4th LEG REPORT

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ERA governance issues and links to the Lisbon strategy

Towards new types of knowledge policies in Europe

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Expert Group for the follow-up of the revised Lisbon strategy (LEG)

Table of contents

Executive Summary

Public administrations are paying increased attention to "knowledge policies", where research, innovation and education perspectives should be systemically addressed in the design and implementation of public policy measures oriented towards public and private entities. The recognition of their contribution for growth and better employment in Europe is the ultimate goal of the so called "Lisbon process" launched on 2000.

By 2004 it had become obvious that measures taken were not sufficient and subsequent progress towards Lisbon goals had not been obtained as planned. Both to focus the strategy and strengthen the commitment objectives, the Lisbon strategy was re-launched in 2005.

Lisbon governance instruments relies on the use of the Open Method of Coordination (OMC) which provides a voluntary framework where individual Member States can support the reform of their own policies through mutual learning, and peer review with the rest of Member States. Integrated Guidelines (IGs) have allowed Member States the preparation of their "National Reform Programmes" (NRPs) and their annual "Progress Reports" (PRs).
NRPs and PRs show clear evidence that the Lisbon implementation process suffers from a lack of commitment, leadership and ownership. This governance weakness is becoming a key bottleneck preventing a faster advancement in knowledge policies in Europe. Policy makers at the national and regional level are faced with a difficult dilemma – how to design effective policies which are both serving the interests of their constituents and helping Europe reach Lisbon objectives.

In parallel, the construction of the European Research Area (ERA) was launched as a different but related process framed in the specific domain of European research policies. Its governance instruments were less defined and less visible from the political standpoint. Nothing equivalent to IGs or annual progress reports was in place although some of its elements were included by Member States in their NRPs o PRs. Nevertheless, Community instruments were embedded into FP6 and FP7 (i.e. ERA-Nets or JTIs) by providing pilot experiences on joint implementation between Member States and European Commission.

ERA's ability to become a genuine EU space for research is a basic ingredient for the future success of the Lisbon Strategy in its overall goal to bring about a true European 'knowledge-based society'. Nevertheless, the achievement of this overall goal could be undermined and slowed down by the lack of appropriate governance structures capable of dealing with the EU challenges on time and with the necessary flexibility to accommodate the great diversity in status and structures of national and regional research and innovation systems found in the EU

NRPs and successive PRs presented two main weaknesses. First, evidence for new or improved types of policy-making in Europe, i.e. more systemic,

multi-actor/multi-level/multi-domain approaches was scant. Second Member States still rely on national (or regional) views in the definition and implementation of their research policies: the intra-European perspective is more an exceptional case than the common approach. The need to support the evolution of national policies towards these new directions has been also acknowledged by the Commission in its rationale behind the next cycle of NRPs-PRs.

From the LEG point of view, solutions will require setting up a new conceptual framework for policy design and implementation based on "dynamic knowledge configurations" where policy mixes should take into account the specificities of individual S&T domains and industrial sectors. LEG believes that it is not possible to apply the same policy principles and instruments for a wide variety of situations found in Europe. This flexibility calls for more emphasis in policy experimentation. More specifically, it is necessary to define a new conceptual framework overcoming national and regional boundaries and able to describe the configuration of ERA according to a multi-level, multi-actor and multi-domain landscape and a dynamic perspective to realise the systemic approach.

Clear delimitation of responsibilities between ministerial departments and agencies is often taken as a measure to ensure good public management and clear accountability. How to reconcile the latter goal with the goal of ensuring better interaction between policies is a challenge for the future of S&T policies in Europe.

The current situation in Europe can be described in general terms as the combination of two main governance issues: policy fragmentation and low perception of the opportunities related to ERA construction. More specifically, the situation revealed in NRPs and PRs can be conceptually described as two main "governance problems" as follows:

1. *A higher level of policy coordination for action between the Commission and the national and regional governments is postulated as a way to address the European challenges and to reduce policy fragmentation.*
2. *The construction of ERA is not understood as a problem for Europe. It is perceived as a void concept not linked to the urgent problems to be solved. The consequence is the poor commitment and ownership associated to the ERA construction process.*

Some policy instruments like ERA-NET included in FP6 and FP7 have demonstrated the benefits for policy coordination of research programmes. Other softer mechanisms (where money was not explicitly allocated), namely technology platforms and research infrastructures through ESFRI, have also demonstrated their usefulness for policy coordination. These examples also demonstrate the need to improve governance mechanisms if effective implementation needs to be addressed.

To conduct strategic and efficient policies and support reflexivity throughout the whole policy cycle, policy-makers need to rely on tools to assess relevance and impacts of their policies. Regular, independent and learning-

and impact-oriented evaluation practices are crucial to feed the strategic policy-making practices.

From this situation, challenges and specific recommendations have been identified in order to accelerate the construction process of ERA and the implementation of Lisbon goals in research and innovation policies. These challenges and associated recommendations are the following ones:

1. Linking Lisbon and ERA: *Knowledge needs to be re-introduced as a driving force of the Lisbon strategy and ERA needs to be integrated into the broader policy agenda of the Lisbon strategy*

REC1. *The Council should emphasise the knowledge dimension in all Integrated Guidelines as a horizontal issue, rather than constraining it to IG 7 and 8. For that purpose, specific knowledge-based elements should be integrated in all IGs and be tackled in NRPs and PRs preparation.*
REC2. *The ERA construction process should be annually monitored through specific platforms and procedures for review and evaluation, with appropriate indicators, using coordination instruments to align and discuss progress made with Member States.*
REC3. *In order to assess progress in the ERA construction within the Lisbon framework, Member States should increase the ownership and enforce coordinated responsibility of ERA activities in order to avoid confusion and horizontal fragmentation in the design and implementation of related policy measures.*

2. There is a need to further support policy experimentation:.
Observation, comparison, and cross-analysis as a condition of policy learning and revision require **'Strategic Intelligence'.** *Policy-makers need to be able to create a link between national innovation systems diagnosis, the definition of overall strategic goals and priorities, and the elaboration of instruments responding to the stated priorities.*

REC 4: *The Commission should continue to provide platforms for policy experimentation – such as OMC, ERA-Nets, TPs – and stimulate Member States to join in!; it will require setting up innovative regulations and impact assessment embedded into larger evaluation procedures.*
REC 5: *Member States and Commission should facilitate the development and maintenance of advanced Strategic Intelligence capacities (organisations, networks, databases, human resources). The Commission has started to strategically observe developments (through analysis of NRPs, employment of 'Expert Groups', ERAWATCH, …); such efforts should be professionalised and complemented by Member States (improved) observation and evaluation activities.*
REC 6: *Member States and Commission should commit themselves to launch experimental initiatives with serious exit options. An organised political debate on achievements from the experimentation phase should be completed by 2010, and should result in a sober revision of the policies developed, identifying bad and highlighting good experiences.*

3. The Costs of non-ERA and the benefits of ERA need to become more *visible.*
The costs of non-ERA and benefits of ERA are not readily visible to national policy-makers, since they are difficult to calculate and not easy to demonstrate to their electorate. The costs of non-ERA are obvious where national borders are too narrow and a supra-national dimension is needed for carrying out research activities, requiring competencies and a critical mass of investments not available at the national level.

REC7. Member States should be encouraged to favour trans-border bilateral and multilateral research and innovation platforms and structures as opposed to pure national ones as a mechanism to integrate scientific or technological communities of several European countries on a more stable basis (e.g. as JTIs have started to do or EIT could do in the near future) to support the development of stronger knowledge configurations in Europe. This can provide the basis to demonstrate benefits of ERA from a pragmatic approach.

REC8. The Commission should facilitate and encourage the creation of bilateral or multilateral R&D programme structures to visualise at the national/regional level the support to pan European research and innovation activities. An evolution of instruments like ERA-NETS PLUS to cover common infrastructures should also be explored.

4. Adopting more efficient policy mixes, with variable geometry approach.
The composition of the policy portfolio, the balance between policy instruments, and the design and mode of implementation of instruments, are all crucial for the effectiveness of policy action. As a result, the governance aspects – focusing on strategic capabilities and on effectiveness of policies- are at least as important as quantitative issues (such as increase in funding allocated to R&D in public budgets) or the presence of several specific types of instruments in policy portfolio.

*REC9. Member States should identify some **pilot areas of policy action** around research infrastructures and joint centres of excellence in which innovative policy mixes (crossing over domains and levels) could be designed and tested for effectiveness.*

*REC10. The Commission should facilitate and partly finance the launching of specific **variable geometry mechanisms** across some interested Member States implementing multi-level and multi-domain integrated actions (from human resources to infrastructures) by innovative regulations on the basis of Treaty provisions.*

The redesign of governance structures implies an increase of the ownership of the process by legitimating decision making processes and painful actions. The progressive involvement of national Parliaments or regional governments is a decisive step in this direction.

But it is not enough; Europe needs to create an atmosphere where common approaches could be rapidly decided. The second cycle of Lisbon strategy recently launched by the EU is the opportunity to get it.

Background of the 4th LEG report

The *'Expert Group for the follow-up of the revised Lisbon strategy'* (LEG) established in 2006 has been given the mandate to assess the implementation process of the revised Lisbon Strategy in the area of R&D and innovation. It has analysed the contents of the National Reform Programmes (NRPs) presented by Member States in 2005 and the two subsequent progress reports (PRs) prepared in 2006 and 2007 focusing in particular on the Integrated Guidelines 7 and 8[1].

In April 2007 the European Commission presented a Green Paper on "Future perspectives for the European Research Area" (COM, 2007a) to stimulate the debate on the relevance of ERA and possible directions for the future. With the Green Paper, the Commission also launched two accompanying processes: a broad based consultation process and a high level Conference in Lisbon held last 8-10 October 2007. Specific expert groups were also created on various dimensions of ERA in order to assess the current situation and elaborate proposals for future directions.

The present 4th LEG report takes as starting point the "issues paper" prepared for the Lisbon Conference (LEG, 2007c) and develops key points of the evolution of research policies in Europe. Furthermore, it elaborates in more detail the governance related aspects made with occasion of the 3rd LEG report (LEG, 2007b) with the main goal of providing a sound basis for future research and innovation policy governance options.

