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Shaping science policy in Europe

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ABSTRACT

The Lisbon Strategy was adopted by the Heads of State and Government of the European Union (EU) in 2000. By moving science into a central position for the development of a European knowledge-based economy and society, its adoption at political level seems to have been a powerful catalyst for the increased involvement of scientists in science policy in the EU. Recognising the need for scientists to act collectively in order to contribute to shape the future of science policy in Europe, a pioneering group of European science organisations leaders and representatives, as well as other scientists, initiated a European, interdisciplinary, inclusive movement leading to the creation of the European Research Council (ERC) to support basic research of the highest quality. Having scientists' campaign for the funding of bottom-up research by the EU Framework Programmes exclusively on scientific grounds, and for an ERC, was a unique event in the recent history of European science policy. For the first time, the scientific community acted collectively and across disciplinary or national boundaries as a political actor for the sake of a better science policy for Europe. As is often the case when first-hand experience is gained through the creation of a new organization, novel forms of collaboration arise. The European biomedical community has recently proposed the creation of a strategic action plan for health research (the European Council of Health Research; EuCHR), provisionally translated at present into a Scientific Panel for Health (SPH) research in Horizon 2020, the EU's research-funding programme for the period 2014–2020. The creation of such Scientific Panel should be viewed as an important contribution by the biomedical community as a major political agreement has been reached on the need for a comprehensive and long-term scientific strategy to accelerate research and facilitate innovation at EU level.

It is our belief that describing and analyzing the process leading to the creation of the ERC and SPH (2002–2014) should be widely shared with the research community in general, as this may contribute to the understanding of the evolving relations between scientists and science-policy making.

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1. Introduction: the European Research Area (ERA)

At the Lisbon Summit of Heads of State and Government of the European Union (EU) in March 2000, science was for the first time politically endorsed as a major driver for the future of the EU alongside the deployment of information technologies and their promise of an “information society”. The “Lisbon Strategy”, as it became known, announced a bold agreement by all EU States to “work towards making the EU the most competitive and dynamic knowledge-based economy in the world, capable of sustained economic growth, providing more jobs and achieving greater social cohesion” (http://www.consilium.europa.eu/ueDocs/cms_Data/docs/pressData/en/ec/00100-r1.en0.htm). Progress in the basic sciences was then recognised as being as important as innovation. Moreover, bringing together, as convergent players, R&D institutions, and programmes at national, intergovernmental, and EU levels was set as a major objective.

This promise was followed by a commitment at the Barcelona EU Summit in 2002 to increase (public and private) the R&D expenditure in the Union to 3% of GDP by the year 2010. For the first time, heads of governments proposed a substantial increase in the EU budget for research. This move stimulated the scientific community to collaborate and to engage in science policy issues in order to achieve the goals set up for the “European Research Area” (ERA), a concept conceived by the then European Commissioner for Research, Philippe Busquin as a consequence of the political objectives set by EU governments. Busquin developed the idea of the ERA as a dynamic space of convergence of all science and technology actors in Europe. Such a concept would provide a framework for setting political priorities for EU science policy, by bringing together across borders academy and industry, national institutions and programmes-, as well as European Commission (EC) funding programmes and initiatives (<http://ec.europa.eu/research/rtdinfo/en/26/recherche1.html>).

Although Busquin’s ambitious goal was to be watered down over time by national interests, lobbying by industry and bursts of EC zealous demands for exclusive legitimacy, it did contribute greatly, at those very levels and in society at large, to strengthening and motivating a larger constituency for the development of science in Europe. In fact, it helped trigger novel collaborative efforts by the scientific community at EU level, which was encouraged to contribute to, and indeed shape, the future of science policy in Europe.

2. Involvement of the life sciences community in ERA: The European Life Sciences Forum

The Federation of European Biochemical Societies (FEBS), one of the largest organisations in European life sciences at that time, with nearly 40,000 members distributed among 36 Constituent Societies throughout Europe, had already recognised the societal responsibility of scientists and was determined to structure and amplify the input of the biochemical community to science policy across the life

sciences (Celis, 2000; <http://www.febs.org/>). Towards this aim, in 1999, Julio E. Celis, biochemist and Secretary-General of FEBS, put forward to the Executive Committee a proposal to establish a Science and Society Committee which would bridge the gap between scientists and society. Such a committee would identify and deal with issues arising as a result of new research developments. Moreover, since research in the life sciences was becoming multidisciplinary, he emphasized the need to join forces with other international organizations to achieve a global vision for the life sciences. Accordingly, at the Council meeting in Nice in June 1999, Celis informed the assembly that he was in conversations with the European Molecular Biology Organisation (EMBO; led by its Executive Director, Frank Gannon), the European Molecular Biology Laboratory (EMBL; led by its Director-General, Fotis Kafatos), and the European Life Science Organisation (ELSO; led by its President, Kai Simmons) to create a Forum for the life sciences in Europe.

Shortly thereafter, at a meeting hosted by EMBO at the EMBL in Heidelberg, a group of prominent life scientists agreed to work towards the creation of such a Forum, and at a meeting in May 2000 it was decided to formally establish the European Life Sciences Forum (ELSF), which embraced a broad alliance of life science, biotechnology and biomedical researchers (Celis, 2000; <http://www.biokemi.org/biozoom/issues/493/articles/1981>; Van Dyck and Peerenboom, 2003). A small governing body was appointed consisting of Frank Gannon, Fotis Kafatos, Kai Simons, and Julio E. Celis as President. Luc van Dyck joined as manager six months after the organisation was created. The secretariat was set up at the EMBL/EMBO facilities in Heidelberg and the EMBL, EMBO, and FEBS offered to cover a large fraction of the expenses for a period of 3 years.

The aim of the ELSF was to support scientists in taking a more active role in strategic and science policy issues, to speak with a unified voice in areas of general interest, and to increase the visibility and impact on policy making of organisations representing the life sciences (Celis, 2000; <http://www.biokemi.org/biozoom/issues/493/articles/1981>; Van Dyck and Peerenboom, 2003). Preliminary activities of the ELSF included identifying and contacting key stakeholders, establishing close connections with Commission officials in Brussels, and providing input to Framework Programme 6 (FP6), the EU’s multi annual (2002–2006) research and technology development programme.

