figure 1 shows the overall configuration of expert groups across the Commission's services, as well as patterns of participation. The first observation is clear: given the prevalence of expert groups under DG Research's executive governance is more extrovert than in most other areas. In 2007 DG Research organised more expert groups than any other DG. Together with DG Environment and DG Enterprise this DG makes up the overall top three expert group users. This is inconsistent with the claim that EU research policies follow an introvert bureaucratic logic of decision-making.

Figure 1: Total number of expert groups per DG and number of groups with participation only of national officials (2007).



Note: For explanations of abbreviations, see Appendix

Source: Own data (data base on Commission Expert Groups 2007 (Gornitzka and Sverdrup 2008))

The second observation is equally striking: unlike most other policy areas there is very little evidence that national administrations dominate DG Research's policy networks. Only a small fraction of the expert group system in research policy is 'pure government', i.e. convenes only representatives of national administrations (Figure 1). The

pattern of participation in this policy area is thus more transnational and less purely intergovernmental than the pattern for the Commission as a whole (47 per cent of all Commission expert groups have only participants from national government offices).

Table 2 specifies the pattern of participation in expert groups, comparing the three central DGs of Lisbon's knowledge triangle – DG Research, DG Enterprise, and DG Education – and all Commission expert groups. Based on these data mixed participation is the paramount characteristic of DG Research's EU research policy networks. Academics/scientists are present in an overwhelming majority of the groups. This is not surprising given the dual role they have in in research policy: as stakeholder in EU research policy with material interests and practical knowledge and as experts with knowledge with respect to the scientific content of the EU research policy instruments. As expected the technical complexity of preparing and implementing research policy is in this way reflected in the patterns of participation in expert groups specific to this DG. However, we assume that not only technical complexity of research policy is at the root of this pattern of participation. The norms of who constitutes particularly legitimate participants regulate the access of scientists/academics into the policy process. Given a strong tradition of the involvement of scientists in research policy governance at the national level an EU science policy without the involvement of scientists and academics might not only be technically ineffective but also lack legitimacy (Patzwaldt and Buchholz 2006).

Table 2: Types of participant present in expert groups under DG Research, DG Enterprise, DG Education and Culture and all DGs. (per cent of total number of expert group under each DG)

Type of participant present in expert group	RTD EGs	ENTR EGs	EAC EGs	All EGs
Academics/Scientists	79	18	65	33
National ministries	45	88	56	70
Competent national authorities/agencies	23	41	62	34
Regional Administrations	5	10	9	8
Consumers	4	19	-	8
Enterprises/Industry	54	63	16	29
Social partners/unions	7	17	42	12
Professionals/practitioners	13	15	14	13
Non-governmental organisations	6	16	23	17
International organisations	9	-	-	2
N of expert groups	*129*	*120*	*71*	*1236*

Source: Own data (data base on Commission Expert Groups 2007 (Gornitzka and Sverdrup 2008))

However, it is relatively rare that scientists/academics are the only members of a group: only 17 per cent of DG Research's expert groups are 'purely' scientific. Members from enterprise and industry are present in more than half of DG Research's groups. The kind of segregation of academic science versus industry suggested in earlier studies cannot be retrieved here. This is most likely due to the fact that DG Research itself does not only fund academic research, but also industrial research, such

as in the area of aeronautics, although that was also the case in for the FPs in the 1990s

We also note that while the national dominance is a less pronounced trait in research policy networks, representatives from national *ministries* constitute the third most frequent type of participant in DG research expert groups. They are present in 45 per cent of DG research expert groups. Other than in the other knowledge DGs' networks national *agencies* are not a frequent participant in this setting.

Non-governmental actors beside industry and academics/scientists are less present than in other policy areas. There is, for instance, a striking difference between DG research and DG Education in this respect. The expert groups system is clearly not the place for civil society organisations to take part in shaping research policy. This may reflect the policy area's low public salience (Radaelli 1999), and they may have other access points, such as public consultations or consensus conferences[15]. The same goes for the participation of regional administrations, reflecting the case for the Commission in general.