This report is organised in three main parts. First, governance aspects of the Lisbon and ERA processes are reviewed (section 1). Then, the paper develops an argumentation for a dynamic and systemic policy approach for policy design (section 2). The third part presents a set of recommendations to the Commission and Member States (section 3). A final section provides conclusions (section 4). Annex 2 summarises main findings from NRPs and PRs provided by Member States.

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[1] See section on References in this report for previous LEG reports.

1. Governance aspects of the ERA and Lisbon processes: an evolving policy context

1.1. Introduction

Research and innovation have been at the heart of the Lisbon strategy – making Europe the most competitive knowledge-based economy in the world – since it was unveiled in 2000. Perhaps the most visible and most discussed Lisbon objective was to increase R&D investments until reaching 3& of GDP in 2010. At the time of the launch, all Member States were committed to reform their own research and innovation policies accordingly. The main Community instruments, especially the Framework Programme and structural funds were also redesigned having in mind the Lisbon goals.

By 2004 it had become obvious that measures taken were not sufficient and subsequent progress towards Lisbon goals had not been obtained as planned. Both to focus the strategy and strengthen the commitment objectives, the Lisbon strategy was re-launched in 2005. Since then, the strategy has emphasised four main objectives: *'Investing more in knowledge and innovation', 'Creating a more dynamic business environment', 'Investing in people' and 'Greening up the economy'* All of these objectives rely on knowledge and contribute to knowledge-based economic development.

At the beginning of 2008, almost 3 years after the re-launch of the Lisbon strategy, the progress is still poor. R&D statistics show that efforts made until now, have not been sufficient[2]. Employment rates are still low and there are significant institutional barriers to life-long learning and labour mobility. Despite the efforts to create common markets in Europe, many markets are still fragmented and protected by national interests. As a result, Europe and Member States are not as attractive and competitive for knowledge investments as they should be.

It can be argued that the Lisbon objectives were and still are too ambitious. On the other hand, it might also be argued that the objectives themselves or the directions of development that they capture are vital regardless of any particular timeline. Given timelines or any numerical targets should, in fact, not be seen as measures of success or failure, but rather as directions and measures of commitment to common goals. Commitment to the Lisbon objectives should be primarily seen as a commitment to the structural

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[2] The EU GERD is today (data from 2006) at 1.84% (EUROSTAT, 2007) (COM, 2007f) and could only reach 2.5% of GDP in 2010, and only if all Member States were able to satisfy their own goals. This objective is difficult to get to due to the unrealistic targets committed by some countries as LEG has pointed out in its previous report (LEG, 2007b).

reforms (see Aho et al., 2006), which are crucial to the European development towards a leading knowledge-based economy in the world.

Based on the accumulated experience from the first cycle under the revised Lisbon strategy (2005-2008), the Commission has recently adopted a *strategic report* (COM, 2007c) to serve as a guide for launching the second cycle (2008-2010). While there are clear signs of developments in the right direction, a lot of work still needs to be done both at the level of EU and especially at the level of Member States.

Since 2000, in parallel with the general Lisbon goals mentioned above, the EU has also launched an initiative for constructing the *"European Research Area"* (ERA). A first assessment of the present situation shows that the construction of ERA has been slower and harder than it was expected in 2000. Starting from this assessment, the Commission has in 2007, through the publication of a Green Paper, launched a broad debate on future perspectives for the European Research Area.

1.2. *Governance of the revised Lisbon Strategy*

As a consequence of the re-launch of the Lisbon Strategy and especially the new focus on *'Investing more in knowledge and innovation'*, public policies related to knowledge generation, sharing, transfer and use should take the lead in fulfilling the Lisbon goals. However, the claim of the LEG group is that this trend is not clearly perceived by European stakeholders and that a vigorous reformulating of knowledge policies is needed.

Even if Lisbon goals have been progressively accepted at the political level, there is clear evidence showing that the Lisbon implementation process suffers from a **lack of commitment, leadership and ownership**.

This does not refer to political commitment to Lisbon objectives or even leadership at the European level. The problem lies in the fact that Member States still see the Lisbon process and European development mainly as means of pursuing their own national interests. While everyone applauds the Lisbon objectives of making Europe the leading knowledge-based economy and society in the world, no one seems willing to sacrifice anything at the national or regional level for the good of Europe even if this short-term minded attitude could feed up higher long-term difficulties. Then, there is a lack of commitment to European level objectives at the national and regional levels. This is likely to support further fragmentation instead of coherence of all knowledge-related policies vital for reaching the Lisbon objectives.

Policy makers at the national and regional level are faced with a difficult dilemma – how to design effective policies which are both serving the interests of their constituents and helping Europe reach Lisbon objectives. While there is no contradiction between these two in long-term, there can be and often are many contradictions in short term. It is therefore difficult for policy makers and especially politicians to openly take or even declare true leadership or ownership of the Lisbon process at the national or regional level without endangering re-election. Although real leadership does not necessarily have to be taken by political decision makers, they at least have to declare shared ownership of the process and objectives in order to make the often difficult decisions related to the necessary structural changes that the Lisbon process calls for.

In the opinion of the LEG group, these **weaknesses in *governance*** of the Lisbon process are the key bottleneck preventing a faster advancement in Europe.

Why is governance so important? Why does lack of commitment and leadership severely hinder progress? The key is really in making strategies into reality – taking the necessary and sometimes even painful action needed to follow the strategy and reach the objectives. This call for strong commitment and leadership, especially at national level – at all levels from long-term political decisions to day-to-day actions. The real challenge is not in designing a good strategy; it is in the ability to effectively implement it.

Several problems typically rise during the implementation stage, and it is very often easier to disregard long-term strategies for the benefit of short-term benefits. It is at these times, when strong leadership[3] and commitment from all stakeholders is called for. In absence of them, implementation suffers and progress is eventually hindered.

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[3] Leadership can be given to somebody by other stakeholders or it can be taken. The first is a more typical case, where a ministry or the government takes on the responsibility of the strategy and its implementation and is recognised by the other stakeholders as the owner of the agenda and the process. The problem with this approach is that while it typically is the best or even the only way to reach commitment on strategic level, it can be slow, inflexible and inefficient during implementation. Empowering someone else – perhaps an agency or a joint public-private actor – to take on leadership during implementation could be a way to overcome these types of inefficiencies. The latter is not so typical in cases which require big and difficult political decisions. However, emphasis on facilitating voluntary action towards strategic objectives can motivate existing actors or creation of new ones to take leadership by obtaining recognition from other stakeholders without the need for an official mandate. This does not change the fact that political ownership of the strategy remains at the government or at the ministry and that all key stakeholders must be committed to both the strategy and to the implementation. A good example of this is how the approach taken by the Commission in the context of FPs and ERA has lead into strong voluntary action by both R&D and innovation performers and even by Member States to a certain degree. The Commission merely creates the platform, where actors take the leadership.

It should be recognised, that **implementation of the Lisbon Strategy is in essence a voluntary process**. Each Member State defines its National Reform Plan (NRP), on the basis of mutually agreed Integrated Guidelines. Member States subsequently report on progress through yearly Progress Reports (PR). The Commission makes a yearly assessment of progress, both on a general and country specific level, issues proposals for recommendations where appropriate and proposes new orientations and/or priorities, and stimulates the use of open platforms for participation. These procedures allow individual and collective learning processes between the Member States and the European Commission.

Until the revision of the Lisbon strategy in 2005, implementation had mainly relied on the Open Method of Coordination (OMC). In the field of research policy, the leading role of CREST in this context has been very valuable. The OMC process has continued since 2005, but has developed on a somewhat parallel track to the overall Lisbon process, on the basis of annual cycles. CREST has also gone through two mutual learning exercises on the basis of the NRPs and Progress Reports focused on some relevant areas selected by CREST like e.g. policy mix (CREST, 2006).

The LEG group has concluded in previous reports, that the **NRPs and successive PRs presented two main weaknesses**. First, evidence for new or improved types of **knowledge-based policy-making** in Europe, i.e. more systemic, multi-actor/multi-level/multi-domain approaches was scant. Second, Member States still rely on national (or regional) views in the definition and implementation of their research policies: the **intra-European perspective** is more an exceptional case than the common approach. The need to support the evolution of national policies towards these new directions has been also acknowledged by the Commission in its rationale behind the next cycle of NRPs-PRs.

The Integrated Guidelines used for the first cycle have been maintained for the second cycle, although more emphasis is now put on the implementation. Furthermore, the wider vision of the Lisbon Strategy postulated in the second cycle has been reflected in its influence on other European policies like the "*cohesion policy*" (COM, 2007b) which is now understood as a key segment/element of the Lisbon Strategy. Finally, it is also influencing the budget reform process and public consultation recently launched by the Commission (SEC. 2007b) where the aim is to align future EU budget structures better with Lisbon objectives.

1.3. *The governance of ERA*

Governance of ERA suffers from the same weaknesses mentioned for the Lisbon strategy above. Building ERA is based mainly on voluntary action by

Member States. While it is supported by European level action by the Commission, the role of this has remained limited. For example in terms of funding, the Framework Programme represents only a small percentage of overall investments in R&D and innovation in Europe. Most of the investment is still national. While the source of funding is not the cause for slow progress, it indicates where the real decision power and also the responsibility lie.

One of the key problems is the difficulty to visualise the real benefits from ERA. As long as the benefits – or to put it otherwise the costs of not having ERA – are not visible for policy makers, they and many research organisations in Member States still focus mainly on their regional or national policies and contexts for activity and funding, and see European programmes and activities only as means to add to their resources to help reach nationally or regionally oriented objectives but not as the basis for their vision and economic sustainability.

Whereas the revised Lisbon strategy has a clear focus on improving the quality of national policy making, realising the European Research Area has up to now mainly relied on Community instruments. Nevertheless, due to the existing distribution in competence and the fact that the majority of public R&D funding is channelled through national and regional budgets, Member States have an important role to play by ensuring that their research policies are developed in such a way that they contribute to a shared European vision.