In addition to the aforementioned activities, the ELSF identified as priorities the career of young scientists and the creation of a European Research Council (ERC) to support basic research (see below). At that time, the life sciences community was concerned about the fact that the EU Framework Programmes (FPs) were among the few instruments available to implement the ERA vision, and had reservations about the efficiency and effectiveness of these programmes which were seen to be highly bureaucratic (Van Dyck, 2002). In addition, most of the budget was dedicated to industrial development, and there were no instruments to support high level basic research across Europe. Thus, there was a clear need for new instruments to implement the ERA’s goals.

In order to ensure continuity and rapid response to ongoing research developments, the FEBS Council established in early 2003 a Working Group on ERA consisting of T. Blundell, P. Chambon, S.P Datta, G. Dirheimer, A. Finazzi Agro, J.M. Gago, J. Guinovart, F. Kafatos, M. Lazdunski, M. Makarov, C. Martinez, F. Mayor, D. Mc Connell, J. Mowbray, M. Nalecz, W. Neupert, M. Osborn, V. Paces, I. Pecht, C. Rodriguez-Pousada, S. Rogne, W.L.R Stalmans, P.C. van der Vliet, K.W.A Wirtz, and J. E. Celis. The creation of the Working Group would uphold the FEBS community's commitment to the broad objectives of the ERA as well as efforts towards the establishment of the ERC.

3. Initial steps towards the creation of the European Research Council

The possibility for creating an instrument such as the ERC to address the concerns of the basic research community was raised at a meeting organized by the Royal Academy in Sweden in 2001, and was openly discussed in October 2002 at a conference entitled "Towards ERA: Do we need a European Research Council?" organised by the Danish Research Councils under the auspices of the Danish Presidency of the EU. The meeting was attended by science policymakers, administrators and representatives from ministries, research councils and some large foundations. The purpose of the conference was to define the aims and needs of European research, to look at the pros and cons of establishing an ERC, and to discuss the options and alternatives. The outcome of the conference was overwhelmingly positive towards creating an ERC with most of the participants agreeing that such an instrument might be the answer to some of the problems we were currently facing. Ernst-Ludwig Winnacker, for instance, then head of the German Research Foundation (and who was in 2003 to become chair of the European Heads of Research Councils (EUROHORCS), and in 2007, the ERC's first Secretary-General) expressed his strong support for the ERC project. His commitment certainly helped to mobilize his own government, as well as other national funding organisations. Commissioner Busquin in his closing speech was positive towards the idea of an ERC, but emphasized that a duplication of structures already in place should be avoided, clear added value was essential, and the approach towards its establishment should be gradual.

Since the scientific community was not properly represented at the meeting, Julio E. Celis, on behalf of ELSF, proposed to organise a follow-up meeting to gather the opinions of the scientific community and to provide a forum to nurture and discuss the ERC initiative over the following years. As a result of the Copenhagen meeting, many organizations and groups became involved in the ERC discussions, namely the European Science Foundation, (ESF), Euroscience, the European Research Advisory Board (EURAB), the Academia Europaea, the European Academy of Sciences and Arts, the EUROHORCS, the European University Association (EUA), the All European Academies (ALLEA), the European governmental scientific research organisations (EIROforum), the Mayor Group (see below), and the Harris Group, among others.

The Summary Report of the Copenhagen meeting (http://www.eurosfair.prd.fr/bibliotheque/pdf/ERC_2002_SummaryReportFinal_DK.pdf) was sent to the EU ministers for

research, who at their November 26 meeting the same year agreed to explore options for the creation of an ERC in cooperation with relevant national and European research organisations. The Danish Minister of Science, Technology and Innovation, Helge Sander, then Chairman of the Council, had only a few days to find the right scientific figure to lead the exercise, as the Danish Presidency of the EU was rapidly coming to an end. At FEBS we had briefly had the pleasure of working with Federico Mayor, former Director-General of UNESCO and chair of the FEBS Science and Society Committee, and during this time we had learned to appreciate the extent of his commitment to science and to the welfare of society. Thus, when Minister Helge Sander asked for suggestions for a suitable candidate to lead the process we had no doubts that he was the right person for the position.

Federico Mayor was appointed chair of a small ERC expert group, now known as the ERCEG or the "Mayor Group". The Group embodied a broad spectrum of insight into academia, research policy making, and public as well as private research in Europe. Federico received outstanding assistance from Mogens Flensted-Jensen, Vice Chair of the Group, and other members of the ERCEG in preparation of the report. Moreover, the exercise benefited greatly from consultations with scientific organisations and representatives of research ministries, as well as individual scientists. The final report, eagerly awaited by the scientific community and the Commission, was presented to Minister Sander on the 15 of December 2003 (<http://erc.europa.eu/sites/default/files/content/ERCEXPERTGROUPFINALREPORT.PDF>). The report recommended the creation of "a new European dimension for research funding – the ERC – that allows a researcher in any European State to compete with all other researchers on the basis of excellence". The report also addressed the autonomy of the ERC, funding, accountability and governance issues and stressed that political commitment from the EU would be necessary to ensure a fully operational ERC at the very start of FP7.

Institutional support came from the European Council in 2004, from Heads of State and Government, in line with their previous conclusions in 2000 and 2002. As a whole, there was a consensus on the need to support basic research of the highest quality. One of the conclusions of the meeting of Heads of State and Government in March 2004 illustrates this:

"The European Council sees merit in enhanced support for basic research of the highest quality and the case for specific funding will be examined. It awaits with interest a proposal from the European Commission which may include the possibility of setting up a Research Council".

Clearly, the Mayor Group had a major impact in promoting basic science at the European level. Evidently, though, there was still much more work to be done in order to realise the dream. A new and enlarged European Parliament (EP) and the appointment of a new Commission were expected to lead to new players and possibly to renewed policies. As a result, the scientific organisations pledged to maintain the momentum of the debate, and to ensure that the views of the broad scientific community were heard in the official deliberations.

4. ELSF nurtured the initial steps of the ERC

To engage the life sciences community in the initial steps of the ERC as originally proposed at the Copenhagen meeting, the ELSF organised two meetings early in 2003 to discuss the needs and priorities of an ERC. These meetings were sponsored by EMBO, EMBL, FEBS, and the UNESCO Division of Basic and Engineering Sciences. At this stage, it was important to ensure that scientific and political issues were coordinated in order to make the ERC an “object of desire”.

