

COMMENTS FROM ECCREDI ON THE EC COMMUNICATION “MORE RESEARCH FOR EUROPE”

1. Overview

The objectives of the Communication from the Commission ‘More Research for Europe’ are warmly welcomed by the construction sector. Investment in R&D in the European construction sector is unacceptably low and this poses serious threats to the competitiveness of the industry and to its ability to deliver social and political agendas, which are driven by new understandings of the importance of sustainable development and the responsible use of natural resources.

The construction sector faces a range of cultural issues that require to be addressed through a concerted approach, as many are interrelated. Below, in a detailed discussion of the main objectives, these issues are highlighted and measures are proposed to improve the situation.

The construction sector operates within specific process framework conditions by necessity – regulated, local production, large impacts, high level of risks – or by history – fragmentation, low margin, low entry barriers that are detrimental to performing RTD activities to a much more significant extent than in any other industrial sector. Nevertheless, it has to provide to all its actors the framework as well as the physical environment in order to sustain and undertake their activities: from the construction of infrastructures supporting transport and mobility of goods and citizens to industrial plants and office construction for all industries, through to developing and maintaining the urban environment and residential and leisure facilities for the public in general. This highly demanding agenda deserves that in common with aeronautics, biotechnologies or IST, **the construction sector must be given the opportunity to be funded by specifically budgeted RTD programmes.**

Many of the issues need to be addressed at both the national and European levels. ECCREDI, the European Council for Construction Research Development and Innovation, which is dedicated to enhancing the quality and breadth of construction RTD, stands ready to work with the Commission in meeting these objectives.

2. ECCREDI’s Position Paper

ECCREDI’s position paper has been worked out by a dedicated working group and has been wider circulated through ECCREDI for comments. The paper is expected to be finally endorsed by the Steering group at his meeting of 18 February. Eventual updates will be circulated in due course.

3. Detailed discussion of the main objectives for the construction industry with reference to the recommendations listed in the Commission paper.

Note that for the sake of clarity, the same paragraph numbering as in the Commissions Communication has been adopted here.

3.1 More attractive framework conditions

3.1.1 Sufficient and high quality human resources

Objectives:

- *Assessing and raising awareness of employment / skills needs and future career opportunities in different S&T areas; assessing the capacity of the educational and training system to respond to those needs, in close cooperation with private and public sector employers and suppliers of trained scientists and engineers.*
- *Encouraging further women to enter S&T careers.*
- *Encouraging further the development and visibility of poles and networks of excellence for higher education and R&D, competitive and non-European alternatives.*
- *Encouraging the development and visibility of S&T careers in Europe, both in enterprises and in the public sector, by paying greater attention to financial conditions, career paths for young scientists, research equipment and availability of funds for research.*
- *Facilitating life-long learning, transfer of knowledge and career development through the mobility of researchers within Europe as well as the entry of third country researchers, primarily by removing national obstacles and providing adequate information and assistance at all levels.*

Response of the construction sector:

The perceived image of the construction sector as predominantly 'low – tech' is a serious obstacle to the future development of the industry and the contribution that it can make to the competitiveness of Europe and to sustainable development.

In practice, the leading edge of the construction sector (either in its RTD or in its prestige infrastructure and building projects) is dominated by high-tech solutions to management, design, construction and whole life issues. There are, therefore, substantial challenges and opportunities to develop sufficient high quality human resources in the construction sector. To be successful, these need to be integrated in a very demanding human and entrepreneurial environment. The construction sector is the only industrial sector that can offer researchers the challenge of integrating ICT, with using human skills to create and sustain the built environment.

Specific sectoral support actions programmes are needed to raise profile and increase the range and diversity of professionals practising in the construction sector and in construction RTD.

3.1.2 A strong public research base with improved industry links

Objectives:

- *Establishing clearer and more consistent priorities for public R&D, with more systematic participation of industry to their definition in relevant industrial or technological sectors.*
- *Encouraging further the development of public-private R&D partnerships and clusters leading to knowledge transfer and commercialisation of R&D results.*
- *Encouraging further initiatives to strengthen the public research base and its links with industry in the context of EU regional and cohesion policies and of the financial instruments targeted at candidate countries.*

- *Opening national R&D programmes more to transnational collaborations.*
- *Removing obstacles to university-industry researcher mobility, addressing notably the transferability of pension rights and the recognition of mobility as a positive element in career progression.*

Response of the construction sector:

Traditionally, the construction sector in Europe has maintained a strong public research base, often oriented towards the problems of individual nation states. This included the national building research institutes and laboratories directed at issues such as transportation, materials research, hydraulics, natural hazards or offshore engineering.

In recent years, this public research base has been eroded. However, it can be argued that in its place has emerged stronger public – private partnerships and research networks addressing a broader range of research problems in an increasingly multi-disciplinary and often multi-national approach. This has been greatly stimulated by the evolving Framework Programmes. However, it is clear that the market pull type of research activities has not yet been sufficiently developed and put in practice and there remains insufficient take-up of research findings. Clearly now with the 6th FP opportunities are present to build strong European RTD networks also for the construction industry.