ERA governance is currently mainly rooted in specific instruments provided in the context of FP6 and FP7. These instruments emphasise and encourage shared action between Member States (e.g. ERA-NETs, INNO-NETs, ESFRI[4]) or between enterprises and research organisations (e.g. Integrated Projects, IPs, Technology Platforms, TPs, Joint Technology Initiatives, JTIs, and perhaps later increasingly also art 169 and 171). In this approach, the Commission has created a mechanism, where a promise of recognition and additional resources acts as an incentive for Member States and R&D and innovation actors to come together and launch shared action. Provided that this highly competitive approach is based in real life on appropriate selection criteria – as opposed to lobbying and protecting national interests – this can act as a strong instrument supporting the development of ERA.

It could be argued that in addition to the ERA objectives and strategies and related evaluation and research efforts, the approach described in the

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[4] ESFRI stands for "European Strategic Forum for Research Infrastructures". Its working procedure can be classified from the "governance" standpoint as OMC-like where Member State's representatives agree on some priorities (roadmap) to cover scientific challenges in Europe through new research infrastructures. Implementation is out of the scope of ESFRI where variable geometry funding schemes will take the responsibility.

previous paragraph is the *de-facto* governance model adopted by the Commission. This approach creates a competition, which allows the most active Member States and R&D and innovation actors to advance faster and be active partners in formulating the future ERA. There is a danger that this can also result in increasing cohesion challenges due to increasing differences in the levels of advancement between Member States and between industries. However, as it requires commitment and emphasises voluntary leadership instead of one issued by a higher authority, this approach can also help shape or create new governance models that might also support the Lisbon process. Careful thought and analysis would therefore be advisable before designing any overall governance models for ERA. Overall governance models or new governance processes for ERA should rely and complement the current *de-facto* approach, but not attempt to replace or create any barriers for it. .

Experiences with the use of article 169 in the past FP6 indicates that there are possibilities of reaching even higher levels of coordination between national research programmes than using ERA-NETs. Nevertheless, the use of articles 169 and 171 has been very limited due to cumbersome and lengthy approval procedures with the involvement of Council and Parliament. The use of 171 in the context of FP7 Joint Technology Initiatives offers a crucial framework for policy experimentation on new governance models.

The wide use of the ERA-NET instrument on the other hand, demonstrates that Member States are willing and can effectively coordinate their research programmes bottom up with a limited amount of Community support. The next step further into this direction is the ERA-NET PLUS scheme in FP7. Other experiences outside the FP also demonstrated that joint actions between the Community and Member States or R&D and innovation performer groups are also possible. One example of this is the EUREKA Eurostars-initiative in the field of innovative SMEs[5].

Softer mechanisms where money has not been explicitly allocated, namely technology platforms and research infrastructures through ESFRI, have also demonstrated their usefulness for policy coordination. Until now, these have relied on the *de-facto* mechanism, i.e. promise of recognition or its consideration as a European priority, and possible future funding. However, there might be a need to find other rationale and motivation to complement the *de-facto* incentives to support these softer network-building mechanisms also in cases, which are eventually not successful in gaining the desired highest levels of recognition and funding. This calls for complementary forms of governance.

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[5] **EUREKA's Eurostars Programme** is the first European funding and support programme to be specifically dedicated to SMEs investing more than a 10% of their annual turnovers in research and development activities

Technology platforms represent a bottom up coordination effort in selected industry-driven areas. In some domains, this process has generated common approaches at the national level reflected in national/regional platforms and open calls based on them. In 2007, a significant step has been made to increase the coordination between the European Commission and Member States with the effective approval of four Joint Technology Initiatives (JTIs)[6]. The approval process was based on article 171 of the EU Treaty. JTIs represent the next step in an interesting policy experiment, which allows for the development of various forms of governance structures. However, it is very important to complement this type of policy experiment with sufficient research and analysis to identify good practices and potential problems, especially related to governance. There is also a need to continuously learn and improve the selection and monitoring process, as well as selection criteria for JTIs to ensure that they are sufficiently selective and develop structures, networks and activities that support the ERA.

ESFRI (European Strategic Forum for Research Infrastructures) is another example of soft policy coordination instrument in the context of ERA. The ESFRI "forum" was created with participation of national representatives, with the aim to identify the most important research infrastructures for the future research in Europe and to facilitate their funding and construction. While the process has been useful for the identification process of the needs (ESFRI roadmap), it did not encompass the selection and implementation process because ESFRI cannot take formal funding decisions. The consequence is the difficulty to move from a prioritised list to the implementation phase. Research infrastructures (Kroo et al., 2007) have also considered the use of article 171 for the implementation of new pan-European Research Infrastructures. The missing link between ESFRI (i.e. strategic prioritisation) and actual implementation shows that there is a need for an overall governance process, which would ensure sufficient commitment and resources for implementation in the wider context of ERA.

In short, ERA construction is still in its infancy and much more effort should be put on its governance structures to become a cornerstone of the building of the EU knowledge society. However, as the *de-facto* approach taken by the Commission has already proven to be a powerful incentive in creating voluntary action and leadership – much more so than the NRPs and PRs for the Lisbon process – care should be taken in developing more overall governance structures. In fact, the overall governance structures should probably be kept to a minimum with a much more focus on creating and developing governance processes which are necessary for combining

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[6] The Joint Technology Initiatives approved were: ARTEMIS in the realm of Embedded Computing Systems, IMI (Innovative Medicines Initiative), ENIAC (European Nanoelectronics Advisory Council), Clean Sky (Aeronautics and Air Transport), FCH (Fuel Cells and Hydrogen). Other JTIs could join this list in the near future as GMES (Global Monitoring for Environment and Security).

different aspects of ERA, e.g. strategies-implementation-intelligence or infrastructure-research-commercialisation.
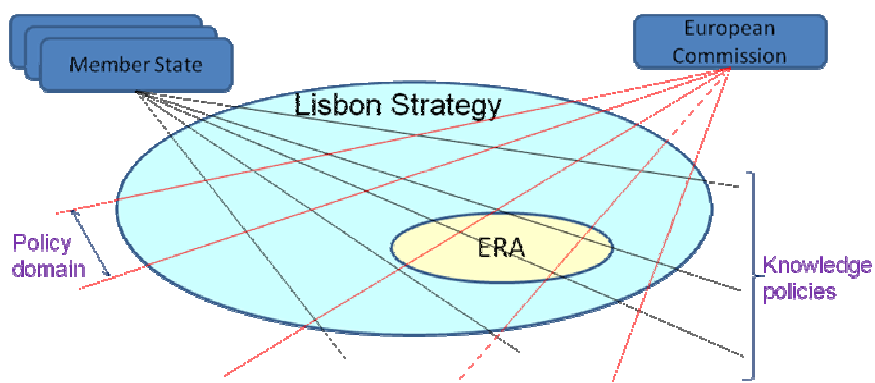
Yet it needs to be highlighted that the **construction of ERA is not a goal in itself, but an important roadway to the implementation of the Lisbon Strategy** in the domain of research policies.

1.4. *The need for better policy governance mechanisms*

ERA's ability to become a genuine globally attractive space for research and innovation supporting European developments towards a leading knowledge-based economy and society is a basic ingredient for the future success of the Lisbon Strategy. Nevertheless, the achievement of this overall goal could be undermined and slowed down by the lack of appropriate governance structures and processes capable of dealing with the European challenges on time and with the necessary flexibility to accommodate the great diversity in status and structures of national and regional research and innovation systems found in the EU (Kuhlman, 2007), (Kuhlman and Kneucker, 2007).

The source of governance fragmentation is illustrated in Figure 1. The figure depicts how knowledge policies set up by Member States interact with Community-level policies, and form together the wide set of policies within the Lisbon Strategy and within the ERA (represented in two concentric circles in figure 1).

Figure 1 suggests that to make an effective use of the benefits of both types of policies, it is crucial to improve coordination while at the same time taking care of the extra-costs associated to this European/national/regional policy coordination. The current approaches, such as the Open Method of Coordination (as CREST understood it, or as ESFRI is using today) are not sufficient to secure this overall coordination. This is the reason why additional instruments for intra-European interaction should be created.

Figure 1. The relationship between ERA and Lisbon Strategy

The new and improved governance is clearly needed for the Lisbon strategy. The elements of the new and improved policy governance should be based on recognizing and overcoming the two key weaknesses identified during the earlier work of LEG and presented in Chapter 1.2: the lack of horizontal knowledge-based policies and the lack of intra-European perspective in policy making.

The first of these is based on the fact that there are no policies without some link to activities related to knowledge production, transfer or use. This means that all real knowledge policies span across all sector policies. On the other hand, processes where knowledge is produced, transferred and used have no boundaries. While they might be initiated locally, they are quickly linked to global processes and networks. Knowledge processes are therefore affected by all levels of policies; local, regional, national, European and global. Any governance system put in place must recognize this multi-level, multi-actor nature of knowledge processes. The second weakness identified earlier refers to the need to recognize this in national, regional and local policies.

The examination of the implementation of the knowledge-related aspects in the Lisbon strategy in the NRPs and Progress Reports raises questions concerning the quality of policy governance in Member States. While there seems to be signs of increasing attention to issues related to governance, the overall approach and focus in most Member States is still mainly limited to administrative implementation rather than on a more overall and strategic levels of policy governance.

Further improvements in this respect will require deep structural reforms in public policy governance processes, including those that address framework conditions to boost investments in R&D and innovation. There is also a need to implement new "*integrated knowledge policies"* using a wider, systemic and more holistic approach as previous LEG reports have discussed (LEG 2006), (LEG, 2007a), (LEG, 2007b).

LEG has also emphasised the importance of the "*intra-European*" policy level which has been insufficiently covered in NRPs and Progress Reports. Intra-European level refers to the definition of research and innovation policies amongst two or more Member States through specific instruments and actions. This issue is also clearly addressed in the Commission's strategic report for the second cycle under the revised Lisbon strategy and accompanying documents when it states that Member States should, in their next generation NRPs: "*pay attention in particular to integrating the European dimension within their national R&D policies* (COM, 2007c), (COM, 2007d), (COM, 2007e).