What do these patterns of participation tell us about EU research policy networks? First, they indicate that EU research policy entails a co-production and co-

[15] FPs have also devoted special programmes for promoting science and society link.

implementation of policy across multiple governance levels. A relatively lower share of pure governmental expert groups supports our argument that executive governance of EU research policy is less single-mindedly oriented towards national administrations than other policy areas. We also see that compared to neighbouring policy areas (enterprise and education) and the Commission in general, the research policy domain is different in several respects. The prevalence of scientists and academics is found nowhere else – a fact that arguably is linked to the nature of research policy. In this sense there is support for the idea that distributive policy (still the core of EU research policy) with high technical complexity has indeed generated a particular pattern of executive governance. This, and the fact that the expert group system under the DG for research is vast, demonstrate how densely tied this DG is to its closest policy constituency.

We now turn to the functions that expert groups have in this sector and to the *stages of the policy process* where they play a role. Based on the detailed information provided in the Commission's expert group register we distinguish between the following non-exclusive tasks: groups that 1) assist the Commission in the preparation of legislation or in policy definition ('Prepare'); 2) coordinate with member states and promote the exchange of views between actors ('Coordinate'); 3) provide expertise to the Commission when drafting or implementing measures, i.e. before the Commission submits these draft measures to a comitology committee ('implementation'); 4) moni-

tor the development of national policies and the enforcement of EU policies ('Monitoring').

Table 3: Tasks assigned to expert groups under DG Research, DG Enterprise, DG Education and Culture, and all expert groups. 2007.

Share of expert groups that..	RTD EGs	ENTR EGs	EAC EGs	All EGs
1) Prepare	49	38	40	43
2) Coordinate	45	64	64	61
3) Assist in implementation	18	20	4	16
4) Monitor	3	17	29	11
N of expert groups	*129*	*120*	*71*	*1236*

Source: Own data (data base on Commission Expert Groups 2007 (Gornitzka and Sverdrup 2008))

The findings show that the task structure of the research expert groups is not that deviant from the overall picture. They are more engaged in the policy shaping stage (task 1 and 2) than in the implementation stage (task 3 and 4). Especially the role of monitoring national policies and the enforcement of EU policy at the national level is virtually absent in research policy committees. This we assume is related to the FPs' principle of *direct management*. We also note that the use of export groups to coordinate research policies with member states is somewhat less prevalent than in other policy areas.

Governance by committees/networks is currently as prevalent as it was in the 1990s. It is likely that a department culture and sector specific norms of appropriate behaviour have supported such a network-based system of executive governance. One could also argue that this is a sign of path dependency. Available data on expert groups' formalisation and permanence can in addition tell us something about the degree of *institutionalisation* of DG research's expert group system.[16] As we see from Table 4, most of DG Research's groups are both informal and temporary. Consequently, executive governance in this area is less anchored in formal rules of procedure. Its specific approach to governance through extensive use of expert groups is upheld more through a mechanism of habituation and practice than via formalisation.

Table 4: Institutionalisation of expert groups under DG Research, DG Enterprise, DG Education and Culture, and all expert groups (2007).

Shares of expert groups that are..	RTD EGs	ENTR EGs	EAC EGs	All EGs
Informal	77	68	79	76
Temporary	75	49	64	51
N of expert groups	*129*	*120*	*71*	*1236*

Source: Own data (data base on Commission Expert Groups 2007 (Gornitzka and Sverdrup 2008))

[16] For further information see http://ec.europa.eu/transparency/regexpert/

Conclusion

Executive governance of EU research policy is far from a simple two-level system. The system that has developed spans levels of governance and EU level administrative bodies, national ministries/agencies and societal actors. Previous studies of EU research and technology policy have portrayed this field as the pinnacle of 'the politics of expertise'. Policies are shaped far away from the political leadership, elected office holders, and public attention, and the operational decision making in EU research policy is dominated by an established technocracy (Peterson 1995). Partly this is still the case in the 2000s. However, political attention has increased considerably in this domain, but still without activating traditional party-political conflicts. Increasing political visibility for research policy issues seems partly based on increasing consensus on a 'knowledge policy paradigm' and less on contestation in the public and political sphere. Among the general public the role of the EU in this area has not been contested - citizens attach little national sensitivity to research policy. According to a 'policy determines politics' perspective this should be conducive to a technocratic logic of executive governance. Indeed, we find a technocratic and sector specific logic in the everyday implementation and policy shaping that takes place within the Commission and in its vast expert group system. Yet, decisive decisions on the size of EU programmes are notably taken at the apex of political leadership in the EU. It involves more scrutiny from the EP. In addition, the Commission's political leadership (the President and the designated

