

EUROPEAN ASSOCIATION OF  
RESEARCH AND TECHNOLOGY  
ORGANISATIONS

**EARTO Response to the  
European Commission Green Paper**  
*From Challenges to Opportunities: Towards a Common Strategic  
Framework for EU Research and Innovation Funding*  
COM(2011) 48

**EARTO**



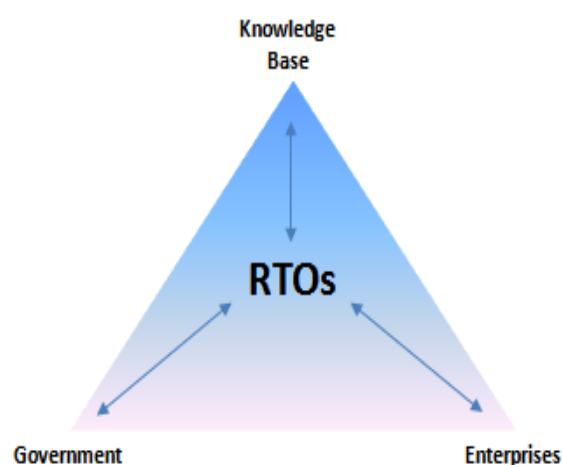
## About EARTO and RTOs

This paper expresses the views of Europe's Research and Technology Organisations (RTOs) within EARTO, their European trade association.

RTOs are mission-oriented organisations which help governments address the major social and economic issues of the day, including promoting economic competitiveness by supporting innovation in businesses large and small, in all sectors of the economy.

The core activity of RTOs is research and technological development, including related laboratory and infrastructure services. It is "research for innovation", targeted at helping partners and clients in the public and private sectors to find effective solutions to real-world challenges and opportunities.

As part of this innovation-support mission, many RTOs have developed significant complementary activities and expertise in technology and market foresight, standards and certification, technology information and consultancy, specialist technical training, and intellectual property management. RTOs work with others to pilot and demonstrate technologies, and many engage directly in technology exploitation through licensing and spin-off company creation.



RTOs are major international research players. In Europe, they receive about one-third of Framework Programme funding and are well represented among the top 50 FP7 beneficiaries<sup>1</sup>.

Further information about RTOs and their distinctive role in research and innovation may be found in: [Technopolis Group, Impacts of European RTOs: A Study of Social and Economic Impacts of Research and Technology Organisations](#), Brighton, October 2010

The present paper builds on earlier EARTO positions concerning European research and innovation policy, which may be found on the publications page of the EARTO website:

- *EARTO Position on the Next Generation of European Union Research and Innovation Programmes*, January 2011
- *EARTO Position on the Revision of the Financial Regulation*, December 2010
- *EARTO Position on the Simplification of the Framework Programme*, April 2010
- *Addressing the Grand Challenges: The Contribution of Research and Technology Organisations*, May 2010
- *Proposal for a European Strategic Technological and Applied Research Council (ESTARC)*, November 2009

<sup>1</sup> *Interim Evaluation of the Seventh Framework Programme: Report of the Expert Group*, European Commission, 2010, Appendix 1

## EARTO's Principal Recommendations

1. The proposed **Common Strategic Framework is a welcome approach** to better aligning with one another many of the current European programmes and initiatives related to research and innovation. **Real coordination is needed in relation to objectives and instruments**, and there must be alignment, through a **default regime, of rules of participation, funding models and IP policies**.
2. Much of what is proposed in the Green Paper will require **concerted action by the Member States**. However, many past efforts at coordinating national R&D activity have failed to achieve their ambitions. The **Member States must commit substantially – politically and financially – to real coordinated action** if the proposals to tackle societal grand challenges and to accomplish the European Research Area are to succeed. It will be preferable to **launch fewer joint initiatives between Member States to which there is real commitment than a larger number which fail or which underperform for lack of real engagement**.
3. The design of future European research and innovation programmes **should reflect the new focus on innovation and tackling societal challenges**. Equally important, however, is to **preserve and reinforce the Framework Programme's central place in the European R&D system**, in terms of budget as well as of key instruments such as **collaborative research and smaller bottom-up projects**. The proposed Common Strategic Framework provides opportunities for better aligning instruments from different programmes including, for example, an **integrated support framework for SMEs**.
4. **There is a need for public co-funding post-research** in order to help ensure that invention becomes innovation – in products, processes or services – notably funding for proof of concept, piloting or demonstration actions undertaken with potential future users (firms, public agencies, etc.). The CIP has shown with the modest resources available to it how such funding can boost innovation. There is now a need and opportunity to significantly ramp up this kind of support, which should be **generalised across the future research and innovation programmes, and across themes and priorities**.
5. Further **simplification** remains a critical priority, including a **streamlined set of funding instruments, a default regime of participation rules and funding conditions across all programmes and initiatives, and much reduced time-to-contract**. The forthcoming revision of the **Financial Regulation** must bring or enable further improvements (e.g. regarding **interest-bearing bank accounts, the reimbursement of non-recoverable VAT**). The use of **fixed amounts (flat rates, lump sums, unit costs)** is generally unwelcome.
6. **EU-funded Strategic Research Alliances among RTOs and others** are required: (i) to **underpin Joint Programming Initiatives**; (ii) as a strategic instrument serving the ERA objective to **reduce fragmentation and duplication of research** in Europe by supporting the development of longer-term cross-border strategic research programmes, and (iii) to **counter the "lock-in" effect of national core funding**.
7. An independent **European Innovation Council** – perhaps a reconfigured ERAB with a broadened mandate – could provide valuable apolitical advice and support in the design and operation of a comprehensive European research and innovation policy.