An analysis of the 2005 NRPs and 2006 Progress Reports (see Annex 2) did not show that this type of coordination has had a large influence on the design of national R&D policies. In other words, the analysis shows that national policies are mostly designed with the objective of strengthening national research capacities, without much consideration for synergies and complementarities in an ERA perspective.

The new and improved R&D and innovation policy or knowledge-related policy governance needs to:

1. Address research and innovation policies from a **systemic approach** to overcome well-known difficulties and inefficiencies coming from fragmentation in policy definition and implementation. The consequence is the need to simultaneously address several policy areas by increasing the relationships between demand-side and supply-side policies.

2. Ensure the political and strategic **commitment** of all relevant stakeholders in a multi-level and multi-domain decision making process for speeding up structural reforms. This means key policy makers, implementing agencies, R&D and innovation performers and end-user communities at local, regional, national or European levels.

3. Increase **effectiveness** of structural reforms especially in Member States by integrating the intra-European perspective to the national and regional knowledge-policies. To be effective, this approach requires a common agreement on the urgency of the problem to be solved; even if countries differ in solutions.

Improving the governance of knowledge-related policies in Europe according to these three main elements and by linking Lisbon with ERA means that three types of policies will coexist supported by specific instruments:

- Better integrated policy mixes covering all knowledge-related policies both at the level of EU stimulated by the use of Community instruments (like FP7 or CIP) and at the level of individual Member States and regions,

- More emphasis on intra-European policies supporting the development of ERA from a voluntary and bottom-up approach (articles 169, 171, ERA-nets)

- Stronger governance of the Lisbon process to ensure sufficient progress in national (and regional) policy reforms (pushing national reform through integrated guidelines, and periodic bilateral and multilateral peer review).

These policies need to be a) strengthened individually, and b) more explicitly combined with each other with better governance structures. The rest of the report will provide some elements to advance in both dimensions.

2. A dynamic and systemic approach for policy design in Europe

2.1. Systemic approach for policy design

The re-launch of the Lisbon strategy in 2005 presented new opportunities by suggesting a systemic approach to policy and requesting a close interaction between knowledge-related policy domains which historically had developed in isolation. The Lisbon process utilising the Integrated Guidelines and the subsequent NRPs and annual Progress Reports pushed for identifying links and synergies between research and innovation policy with other knowledge-related policies, such as employment, education, etc. including even typically more cohesion oriented policies such as regional development.

To reach the Lisbon and ERA goals, the development of effective systemic policy mixes for the knowledge society will be crucial. Policies related to the Lisbon strategy would have to take into account the links between economic growth, innovation, competitiveness, sustainability and social development. Such a holistic notion of policy making would incorporate the interdependence between general and more sector-specific measures. Without an integrated view of educational and life-long learning policies, of research, infrastructure and innovation programmes, no progress seems possible in any of the individual sectors of the economy. This widens the range of stakeholders that should be invited to participate in the design and implementation of knowledge-related policies, and who should also be committed to the related strategies and actions. Without commitment of all stakeholders no new impetus to development can be expected.

Policies for the knowledge-driven economy and society have to address all policies related to knowledge production and transfer, to learning and personnel development, and to the utilization of knowledge for both economic and social purposes. New forms of governance will have to facilitate such systemic and holistic policy approaches.

As already developed in previous LEG reports, using a systemic approach to policy-making involves overcoming two main types of policy fragmentation:

- Vertical fragmentation between the various levels of actors in charge of designing and implementing knowledge-related policies. The European

Union, the national governments, as well as regional governments, cities and local governments in many countries, are all developing programmes, instruments, rules and organizations to support the development of knowledge-based societies. However, insufficient consideration of synergies and complementarities between public interventions developed at various levels frequently causes ineffectiveness and inefficiencies. Another aspect of vertical fragmentation is the interaction between policy-makers, implementing agencies and R&D and innovation performers. New governance approaches must also overcome this aspect of vertical fragmentation;

- Horizontal fragmentation between the various instances in charge of developing knowledge-related policies at one level. Typically, policies related to R&D and innovation, education, training, industry, employment, environment, regional development, etc. have evolved in isolation from each other, pursuing their own goals but failing to sufficiently address synergies. Cultural and institutional barriers between Ministries and implementing agencies play an important role in maintaining this fragmentation, even when Ministerial Council and high-level policy declarations put an accent on the need to develop more integrated policies.

There is yet another dimension of fragmentation caused by adding instruments and policies to the policy mix over time under different rationales. This is often referred to as "temporal fragmentation". Overcoming this needs the ability to streamline policies and measures with the aim of developing a coherent mix of knowledge-related policies supporting the current rationale for policy intervention. In practice it is often easier to launch new measures than to kill existing ones, especially if they have had a good track record in the past, even though current and especially future fit in the policy mix is poor and expected impact is expected to diminish. For the sake of simplicity, the following discussion is mostly limited to the vertical and horizontal fragmentation, because at any given point in time, these also capture most of the temporal fragmentation. Temporal fragmentation is a cause related approach and therefore more relevant in the context of designing governance processes, especially those related to learning and continuous improvement.

A systemic approach to policy-making would thus involve the development of coherent "policy mixes", understood as the combination of policy instruments – including rules, regulations, organizations, programmes, etc. – from various policy domains, which together contribute directly and indirectly to create more favourable conditions for creation, transfer and use of knowledge in the pursuit of knowledge-based Europe. Today, such a coherent development of policy mixes is still in its infancy. The set of instruments at play in a given context appears more as an "ex post reality"

than as an "ex ante construct": an ad-hoc combination of instruments developed under different rationales, which co-exist and for which interferences and interactions are unknown (Nauwelaers et al. 2007). This is especially true when we consider instruments from different policy areas, like R&D policy and environment policy, but it is also the case when we consider instruments from within the R&D domain, e.g. direct and indirect support for R&D in companies.

Policy instruments in a given environment have accumulated over time, responding to the needs identified at different periods, following evolving strategic directions initiated by new governments or pressures from lobby groups (ref. temporal fragmentation). Usually new instruments have been added to the set of existing ones, resulting in a complex set of instruments which are *de facto* interacting. Implementing coherent policy mixes for knowledge-based societies will involve the development of new tools, and new governance modes in order to understand such interactions, foster positive interactions and synergies, and remedy overlaps and negative interactions.

The acknowledgement of this need to develop systemic and integrated policies for knowledge-based societies is emerging in a number of Member States. Examples are:

The Austrian government has launched a systemic evaluation of its R&D funding in February 2008, under the hypothesis that "*the overall systemic effects of governmental interventions cannot be assessed by simple aggregation of the effect of individual intervention. The effects on the system level accrue through the interplay – particularly between tax incentives and bottom-up funding – of individual interventions, their complementarities, their contradictions.*" Even if it is limited to the R&D policy domain, this evaluation will most probably generate effective changes in the policy mix to respond to identified systemic flaws in the research and innovation system.

The regional government of Flanders in Belgium has formally endorsed the policy mix idea in its policy documents, translating it into the concept of "integrated horizontal" policy: "*the Flemish success in innovation is not only dependent from the policy domains Science and Innovation. There is a need for an integrated horizontal policy involving the whole Flemish government, its ministries and agencies."*(Policy Letter Science and Innovation 2005-2006), and "*the interactions between R&D, enterprise and international enterprise, with an eye on land planning aspects and knowledge intensity, imply that a fragmented policy approach is insufficient. These interactions can only be translated in an integrated policy approach, which endeavours to create as much synergies as possible between various policy domains*" (Policy Note Economy, Enterprise, Science and Innovation and Trade 2004-2009). Several elements, such as studies of the policy mix, a broadening of

the scope of activities of the S&T Council, and the merger of S&T and Economy administration, witness concrete steps to implement such policy vision in reality.

In the United Kingdom, a new ministerial department for Innovation, Universities and Skills was established in 2007, bringing together policies on skills, higher education and innovation for the first time, and offering "*a major opportunity to deliver an integrated approach to these key drivers of economic growth*" (UK, 2007).

In Denmark, the government adopted a horizontal Globalisation Strategy, including 350 measures pertaining to the areas of education, research, innovation and entrepreneurship. This strategy has been built up with the involvement of several ministries and a wide range of stakeholders; with the view of ensuring an integrated view on development challenges for the country. A Globalisation Fund is associated to the strategy, with a budget of DKK 39billions for the period 2007-2012.

In 2006 the German Federal Government announced an overarching "High-tech Strategy", designed as a holistic innovation policy concept ("*aus einem Guss*"). The initiative can also be seen as a response to the European Commission request to develop 'National Reform Plans' as a contribution to the joint "Lisbon Strategy". Although most of the suggestions and measures contained in the 'High-tech Strategy' are announcements yet, the strategy can be characterised as a major attempt of strategic co-ordination at the federal level. The initiative consists of diverse measures, including areas of competence of Federal Ministry for Education and Research and the Federal Ministry for Economics and Technology: Public procurement for innovation, a 'better' IPR regime, thematic programming, PPP models and usage of venture capital, spin-off activities, cluster financing and increase of spending in education, to mention only some key activities.

In addition to the Science and Technology Policy council's horizontal and systemic approach to ensure coherence over science and technology policies, and later also to some extent innovation policies, a number of other similar advisory councils have been used to enhance coherence e.g. in the areas of Information Society and Sustainable Development. The Finnish government has also prepared two important reports related to globalization challenges. Especially the later one published in 2006 takes a wider look on the challenges posed by globalization to both Finland and Europe. The report concludes that "*Basically, Finland's economic strategy, emphasising skills and innovation policy, remains a wise solution to globalisation challenges. A country like Finland can succeed in international competition only through continuous innovation based on solid skills and through increased productivity.*" and "*In spite of its solid basis, Finland's economic strategy requires further development. It is at least equally important that the various sectors of society are able to implement the*

necessary reforms in practical terms. There is a clear danger that strong economic development could lull society and decision makers into thinking that everything necessary has already been done. This is not the case." The report covers all policy domains and since the national strategy is based on knowledge and innovation, this is closest to a strategic overall review of all knowledge-related policies that there is in Finland. Similar exercises have since been launched in other Member States.

