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The EC Framework Programme – time for a radical rethink

Bart de Strooper *

European scientists need research money and research careers, not European networks and bureaucracy – let's do something about it!

How many more times do we have to read official reports from the European Commission (EC) depicting the deplorable state of science in Europe? Compared with the USA, our biggest competitor, Europe spends less money, has fewer scientists, publishes less groundbreaking scientific articles, applies for fewer patents, and looses more jobs and money from the high-technology sector.

What's worse, the gap is widening. As Europe struggles to create a competitive research environment, European-based companies invest much more in research and development (R&D) in the USA than US companies invest in Europe. According to the EC's 'Key Figures', in 2000, for example, €5 billion of European R&D investment – the equivalent of the annual research budget of the EC – was spent outside Europe, mostly to the benefit of the USA! And the cost of losing our young and most creative researchers to the USA probably translates into a several-fold greater financial loss.

The responsibility lies with the national governments who fail to see the importance of strengthening their research base, but also with the European Union, which has created over the years a gigantic monster of a research-funding structure.

Most of us in research are not surprised when we read the official analyses. We know that the USA attracts the world's best scientists by giving them earlier and better opportunities, better environments and better grants. The problem in Europe is obvious: the scientific environment is simply not good enough, and the attitude of European research managers, rectors, deans, presidents of research councils, etc., is not competitive at all.

We read in our scientific journals about the woeful lack of opportunities for postdocs in countries like Italy, France and Spain. We know all about the rigid hierarchical organization of our universities in Germany, Belgium and many other countries on the continent. We observe how every country protects its own interests, so prohibiting Europe-wide competition for research grants and research positions. We also see how little money is made available for research.

The EC is in a crucially influential position to bring about change across Europe. It is already taking the political lead in persuading national governments of the importance of the European Research Area for our future prosperity. And the Marie Curie mobility and human resources actions in FP5 and FP6 are making a real difference to the prospects of young researchers wishing to move from one country to another to gain, for example, postdoctoral experience. By taking the lead with its own policies and funding structures, the EC *could* force changes both in the structure of the research enterprise and the level of funding in all the member states.

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So why isn't the EC managing to make European research competitive? One excuse is that the EC doesn't have enough money to make much of a difference. To a certain extent this is true. Only around 5% of the total science budget in Europe is managed by the EC – the rest is still in the national coffers. EC Research Commissioner, Philippe Busquin, argues that member states

should put more money into the EC to make Europe more competitive.

Obviously, science must be co-ordinated at the European level. We need more joint European facilities like CERN, EMBL, etc. as well as more international co-operation in European projects. But, the way money is currently being spent by the EC is the best possible argument against increasing its budget. The EC's science funding is so bogged down in baroque application procedures, concerns about management, accounting, training, technology transfer, reporting, contract negotiation, etc. that the research itself takes a back seat in terms of both the time and money spent on it.

Indeed, the analysis of the problem is quite simple and, and in my opinion, so too is the solution: Europe must copy, and so emulate, the examples of successful research-funding structures in the USA and the international bodies like the European Molecular Biology Organization (EMBO) and the Human Frontiers Science Programme (HFSP).

But this is exactly what, so far, the EC has refused to accept. To the frustration of many European scientists, much of the precious budget allocated to the current Framework Programme (FP6; about €20 billion over four years) is being squandered on Integrated Projects (IP) and Networks of Excellence (NoE).

Bureaucracy blues

In the past year, I have had the dubious pleasure of participating in applications for both types of projects – a dreadful experience! It starts ominously with the unfriendly web site where you are overwhelmed by a pile of documents and instructions. You soon realise that without an advanced degree in bureaucracy you will never understand what they want in Brussels. Indeed, a whole satellite market of special management units in the universities, not-for-profit foundations and private lobbying companies has sprung up to respond to this need. Obviously their work has to be paid for, directly or indirectly, which means less money for research.

And that is not the only drain on funds. In my experience, 50–75% of the money allocated to NoE projects goes into co-ordination, travel, meetings, talking, writing and managing the network. For the IP programme the drain is somewhat less, but still impressive.

Writing the application is a painful business. The big challenge here is to find a way to forge 10–20 different laboratories over Europe into a single united collaboration that seems not too artificial at first glance. Obviously, for rare projects (like the genome sequencing and annotation projects) such large networks are really necessary. But most research projects in biology are smaller scale and require, at most, the interaction of two or three independent research groups. Unfortunately, the EC doesn't propose any funding mechanism for such realistic collaborations!

But the most excruciating moment comes when the small group of co-ordinating scientists finally has to decide who to take into the boat and who to leave behind. The Commission should realise that this type of discussion certainly does not foster the European Research Area they have in mind – it creates a great deal of antagonism! And, obviously, the 'politics' involved in assembling these networks makes it impossible to put the quality of the research as an absolute priority.

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Once the conglomerate of participating teams is finally brought together, the real work starts. Now, it becomes clear that the professionals you hired can help you with the general outline of the application, but you and your scientist colleagues are going to have to apply a lot of creative imagination for the details. You will have to invent collaborations, to contrive common goals and to fabricate joint scientific programmes to produce a document that gives the impression that these artificial networks are really promising.