The following measures are anyhow recommended:

- 1. a precondition for projects (IPs, STREP, etc.) is that they should be led by a strong exploiter of the developed technologies**
- 2. a precondition for networks (NoE etc.) is that they should be supervised by future exploiters of technologies or by administrations when responsible for public benefits**
- 3. for all proposals, that they are not only peer reviewed but also reviewed by downstream experts (including clients) reflecting the interests of users.**

This would further serve the objective of making the sector more end-user friendly and client-oriented.

3.1.3 Entrepreneurship for, and through, R&D

Objectives:

- *Promoting high technology ventures linked to public sector research through close co-operation with the risk finance community and development of management skills (especially in relation to intellectual property rights and technology transfer).*
- *Exploring appropriate measures to support spin-offs from larger firms.*

Response of the construction sector:

The construction sector recognises the benefits that can accrue to society from increased entrepreneurship and the successful development of high-technology spin-off companies in key areas of materials, services and ICT research. Increasing the use of state of the art tools and systems throughout the industry would bring substantial economies in terms of cost and reducing material waste.

In certain niche areas within the construction sector, such as research leading to the development of specialist instrumentation or software, there are clear benefits to be gained from stimulating such relationships. However, the effectiveness of research laboratories working in

construction has been contracted considerably in many European countries over the past decade and the capacity of construction being a low margin sector to co-invest in this type of ventures is reduced. This will inevitably reduce the opportunity for the sector to generate models based on these objectives. Braking down fragmentations is a bigger issue for the sector than promoting spin-offs.

Collaborative investment between capital venture firms, industry and researchers should be specifically assisted, as such mixed type ventures would ensure market access and in-depth knowledge of prospective clients.

3.1.4 Effective adaptation and use of intellectual property rights systems

Objectives:

- *Improving further the EU IPR legal framework where necessary in order to deal with the evolution of technology and the world-wide harmonization process, based on timely evaluation of the effects of existing legislation and of new IPR issues arising in particular from technological advances.*
- *Pursuing actively progress in international harmonization and enforcement of IPR systems, and helping least developed and developing countries build their own capability and promoting mutually beneficial R&D collaboration in areas of common interest.*
- *Promoting the use of good practices regarding IPR aspects in publicly funded R&D and in industry-university collaborations.*
- *Promoting more effective management of IPRs by producers and users of knowledge (awareness, training of scientists and engineers, development and professionalisation of innovation support services).*

Response of the construction sector:

Better protection of knowledge is a key concern of the construction sector.

IPR, strictly speaking, do not encompass all the related issues to knowledge protection. Indeed, ideas submitted by an architect, an engineer or a contractor in a tender procedure, hardly ever reach such an advanced stage and are therefore very rarely protected by IPR. On the other hand, such ideas constitute competitive benefits with inherent market value for the said solution provider and need to be protected by guaranteeing total confidentiality throughout and after the tendering procedure.

It will be readily appreciated that in the context of to-day tendering procedures, solution providers have little commercial interest in developing “innovative alternative technical solutions” in order to be more competitive and to improve their margin of profit if their ideas are then “appropriated” by their potential clients and put out again to competitive bidding to all the competition. Such malpractices serve not to stimulate, but rather to stifle innovation.

This issue is closely interlinked to the forthcoming new EU procurement legislation. **“Alternative technical proposals” or “new ideas” must always be acceptable under the public procurement rules included in a tender, and must further be protected by “confidentiality”. This implies that contracting authorities will be bound to consider each tender on a confidential basis and that they cannot appropriate the ideas of one tenderer and use them as the basis for inviting further tenders.** This would amount to a breach of the proposed “confidentiality clause”.

3.1.5 Research- and innovation- friendly regulations

Objectives:

- *Exploring the possibilities offered by European and national regulation of product and service markets to encourage R&D and innovation, and paying particular attention to the effects of regulation on R&D and innovation both directly and through the ability to market new products and services. There may be a case for focused regulatory reviews in this respect.*
- *Where appropriate, and in close co-operation with industry, encouraging more systematic development and use of common European standards. This could notably be promoted in the context of the creation of technological platforms bringing together the various stakeholders interested in the development, testing and use of new technologies.*
- *Evolving towards more innovation-friendly public procurement rules and practices, improving opportunities for the participation of SMEs, notably through the adoption and implementation of the legislative proposals modernizing EU public procurement law. This could provide European companies with a large user group for their newest technologies and enable them to quickly achieve the market penetration needed for global commercial success.*

Response of the construction sector:

Construction is a heavily regulated industry and clearly the European and national regulatory frameworks continue to have a major influence on the extent and quality of innovation in practice. It was noted above (3.1.4) that procurement procedures can encourage or stifle innovation. Careful attention must be paid to ensure that important objectives of openness and competition are also structured to stimulate innovative cost-effective solutions in the built environment.

