EU research funding: for who's benefit?

The European Union's multi-billion research funding programme is supposed to help society meet the grand challenges it faces. But there is concern that the participation of large corporations is skewing research agendas towards narrow interest, and leading to the substitution of public for private funding. Will the EU's new Research Program, Horizon 2020, avoid these pitfalls?

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The EU spends more on research than on any other policy area, with the exceptions of agriculture and structural policies designed to help economically-lagging regions. The bulk of this money is channelled through the Framework Programme, which is currently in its seventh incarnation (FP7). Between 2007-2013, €50.5 billion in FP7 science grants will be handed out.

EU funding contributes significantly to overall research spending in Europe. During 2012, FP7 grants will make up about 8 percent of public money available to researchers in the EU[1]. Most of the FP7 budget goes to universities and research institutes. However, about one quarter to one third of participants are private sector companies.

There is strong support for this corporate involvement in certain components of the FP7. Sir Brian Heap, the president of the European Academies Science Advisory Council has said: "if science and technology is going to drive the economy it has got to feed down into industry". Others say corporate involvement is essential for a "healthy mix".

But corporate involvement in FP7 also raises concerns. There is a strong argument that corporations should not be allowed to use public money to pay for research that they would have done in any case, especially if the research leads to product development that serves narrow corporate interests rather than the public good. Similarly, the EU's research agenda should not be skewed by the lobbying power of these large corporations, excluding those who lack lobbying weight, for the EU's research budget to play a meaningful role in tackling the EU's "grand challenges".[2]

Numerous pitfalls

Yet evidence suggests that EU-funded research is failing to avoid these pitfalls. FP7 is criticised for favouring large players, including multinational corporations, over small organisations from which more radical "bottom up" ideas might come. The European Commission's own reviews of FP7 show that small and medium-sized companies tend to lose out in comparison to larger counterparts[3].

1 IP/11/499.

2 According to the European Commission, those are particularly "returning to growth and higher levels of employment, combating climate change and moving towards a low-carbon society". See the European Commission's Green Paper "*From Challenges to Opportunities: Towards a Common Strategic Framework for EU Research and Innovation funding*", p.3.

3 Interim Evaluation of the Seventh Framework Programme, Report of the Expert Group, Final Report 12 November

Reinhilde Veugelers, a researcher at the Brussels-based think tank Bruegel, says “there is a clear trend towards concentration [of public money] on fewer large players”. This is “driven by the high cost of bureaucracy and administration,” and by a structure within the Commission which means that policy officers manage research contracts, and prefer to deal with a smaller number of stable contracts involving people that they know.

Close contact between big corporations and the Commission arguably creates a channel for lobbying that can result in research projects that offer little, if any, public benefit. Many projects are designed to enable companies to streamline their production processes and cut costs.

Box 1 | Steel steal

Should corporate tax dodgers be allowed to benefit from public R&D subsidies? Belgian MEP Philippe Lamberts says not. "This is a red line," he told CEO. Shareholders should not profit from publicly-funded research if the company is not paying its fair share.

This principle is not being respected in FP7. Steel giant ArcelorMittal pays next to no tax in Belgium despite making huge profits in the country. Group company Arcelor Mittal Finance and Services Belgium, for example, had profits of €1.3 billion in 2009 but paid €496 in tax (that's not a typo). In 2010, profits were up to €1.4 billion yet tax went down to €0. Other ArcelorMittal companies in Belgium also paid minimal tax, thanks mainly to notional interest schemes.

Nevertheless, ArcelorMittal companies are involved in five FP7 projects at this point, securing a total public subsidy of €14 million.

ArcelorMittal is also a leading member of the European Steel Technology Platform (ESTEP), which was set up as a European Technology Platform. ESTEP was established in 2004 with the objective of setting the agenda for the sector's research activities. ArcelorMittal is well represented in ESTEP: the platform's secretary general, Bertrand de Lamberterie, was, before he took up the post, technical director of ArcelorMittal Flat Carbon Europe.

ArcelorMittal and ESTEP also benefit from a public research subsidy through an obscure scheme, separate from the FP, called the Research Fund for Coal and Steel (RFCS). This manages the residual assets of the European Coal and Steel Community, which was formally closed down in 2002. The RFCS has an annual budget of about €60 million, three quarters of which is doled out to steel companies.