The project description you have to write is not so much about science as about management, equal opportunities, communication issues, training, intellectual property, and so on, and so on.

Yet 100,000 researchers submitted 12,000 projects to the first call of FP6. The Commission might be forgiven for thinking that the programmes it supports are successful! They overlook, however, the enormous window-dressing effort that participating scientists have to make when writing their applications and their reports.

If applying for EC money is so laborious, painful and unfulfilling, why do so many researchers bother to go to the trouble? The obvious reason is the general lack of research money in many European countries. What's more, most of the

universities and granting bodies in Europe believe that being part of a European network is a sign of scientific excellence. So scientists feel obliged to participate in the circus and try desperately to adapt to the bureaucratic requirements of the Commission to get a meagre slice of the European cake.

This is not the way to strengthen European research. Good scientists are wasting months of valuable research time setting up these networks and discussing issues that have little or nothing to do with their core business – science. It is like asking the players in a top soccer team to spend time organizing the champions' league while all other teams train and prepare for the real matches.

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It is also clear that a lot of precious research money is going into administration, co-ordination and travel. Every useless co-ordination meeting would pay the annual salary of a postdoc or PhD student.

This networking effect is also very conservative: those who are already in the informal 'old boys' networks have the greatest chance of getting into the boat. Small groups, younger investigators or scientists with creative and risky ideas have less hope of being invited and, in practice, they have no chance to set themselves up in a successful network.

Contractual obligations

Once the application is submitted, you can breathe easy for a moment, but the fiasco is still not over. The Commission tries to convince us about the fairness of the evaluation procedures, but it is not easy to see how referees (who volunteer themselves for service, and so are not necessarily the most expert in the field) can select the best projects given the limited specific information they have about the participants and the planned research. The outcome often depends on a heavy dose of good luck.

If you are lucky and your project is selected, the complete content of it now has to be renegotiated with the EC administration to produce a research contract. This means a completely new application that can be quite different from the original one, mainly because of the budget restrictions that are suddenly inflicted.

And this goes on and on. Scientific pseudo-meetings, intermediary reports, final reports, financial reports, co-ordination meetings, etc., etc. have to be organized and attended. The final result of all this work is a tremendous pile of paper – literally thousands of pages – served up as the final report to the paper-eating Moloch in Brussels.

Imagine the task of the long-suffering network co-ordinator when he or she has to prepare the intermediary financial reports, trying to make sense of financial reports coming from 20 different universities with 20 different cultures and 20 different traditions. The Commission wants detailed records (even a 'per hour' indication of the time researchers spend on the project). And if, as is often the case, the report is incomplete, the EC postpones the intermediary payments.

The few small research groups that are usually taken into the boat from countries like Greece, Italy and Portugal are now confronted with a basic problem of existence: how do they continue working for the network without the money to pay the salaries of their (young) collaborators. For the richer and bigger laboratories this poses less of a problem because they can often bridge the gap for a couple of months with other funds.

All change

This is the way science is managed from Brussels: window dressing, bureaucracy, a lack of transparency, money and time lost in useless administration. The end result may be a consolidation of what we have, but is certainly not exciting or inspiring young researchers to stay or come back to Europe. European research clearly deserves better.

What we need in the first place is a resolute commitment to young investigators. If the Commission really wants networks, it should create a pan-European tenure-track system for promising young postdocs who would form a 'European Academy' of researchers. This would have the 'added value' of forcing the old European universities to rethink their policies about short-term positions, lifetime positions and tenure-track – something that is badly needed.

Next, the EC should think about creating a 'Champions League' for top research, stimulating and providing extra money for the very best

research teams all over Europe. The quality and innovative character of applications should be evaluated using established peer review protocols, similar to the ones used by EMBO, HFSP and some of the national research agencies. We should look to the USA and copy many aspects of the way they support research. 'European added value' should be defined by competition at the European level (driving up standards across Europe), not by researcher mobility.

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A crucial condition for change is the involvement of the scientists in Europe in the management of science policy. We need to take our future into our own hands. Despite the deluge of applications to FP6, in truth no scientist is really happy with this programme; almost everybody agrees that it is not going to help us close the gap with the USA. It is time we scientists engaged ourselves in making clear to politicians what we really need.

We start today with an online petition to take the temperature among European scientists. We propose a series of clear requests and hope that many scientists all over Europe will support us. We want you to sign the petition but, more than that, we want you to make a personal comment on the Framework Programme. We need to convince the EC that the current structure will not do.

In the autumn, we will present the signatures and the comments to the EC and to the European Parliament, and we will press for a response and a change of structure in the next Framework Programme (due to begin in 2007). The time is ripe. Please go to the web site to sign the petition, and inform your colleagues of the campaign.

Links

Weakening growth in investment and increasing brain drain: two major threats to the European knowledge-based economy http://europa.eu.int/comm/research/press/2003/pr2511en.html

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