Whether these efforts will yield tangible results in terms of more efficient mixes of policies, can be later assessed using systemic evaluations. When doing so, one has to balance the positive impacts of policy coordination and alignments, with the costs of coordination. Clear delimitation of responsibilities between ministerial departments and agencies is often taken as a measure to ensure good public management and clear accountability. How to reconcile the latter goal with the goal of ensuring better interaction between policies is a challenge for the future of knowledge-related policies in Europe.

2.2. *The need for intra-European perspectives*

Europeans have begun thinking and working in "*European areas*", such as the "European Research Area" (ERA), the "European Research and Innovation Area" (ERIA), or the "European Higher Education Area" (EHEA), etc.

Under the concept of "Area" the Commission and Member States have tried to identify a common goal to which many different types of stakeholders could see themselves as contributors supporting the development of the EU. While these common goals primarily serve European interests, they also allow Europeans to improve their position in the global competition by strengthening their capabilities within a common framework.

A specific "Area" is developed through several actions: consensus building on long-term goals and objectives, a specific set of regulatory and softer instruments across Member States and Commission, and appropriate governance structures to ensure mutual learning. Furthermore, all of these actions should be seen as steps in a planned "process" over time.

These "Areas" are not identical, neither in their status, nor in their structure or impact. ERA has become the flagship of Community research policy and both FP6 and FP7 have been designed to support its realisation. ERA is well structured and supported by concrete measures and programmes, many of which are financed through the FPs. All other "Areas" are more related to common political visions without the allocation of specific Community budgets, with the hope of step-by-step implementation in the near future, although this mainly relies on actions taken by Member States.

To aim at ERIA, as an extension of ERA, is a perfectly logical policy, both at national and European level. Similarly, EEA would be instrumental to advancing ERA and ERIA within the "knowledge triangle" conceptual scheme. All of these "Areas" can be effective in targeting policy fragmentation.

It is not possible to get the final "European Area" in a single step. The recognition of the need to advance in a progressive way calls for a "staircase approach". This stepwise approach was presented in earlier LEG report 2 and is visualised here in Figure 2. The staircase model distinguishes 5 levels of R&T efforts in Europe and ERA can be placed on levels 1, 2, and 4: it increases participation in European activities, and starts new trans-boundary or regional actions; it also opens up national programmes and labour markets for researchers, and develops or initiates European- level research activities and institutions, all bottom-up. Levels 3 and 4 refer to intra-European and European measures. More than any other, they will promote and intensify European cooperation with a view to fully establishing ERA.

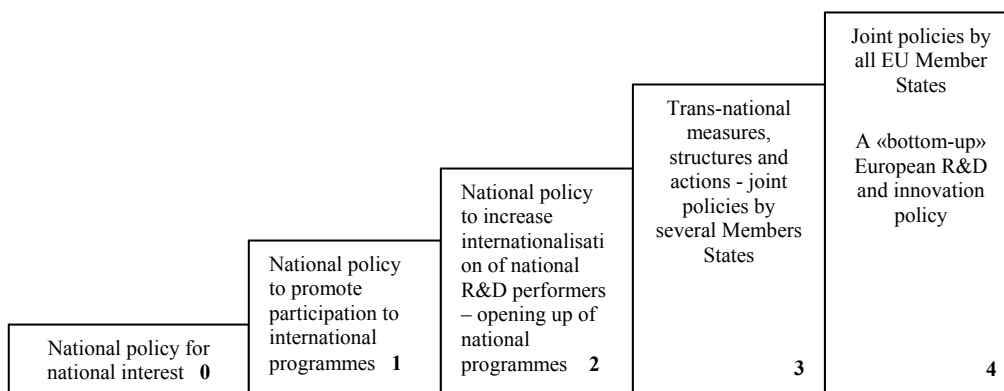|				Joint policies by all EU Member States A «bottom-up» European R&D and innovation policy 4
			Trans-national measures, structures and actions - joint policies by several Members States 3	
		National policy to increase internationalisation of national R&D performers – opening up of national programmes 2		
	National policy to promote participation to international programmes 1			
National policy for national interest 0				

Figure 2. The staircase of Europeanization of R&D and innovation policies (for more details, see LEG report 2)

The focus on the emerging intra-European policies cannot result in the idea that Europe is isolated. The international perspective is a crucial element for the competitiveness of European enterprises and public institutions.

Within this context, intra-European approaches have to be seen as key elements for strengthening the European position globally. They can combine capabilities and partnerships to face the challenge from emerging economies. The importance of Indian or Chinese markets to European enterprises implies the need to address their competitiveness and innovativeness with the support of the Commission and Member States. The past successes on GMS or the deployment of the future Galileo system are examples showing the potential of technology-based pan-European systems to strengthening the European global position.

2.3. *A new conceptual model*

R&D and innovation policies cannot remain stable over time. They need to adapt themselves to a very dynamic context where their role and goals are strongly dependent on the evolution of the economy and society. The consequence is the need to deal with uncertainties and fuzzy systemic and competence borders in policy making as well as fast variations in inter-dependences.

To address this challenge, slow and cumbersome decision-making processes are inadequate and other governance mechanisms should be adapted to specific situations. What is needed for the future is to reduce the policy fragmentation described above, and to introduce additional flexibility in policy design and implementation.

More specifically, it is necessary to define a new conceptual framework overcoming national and regional boundaries, which is able to describe the configuration of "European Areas" such as ERA according to a multi-level, multi-domain and multi-instrument landscape, and at the same time provide a framework for designing systemic, holistic and dynamic policy approaches.

A "European Area" can in fact be displayed along three dimensions:

(1) *Knowledge-related policy domains*: science and education; research; technological development; innovation and markets; societal (including environmental) needs and public goods;
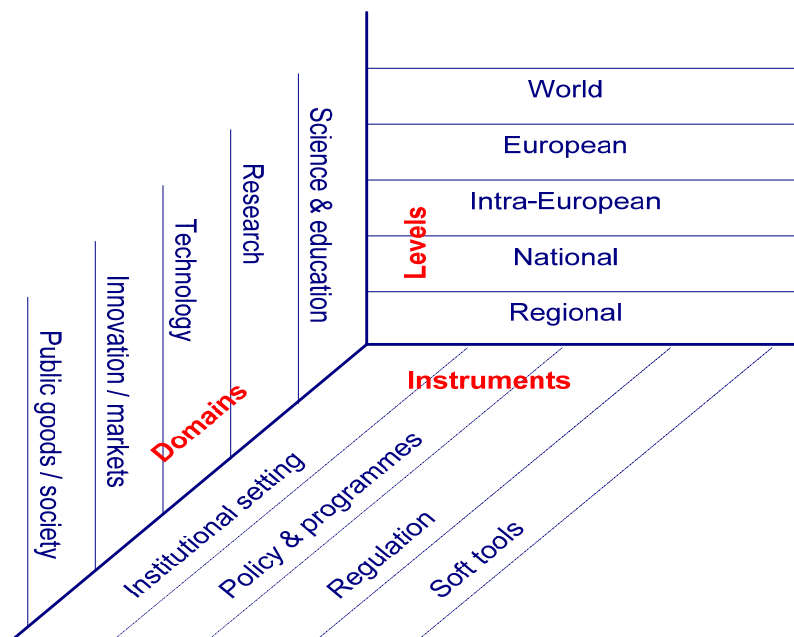
(2) *Levels of relevance and action*: Member State; European Union; region; "intra-European", i.e. bi- and multilateral cross- Member State initiatives of national or regional actors; global cooperation;

(3) *Instruments*: shaping of the institutional setting, including financial regimes; targeted policies and programmes; regulation, reaching from intellectual property rights to professional career rules; "soft tools" such as OMC.

Taking into account that policies are designed and implemented by various types of public and private actors in settings defined by these three dimensions, actually adds a fourth multi-actor dimension into any "European Area". However, multi-actor dimension is more relevant in the context of processes than it is in describing the configuration of an "Area". That is why the following discussion focuses mainly on the three dimensions described above.

Figure 3 schematically depicts the idea of interaction along these three main dimensions.

<u>Figure 3</u>. European Research and Knowledge Area: A Multi-level, multi-instrument and multi-domain landscape, a three-dimensional relationship

In a fully-fledged European research and knowledge area activities of science, research and education organisations, industrial and service companies, and public policy agencies would develop irrespective of national borders. They would rather be driven by a combination of requirements of thematic knowledge dynamics, demand and markets, institutional environments, and targeted public policies, called a "knowledge configuration". Knowledge configurations evolve at the intersection of developments in knowledge production, transfer, and utilisation on the one hand and different domains, levels of action and policy instruments involved on the other. They are driven by knowledge dynamics, an inherited but evolving institutional setting (traditions, techno-industrial dynamics, market characteristics, user behaviour, and regulation), actor strategies, and coordination mechanisms including specific mixes of public policy measures. Within different configurations, specific policy instruments, such as national or regional institutes and programmes, European programmes (including ERA-NET, ERA-NET+, Article 169, …) and mixes of instruments across levels, play different roles in configurations and shape them differently. The graph visualizes the 'space' to define and implement policy mixes from an 'intra-European', including policy design, strategic intelligence, implementation, evaluation and learning.

Adopting this perspective has implications for an 'advanced' ERA: different knowledge dynamics evolving in different 'configurations' will require

different policy mixes. Policy development in Europe might miss the point if it does not take into consideration the historically quite specific dynamics of thematically different knowledge configurations, embodied in variety of inter-linked organisations that drive the governance of R&D and innovation, within and across national and regional systems.

As a consequence, the traditional EU subsidiarity policy model appears too mechanic: In socio-economically relevant fields purely national policy approaches fall too short while, at the same time, also 'federal' policy approaches (like the Framework Programme) don't suffice any more: new mixed 'intra-European' institutional settings and policy approaches are likely to be needed. Both experts and policymakers have to acknowledge such dynamics and understand them better if they want to develop effective policy approaches towards the Lisbon targets.