# **EARTO Response to the European Commission Green Paper**

## ***From Challenges to Opportunities: Towards a Common Strategic Framework for EU Research and Innovation Funding***

### **COM(2011) 48**

EARTO welcomes the publication of this Green Paper and the opportunity to offer its views on future European Union research and innovation funding.

Our comments focus on aspects and issues of particular relevance to RTOs. While we do not address all of the questions posed in the consultation document, our remarks follow the general structure of the Green Paper.

## **1. A STRATEGIC FOCUS**

There appears now to be a broad consensus that future EU funding programmes should focus on EU 2020 priorities, address societal challenges and key enabling technologies, and facilitate collaborative and industry-driven research. Administrative simplification and scientific excellence are also to be priorities. Research is to be “instrumentalised” in the service of innovation. EARTO broadly welcomes this strategic approach, while emphasising the need to resist wholesale redesign for its own sake: what works well and serves the innovation agenda should be retained.

## **2. THE PROGRAMMATIC SCOPE OF THE FRAMEWORK**

In adopting the approach of a “Common Strategic Framework” (CSF), the Commission appears to have opted against substantial restructuring of existing programmes. In a general sense, this is probably wise: it recognises that different programmes have different first-order objectives, even though they may have second-order objectives in common. Nevertheless, EARTO believes that it would be opportune to integrate much of the Competitiveness and Innovation Programme (CIP) with the RTD Framework Programme (FP)<sup>2</sup>, in particular in order to facilitate a more holistic innovation-chain approach in the CSF.

The principal programmes targeted by the proposed CSF are three: the FP, the CIP, and the European Institute of Innovation and Technology (EIT). The Structural Funds (SF) fall outside the scope of the CSF, although synergies are to be sought, as they are too with sectoral policies (e.g. rural development, public health, etc.). The challenge here for the Commission will be to break out of the “silo thinking” which has often hampered its previous attempts at inter-service coordination. Moreover, the sought-for synergies must be real and significant. For example, in relation to the SF, there should be a broad alignment as between the SF and the FP of funding conditions for research and innovation projects such that the same key players are effectively incentivised to participate in both arenas. Regional policy should be aligned with EU2020 objectives and a large share of the SF budget should continue to go to research and innovation; but those funds must be fully deployed by the relevant national and regional authorities, which is too often not the case today. Recognising that the SF and the FP have different first-order objectives, we would argue for the SF to be focussed on capability-building activities and for the FP to be targeted at funding research and innovation work.

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<sup>2</sup> EARTO Position on the Next Generation of European Union Research and Innovation Programmes, January 2011

### 3. LESSONS FROM CURRENT EU RESEARCH AND INNOVATION PROGRAMMES

Among the lessons from present programmes cited in the Green Paper, there is a certain emphasis on the need to better “coordinate” **EU and national funding**. This is a long-standing objective of successive Commission research programmes, which however have achieved only limited results thus far. In a globalising world in which Europe faces growing competition from rapidly developing, continent-wide countries (China, India ...), the Commission is correct to emphasise again the need for a concerted European-wide (continental) response. It falls to the Member States (MS) to respond positively to the Commission’s call for greater coordination. But the rhetoric and the reality must coincide. **Joint EU-MS programmes should only be launched under the CSF when all parties have given firm and binding commitments of adequate resources.** We return to the question of EU-MS coordination shortly.