The many prescriptive “locally-minded” standards still being used in construction are a serious barrier to innovation, but already substantial progress has been made towards the development of common European Standards for design and these are now reaching the stage of implementation. These new standards bring substantial opportunities to stimulate innovation because they are based on ideas of reliability, risk management and performance.

Public procurement practices should permit Framework Agreements and the use of Design/Build contracts should be encouraged for all contracts above a certain threshold. Such contract arrangements have had a significant impact on fostering innovation in national construction processes where practiced in the past, in at least a few countries. Different attitudes and practices in relation to professional liability and insurance across Europe further complicate the introduction of common standards and an “innovation-friendly” regulatory framework. These issues need to be urgently addressed at a European level.

3.1.6 A competitive environment and supportive competition rules

Objectives:

- *In the context of competition decisions, taking due account of market dynamics and competitive conditions in assessing R&D and innovation activities, in particular in highly innovative industries.*
- *Monitoring the reorientation of State aid to R&D and its leveraging effect on investment and pursuing studies on possible adaptation of the Community Framework in the context of its next revision in 2005.*

Response of the construction sector:

Although some perspectives and attitudes within the construction sector are evolving, the sector does not traditionally view its output as a ‘product’, but rather as a service. This means that

attitudes towards innovation – bringing value to clients - are very limited in respect of understanding the potential competitive advantage.

Here a particular obstacle is the reluctance of clients and their advisors to promote and adopt novel solutions, but instead to insist on ‘tried and tested’ concepts and products. In many cases this is to cover the high “innovation risks” in an industry whose products have very substantial impacts (on the environment material use and times scales). This obstacle is further compounded by the lack of continuity in the approach to project procurement and a continuing focus on a “one-off local projects” approach that detracts from the necessary capitalisation (from project to project) which would ensure innovation returns are financially safeguarded.

Initiatives that encourage clients and industry actors to act in long term alliances or partnerships should be encouraged by public procurement strategies. Specific support actions need to be developed to foster a change in attitudes that enable the construction sector to pursue the same success route that other industries have been able to follow.

3.1.7 Supportive financial markets, covering the various stages of development of high tech and other innovative companies

Objectives:

- *In the context of the implementation and possible follow-up of the RCAP and the FSAP, identifying measures that would help foster debt and equity market financing of R&D and innovation in companies at different stages of their developments.*
- *In the context of the follow up of the EIB's “Innovation 2000 Initiative”, putting in place financial instruments contributing better to this objective.*

Response of the construction sector:

There are almost no examples at present of the finance sector being involved in supporting R&D in construction. There should therefore be a good opportunity to benefit from new initiatives in this direction.

One of the obstacles to the development of financial instruments that can stimulate innovation in the construction sector is the widely differing national approaches towards insurance, whether covering liability at project level or for professional indemnity purposes.

The sector would welcome the development of new financial instruments that encourage a standardised common European approach to insurance which would encourage rather than stifle innovation, and ultimately, would lead towards the involvement of the finance sector in investing in R&D in construction.

3.1.8 Macro-economic stability and favourable fiscal conditions

Objectives:

Exploring ways that Member States could reform their tax systems to reduce existing disincentives to investment in R&D and innovation.

Response of the construction sector:

It is a common perception that the construction sector has a very low investment in R&D. It is clear that commitment to innovation in the sector is unacceptably low, but in practice there is

more R&D being done than is declared. This is because R&D is 'project related', rather than being supported as a discrete and distinct overhead cost and often does not therefore appear separately on corporate balance sheets.

Moreover, international comparisons can be misleading. For example, it is apparently common practice in Japan to consider project development as "research and development". This is certainly not the case in Europe where project development is accounted for as a "normal" component of the construction process.

The construction sector would strongly support the development of fiscal policies by Member States aimed at reforming their tax systems in this area. A more transparent approach to investment in innovation (rather than simply in RTD) would be a welcome development. The same principle applies to increased investment in the wide spectrum of skills including execution skills that would contribute towards a change in attitude, much needed throughout the supply chain, concerning the benefits and opportunities of increased innovation.

3.2 More effective use of public financing for business R&D

Objectives:

- *In the context of the benchmarking of research policies, and taking into account differences in national contexts, identifying good practices and innovative schemes to enhance the leverage effect of the various public support instruments on private investment in R&D.*
- *Making more effective use at regional, national and EU levels of these instruments, considered individually and in combination, to enhance their overall impact.*

Response of the construction sector:

The use of public financing instruments as incentives in the construction sector is very limited; where they do exist they tend to be highly focussed. One such example is the availability of small grants for the renovation of existing buildings to improve energy efficiency and acoustic insulation. This has some potential to stimulate new product development, but the impact is likely to be modest. The opportunity for larger scale initiatives is large.

New insight into the use of public financing instruments would be welcomed by the construction sector. The use of tax revenue to support collective research, or grants to encourage sustainable solutions to new construction and the maintenance of older buildings is regarded as a powerful option to stimulate R&D in the sector.