The first meeting “Life Sciences in the European Research Council-The Scientists’ opinion”, aimed at gathering scientists’ opinions concerning the ERC was attended by 300 participants, including Commissioner Philippe Busquin, three Nobel Laureates (J. Sulston, C. Nüsslein-Volhard, and R. Zinkernagel), science policymakers, as well as leading scientists. The scientific community agreed to the need for a European instrument such as the ERC to support excellent basic science. Many also supported the inclusion of all basic disciplines as well as social sciences and humanities into such a structure, and the closing address by Commissioner Busquin was extremely encouraging in this regard.

Summarizing the meeting, the ELSF President proposed a follow-up conference to discuss research grants to be allocated by the ERC, infrastructures and centres of excellence, as well as delivery mechanisms. This meeting, which took place in Venice, was attended by policymakers and representatives from funding organisations and other organisations. From this meeting, it was clear that all participants supported bottom-up, scientist-driven programmes of the highest quality. The assembly made some recommendations but, unfortunately, the humanities and social sciences were not present.

As a result of these two meetings, the ELSF prepared a position paper in October 2003 that, together with reports from ESF, EUROHORCS, EUA, ALLEA, the Academia Europea, EIROforum, the European Academy of Sciences and Arts, and others (<http://erc.europa.eu/sites/default/files/content/ERCexpert-groupfinalreport.Pdf>; and references therein) provided momentum to the ERC idea and made clear the need to engage all sciences from the humanities to mathematics and other basic sciences in order to achieve the pursued objectives. In October 2003, the scientific community represented by the life sciences, physics, mathematics, social sciences and humanities met in Dublin at the Ireland Academy for the Sciences and Humanities to discuss the ERC initiative and to generate a document reflecting the views of the whole scientific community on the creation of an ERC, its general principles and its structure, as well as the specific needs with respect to research grants and infrastructures for each discipline. The meeting “A European Research Council for all Sciences” was organised by ELSF and EUROSCIENCE with the financial support of EMBO, EMBL, FEBS, and the European Plant Science Organisation (EPSO).

An important outcome of the Dublin meeting was the realization that the scientific community, through its economic support and engagement, had provided a much-needed Forum to discuss science policy issues. The Forum was instrumental in maintaining the continuity of the ERC discussions

and has grown to accommodate the opinion of all the stakeholders. There was a clear consensus among the participants about the need to think European, to join forces, to speak with a single voice, and to set up clear directions for how to proceed in order to ensure the success of the ERC initiative.

At this meeting, representatives of leading European organizations agreed to create a working group with the aim of coordinating and preparing development actions, maintaining momentum, and most importantly ensuring the involvement of all scientific disciplines in the debate on the ERC. This initial group, which adopted the name “Initiative for Science in Europe” (ISE), included delegates from EMBL (Fotis Kafatos, later replaced by I. Mattaj), EMBO (Frank Gannon), FEBS (Julio E. Celis), ELSF (Luc Van Dyck), EPSO (Karin Metzloff), EuroScience (Patrick Connerade and Peter Tindemans), ESF (Bertil Andersson and Reinder van Duinen), the European Physical Society (EPS; Martin Huber and David Lee), EUA (Inge Knudsen), the Stifterverband (E. Winter), and the Group of European Nobel Laureates (Tim Hunt). The group also included José Mariano Gago (the particle physicist, then-former Portuguese Minister of Science and Technology), who became chair of the group. At this stage, ISE acquired a political, operational status.

5. Engaging all basic sciences to achieve the ERC: The Initiative for Science in Europe (ISE)

On October 25, 2004, the ISE was formally launched at a conference in Paris. The launch marked the coming together of some 35 European scientific organizations in order to structure and give greater weight to the input from the scientific community to science policy-making and to promote the ERC initiative. The assembly unanimously supported the appointment of José Mariano Gago as chair, and from the time of its establishment the ISE secretariat was provided by ELSF and located at EMBO/EMBL in Heidelberg. The ISE adopted the following mission statement (<http://www.initiative-science-europe.org/>):

“The Initiative for Science in Europe (ISE) is a platform of European learned societies and scientific organizations whose aim is to promote mechanisms to support basic science at a European level, involve scientists in the design and implementation of European science policies, and to advocate strong independent scientific advice in European policy making.”

The ISE together with members of the EP organised a meeting in Brussels on February 2004 to reiterate the need for an ERC/facility to support high-quality basic research in Europe and to engage in a wider debate with the Commission, representatives of national governments, as well as parliamentarians. The meeting was sponsored by the ELSF, the Stifterverband für die Deutsche Wissenschaft, and the ESF, and was attended by Nobel Laureates, representatives from all scientific disciplines (life sciences, natural sciences, humanities and social sciences), the universities, industry, the ERC Expert Group (ERCEG), the Commission, and the EP. Topics addressed included: why an ERC? Instruments and delivery mechanisms, the ERC in the real world, what do we mean by an ERC and finally, will the proposed ERC meet the needs?

The contribution by Achilles Mitsos, Director-General of the Commission's Research DG, was eagerly awaited, as the Commission's communique on "Europe and Basic Research" (<http://www.iglortd.org/Content/ERA/20040114Communication-basic-research.pdf>) recognised the need for supporting basic research in Europe, and signalled support for the introduction of a new funding mechanism in the context of FP7, with funds coming directly from the EU along the lines suggested by the 'Mayor Group' report. Indeed, Mitsos told the audience that the Commission had a few weeks ago adopted the financial perspectives 2007–2013, proposing a 60% increase in the budget for research by 2013. The proposal, with a clearly balanced approach i.e. no increase for any given item to the detriment of other priorities, included five areas for which additional funding was needed: (i) policy-driven collaborative research as we know it today, (ii) co-operation and co-ordination of policy and programmes, (iii) building research capacities (infrastructures, human potential), (iv) technology platforms, and (v) promotion of basic research.

With respect to basic research, Mitsos outlined some pre-conditions that in the Commission's opinion should be fulfilled. His speech somehow hinted that a shift of position by EC management towards favouring the creation of the ERC was underway, certainly triggered by the constant and unfailing support of Commissioner Busquin. For instance, decisions related to scientific areas, topics, etc., should, according to the Commission, be science-driven and not policy-driven. Furthermore, excellence should be the exclusive criterion for funding projects; there must be competition at the European level. Finally, a move towards grants as a funding mechanism seemed feasible since the existing cost-sharing model was acknowledged to be unnecessarily bureaucratic, a topic that had been of major concern to the life sciences community. Those were exactly the options for which the scientific community had campaigned. Mitsos mentioned that in May the Commission would present a second communique containing details about the possible organisation and implementation of the ERC/facility. Also, the importance of proving the case for promoting basic research at the European level was stressed, since the final decision in his opinion would be political. How the Commission planned to organise the consultations with the scientific community in such a tight schedule remained a matter of much concern, as Mitsos was not yet prepared to elaborate on this topic.