Commissioner) has directly engaged in key research policy initiatives. Technocratic governance is not unfettered but takes place within the larger political setting.

A second observation made by prior studies is that research policy shaping is *segmented*, i.e. policy making takes place within policy networks that are internal to subsectors within the policy domain (Grande and Peschke 1999) and are too opaque for actors outside the closed circles to scrutinise (Peterson and Sharp 1998). The executive complexity of EU research policy has certainly not been reduced – it has rather become even more compartmentalised. There are clear signs of increasing vertical and horizontal specialisation associated with a string of new initiatives. This complexity contributes to making EU's research governance less transparent and could be an impediment for the exercise of political control and scrutiny and for the public to engage in research policy debates. Specialised segments of policy making and implementation define the set of actors that command the terminology and rule-setting specific to the policy domain. Yet, more than most other policy areas DG Research is *extrovert* towards its sector specific constituency. The data on the networks of executive governance demonstrates a technocratic rather than a bureaucratic logic.

And finally, a strong claim has been made with respect to the *dynamics* of EU research policy making in the transition to the 2000s. Actor constellations and administrative path dependencies that crystallised around the EU's main research policy instrument,

the FPs, had created *inertia* in EU research policy (Banchoff 2002). We have identified the creation of a separate specialised DG and administrative capacity for EU research as a key fork in the road. The build-up of executive capacity for action and the adding of an eventually strongly institutionalised FP (10 years later) have resulted in a tight web of interactions with strong historical roots, specialised along sectoral lines. Interaction patterns that were established in the 1990s created a path-dependency that also lasted into the 2000s. Some of these interactions *bypass* the national executive level and engage the EU administration with sub-national actors directly. However, continuity runs parallel to change as several changes in executive governance came in the wake of new FP instruments and when new research policy instruments were added outside and in the fringe of the FP.

In conclusion, the combination of 1) an increasingly specialised organisation for preparing and implementing EU research policies, and 2) the particular type of distributive policy that the EU has practiced, have shaped the executive governance of this field.

*I am indebted to Julia Metz for her insightful and in-depth comments to earlier versions of this paper and to Schumpeter Junior Research Group 'Position Formation in the EU Commission' at the Social Science Research Center Berlin for the enlightened

discussions on EU governance in general and expert groups in particular that this paper has benefitted greatly from.

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Appendix: Appendix: European Commission Expert Groups with and without participation of scientists according to DG. Includes only DGs with more than five expert groups

Service	*Abbr.*	*Without academics/ scientists*	*With academics/ scientists*	*Total*
Research	RTD	27	102	129
Environment	ENV	72	55	127
Enterprise and Industry	ENTR	98	22	120
Taxation and Customs Union	TAXUD	95	0	95
Energy and Transport	TREN	69	24	93
Health and Consumer Protection	SANCO	55	34	89
Eurostat	ESTAT	84	1	85
Education and Culture	EAC	25	46	71
Agriculture and Rural Development	AGRI	50	14	64
Employment, Social Affairs and Equal Opportunities	EMPL	39	19	58
Regional Policy	REGIO	46	12	58
Internal Market and Services	MARKT	39	12	51
Information Society and Media	INFSO	20	19	39
Justice, Freedom and Security	JLS	23	10	33
Directorate General for Development	DEV	20	10	30
Fisheries and Maritime Affairs	FISH	17	8	25
External Relations	RELEX	5	6	11
Economic and Financial Affairs	ECFIN	8	2	10
Competition	COMP	5	2	7
Trade	TRADE	7	0	7
Personnel and Administration	ADMIN	6	0	6

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