The new and improved ERA governance should evolve along three coordination dimensions: vertical coordination between levels, horizontal coordination between domains, and policy mixes combining various instruments. New geographically borderless knowledge dynamics, related to knowledge creation, transfer and use , must be considered within the ERA framework. New knowledge dynamics configurations must be considered being aware of:

- the increasing value of multidisciplinary knowledge (integration of knowledge from different scientific domains);

- the presence of new "institutions" (promoted or supported by the EC such as ERC, EIT, Technology Platforms, …) that are more than initiatives based on the coordination of national actors and that should contribute to the development of future knowledge dynamics;

- the emergence of new forms of knowledge creation, transfer and utilisation, making existing configurations and instruments obsolete . Particularly relevant is the challenge introduced by the increasing role of virtual end-user communities in knowledge processes.

As a consequence, **it is crucial to start thinking about a European Knowledge Area and not to limit ourselves to the ERA concept** as it was defined since 2000.

2.4. *The need for more policy intelligence*

Based on the analysis described in the previous chapters, it has become obvious that policy-makers cannot rely on a one-size-fits-all R&D and innovation policy portfolio to be implemented in standard manner. Instead, policies need to be tailored to the needs and characteristics of specific

knowledge configurations (or in more familiar terms, innovation systems). Mix of policies or at least relative importance of specific policies and measures will hence differ from country to country and sector to sector.

Furthermore, there is path-dependency in policy-making, meaning that not all policy approaches can be imported and implemented directly, but instead need to be combined with the existing policy context and history. Hence, the composition of the policy portfolio, the balance between policy instruments, and the design and mode of implementation of instruments, are all crucial for the effectiveness of policy action. As a result, the governance aspects – focusing on strategic capabilities and on effectiveness of policies- are at least as important as quantitative issues (such as increase in funding allocated to R&D and innovation in public budgets) or the presence of several specific types of instruments in policy portfolio.

To conduct strategic and effective policies and support reflexivity throughout the whole policy cycle, policy-makers need to rely on tools to assess the relevance and impacts of their policies. The use of quantitative indicators is one typical response to this need: they can be used at the diagnosis stage, either to discover or to confirm trends and issues; they can be used to define objectives at the stage of priority setting, at the stage of instruments definition, and at the monitoring and evaluation stages. Quantitative indicators are typically also very easy to communicate, which makes them ideal for political purposes – both in good and in bad. At best, quantitative indicators can be used as understandable tools to indicate strong commitment to complex issues such as knowledge-related policies. At worst, they can be used as simple measures of success or failure or oversimplification of complex multi-dimensional issues. Examples of the latter have been seen in the context of the 3 % Lisbon objective or the use of the summary innovation index.

However, as the value of quantitative indicators is limited, they need to be supplemented by more qualitative analyses rather than being used in a mechanistic fashion. Regular, independent and learning- and impact-oriented evaluation practices are crucial to feed the strategic policy-making practices.

More important than specific indicators or types of indicators is the role and interplay of various processes related to strategic intelligence, i.e. gathering and analysing knowledge necessary for improving the effectiveness and efficiency of the design and implementation of knowledge-related policies in the complex environment of knowledge configurations, as described in the previous chapter. Most of these processes are either *ad-hoc* or detached from other strategic intelligence processes. This often results in separate consecutive or parallel processes, which at worst end up with inconsistent analysis serving the motivation and interests of different lobby groups.

There is a need to better integrate strategic intelligence processes and make them more systematic and coherent over time.

Most typical and often used tools for strategic intelligence are various types of evaluations and foresight exercises. The problem with most evaluations is that they are typically instrument-based narrow ex-post snap-shots overlooking the true characteristics of the relevant knowledge configurations and especially their dynamics. In order to develop evaluation to better support systemic, holistic and dynamic knowledge-related policies, there is a clear need to introduce or at least strengthen four key elements in evaluation practices:

- *systemic and holistic approach* to capture the real phenomena in true knowledge configurations, instead of looking at randomly limited set of instruments and actors in a geographically limited space;

- *goal orientation* to capture the impact of the policy mix instead of a single instrument and at the same time to allow more insight into the true nature of knowledge configurations and innovation systems;

- *impact modelling* to capture the processes through which the eventual impact of policy intervention actually takes place either verifying the original rationale or challenging it to reveal new rationales important for future policy design and implementation;

- *continuous real-time approaches* to capture the real dynamics of processes and impact mechanisms allowing faster feedback, quicker corrective steps to be taken to improve policy effectiveness and efficiency, and capturing real-time understanding of the processes instead of relying on memories of actors after the fact (continuous learning);

Foresight activities are powerful instruments in enhancing common understanding of the key challenges and how innovation systems can react to them. But foresight should not just be seen as exercises to identify survival strategies. Future is not just happening, it can also be shaped. Furthermore, foresight activities often have an inbuilt inconsistency. They increasingly invite wider stakeholder participation – consistent with what has been argued by LEG here and earlier – but focusing mostly on technology foresight, the outcome is targeted to professionals and policymakers, leaving the wider stakeholder groups in the society outside the implementation and thus emphasising the division between them and professionals. Foresight activities could therefore be strengthened by

- *widening their focus* to capture more socio-economic and even cultural aspects and thereby to bring the process and its impact to a

wider audience instead of just knowledge professionals, which would most likely help build stronger political commitment;

- *making them more proactive* to move from reactively identifying survival strategies for predicted pre-determined futures into identifying approaches to proactively shape the future e.g. through managing perceptions;

- *integrating them better to other governance processes at all levels* to enhance common understanding of the key trends, challenges and opportunities among all stakeholders, including the wider population of end-users and citizens;

3. Challenges and recommendations for improving ERA governance

The previous sections of this report have argued that several challenges remain, which prevent further dynamic and mutually reinforcing implementation of the Lisbon Strategy and the building of ERA. This section reviews them and provides some responses to them in the form of recommendations to Member States and the European Commission.

1. Linking Lisbon and ERA: Knowledge needs to be recognised as a driving force of the Lisbon strategy and ERA needs to be integrated into the broader policy agenda of the Lisbon strategy

Knowledge and innovation should not be seen as separate objectives in the Lisbon context. They should be at the very core of Lisbon process. The whole mix of knowledge-related policies have to be designed to address the needs of real knowledge configurations instead of focusing separately on single isolated challenges or geographically limited spaces. Knowledge-related policies need to be brought at the forefront as key drivers of the economic and societal reform agenda.

Member States' NRPs and Progress Reports do not sufficiently recognise knowledge as the basic engine for societal evolution, economic growth, social inclusion and sustainability, and there is **insufficient integration** between various knowledge-related policies and measures. There is no clear **leadership** for that broad policy area and hence policy making still suffers from lack of commitment and subsequent fragmentation between traditionally defined policy domains.

The Lisbon process calls for serious **modernisation and strengthening of intra-European R&D and innovation**. On the other hand, the Lisbon

process should be seen as a unique opportunity to reform the European R&D and innovation systems. Without successful implementation of ERA, the objectives of the EU, set forth in the Lisbon strategy, may be seriously jeopardised. Hence ERA should be considered as one cornerstone for the European knowledge society and a core element of the Lisbon strategy.

To succeed in this ambitious plan, Member States and the European Commission should develop joint thinking between policy domains and across policy levels and adopt a more strategic and integrated approach to deliver more efficient policies. A **systemic view of R&D and innovation** as key drivers of economic growth and development needs to be embedded in policy-making. This does not mean that ERA should be diluted into the broader Lisbon; on the contrary, specific targets and progress on ERA construction could be annually traced in all Member States. This "ERA chapter" could explicitly appear as part of the PRs.

More energy should be directed towards designing a European vision on development of ERA within the framework of the Lisbon strategy. From the perspective of R&D and innovation policy governance, the challenge here is to define tools enabling a joint vision across borders and across policy levels on ERA development and in addition to this the governance of transition and new and emerging knowledge configurations, rather than the governance of established systems.

This change has been of paramount importance in the field of research and of policies for a knowledge-based economy and society, however, advanced governance, confronted to increased complexity, calls for more attention to the following issues:

- governance in the EU context requires to examine the **division of labour** between EU, national and regional levels, suggesting that not all forms of overlap are a problem, on the contrary it could represent an opportunity for realising the ERA objectives;

- resolving the issue of **leadership** of the process, by emphasizing shared commitment and clear leadership of national, regional and community stakeholders issues related to the manner of discussing and setting of clear objectives for future ERA development.

REC1. *The Council should emphasise the **knowledge dimension** in all Integrated Guidelines as a horizontal issue, rather than constraining it to IG 7 and 8. For that purpose, specific knowledge-based elements should be integrated in all IGs and be tackled in NRPs and PRs preparation.*

REC2. *The ERA construction process should be **annually monitored** through specific platforms and procedures for review and evaluation, with*

appropriate indicators, using coordination instruments to align and discuss progress made with Member States.

REC3. *In order to assess progress in the ERA construction within the Lisbon framework, Member States should increase the **ownership and enforce coordinated responsibility of ERA activities** in order to avoid confusion and horizontal fragmentation in the design and implementation of related policy measures.*

2. There is a need for further support for policy experimentation: this challenge calls for more strategic intelligence

In the field of research and innovation, the Lisbon Strategy and the ERA initiative represent a **historical policy experiment** (as relevant as the introduction of Framework Programmes in the mid 1980s), stimulating many research and innovation policy actors in the European multi-level system to invent and test a variety of experimental exercises, not the least dealing with or affecting policy governance. Much of this experimentation has a focus on **intra-European policy** efforts, creating attractive and productive research and innovation environments.

Relevant governance **dimensions** are of a **systemic** and of a **multi-level** character, and they can cut across **different** types of policy targets and **instruments** like border-crossing **multilateral research centres** in relevant thematic fields, or **multilateral funding programmes** in relevant thematic fields. Afterwards, any ambitious policy experiment needs to come along with **variation** (leaving room for diversity across knowledge configurations)**, learning** and **exit options**.