The meeting also featured presentations by representatives from the various scientific disciplines, including two Nobel Laureates, the ERCEG group, industry, and two members of the EP. The industry representative, H. Soboll, Director of Policy Research at Daimler-Chrysler, reiterated that industry needed basic research and told the audience to expect industry as a partner. In his opinion, however, money for basic research could be better distributed through existing mechanisms rather than through a new facility. R. Linkohr, Member of the EP for Germany, did not endorse this view and warned the participants that many problems would arise if the ERC fell into the hands of the existing FPs. In his opinion, decisions should be left to scientists courageous enough to ask for what was needed and flexible enough to accommodate all variables.

Summarizing the event, the ISE chair, José Mariano Gago, praised the role played by the scientific organisations,

working together, in taking the ERC discussions to their present level. In this context, he highlighted several issues where the assembly in his view had reached consensus. These included: (i) a substantial increase in human resources to reach the Barcelona target, (ii) the need to increase R&D funding at all levels, and to achieve a balance between basic research and targeted research, (iii) acceptance of the ERC by national research councils, (iv) all scientific disciplines must work together, (v) industry and academia must come together, (vi) the need for a sensible mission statement, and (vii) the facility must use a combination of instruments. According to Gago, the debate had just begun, and he advised the scientific community to be prepared for a lively and difficult political debate at the national level.

Even though the idea of a European basic research facility, with funds provided through the EU budget, was becoming widely accepted by the various stakeholders, a political decision was still needed to allow for funding of basic research by the EC (FP) budget. To this end, the Irish Presidency of the EU in collaboration with the Commission organised a meeting in February 2004 on 'Europe's Search for Excellence in Basic Research'. At this meeting, The Tanaiste and Minister for Enterprise, Trade and Employment, Mary Harney T.D., invited Ministers for Research and senior ministerial representatives from EU Member States, Acceding and Associated States, the EC, representatives from national research councils, the scientific community, and industry to discuss issues concerning promotion of basic research, and to identify areas of consensus at the European level. Among other things, it was agreed "that the Commission should bring forward to the Competitiveness Council proposals for the governance, management and accountability of a European initiative. The initiative, which must have the complete trust and confidence of the scientific community, should involve a new facility characterised by minimum bureaucracy, and involve the scientific and engineering communities, both enterprise and academia, in its strategy and overall management. It should award individual grants on a competitive basis" (<http://www.timeshighereducation.co.uk/news/conclusions-from-symposium-on-europes-search-for-excellence-in-basic-research/183077.article>).

Given the outcome of this high-level meeting, the Irish Presidency was committed to advance the cause for basic research in Europe, and placed the item on the agenda of the Competitive Council on March 11, 2004 in Brussels. In its Conclusions, the Council "ACKNOWLEDGED the need, in the context of the preparation of the next research framework programme and taking into account an analysis of the respective merits of existing national approaches and a possible European initiative, to examine the case for specific funding within that Programme to support basic research of the highest quality. At the same time, an appropriate balance should be maintained with other priorities, approaches and activities in research, technological development and innovation" (<http://www.timeshighereducation.co.uk/187390.article>). The document also "NOTED the intention of the Commission to bring forward, by May 2004, an initiative on operational mechanisms which should add value to existing national approaches and provide a European dimension, with the objective of reinforcing the creativity and excellence of basic

research in Europe, through encouraging more competition at the highest European level amongst individual research teams while enhancing cooperation between national programmes.” Finally, the document acknowledged the role of the scientific organisations in promoting basic research in Europe. Clearly, the political process was now underway, and it was up to the Commission, the Competitiveness Council, and the EP to hold on to the promise of making Europe a knowledge-based society by responding positively to the initiative by the scientific community.

In August 2004, the ISE published a document summarizing the position of the unified scientific community ([Creating a European Research Council, 2004](#)). This document was presented to the President of the EU, the Commissioner and the President of the European Parliament, as well as to Heads of Government and Ministers of Research of the EU Member States and Acceding and Associated States. To give more substance to the ISE, the initial Group decided to formalize its links with the signatories of the appeal in the form of a loose platform, a “coalition of the willing”, with the aim of providing support *à la carte* for the ISE initiatives. This was done during an ISE conference on the ERC held in November 2004 at UNESCO in Paris. In June 2005, following his re-appointment as Minister for Science, Technology and Higher Education, José Mariano Gago resigned from his post of ISE chair and was succeeded by Julio E. Celis, Secretary-General of FEBS.

In July 2005, before the first informal Competitiveness council under the UK Presidency, the ISE sent a letter to the Research Ministers of the 25 EU Member States, as well as to the EC and members of the EP, calling for an autonomous ERC with a budget commensurate to the needs and aspirations of the Lisbon agreement. This letter was signed by 42 organisations related to the ISE.

As a final stroke, ISE organized a conference to celebrate the first concrete steps towards the creation of the ERC at UNESCO in Paris in November 2005. The European Council formally approved the budget for the ERC in 2006 in the context of the 7th FP for Research, and the ERC was officially launched in 2007 at an inaugural conference in Berlin hosted by the German EU Presidency (<http://www.erc.europa.eu/erc-debut/home>).

6. The ERC: a reality

The political decision to create the ERC, and in very general terms, its mandate and budget, was taken informally at a closed dinner of the research ministers and the Commission organised during a Competitiveness Council in Luxembourg in June 2005 (chaired by research minister François Biltgen from Luxembourg, then president of the Council, and with Janez Potocnick as Commissioner for Research). A few months later in September, also in Luxembourg, but now under the UK presidency and chaired by minister David Sainsbury, another Competitiveness Council took the matter further. In March 2005, José Mariano Gago had been reappointed as Minister and direct links between the movement of the scientific community (ISE) and the Competitiveness Council naturally became more fluid. In order to reach an agreement, a compromise solution was roughly sketched under two main headings: (i) industry should get almost the same amount of

extra funding as basic science in FP7: decisions on the ERC and the Joint Technology Initiatives (JTI) should progress in parallel, and (ii) the ERC, as a totally independent scientific body, should deliver exclusively individual grants within any scientific field for research freely proposed by the scientist themselves through EU-wide competition.