The RFCS is a classic closed system in which the industry, through its dominance of boards and advisory groups, decides what are the funding priorities, then bids for the money according to those priorities. The RCFS is overseen by a 30-member advisory group with five members from universities and research organisations, two from workers' groups, and 23 represent steelmakers. Three of these are from ArcelorMittal companies, and one is Bertrand de Lamberterie, of ESTEP, formerly ArcelorMittal.

A major aim of steel-related research, including research funded through the RCFS, is lower greenhouse gas emissions. Yet ArcelorMittal already benefits from a massive carbon-related subsidies in the form of emission allowances given to it for free under the EU Emissions Trading Scheme (ETS). Corporate Europe Observatory research showed that ArcelorMittal has gained tens of millions of euros in this way[4].

EU Climate Action Commissioner Connie Hedegaard has defended the banking of carbon allowances by companies such as ArcelorMittal on the basis that they can use revenues realised from the sale of allowances for new technologies to reduce their emissions. Maybe so. But then why does ArcelorMittal, which in 2010 had global sales of $78 billion, and a profit of $2.9 billion, need public funds for the same purpose from FP7 and the RCFS?

2010: *"The average success rate of SME applicants [for FP7 funding] is 17%, compared to 20% for all applicants, pointing to a higher rate of wasted effort by SMEs"* (pp 49-50). The evaluation report also finds relatively low participation rates of women, and of organisations from countries that joined the EU in 2004 and 2007.

4 http://www.corporateeurope.org/publications/industry-hits-carbon-leakage-jackpot

The MAAXIMUS project (*More affordable aircraft structure through extended, integrated, and mature numerical sizing*), for example, looks at how aircraft assembly can be speeded up. Its stated aims are to halve the assembly time of some aircraft structures, and reducing costs by 10 per cent – clearly beneficial to the project promoter, Airbus, but of limited broader societal benefit.

Such projects raise the question of companies simply using EU funds to substitute their own research budgets. Philippe Lamberts, a Belgian Green member of the European Parliament, says large corporations are "after public money". The European Commission's vision for future EU research spending is "all about technology and all about industry. There is an unrestricted bias towards technology, and big technology is even better because that is something we can formally inaugurate".

Commission analysis[5] shows that the main corporate participants tend to be large multinational technology companies involved in multiple projects. In the first years of FP7 (2007-2009), the top 50 industry participants were allocated €530 million for participation in cooperative projects. Many of these companies were defence firms, including three Thales companies, which are involved in a total of 70 projects with an EU contribution of €37.8 million. Other defence companies in the top 50 include EADS, Alenia and Saab.

Box 2 | Security research: securing the profits of military companies

The Framework Programme has committed €2.83 billion (5.6 percent of the total budget) to space and security research between 2007-2013. Much of this money is being spent on surveillance and even pseudo-military projects, though spending of EU research funds on weapons research is forbidden.

The TALOS (Transportable autonomous patrol for land border surveillance) project is one of the most obvious examples of pseudo-military research, according to Ben Hayes from the Transnational Institute think tank. TALOS is a Polish-led project to develop unmanned drones that can be used for border control. It aims to deliver military-style land vehicles (similar to small tanks), which could be adapted to carry weapons among other things. Demonstration videos showing how drones and "interceptors" can be used to catch illegal immigrants (accompanied by pumping rock music) can be admired on Talos' website.

The EU provides €12.9 million funding for TALOS. Like all EU-backed research projects, the consortium behind TALOS will retain the intellectual property rights, potentially creating a valuable asset that will boost corporate profits when sold on to governments around the world.

One of the TALOS partners is Israel Aerospace Industries (IAI)[6], which has already developed a range of drones, some of which have been used for "assassination missions" over the West Bank and the Gaza Strip. IAI is also a partner in the EU-funded OPARUS project (public funding: €1.19 million), which is working on an "open architecture for the operation of unmanned air-to-ground wide area land and sea border surveillance platforms in Europe". Other OPARUS partners include BAE Systems, Dassault, EADS and Thales, large defence contractors which already benefit from participation in multiple strands of the Framework Programme, such as the Clean Sky JTI (see separate box).

Israeli companies have secured a number of EU research grants. Israel participates equally in FP7 alongside EU countries and has secured the most funding after France, Germany and the United Kingdom. In addition to OPARUS and TALOS, IAI is involved in another 15 projects, attracting total public funding of €148.55 million.