### 4. WORKING TOGETHER TO DELIVER ON EUROPE 2020

The indicated **single entry point, common (and improved) IT tools and one-stop shop** will all be welcome. Critically important, however, will be further real progress in **administrative simplification**, including a streamlined set of funding instruments. The recent package of simplification measures – concerning the use of average personnel costs, the remuneration of non-salaried SME owners, and the common interpretation of FP rules across Commission services and agencies – is very welcome. Those measures must now be made to work in practice. Moreover, the forthcoming revision of the Financial Regulation must bring or enable further improvement in terms of interest-bearing bank accounts and the reimbursement of VAT, amongst other things<sup>3</sup>.

The widespread use of **flat rates, lump sums or unit costs** – “fixed amounts” – is **broadly unwelcome for beneficiaries**. The norm in business, among RTOs and, increasingly, in universities is real-cost accounting. Thus actual cost reimbursement is the preferred method of financial support. This is all the more so since political pressures tend to drive down the value of fixed-amount reimbursements, thereby reducing the incentive for many beneficiaries to participate. **EARTO therefore prefers real-cost accounting and reimbursement.** For International Cooperation Partner (ICP) beneficiaries, however, fixed-amount reimbursements should be available.

There appears to be a growing acceptance that **further public co-funding is needed post-research** in order to help ensure that invention becomes innovation – in products, processes or services – notably funding for proof of concept, piloting or demonstration actions undertaken with potential future users (firms, public agencies, etc.). The CIP has shown with the modest resources available to it how such funding, e.g. for eco-innovation and ICT applications, can boost innovation. There is now a need and opportunity to significantly ramp up this kind of support, which should be **generalised across the future research and innovation programmes, and across themes and priorities**<sup>4</sup>. The assistance given should be as seamless as possible, but not automatic. An objective evaluation should determine when research results merit follow-on assistance, but an element of “automaticity” could be provided by conditionally “reserving” follow-on funding for assisted research projects. The current CIP schemes are not specifically targeted at FP-supported projects and we should like to see this retained in the future<sup>5</sup>. The RSFF and possibly other new loan- or equity-based financial instruments could play a role here.

<sup>3</sup> cf. *EARTO Position on the Revision of the Financial Regulation*, December 2010 and *EARTO Position on the Simplification of the Framework Programme*, April 2010.

<sup>4</sup> Proposals for a more integrated, value-chain approach have similarly been made by EUROCHAMBRES (*Boosting Europe's Innovation Potential*, January 2011), UEAPME (*First Orientations for a New and More Innovation Focused Framework Programme for Research and Development*, January 2011). and TAFTIE (*Innovation for Europe's Future*, April 2011).

<sup>5</sup> European Innovation Partnerships, for example, might wish to benefit from such schemes for piloting or demonstrating research results from outside the FP.

The introduction of such a post-research funding facility will require **substantially increased resources** compared with the present Framework Programme, including possibly loan-based financial instruments administered in cooperation with the European Investment Bank. A further precondition will be to ensure that the **State Aid Framework for Research and Development and Innovation**, now due for revision, is suitably aligned.

**Joint Programming Initiatives (JPIs)**, which when first announced were declared to be intended as a principal mechanism for tackling societal grand challenges, have developed slowly and rather disappointingly. The published “voluntary guidelines” for their operation – which by virtue of their non-binding nature create confusion rather than clarity, compounding the confusion created earlier by varying ERA-NET arrangements – suggest a kind of new Eureka programme for public research funding, whereby it must be recalled that in over a quarter of a century of operation Eureka has not evolved into a reliable mechanism for transnational industrial research funding, principally because of **difficulties in aligning national strategic economic interests as well as of synchronising national funding practices and programme procedures**.

EARTO therefore proposes that JPIs should be launched only when a group of Member States is prepared to make a **binding multi-annual commitment of adequate resources to commonly agreed objectives, with reliably funded – preferably via a common pot – core management functions**. JPIs should be impact-driven and focus on clear deliverables. Each JPI should employ a commonly agreed procedure for selecting the research to be funded and participating Member States should commit in advance to accepting the resulting selection.