This agreement was respected in subsequent formal decisions of the Council. It allowed for the creation of the ERC and for the funding of basic sciences, including social sciences and humanities, by the FP budget, based on no other criteria than scientific excellence as defined by independent peer review process as requested by the scientific community.

However, two other key points could not be part of the initial political agreement and in fact these are still open today: (i) the creation of the ERC as a real European institution and not simply as a delivery mechanism of an EU FP for R&D, to be decided each time an FP is approved, and (ii) the creation of a mechanism, preferably under the ERC umbrella, to fund collaborative (bottom-up) basic research.

The discussion concerning the first point was for some time an open issue on the agenda of the Competitiveness Council and is still an open question for EU science policy today. A large majority of Member States, supported by the EC, objected to the creation of the ERC as an institution and to its stabilization for a longer period of time than the duration of the FPs. However, such stability was granted to the Joint Technology Institutes (JTIs) from the beginning, as well as to the European Institute of Technology (EIT), a new top-down institution with initially vague objectives, finally set up following pressure by the president of the EC. Those against the creation of the ERC, who had had to accept it reluctantly (one should recall that the initial official position of the EC officials was formally and publicly against the creation of the ERC), had been replaced by those who declared that too much power and independence, and too much money, had already been granted to the scientists, and that enough was enough! Today, such positions still act as powerful blocking factors against greater contributions by scientists to the scientific strategic steering of EU science policy.

The discussion on the second point left over from the initial terms of the creation of the ERC only very recently surfaced again in the discussions on Horizon 2020 (H2020), the successor to FP7, in the proposed amendments by the EP. A very modest compromise was reached between Council and Parliament concerning the so called FET programme (Future emerging science and technologies), proposed by the EC as part of H2020. However, funding not only bottom-up research with individual grants but also supporting bottom-up collaborative research (within the basic sciences) is still absent from current EU FP instruments. The ERC is now effectively able to fund a researcher working in cosmology, life sciences, mathematics, or sociology in any EU country. However, it is unable to fund the same research activities if they are developed by a team of researchers in 2 or 3 different nations. This seriously limits the ERC's ability to promote cross-frontier research in the EU since such research increasingly results from team work through international collaboration.

Moreover, intergovernmental scientific organisations were considered part of the initial broad ERA concept extending

well beyond EU institutions. However, the intergovernmental dimension of cooperation within the EU has not yet been consistently addressed in the EU general institutional framework. One of the most negative expressions of this institutional “missing link” lies in the EU’s current difficulty in addressing the dynamics, flexibility, and world dimension of successful large European intergovernmental R&D organisations, such as CERN and ESA.

7. Campaigning for the funding of bottom-up research by the EU-FP exclusively on scientific grounds and for creation of the ERC as an independent body: lessons learnt

Campaigning for the ERC, and for the funding of bottom-up research by the EU-FP exclusively on scientific grounds, was a unique event in the history of European science policy. For the first time, the scientific community acted collectively in Europe as a political actor for the sake of a better science policy for Europe. And, after all, it got – in a surprisingly short time – most of what it had campaigned for.

The creation of the ERC was the direct result of an uncommon upheaval of the scientific community in Europe, and how this successful movement by the scientific community was established and how it was developed should be carefully studied. First, this was a movement led by some large European scientific societies (like the EPS), and by European Federations of Scientific Societies (like FEBS), as well as by the EUA and Euroscience, joined by a few rather independently managed organisations as the (then) ESF, EMBO, and EMBL, together with individual scientists, and by other governmental and non-governmental organisations. Leadership was established from the very start, as the action of a core group of strongly motivated organisation leaders or representatives gained momentum.

The joint strong commitment of EMBO, EMBL, and FEBS played a decisive role in this process, since they acted as drivers for action and as solid guarantees for the continuity of the initiative. This commitment was not only solidly established institutionally, but was also driven by a strong and permanent personal representation at top level (namely by Frank Gannon, Fotis Kafatos, who later became President of the ERC, and Julio E. Celis). This was a key combination of personal and institutional continuity and commitment, able to sustain a difficult and initially hazardous process of collective mobilization and debate. By creating the ISE, the movement strived successfully to attract European Scientific societies from any field and to broaden its constituency.

Second, this was a movement with no disciplinary bias. At a crucial meeting of the ISE core group, held in 2004 at the business centre of Frankfurt airport, it was recognised that creating an ERC for the life-sciences only, excluding all other areas, would probably be politically achievable almost immediately. However, the whole group, i.e. the life-sciences organisations, and, first and foremost, FEBS, EMBO, and the EMBL, decided to reject changing the original inclusive objectives of the initiative for the sake of facility, and to stick together with all other sciences, including the social sciences and humanities. This was a fundamental

key moment of the process leading ultimately to the creation of the ERC.

Third, the movement successfully managed to attract new supporters and partners across Europe by relying on organising successive public meetings in different countries, by calling on new contributors at each meeting, and by engaging national and international institutions as new partners. The UNESCO support, channelled through Maciej Nalecz, the then director for the basic sciences, was politically important in making the objectives and growing support for the movement public and visible, especially in the media.

These basic characteristics shaped the movement as a truly European, truly interdisciplinary, and truly inclusive process. It was a movement by grass-root institutions of scientists and by a few individuals who could help by bringing in policy expertise and by contributing to a streamlining of the leadership. It was a movement (leading to the setting up of ISE as a platform and as an organisation) supported by stable financial means and a reduced, but very effective managerial secretariat, both provided by its own members.

All these features proved essential for the success of the initiative and may be considered basic ingredients for the success of any large-scale new initiative by the scientific community at European or international levels. Moreover, the very success of this unique European scientific community movement, the creation of the ERC, somehow marked the end of the movement itself. Hopes of maintaining the ISE as a permanent base for a growing and steady engagement of the scientific community in European science policy faded away progressively, although the continuation of the ISE as a useful platform for European scientific societies is, per se, a positive contribution to a shared European perception of science policy.