Another prominent Israeli defence company benefiting from EU research funds is Elbit Systems. Elbit is a partner in four FP7 projects, funded by the taxpayer to the tune of €27.3 million. Among these projects is TASS – Total Airport Security System – which is developing a airport surveillance system and will be tested during the London Olympics in 2012.

5 Eg. ibid.

6 First half 2011 sales to the "military market" were 72 percent of total sales.

Elbit has been criticised for helping consolidate Israeli control over the occupied territories[7]. It provides surveillance technologies for the separation wall around the West Bank. The EU considers the wall illegal where it is built on Palestinian land.

Ben Hayes told CEO that the EU suffers from a kind of myopia when financing security research. The advisory group overseeing the security part of FP7 is dominated by homeland security officials and defence companies that benefit directly from EU security research funds. The group includes representatives from Cassidian (an EADS company), Finmeccanica, Sagem/Morpho (now merged into Safran), and the European Organisation for Security (an industry lobby group with members including Cassidian and Safran). There is a "structural conflict of interest: the same companies setting the research agenda and then applying for the money on offer," says Hayes[8].

The European Commission, he explained, is "using the security research money to support policy development," resulting, in effect, in another lobbying avenue for major defence and security companies. The aim is also to support EU defence companies in the face of Chinese or Russian competition. "It's starting to look like procurement," Hayes said. "It's openly about industrial subsidies".

Mission focus

The risk involved in the participation of large, self-interested corporations is that research becomes "mission-oriented", or focused on delivering a particular result, such as a new product involving a new technology. This can run counter to the idea of bottom-up research based on scientific excellence that does not necessarily have a clear deliverable in sight, at least until the possibilities that a new field of research might offer have been mapped out.

For scientists, Veugelers says that a mission-oriented approach can mean "you have to adapt your agenda to the mission". She adds, "there is some concern across all the different disciplines that the research agenda is much more mission-oriented [than previously] and the true bottom-up research is in jeopardy". Mission-oriented research should have "very clear mandates and management," she says.

The Framework Programme's stated mission is "smart, sustainable and inclusive growth," but this often boils down to a notion that EU research money should support competitiveness. Speaking at a recent event on one new research field – nanotechnology – Dominique Ristori, Director General of the Commission's Joint Research Centre said that there was a "new importance of science for politicians" because in the face of the economic crisis there was a need for "the capacity to turn knowledge into new products and markets".

The Polish Secretary of State for Science and Higher Education, Maria Elżbieta Orłowska, told the same event: "Being competitive means being quick, transforming basic research into products," she said.

This approach chimes with corporations' need to innovate, but does not take broader social issues into account. Given the environmental and social challenges being faced, this seems to be of particular concern .

The University of Pisa's Professor Andrea Bonaccorsi says better products are important, but research must examine "innovation that goes deep into behaviours in society that, for example, shape the way we use resources and energy". The world needs "new kinds of innovation including manufacturing but also service innovation and frontier research to combine state-of-the-art technology with state-of-the-art social science".

7 http://www.whoprofits.org/Company%20Info.php?id=554

8 For further information, see CEO's research on the influence of the arms industry in Brussels: http://www.corporateeurope.org/publications/lobbying-warfare

Social scientists are particularly concerned that they will be under-represented in the next EU research programme, Horizon 2020, which runs from 2014-2020. Charlotte Fiala, a representative of the Freie Universität Berlin, argued during a European Parliament event on Horizon 2020 that more social science is needed to deal with the big challenges facing humanity by developing new approaches to issues such as education policy, ageing populations, but also, crucially, economic thinking and management of public finances.

Industrial subsidies?

The focus on competitiveness might result in companies having access to public research money "not for general competitiveness, but for their competitiveness," Veugelers said.

In fact, the European Commission has set up and financed specific research structures to boost industrial competitiveness. These are known as European Technology Platforms (ETPs), and Joint Technology Initiatives (JTIs).

ETPs are, in effect, extensions of industry associations focused on the research needs of a particular sector or technology which play a key influencing role on EU Research funding priorities (see box).

As the then Research Commissioner Janez Potocnik set out clearly in a letter to CEO in 2007: “European Technology Platforms [...] can play a key role in better incorporating industry's needs into EU research priorities by bringing together stakeholders, led by industry, to define a Strategic Research Agenda and to suggest possible directions for its implementation.”[9]

Box 3 | Lobbying for EU research money: European Technology Platforms

European Technology Platforms (ETPs) are industry-led public-private partnerships that are intended to galvanise research on a sectoral basis. But this also provides industry with a lobbying opportunity to influence EU research funding.