EARTO would welcome a greater coordinating role for the European Commission in Joint Programming, which today is essentially driven by the Member States. EARTO also sees a role for the Commission to fund, or co-fund with the participating Member States, a central management structure for each JPI. Further, EARTO repeats its earlier proposal<sup>6</sup> for the creation of **Strategic Research Alliances**, modelled broadly on the European Energy Research Alliance of the SET-Plan, as a mechanism for underpinning each JPI with a hard-core of long-term research players having the competence and credibility to help sustain their governments’ commitment to the respective JPI. These Strategic Research Alliances would, *inter alia*, take the lead - in consultation with all key stakeholder groups – in defining techno-economic roadmaps to guide the research performed in each JPI.

Future EU research and innovation programmes must strike a **balance between smaller projects and larger ones**. The Green Paper asks about the appropriate “balance between smaller, targeted projects and larger, strategic ones”. This would appear to imply that a primary focus on grand challenges would crowd out smaller projects. This is surely wrong. Tackling grand challenges will only be possible by breaking down the headline challenge into specific, tractable objectives and deliverables, for many of which smaller projects will be appropriate. There is then the question of whether **targeted projects (quasi-procurement)** will be more appropriate in specific cases than a more **bottom-up** approach. In practice, all options are likely to be needed, from case to case.

But a balance between larger and smaller projects must be sought for other reasons, too. Tackling grand challenges is not the sole objective of EU research and innovation policy. Two simultaneous higher-order objectives are **supporting economic competitiveness** and **completing the European Research Area**. Both will frequently require smaller-scale projects. Helping companies find (transnational) solutions for new or improved products, processes or services, for example, or advancing the development and novel

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<sup>6</sup> *Addressing the Grand Challenges: The Contribution of Research and Technology Organisations*, May 2010

application of key enabling technologies will often require smaller-scale, bottom-up R&D projects.

A balance is needed, too, for the pragmatic reason that the **FP has become a major source of transnational public project-based research funding in Europe**. It is often noted that the FP equates to (only) about 5% of total public R&D funding in Europe. But this figure, while true, misses the point that much national and regional public research funding goes towards basic infrastructure (e.g. university buildings) and salaries (e.g. university staff). By contrast, the vast majority of FP funding is for specific research, and its importance is magnified by the leverage effect of covering less than 100% of the cost. A decade-old study<sup>7</sup> estimated that the FP equated to around 25% of total public project funding in Europe, and the figure may be higher today following the accession to the EU of countries in which public spending on research tends to be low. If the FP were suddenly to stop funding smaller-scale projects, great damage would be done to European R&D and to the fabric of the European Research Area. **EARTO therefore considers that something akin to the current Cooperation Programme, with adequate scope for smaller STREP-like and bottom-up projects, must be preserved.**

The Green Paper's question as to **measures of success and performance indicators for EU research and innovation funding** admits of no easy answers. Different metrics are needed for whole policies than for part-programmes and for specific projects or actions. Varying metrics will be needed, too, for the several objectives of the CSF: tackling grand challenges, completing the ERA, and strengthening European competitiveness. In general, given the focus on innovation, traditional "science" indicators like publications in quality journals will be of limited relevance. Instead, measures of real-world impact will be needed. We would propose, for example, that each European Innovation Partnership should identify measureable headline targets (e.g. x% reduction in emissions, y% increase in energy efficiency) against which to measure progress and performance. More generally, it may be useful to distinguish three dimensions of success:

- **Research success**, e.g. publications, patents, courses, PhDs, seminars/conferences, etc.
- **Innovation success**, e.g. licensing revenues, new products/processes/services, efficiency gains, cost reductions, etc.
- **Business success**, e.g. new markets, increased market share, new businesses created (start-ups/spin-offs), increased revenues/exports, etc.

**At policy and programme level, realistic headline performance targets should be set *ex ante*.** Evaluation and performance monitoring must not, however, become a "blind" numbers game. Major impacts may only come longer-term and may often be more qualitative than quantifiable.

**At project level, the recent proposals for results-based funding are to be resisted.** Research and innovation are typically high-risk activities which, while they may have clear objectives in terms of hoped-for results, remain nevertheless of fundamentally uncertain outcome. Results-based funding and high-risk research and innovation are incompatible.

## 5. TACKLING SOCIETAL CHALLENGES

The Green Paper asks how a stronger focus on societal challenges should affect the **balance between curiosity-driven research and agenda-driven activities**. The assumption seems to be that agenda-driven research could crowd out curiosity-driven work. This need not happen, and should not be allowed to happen: EARTO considers that

<sup>7</sup> *R&D Project Funding in the EU: Governmental Investments in EU Member States in the Year 2000*, KOWI, 2002

both should continue to receive support in future EU research and innovation programmes.