8. Post-ERC activities driven by the biomedical community: the creation of the Scientific Panel for Health in Horizon 2020

As is often the case when new experience is gained through the creation of a new organization (in this case the ERC), new forms of collaboration emerged between scientists committed to European science policy objectives. In fact, in the health research field, new specialized health research policy committees/bodies were developed in some important medical societies including the European CanCer Organisation (ECCO), an umbrella organisation representing more than 60,000 oncology-related professionals working at various stages of the cancer continuum, all the way from basic and clinical research to patient treatment, care, and education (<http://www.ecco-org.eu/>). ECCO embraced multidisciplinary and placed the patient at the heart of efforts to improve cancer care and research in Europe.

One of the main challenges confronted by ECCO is how best to get all major oncology stakeholders to work in harmony in order to reduce the fragmentation and redundancy – both at scientific and political levels – currently characterizing the European cancer research landscape and hindering the effective translation of laboratory-derived knowledge into clinical applications, which impact patients’ lives. ECCO firmly

believes that improved coordination of efforts at the European level, underpinned by long-term strategic action, is urgently needed – implying organisation, communication, cooperation, and integration among and between the relevant stakeholders – in order to ensure that patients benefit from the outcomes of research.

With these priorities in mind, ECCO created in 2008 a Policy Committee (also known as the Oncopolicy Committee) in order to contribute to multidisciplinary, evidence-based policy making within the cancer research area – a field growing in stature and prominence at EU level and ripe for attention from policymakers both from the research and public health directorates. The Policy Committee, an initiative of the then ECCO President Alexander Eggermont, was composed of prominent cancer researchers and clinicians (M. Baumann, J.E. Celis, chair, A. Eggermont, D. Kerr, M. Pierotti, U. Ringborg, O. Wiestler) as well as political advisers (J.M. Gago, F. Major, P. Lange, F. Gannon), and was supported in its strategic and executive functions by ECCO's Public Affairs team led by Ingrid van den Neucker. Such a committee was deemed of paramount importance as it provided an optimal policy environment to address the challenges in an organised and sustained way. In collaboration with the Board of Directors, the Policy Committee in 2009 defined specific objectives within the research area, and proposed the creation of two policy instruments to facilitate the implementation of its policy objectives: (i) the European Academy of Cancer Sciences (EACS), an independent think tank expected to provide impartial, authoritative, and evidence-based advice to underpin policy (<http://www.europeanacademy.eu/>), and (ii) the Oncopolicy Forum, a setting where researchers, healthcare providers, policymakers, industry, regulators, patient advocates and other stakeholders could find a common insight to fight cancer together (<http://www.ecco-org.eu/Public-affairs/Oncopolicy-Forum-and-Events.aspx>).

ECCO also supported the efforts of the EurocanPlatform, an FP7 funded Network of Excellence (<http://www.eurocanplatform.eu/>) stemming from the FP6 EUROCAN + PLUS project consortium led by Peter Boyle from the International Agency for Cancer Research (IARC). EUROCAN + PLUS was the largest ever consultation of researchers, cancer centres and hospitals, administrators, healthcare professionals, funding agencies, industry, patient's organizations, and patients in Europe. The project stressed the need to improve collaboration between basic/preclinical and comprehensive cancer centres (CCCs), institutions in which care and prevention is integrated with research and education, and recommended the creation of a platform for translational cancer research composed of inter-linked cancer centres with shared infrastructures and collaborative projects to facilitate rapid advances in knowledge and their translation into better cancer care (<http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3234055>). Leaders of 16 major European cancer centres met in Stockholm in 2007 to define the 'European Cancer Platform' concept and agreed to join forces and work towards its implementation. A manifesto – “the Stockholm Declaration” (Ringborg, 2008) – was published, and at a meeting at the UNESCO headquarters in Paris in 2008 – sponsored by the Danish Cancer Society, the ISE, and UNESCO – the first steps towards moving the “Stockholm Declaration” into reality were discussed with various stakeholders (Brown,

2009). As a result of these actions, the EurocanPlatform Network of Excellence led by Ulrik Ringborg from the Cancer Center Karolinska was rolled out through FP7, with the mission of structuring translational cancer research in Europe. A long-term goal of the EurocanPlatform is to create a virtual cancer centre in Europe, a development that will require addressing coordination and sustainability issues.

If the EU's Directorate General (DG) for Research & Innovation was facilitating improved structuring and integration of cancer research through the EurocanPlatform Network of Excellence, its public health directorate, DG SANCO, was mirroring this dedication towards addressing the scourge of cancer by setting up the European Partnership for Action Against Cancer (EPAAC) Joint Action, set to run from 2011 to 2014 (<http://www.epaac.eu/>). Interestingly, EPAAC addressed public health challenges of cancer such as prevention and health promotion, screening and early diagnosis, healthcare, national cancer control plans, and cancer data and information, and it included a work package on cooperation and coordination in cancer research throughout Europe. This was a clear and promising sign that the challenges of cancer research were to be addressed across all relevant directorates and policy units at the European level.

Encouraged by these developments, particularly with the possibility of working with Member State funders to address coordination and sustainability issues, ECCO took the lead of the research coordination work package (WP8) of the project, and together with the French National Cancer Institute (INCA), the Istituto Superiore di Sanita (ISS) in Italy, and the Spanish Instituto de Salud Carlos III (ISCIII) and Centro Superior de Investigación en Salud Pública (CSISP), worked to (i) identify and prioritize areas in cancer research that will benefit from coordination, (ii) develop a coordination approach ensuring that national decisions are based on a joint EU-wide understanding in order to avoid duplication of efforts, and (iii) implement pilot research coordination projects in selected areas (Celis et al., 2013). “WP8 brought Member States funders and the cancer research community closer together and functioned as a “Forum” where funders and other relevant stakeholders could join efforts for the sake of higher ambitions and for creating the building blocks of consensus and shared values between Member States, on which other funders and the EC may eventually bring complementary support in the form of mechanisms and/or finances for long-term collaboration” (Celis et al., 2013). The value of such a Forum was recognised by the cancer community at large and was subsequently propagated by the biomedical community when advising policymakers on decision-making mechanisms within H2020, the EU's research-funding programme for the period 2014-2020 (<http://www.ec.europa.eu/programmes/horizon2020/>).