Observation, comparison, and cross-analysis as a condition of policy learning and revision require **'Strategic Intelligence'**. Partly this can be acquired from existing statistics and socio-economic research. At the same time we are witnessing unprecedented, new governance and knowledge dynamics that cannot be measured and analysed with conventional approaches and methodologies. While in a first step it is appropriate to leave room for exploring new policy approaches, in a second step, there is a need to carefully observe, evaluate and compare the variety of policy and governance options developed since the start of the Lisbon Strategy and the ERA initiative, and to assess their validity in specific contexts.

Policy-makers need to be able to create a link between national innovation systems diagnosis, the definition of overall strategic goals and priorities, and the elaboration of instruments responding to the stated priorities. Such capabilities stand in contrast with policy design practices that can be qualified as "ad hoc" or "copy/paste" or "follow the mood"-type. The

presence of full and integrated policy cycles is required: this includes diagnosis, priority setting, instruments definition, instruments implementation, assessment of results, and feedback loops between all phases of the cycle.

Within the framework of NRPs, a specific issue relates to the impact of the **OMC process as a learning device**: is it visible in the design or implementation of the R&D and innovation policy mixes? The "soft laws" of OMC can be translated in trans-national policy learning, policy coordination, or even policy convergence and joint policies with minimum effort; nevertheless, it implies a cultural change for policy makers. "Intelligent benchmarking" taking place thanks to the OMC setting (or through other channels) could be expanded by learning from non-EU countries' experience.

Learning means to understand, to do better, and where necessary to revise structures and activities: hence there is a need to establish **exit options** when policy analyses detect a need for change. In light of achievements and experiences, and based on systematic observation, evaluation and comparison, the Council and the Commission should carefully prepare and launch a serious political debate of accomplishments and pitfalls of new instruments and governance practices tried and tested during this historical experimentation phase.

REC 4*: The Commission should continue to provide **platforms for policy experimentation** – such as OMC, ERA-Nets, TPs – and stimulate Member States to join in!; it will require setting up innovative regulations and impact assessment embedded into larger evaluation procedures.*

REC 5*: Member States and Commission should facilitate the development and maintenance of advanced **Strategic Intelligence capacities** (organisations, networks, databases, human resources). The Commission has started to strategically observe developments (through analysis of NRPs, employment of 'Expert Groups', ERAWATCH, …); such efforts should be professionalised and complemented by Member States (improved) observation, foresight and evaluation activities.*

REC 6*: Member States and Commission should commit themselves to launch experimental initiatives with **serious exit options**. An organised political debate on achievements from the experimentation phase should be completed by 2010, and should result in a sober revision of the policies developed, identifying bad and highlighting good experiences.*

3. The Costs of non-ERA and the benefits of ERA need to become more visible

A clear hindrance in establishing the ERA has been that the costs of non-ERA and benefits of ERA are not readily visible to national policy-makers, since they are difficult to calculate and not easy to demonstrate to their electorate. Societal benefits from research are mostly indirect and difficult to measure in general, and this is further compounded by the complexity of measuring national benefits from operations spanning across several national borders. What is worse, there might even be costs of ERA, or benefits of non-ERA, that might be more visible to national stakeholders in short-term, if e.g. Europeanization of R&D and innovation policies would entail displacements of some of their national capacities to places where the synergies could be more fully exploited.

The costs of non-ERA are obvious where national borders are too narrow and a supra-national dimension is needed for carrying out research activities, requiring competencies and a critical mass of investments not available at the national level. For small countries, the perception of the benefits and costs of ERA or non-ERA are therefore more concrete, since they are typically more dependent on international interaction. On the other hands, the costs of non-ERA might be more easily visible for lagging behind countries, where the benefit will depend upon the development level of their science and technology systems and their capacities to take advantage of the ERA-related opportunities. Furthermore, the cost of non-ERA lies in the consideration of spillovers from specific RTD investments to other sectors and for socio-economic goals and consequently to non-achievement of the Lisbon strategy goals. The promotion of ERA should be based on a systematic highlighting of these costs and benefits and contribute to an increased commitment to ERA as well as to the Lisbon strategy.

By enhancing cross-border policy experimentation on a voluntary basis, and with variable geometry, benefits of ERA would be likely to become visible more easily. The concept of variable geometry does not mean division of countries according to their size or level of development, but strictly and only according to common interest and commitment.

*__REC7.__ Member States should be encouraged to favour **trans-border bilateral and multilateral research and innovation platforms and structures** as opposed to pure national ones as a mechanism to integrate scientific or technological communities of several European countries on a more stable basis (e.g. as JTIs have started to do or EIT could do in the near future) to support the development of stronger knowledge configurations in Europe. This can provide the basis to demonstrate benefits of ERA from a pragmatic approach.*

*__REC8.__ The Commission should facilitate and encourage the creation of **bilateral or multilateral R&D programme structures** to visualise at the national/regional level the support to pan European research and innovation*

activities. An evolution of instruments like ERA-NETS PLUS to cover common infrastructures should also be explored.

4. Adopting more efficient Community and Member States policy mixes, within variable geometry approaches

A fundamental challenge for policy makers is that of selecting **the most appropriate mix of instruments** for realising the ERA and Lisbon visions, notably instruments used at the Community level in support of national and regional actions against policy fragmentation barriers. The question of policy mix, that is now becoming a hot issue at national and regional level, will need to be extended to incorporate interactions with EU instruments. The aim would be to identify the most appropriate combination of instruments in each context and for all knowledge configurations, able to contribute to the broader ERA and Lisbon objective, by using past experiences, notably with the combination between Structural Funds and other instruments.

Being effective in building the ERA will increasingly require a **flexible approach**, taking into account the specific needs of different actors and sectors and using different types of instruments where they are most appropriate. Room should be given to approaches of a **truly variable geometry**, with policy experimentation, evaluation and continuous learning, being essential ingredients of the construction of the ERA policy portfolio, as argued above. This last point is a crucial one: without specific mechanisms to **assess effectiveness of policy and policy mixes**, the whole process of research policy coordination cannot develop on a reliable basis. This process should increase flexibility in the implementation process to adapt them to specific needs and levels.

Appropriate mixes of policies would need to consider the adequate **combination** of instruments at a given level, but also the division of labour between the various levels in charge of developing knowledge policies. An open and constructive discussion between Member States and the Community on an appropriate division of labour is called for. In addition, an emerging "intra-European" level has to be taken into consideration, referring to policies and measures of ERA and Lisbon that are national in nature but are designed to have an impact on European development. Nowadays, the design and implementation of R&D and innovation policies cannot any more be conducted in a purely national context: opportunities for joint trans-national action need to be identified and capitalised upon; the facts that private R&D activities are organised on a multinational basis, and that public research actors are also increasingly internationalised, need to be incorporated in policy-making.

Especially challenging is the introduction of innovative governance tools to **increase shared commitment** and manage conflicting interests emerging when proceeding to further ERA development at all levels: European versus national, national versus national/regional, public versus private. The governance process should be based on active participation and commitment of stakeholders, particularly if we consider that leading actors are different for the different objectives. New forms of governance need to observe what stakeholders need to be involved, how and when to involve them in the process. Applying variable geometry approaches for intra-European knowledge policies requires rules for inclusion and exclusion of actors, and the identification of win-win situations, helping to mitigate conflicts of interest. The **participation of relevant stakeholders** would increase the chance of establishing robust concepts.

This challenge could also require the setting up of innovative regulatory schemes in order to speed up the launching of variable geometry initiatives.

*__REC9__. Member States should identify some **pilot areas of policy action** around research infrastructures and joint centres of excellence in which innovative policy mixes (crossing over domains and levels) could be designed and tested for effectiveness.*

*__REC10.__ The Commission should facilitate and partly finance the launching of specific **variable geometry mechanisms** across some interested Member States implementing multi-level and multi-domain integrated actions (from human resources to infrastructures) by innovative regulations on the basis of Treaty provisions.*

4. Conclusions

Available indicators have shown that Europe has not reached and is not likely to reach the Lisbon targets by the ambitious dead-line year 2010. Even the necessary re-launch of the Lisbon Strategy in 2005 has yet failed to produce visible results. Separate and sector specific approaches take at national and regional as well as EU levels are not sufficient. The identification of key policy areas where Member States should place their effort in the near future requires a new and improved approach recognising the wider knowledge-related policy context. .

The continuous and increasing challenges emerging from fast growing and developing economies like China or India is forcing the European institutions to increase their efforts on research and innovation. Community and Member States should react by implementing new and improved and better aligned policies.

The analysis of NRPs and PRs elaborated by Member States around Guidelines no.7 and no.8 indicates that **national views still dominate** the scene and intra-European perspectives are today exceptional cases in policy formulation. This situation reveals the need to pay much **more attention in the future to implement systemic knowledge policies**. This process has been conceptually addressed in this report by using a multi-level dynamic framework where the interactions between policy domains are emphasized.

Additionally, the **ERA construction process is not sufficiently linked to Lisbon process**. Its development suffers from the same lack of commitments and poor leadership, found in the Lisbon process. This situation is fuelled up by the well-known problem of policy fragmentation that avoids coping with several policy domains to address a predefined challenge.

One of the weaknesses found rely in the existence of poor governance approaches. Today, Lisbon (and ERA) uses a voluntary process based on mutual learning and peer review where Member States' commitments are taking outside the common European context. From LEG standpoint, the difficulties found in the implementation of Lisbon and ERA processes can be linked to the **lack of appropriate governance structures**.

Realising the ERA will involve painful choices, where some will lose and some gain, at least in the short term, but where the total sum will be positive in a broader set of policies. Hence LEG assumes that there is an intrinsic difficulty to realise it by seeking a consensus of all. The level of Member States' acceptance of this process by using the present governance instruments is unknown but the EU should start thinking about it.

As the previous paragraphs show, the **open issues in research policy cannot be simply categorised as "*provide more resources for research*"** to reach at the intended 3% goal. Unfortunately, **the challenge is wider and deeper and it affects the core of knowledge policies' definition**: without a reformulation of these policies in an integrated framework, the efforts would be jeopardised by structural inefficiencies.