There are now 36 ETPs, with most ETPs starting work between 2004 and 2006. Although the impetus was provided by industry federations and large companies, public money was provided for start-up costs in many cases. For example, the Commission provided €1.77 million to the Hydrogen and Fuel Cells ETP (which later became a JTI). A similar sum was given to the European Photovoltaics Technology Platform.

The first task for the ETPs was to set out their requirements for R&D funding from private and public sources. This has not automatically led to awards of public money, but ETPs have been involved in a number of successful bids for multiple projects funded through the EU Framework Programmes. The Sustainable Chemistry (SusChem) ETP, for example, estimates it has "inspired projects [that have] attracted almost €800 million of funding" in FP7.

There is a concern that ETPs have in effect become industry lobby groups, even though their set up was taxpayer-funded. European Commission observers participate in each ETP, providing a potential direct conduit of influence. Monique Goyens, director general the European Consumers' Organisation (BEUC), and a member of an expert group that assessed ETPs in 2009, says it would be unfair to say that all ETPs have been captured by business, but they have been "mainly captured by industrial innovation and sufficient attention has not been paid to the effect of that innovation on society".

In other words, ETPs set out to solve problems by developing new products, such as veterinary medicines, rather than addressing bottom up issues, such as the way animals are bred or transported. As one researcher working on a project for a technology platform puts it, "they are all fans of their own technology," and don't have a neutral perspective on society's research needs.

9 Letter from Research Commissioner Janez Potocnik to CEO, June 27 2007. http://archive.corporateeurope.org/potocnikreplyjune2007.html

The involvement in ETPs of "stakeholders" beyond industry is limited. Goyens says that, for example, the Food for Life ETP (stated aim: *"to deliver innovative, novel and improved food products"*) is "totally industry-led", hosted and organised by the Confederation of the Food and Drink Industries in the EU. Another ETP, the European Biofuels Technology Platform (EBFTP) is subject to a complaint by Corporate Europe Observatory to the European Ombudsman over the dominant role played by industry, and the consequent influence on the biofuels research agenda[10].

The Zero Emissions Platform (ZEP) ETP, meanwhile, is dedicated to a technology that ultimately might be a dead end: carbon capture and storage (CCS). CCS critics believe it is at best a stopgap with limited benefits[11], and that research funds would be better spent on alternatives to fossil fuels. ZEP is primarily composed of large corporations (27 company members compared to 2 non-profit organisations, neither of which is an NGO in the sense of campaigning watchdog). Nevertheless, it has been given more than €1,000,000 in EU research funds to set up a secretariat[12].

The European Commission rejects these criticisms, saying that ETPs "contribute to increasing synergies between different research actors, ultimately enhancing European competitiveness". And it claims that when ETP members apply for EU research funding, they "are treated in exactly the same way as any other application".

ETPs are not guaranteed research funding from the EU. They must bid for project funding like other organisations, but their privileged status arguably puts them in pole position. By contrast, the JTIs, of which there are five: on embedded computer systems (ARTEMIS), aviation (Clean Sky), nanotechnology (ENIAC), fuel cells and hydrogen fuel (FCH), and medicines (IMI) receive a direct and substantial public subsidy. The total public contribution to these initiatives for 2007-2013 is €3.14 billion.

This money is research money, representing 6.2 per cent of the FP7 budget. But it looks more like an industrial subsidy. Eric Schutz, the executive director of the ARTEMIS JTI, said: "it's an industrial programme. It's designed by the industry and for the industry." The clearest example of research funds acting as an industrial subsidy is perhaps the Clean Sky JTI (see below).

Box 4 | How clean is Clean Sky?

The clearest example of research funds acting as an industrial subsidy is perhaps the Joint Technology Initiative (JTI) Clean Sky initiative. The taxpayer contributes €800 million in cash to this, combined with match funding from participants (the aeronautical industry), which is given “in-kind”.

The stated objective of Clean Sky is "to develop breakthrough technologies to significantly increase the environmental performances of airplanes". However, Clean Sky is dominated by a small number of aerospace and defence firms. In principle, it has 12 “Integrated Technology Demonstrator” (ITD) leaders, but these companies often overlap. EADS is an ITD leader, as are EADS subsidiaries, Airbus and Eurocopter. ITD leaders Alenia and AgustaWestland are both owned by Italian defence group Finmeccanica. Participant Dassault Aviation owns 26 percent of yet another ITD leader, Thales.