In 2010, ECCO joined the European Association for the Study of Diabetes (EASD), the European Respiratory Society (ERS), and the European Society of Cardiology (ESC) to create the Alliance for Biomedical Research in Europe (BioMed Alliance), an organisation spearheaded by Ulf Smith from EASD, and now presided over by Karin Sipido from ESC. It currently boasts membership by 21 leading research-oriented medical societies representing more than 400,000 researchers across Europe (<http://www.biomedeuropa.org/>). One of the aims of

the BioMed Alliance from the outset was to consolidate expertise and resources across borders and disciplines and to speed up translation of biomedical discoveries into applications that impact healthcare delivery. The Innovation Union–Europe’s strategy for growth- was facing numerous challenges such as a growing prevalence of chronic disease, a declining labour force, rising healthcare costs, a fragmented community of innovators, inadequate research coordination at national, regional and EU level, and a highly complex and lengthy innovation cycle. And it was clear that these challenges could only be met by increased knowledge throughout the research continuum from bench to implementation, and by the organisation of European health research within a strategic and long-term action plan. The opportunity to create such a strategic action plan, which by definition would be heavily reliant on the expertise and foresight of Europe’s top researchers, was provided by H2020. The experience that ECCO had gained through its pioneering Oncopolicy activities, combined with the commitment and engagement of the BioMed Alliance president, Ulf Smith, meant that the path towards shaping the future of health research, whilst neither fast-track nor hurdle-free, was negotiated successfully and with broad support along the duration of the process.

Despite the fact that H2020 was already at a rather late stage in the legislative process (the Commission had already presented the legislative proposal to Council and the EP), the BioMed Alliance decided in December 2011 to create a “Core Group”, composed of scientists, policy advisers, patient advocates, and pharmaceutical industry representatives, to develop the concept for such a strategic action plan for health. Members of the Core Group were appointed in January 2012 (<http://www.biomedeuropa.org/index.php/developments/47-biomed-alliance-euchr-core-working-group>), and together with the BioMed Alliance’s Board of Directors, produced a concept paper describing the notion of a European Council for Health Research (EuCHR) (http://www.biomedeuropa.org/images/pdf/developments/Concept_Paper_EuCHR_Biomed_Alliance_FINAL.PDF), an instrument to foster innovation in Europe by using contemporary evidence to bridge the gap between health research and policy for the benefit of society. A Scientific-led Steering Board (SSB) able to guide research and innovation across the entire health spectrum – lying at the core of the EuCHR concept - was targeted for implementation in H2020. The concept paper was approved by all member organisations through an efficient and inclusive consultation process and was endorsed by, among others, the European Federation of Pharmaceutical Industries and Associations (EFPIA), the EC High Level Group on Health Research and Innovation, and the Copenhagen Research Forum.

As early as January 2012, consultations were initiated with two of the Parliament rapporteurs – MEP Teresa Riera Madurell (PSE group, general rapporteur for the Regulation establishing H2020 – the legal text which is approved by co-decision of the EP and of the Council), and MEP Maria da Graça Carvalho (PPE group, rapporteur for the specific programme) – who were very supportive of the strategic action, and in June 2012 the Parliament Industry, Research and Energy (ITRE) Committee supported the SSB proposal by the BioMed Alliance. José Mariano Gago helped to connect the biomedical community with the EP and was instrumental in supporting

the Parliament during the whole process and in the preparation of the trialogue discussions that started in January 2013. The name finally adopted for the new consultative scientific steering body to be created was Scientific Panel for Health (SPH) research as the trialogue discussions were concluded at the end of June 2013.

The SPH, which will advise the European Commission with regard to the “Health, Demographic Change and Well-being Societal Challenge”, was formally defined as “a science-led stakeholder platform which elaborates scientific input concerning this Societal Challenge. It will provide a coherent scientific focused analysis of research and innovation bottlenecks and opportunities related to this Societal Challenge contribute to the definition of its research and innovation priorities, and encourage EU wide scientific participation in it. Through active cooperation with stakeholders, it will help building capabilities and to foster knowledge sharing and stronger collaboration across the Union in this field” ([http://www.ictic.org/h/p/EU%20Parliament%20Decisions%20on%20H2020-2%20on%2021%20Nov%202013%20\(part\).pdf](http://www.ictic.org/h/p/EU%20Parliament%20Decisions%20on%20H2020-2%20on%2021%20Nov%202013%20(part).pdf)).

The creation of the SPH may be perceived as an achievement by the biomedical community, since for the first time a political agreement has been reached on the need for a comprehensive and long-term specific strategy to accelerate research and facilitate innovation. Nevertheless, we know this is not enough. Currently, efforts are still underway by the BioMed Alliance concerning the terms of reference of the SPH, which is expected to become fully functional in the second half of 2014. Clearly, the net result and significance of this lengthy process still remains to be seen.

A few words must now be added as a contribution towards understanding the political process leading to this outcome. At the trialogue stage, both the EC and Council were against creating the new strategic Scientific Panel. The EP, on the contrary, introduced and unanimously supported the amendments providing the mandatory legal framework for its creation and made clear during negotiations that agreement on H2020 could only be reached if such a decision was part of the final deal (MEP Teresa Riera Madurell’s role was key in this process). Both the EP initiative and the firm attitude of the EP negotiators sealed the outcome of the discussions. In the end, it became clear to Council that postponing or jeopardizing a final decision on the adoption of H2020, due to resistance to setting up a scientific consultative body requested by the EP and backed by European biomedical scientific societies, was certainly not a viable political option. The final outcome may be seen as a political landmark by the EP in EU science policy, and as a starting point for a stronger cooperation between the EP and European science organisations and societies, should both parts manage to strengthen stable and productive working relations.

We think that understanding the origin of the political split of the main EU institutions, triggered by a seemingly modest proposal by sectors of the biomedical community, is a matter of relevance for the future of science policy in Europe and for a greater participation of scientists in science policy at EU level.

Initially – at least since the ERC preparatory debates – there was a growing perception by biomedical scientists and organisations that Europe was lacking the top-level scientific steering of biomedical research at play at the National

Institute of Health (NIH) in the US. The very idea of developing an organisation at EU level able to provide such a scientific steering lead under the specific conditions of the EU (which is not a federal state!) and its Member States, became an appealing “attractor” idea within the biomedical research community, especially to those who had been most active in the ERC creation process a decade ago.