A more delicate question may be the balance between targeted vs. bottom-up curiosity-driven research, for it is perfectly feasible to target curiosity-driven research by specifying fields or subjects in which such research will be supported. **EARTO believes that strategically focussed programmes for tackling societal challenges will from time to time need to commission targeted curiosity-driven research.**

The reference in the Green Paper to the **strategic approach of the SET-Plan** is entirely appropriate, and we refer to our earlier remarks in this regard.

As to the question of stimulating **greater interest and involvement of citizens and civil society**, the Science in Society programme has offered useful opportunities for facilitating interaction between research, NGOs, journalists and others. A continued investment here would seem worthwhile. Support for Social Science and Humanities (SSH) should also be maintained, for they have much to contribute to a broad-based innovation policy.

## 6. STRENGTHENING COMPETITIVENESS

The introduction of European Technology Platforms, Joint Technology Initiatives, the EIT, and Public Private Partnerships (PPPs) has given business, particularly large enterprises, considerable scope to participate, in a leading role, in FP activities. That is to be welcomed. It is to be hoped that the EIT will become a powerful role model for greater academic engagement with the economy and society. ETPs have proved particularly useful for research-mapping activities, while PPPs provide a flexible framework for joint work between industry and research.

Some of these instruments and initiatives are not working as well as intended, however. Certain **JTIs, notably ARTEMIS and ENIAC, suffer from their Eureka-style funding model**, whereby some Member States do not commit sufficient resources, or do not honour fully the commitments which they have made, so that not all selected projects or project participants can be funded. This type of funding model is particularly ill-suited in the case of world-class research players located in small countries with correspondingly low JTI budgets: the limited funding practically excludes the world-class research player from participating in much of the programme<sup>8</sup>. The limits of present Eureka-style funding models must be recognised, and compensated for, in order that the best qualified players can engage fully in European programmes.

Other JTIs have introduced funding rules which are unattractive for many research performers (RTOs and universities), notably a 20% cap on overhead costs. The **Innovation Medicines Initiative** (IMI) has also developed IP-handling policies that are one-sided and dissuasive. A further necessary simplification in future European research and innovation programmes is, therefore, that a **default regime of funding models and participation rules should apply across all programmes**, with exceptions being permitted for particular schemes and initiatives only for specific, compelling reasons. The Recovery Plan PPPs' alignment with FP funding rules has worked well and demonstrates that a default regime is feasible and effective. These PPPs merit further reflection as a light and effective approach; they would benefit from a clarified role for the participating stakeholders, as indicated in the European Council conclusions of May, 2010.

RTOs have welcomed the **Future and Emerging Technologies (FET)** initiative in the ICT field and would like to see it continued and generalised to other fields, in both its

<sup>8</sup> Perversely, the lack of funding can force such an organisation to seek revenue elsewhere, even to engage with Europe's competitors in other parts of the world.



**bottom-up FET-Open** and **top-down FET-Proactive** forms, in the coming programme period. FET has demonstrated responsiveness to needs and opportunities, combined with significantly less bureaucracy in comparison with mainstream FP contracting.

**Future EU research and innovation programmes should continue to support SMEs**, in particular SMEs with prospective high-growth potential beyond national borders. Given the new emphases in the Innovation Union proposals and in the current Green Paper, on mobilising public procurement to stimulate and support innovation, and on coordinating EU and national/regional resources, and in view of the encouraging EUROSTARs experiment in marrying national and EU funding, EARTO sees an opportunity for a **new kind of integrated SME support framework**, which could blend a range of existing EU and national/regional initiatives, along the following lines<sup>9</sup>.

- There is a strong case – demonstrated by over-subscription – for continuing and increasing the current bottom-up FP Research-for-SMEs programme, which targets **transnational SME consortia requiring externally sourced R&D support**.
- The EUROSTARs programme targets a different segment, namely **research-performing SMEs**.
- A European public procurement innovation offensive inspired by the United States SBIR programme – as alluded to in the Green Paper – could stimulate more such national or regional programmes in Europe, which would target the segment of **early-stage, research-based small firms**.
- Some national/regional programmes, and some initiatives using Structural Funds at local/regional level, provide **proof of concept** support to enable SMEs to explore and develop their ideas with customers and users prior to the R&D phase.

A well-integrated support framework along the above lines would have much greater visibility and attraction for SMEs, and for the intermediaries that support them, than the current juxtaposition of national/regional and EU programmes. SMEs should, of course, continue to be eligible for other EU research and innovation programmes and initiatives, and the post-research support for the advanced development, piloting and demonstration of technologies advocated elsewhere in this paper should also be available to them.