The 12 ITD leaders monopolise the Clean Sky budget. Under the programme, 50 percent of the fund is explicitly allocated to them to carry out major projects – in effect a €400 million cash subsidy for some of Europe's largest and most profitable companies. Eric Schutz, executive director of a different JTI, ARTEMIS, says that this allocation of funds is "not following at all the rules for participation in FP7" which usually requires competitive bidding.

The ITD leaders also participate extensively in other FP7 projects that on the face of it replicate the work of Clean Sky. Among Clean Sky's objectives are the development of less polluting and less noisy aircraft,

10 http://www.corporateeurope.org/agrofuels-and-eu-research-budget

11 See for example the European Environment Agency report, *'Carbon capture and storage could also impact air pollution'*: CCS could have limited benefits in terms of reduction of direct and indirect CO2 emissions, and can significantly increase emissions of other pollutants; http://www.eea.europa.eu/highlights/carbon-capture-and-storage-could

12 The ZEST (FP6) and ZEPPOS (FP7) projects.

and better aircraft systems. These aims overlap with, for example, the COSMA and X-NOISE EV FP7 projects, which both deal with aircraft noise; ODICIS, which deals with better cockpit displays; and SARISTU, which works on lighter airframes. Participants in these projects, which have combined public funding of €42 million, include Alenia (all four projects), Airbus (three projects), EADS (two projects), Saab, Safran, Rolls Royce and Thales (one project each).

Although Clean Sky is aimed at the greening of commercial aviation, most of its ITD leaders are heavily involved in defence and security. The intellectual property rules governing the initiative do not require sharing of knowledge developed by participants, and do not forbid the use of that knowledge for military purposes.

New horizons

Research experts are concerned that Horizon 2020 should not recreate or exacerbate the existing pitfalls in FP7. Philippe Lamberts MEP warned that there was a risk that big companies would capture research funding by impressing the Commission with talk of greater competitiveness. Big corporations "have the striking power that others do not, and they use it," he explained.

Business lobby groups are pushing for EU research spending to be tailored more specifically to their goals. The powerful European Roundtable of Industrialists has explicitly called for the EU to turn “research” into “innovation”, and to “reinforce the link between research and future market demand”[13]. Industry federation BusinessEurope has taken a similar view. According to Bruno Pedrotti from BusinessEurope "measuring projects only in respect to the quality of research, with no consideration for the applicability/potential to be used of the research, would not be an optimal use of EU money".

The European Commission's budget proposal for Horizon 2020 is about €80 billion, a big increase on FP7. Sir Brian Heap has said there must be a "balance between a huge drive to innovation and economic activity, and on the other hand [reduction of] environmental impact". He added: "there has been a huge emphasis on competitiveness, and that's understandable," but for new ideas to flourish, "we've got to protect the innovative individual".

Civil society groups believe Horizon 2020 must squarely focus on the environmental and societal public good. In a letter to European Commission President José Manuel Barroso, civil society groups – including CEO – from across Europe said they were "extremely concerned" about the excessive focus on competitiveness[14]. The corporate approach to research “that prioritise[s] profit and market share” cannot meet Europe's grand challenges “precisely because these challenges require alternatives to the high-growth, high-profit models of economic development that have been pursued to such devastating excess,” the letter said. It concluded: “research that will make Europe (and the world) an environmentally sustainable, healthy and peaceful place to live must now be prioritised over and above research that delivers marketable technologies.”

But the European Commission has probably not taken any of these concerns into account when drafting its new Horizon 2020 proposal, which was launched on November 30. The proposal is not only business as usual, but suggests deepening the industry capture of research funding policy: it proposes to reserve over 20 billion euro for “activities where businesses set the agenda”![15] In the coming weeks, EU member state governments and the European Parliament have the opportunity to block the Commission proposal and insist on a change to make research policy serve the needs of society, not corporate interests.

13 The next EU Framework Programme for Research must reinforce the EU’s innovation capacity, ERT’s suggestions for FP8, the European Roundtable of Industrialists.

14 An Open Letter on the Common Strategic Framework for EU Research and Innovation Funding, 29 June 2011. http://sciencescitoyennes.org/open-letter-eu-research/

15 “Competitive Industries” objective, Horizon 2020 special website, November 30 2011. http://ec.europa.eu/research/horizon2020/index_en.cfm?pg=competitive-industry