Meanwhile, the European push for a more integrated vision of science in Europe stemming from the adoption of the Lisbon Strategy for the EU in 2000 had a real impact on many scientists. European scientific societies, many of which had played a key role in bringing the idea of an ERC into reality, became natural cradles for such a European spirit. During the last decade, as we have briefly described, the role of the biomedical societies and platforms as potential sources of opportunity for truly European cooperation and for the development of EU policies increased substantially, by bringing together scientists and clinicians, as well as patients’ organisations, industry, regulators, funding bodies, and a vast network of institutions. Their initiative in proposing an EuCHR, provisionally translated now into a Scientific Panel for Health research in H2020, cannot be seen as a surprise. On the contrary, one may even wonder why it took so long for the initiative to materialize and to find the right actors and mechanisms to mature.

It still remains to be understood why the DG for Research & Innovation developed such a fierce opposition to the proposal, and why Council, although certainly more open to compromise, did not support it. A working hypothesis for both these questions may eventually be put forward, although its clarification cannot be expected before some time and after careful investigation.

We believe that at Member State level, the following factors may have contributed to the inability of European Biomedical Societies to influence national research ministries: (i) direct relations between top European biomedical societies and national governments have been lacking, and even when established, privileged relations were developed not with Research ministries, but rather with Health ministries instead, (ii) the role of European biomedical societies, although obvious to their professional constituencies, is still unclear for the general public and for the media, and they are not yet recognised as science policy partners by national research bodies or national governments, and (iii) European societies and their platforms, although potentially powerful, are still largely inexistent politically as they still lack the capabilities to address the general public directly on the immense societal importance of science policy choices.

Governments, on the other hand, had little occasion to give serious consideration to the implications of the SPH proposal. Such a proposal was perceived as originated in the EP, not having been previously or simultaneously submitted to EU Member States. It could therefore be seen as potentially disruptive of the balance of power in the definition of the work programmes (between MS and the EC) and opposition from national representatives at programme committee level was thus to be anticipated. In summary, the NIH (Not Invented Here!) approach prevailed. A lesson to be learned by European scientific societies is that a precondition for policy intervention at European level is developing trust and links with

national ministries in charge of research, through conjunction with their national member societies and with other influential bodies and platforms for scientists from other areas.

Finally, to complete this brief overview, one should try to identify the factors shaping the reaction of the EC in this particular case: they were encouraging at top political level at the very beginning, evolving from positive to apprehensive, towards formally and aggressively negative during negotiation phases until the very end, although very positive and formally encouraging from the Health sector of the EC, even at Commissioner level. Finally, but this is still an ongoing process, a very positive and fully collaborative attitude by DG Research & Innovation is to be acknowledged after the final political decisions, in line with the continuous engagement of the EP even in the implementation phase of the new SPH. It is understandable (but unacceptable) that internal coordination across departments is frequently avoided by EC management, as is also the scepticism of excellent EC science officials and directors regarding the (sometimes naïve and amateurish) engagement of organised scientists in science policy. In fact, many high level EC science officials may readily (and rightly) be convinced that they themselves are the best representatives of the scientists and the best representatives of Europe’s long term interests in science, since they are able to bring together the contribution of scientists as experts in science (but not experts in science policy). On the other hand, the “trauma” of the creation of the ERC has not been easily forgotten, in particular its management by scientists only and its strictly bottom-up approach.

Overcoming mistrust and sharing objectives and influence with those at the EC who have devoted their best talent to the future of European values is therefore a major task ahead for both the scientists (who will no longer accept to be constrained to the traditional passive role of serving as EC evaluators and advisors) and EC science officials and directors in charge of the demanding tasks of managing conflicting and often egoistic national and group interests.

The involvement of scientists in science policy, although naturally based upon national realities, is now also increasingly open to the international dimension of science policy. Numerous initiatives are slowly gaining momentum in Europe. Euroscience, as well as new innovative platforms of scientists like ROARS in Italy, movements in Spain and Greece, collective action by CLA and others in Portugal, and many others, are promoting science as a priority in public policies and extending their dialogue across borders. European and national Academies (as for instance KVAB in Flanders) are now engaging in society for long-term programmes aimed at the development of knowledge based economies and societies, nationally and at EU level. The priority accorded to human resources, to attracting youth to science and technology studies, to mobilise and fixing S&T talent, and to involving society in sharing the vision and the problems of science, are now at the core of these initiatives.

To secure the eminence of Science in Europe, we need scientists to achieve much higher levels of organisation, debate, openness, competence and collective engagement in science policy issues at European level and to provide to all other stakeholders in research the best authoritative strategic advice that only science can provide.

9. Science policy and the scientists: an Epilogue

For the sake of future research on science policy and also as a contribution to future actions by scientists in science policy we have tried to report as comprehensively as possible some of the main features of complex processes in which we have been active participants and drivers. Reporting in this instance has taken the form of the long lost tradition of describing social and political events first-hand from the limited, but unique point of view of the pioneer engaged scientist, striving to understand not only in order to act and to share his knowledge, but also in order to help develop observation tools and methods that might be important for the future. As scientists, we are, of course, aware of the tremendous limitations and pitfalls of such a process of producing new knowledge. But we are even more conscious of the inanity of science policy research trying to make sense of major events without direct experience of the social and political process at play, and without the conditions to understanding the motivations and the meaning of the main players' actions.

It will be easy for the reader to understand that difficulties are encountered when striving for an objective first-hand report of contemporary political processes, told in the first person, and that these difficulties are enhanced by the key roles played by the authors themselves. In those conditions, reporting (although critically squeezed by the scientific life training of the authors) simply equates to drafting "memoirs" by those engaged in action.

Two other difficulties should also be highlighted: the first one is the almost total absence of science policy memoirs, reporting, and reflexive texts by science policy actors themselves. We hope that the pioneering opening of *Molecular Oncology*, a prestigious science journal, to our text as a special article, will encourage scientists to be more socially responsible by becoming more engaged in science policy.

The second difficulty is the fact that, from time to time, each of us had to explain the key role of the other in the processes being described. Although such passages in the text are not explicitly signed individually, the reader may easily understand who is writing what. That being said, we are both jointly responsible for the text as it is. "To the best of our knowledge", one should add, using a classical disclaimer. Or: To the best of our ability to extract from the immense complexity of human affairs a narrative that might contribute to the understanding of some examples of science policy in

the making, and the role scientists may (and, in our opinion, should) play.

Finally, the authors would like to thank all those who have made possible the very existence of the stories they have tried to shape, understand, and report. They are more than willing to contribute further to the understanding of the processes of organised participation of scientists in science policy (and public policies in general) and to share their experience with others, as well as with social scientists and historians.

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