There have been frequent references recently to the use of **prizes** in relation to research and innovation. EARTO considers that while they have their uses, and public relations value, they are no basis for sustaining the research base and innovation eco-system. Prizes would seem to be most appropriate where the target is clear and the barriers to entry not too high: thus they may be appropriate for encouraging the novel application or integration of existing technologies to achieve a solution, but not for supporting high-risk exploratory research.

**Pre-commercial procurement** can be a powerful tool for driving innovation. The Commission should continue to encourage the Member States to develop substantial pre-commercial procurement schemes. A useful approach could be to agree a target whereby Member States would spend a certain percentage of their procurement budgets on innovative procurement. Pre-commercial procurement could also be employed to support pilot and demonstration activities in the new EU research and innovation programmes.

Rules relating to IPR must strike a good balance between considerations about access/dissemination and competitiveness. The earlier Innovation Union proposals contained unfortunate wording that seemed to suggest that political priority should go to open access to all FP-funded research results. The Commission should state clearly that its intended wish is to maximise **open access to FP co-funded results already in the public domain, generalising what has been introduced by the Open Access pilot**. Competitiveness considerations will generally tend to favour the “privatisation” of research results, and given the new emphasis on innovation, this tendency would seem

<sup>9</sup> Both EUROCHAMBRES and UEAPME, *op. cit.*, similarly suggest a more integrated approach and the *Open Area for SME Innovation* proposed by TAFTIE, *op. cit.*, bears a strong resemblance to our own proposal.

likely to be stronger still in the future. There appear to be discussions within the European Commission about extending open access to research data: here, too, great care must be taken to respect competitiveness considerations.

## 7. STRENGTHENING EUROPE'S SCIENCE BASE AND THE EUROPEAN RESEARCH AREA

EARTO welcomes the role of the **European Research Council** (ERC) in supporting the drive for excellence in European research. Discussions are currently underway about greater autonomy for the ERC Executive Agency. EARTO would support such a development as a valuable experiment in alternative management options for future EU research and innovation programmes.

The **ERC's focus on individual researchers and research groups** can be problematic for RTOs, which tend to have a more corporate approach to the organisation and management of research. For example, the ERC's individual-centric rules on IPR can contradict an RTO's policy on corporate ownership of IPR generated in-house. EARTO would also like to see emphasis given to "innovation excellence", in addition to "scientific excellence", e.g. through recognition of outstanding academic serial entrepreneurs.

EARTO takes this opportunity to re-iterate its earlier proposal for a high-level **European Innovation Council** to provide independent strategic advice on Europe's innovation challenges and policy needs<sup>10</sup> – perhaps *via* a reconfigured ERAB with a suitably broadened mandate.

**Marie-Curie Actions** (MCAs) are welcomed by many RTOs, although a practical difficulty sometimes arises due to the general articulation of MCAs around "industry" and "academia", in particular in the Industry-Academia Partnerships and Pathways (IAPP). The funding model and overall corporate practice of RTOs corresponds fully to neither one nor the other, so that it is sometimes difficult for an RTO to know "which box to tick". The introduction of an additional category for RTOs, or clarification by other means, would be welcome.

RTOs welcome the FP's increased attention to **research infrastructures** and look forward to the initiative being extended to medium-sized facilities as well as to shared infrastructures, e-infrastructures, collections and other infrastructural resources.

The drive to complete the European Research Area requires the introduction of EU-funded **Strategic Research Alliances**<sup>11</sup>. We referred above to their role in underpinning Joint Programming Initiatives. They are needed, too, as a strategic instrument serving the ERA objective of reducing fragmentation and duplication of research in Europe by encouraging RTOs – together with universities and industry where appropriate – to join forces in the establishment of longer-term cross-border strategic research programmes. European funding of such Strategic Research Alliances would counter the "lock-in" effect which national core funding can produce and which can hamper the cross-border operation of RTOs<sup>12</sup>.

- END -

<sup>10</sup> EARTO Position on the Next Generation of European Union Research and Innovation Programmes, January 2011

<sup>11</sup> Proposal for a European Strategic Technological and Applied Research Council (ESTARC), November 2009

<sup>12</sup> Technopolis Group, *Impacts of European RTOs: A Study of Social and Economic Impacts of Research and Technology Organisations*, Brighton, October 2010