The composition of the **policy portfolio**, the balance between policy instruments, and the design and mode of implementation of instruments, are all crucial for the effectiveness of policy action. As a result, the governance aspects – focusing on strategic capabilities and on effectiveness of policies- are at least as important as quantitative issues (such as increase in funding allocated to R&D in public budgets) or the presence of several specific types of instruments in policy portfolio.

The redesign of governance structures implies an **increase of the leadership** of the process by legitimating decision making processes and

painful actions. The progressive involvement of national Parliaments or regional governments is a decisive step in this direction.

But it is not enough; **Europe needs to create an atmosphere where common approaches could be rapidly decided.** The second cycle of Lisbon strategy recently launched by the EU is the opportunity to get it.

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<u>Annex 1</u>: Composition of the Expert Group

This paper was prepared by the 'Expert Group for the follow-up of the revised Lisbon strategy'. Members of the Expert Group are:

Gonzalo Leon, chair	Vice-rector for research, Technical University of Madrid, Spain
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The Expert Group for the follow-up of the revised Lisbon strategy has been assisting the European Commission since February 2006 in its analysis of the research aspects of Member States' National Reform Programmes and subsequent yearly Progress Reports, drawn up in implementing the revised Lisbon strategy. The Expert Group has up to now published three reports:

1. 'Research and innovation in the National Reform Programmes – Opportunities for policy learning and cooperation', May 2006
2. 'Towards open and systemic research and innovation policies for Europe – Trends in the National Reform Programmes', January 2007
3. 'Open research and innovation policies for Europe – A leap forward !', April 2007

Additionally, LEG has also prepared an issues paper for the High Level Conference on the "*Future of Science and Technology in Europe*" organised in Lisbon on 8-10 October 2007.

4. Governance issues and links with the Lisbon Strategy. October 2007.

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<u>Annex 2.</u> R&D and innovation policy governance in Progress Reports

The NRPs remained largely silent on the governance issues described above. In consequence, it was very difficult to derive any conclusion on the appropriateness and effectiveness of modes of governance of R&D and innovation policies, from the reading of the NRPs texts.

The situation has incrementally improved with the submission of the first Progress Reports of the NRPs in Fall 2006, as most Member States paid some attention to a selection of governance issues in their reports.

Like with the analysis of the NRPs, the level of details provided varies a lot from Member State to Member State, and the texts do not necessarily cover all relevant issues touching upon the governance question. Despite these limitations, seven broad conclusions are drawn from the analysis of the NRPs Progress Reports.

1. **From administrative towards strategic policy implementation:** the NRPs implementation process shows similarities with the process for implementation of Structural Funds programmes in several countries, in particular those that are large recipients of these funds. Assessment grids proposed by the Commission for the monitoring of the NRPs Progress Reports, when they are present (this is the case for only a few Member States), report mainly on budgetary appropriations and foreseen expenses, but do seldom link towards output and impact indicators. A recent strategic study carried out for DG Regio (Technopolis et al. 2006)[7] revealed that there is an important need to evolve from an administrative and financial monitoring of implementation (focused on funds absorption) towards strategic monitoring, focusing on effectiveness of measures and their role in the overall policy system. This also means that it should be possible to analyse and revise actions on an ongoing basis, rather than having one preparation round at the start and one assessment round at the end (in the case of NRPs 2005-2008 is a long period, in the case of the Structural Funds programmes, 2007-2013 is obviously too long to limit the strategic part to an ex ante phase).

2. **New coordination structures but few "policy mix" considerations:** the NRP process seems to have been instrumental in establishing coordination structures spanning over several policy domains, in order to coordinate Lisbon policies (e.g. working group headed by a "Mr/Ms Lisbon"). Depending on the countries' institutional setting, new bodies are created, such as

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[7] http://ec.europa.eu/regional_policy/sources/docgener/evaluation/pdf/strategic_innov.pdf

the Lisbon coordinator and the Strategy Office at the State Chancellery in Estonia, or existing ones are used, like in Finland. This is not always the case though e.g. when there is a lack of political consensus for such coordination: achieving this may be particularly difficult in decentralised countries such as Belgium and Spain, where alignment of regional and national policies may not be a goal as such. In those cases the idea of a Pact between national and regional governments with other social actors may be more relevant.

Nevertheless, the impacts of these new modes of organization are not (yet) visible in developments of "policy mix" considerations, focusing on interactions, overlaps and synergies between policy instruments from various policy domains. Could the learning process started with the recent creation of "Lisbon coordinators" new positions mainly based on trial-and-error, be enhanced by exchanges of experiences on the coordination process itself? The case of countries which pay a specific attention to policy mix might pave the way to foster such developments, e.g. the approach taken by the new Irish Office for Science, Technology and Innovation (OSTI) established in 2006, with the mission notably to "ensuring coherence in programmes and initiatives among the agencies and identifying areas for enhanced synergy initiatives to promote enterprises R&D"; or the intention in the new German High Tech strategy to "better coordinate and interlink research, innovation and education policy, as well as economic, health, environmental and consumer protection policy". A country like the Netherlands is also providing interesting examples in the form of "Programmatic packages" for innovation, which mix instruments targeting R&D, human capital, start-up support and application and marketing of knowledge, and the "multi-facet" package "peak in the delta". This could certainly provide food for thought for those Member States in the process of developing a "comprehensive system of innovation policy" (as mentioned notably in the Slovak NRP Progress Report).

It should be noted, that despite the lack of truly systemic policy mixes in the Member States' NRPs, there are, however, signs of movement into this direction. Simultaneous launch of complementary policy measures, such as addressing human resources for R&D, large strategic projects and research infrastructure, indicate that there must be increasing efforts towards better policy integration.

3. **Ex post appropriation process of NRPs:** in Member States that did not possess an overall Growth and Employment Strategy beforehand, the process of appropriation of the NRPs is generally taking place during the first implementation period through various procedures: parliamentary sessions, consultations, technical groups web-based consultations, etc. As an example, the Portuguese Progress Report mentions 300 hearings and

explanatory sessions held with all stakeholders throughout the country. This might help correcting the initial process which, due to time constraints and other reasons, was lacking legitimacy and lessening the real political value of the NRPs, as noted in the first LEG report (e.g. this is well described in the case of Luxembourg, where it is indicated that the important social consultation process took place after releasing the NRP). However, cases where this ex post appropriation process has led to changes in direction in the NRPs are not numerous: one example is the Czech Republic where a line on "ensuring human resources in R&D" was added in 2006 after debates took place on the NRP.

4. **A current limited role of indicators to monitor policy success:** few Members States have set up target indicators beyond the general Barcelona targets. The public part (generally set at 1% of GDP) in the Barcelona target can be of some help to monitor the public investments in R&D, but the private share (set at 2%) depends from so many other factors that in practice, the links between policies and this target are tenuous. Even for the public part, situations of high GDP growth (as is the case in many new Member States) also blur the picture in cases where both nominator and denominators are growing very fast. Hence there is a need to set up intermediate targets in order to be able to monitor policies: such intermediate targets should focus on subsets of the Innovation System that are targeted by the policy instruments or reforms (e.g. in Estonia there are targets in terms of research personnel, which is a main bottleneck in the national innovation system). Another intermediary indicator could be the share of R&D investments in the general state budget. Besides indicating the future change in R&D share of GDP, it is a strong indicator of government commitment to Lisbon objectives. The indicators system seems to be much more developed in the labour market area, which could perhaps provide inspiration for improving the monitoring of R&D and innovation policies. The reports do not in general present detailed indicators for monitoring and evaluation, although some countries mention an interest in the development of such a system (e. g. in the Czech Republic, specific indicators and partial targets are chosen in addition to the EU Structural Indicators).

5. **Policy evaluation does not appear prominently:** cases where policy evaluation is reported as an important ingredient for policy design and evaluation are still rare. Finland, the Netherlands and the United Kingdom are cases where policy evaluations are appear prominently as part of the system: compulsory evaluations are part of the policy design process. It is encouraging though to see the creation of evaluation structures for future policy support such as the Agency for Evaluation of Research and Higher Education in France, the Integrated System for Follow-up and Evaluation in Spain, the new role in evaluation assigned to Latvian Investment

and Development Agency, and the recognition of this need in the case of Greece. There is an obvious opportunity for trans-national learning here. Two Member States report on the use of macroeconometric models to assess the impacts of the reforms on the national economies (Hungary and Luxembourg). In other Member States, these structures exist years before launching NRPs processes and they are continuously updated and improved; nevertheless, they are focused on specific issues and not from a comprehensive structure to deal with research and innovation in an integrated manner.

6. **Weak visible impacts of the OMC so far:** few NRPs implementation reports refer to lessons learnt in the framework of the OMC process. A number or reports provide so-called "good practices" but cases of importing good practices from other Members States are rarely mentioned. In any case, it is important to acknowledge that, due to the large diversity of research structures and capabilities amongst Member States, pure "transfer" of good practice from one environment to another is likely to fail. Cross-reference to other Member States' NRPs are only reported for Spain and Portugal, but a few Member States report that they take into account foreign experiences when designing their policies (e.g. in Slovakia the use of foreign experts from the Netherlands, Austria and Germany is mentioned, for the review of the state of the innovation support system, with a view to learn from international good practice).

7. **Influence of Commission analyses on the** NRPs is visible and several Member States, typically New Member States, have tended to adjust to these recommendations from Brussels, or at least took them in consideration. Hence, the overall impression from the text of the Progress Reports is one of bilateral learning between Member States and the European Commission, rather than of multilateral learning between Member States. The LEG believes however that there is much more trans-national policy learning at play than what appears in the Progress Reports[8]: making this apparent could help Member States could support the process of Europeanization of R&D and innovation policies.

8. **R&D and innovation policies show a marginal trend to become internationalised:** the progress reports of NRPs are principally referring to strategies and instruments operating within national boundaries, within the context of the national system. This point will be discussed in more detail in Annex 4.

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[8] For example, the "Six Countries programme" is an international network of experts, policy makers and practitioners engaged in research and policy making on innovation. Its major aim is to contribute to a better understanding of innovation processes, their impacts on the economy and society and the development of effective (public) innovation policies. See www.6cp.net