

Excellence as a policy in research

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The legitimate ambition of publicly funded research is to operate at a very high level. Frequent reference is made to excellence, a concept that did not originate within the community of researchers themselves, but rather in the realm of innovation, which has been using and abusing the term since the 1980s. It started infiltrating the vocabulary of research in the early 2000s, and today all developed countries cite excellence as a criterion for defining their policies in higher education and research.

The reference to excellence involves multiple and ill-defined functions. Today it tends to be diverted from its real meaning — an ideal to which every researcher aspires — in favor of a more managerial vision rooted in the scientific policies of Europe's universities. France has also entered the race for excellence, with significant consequences on the functioning of its research systems.

In this position paper, the COMETS analyzes, from an ethical point of view, the effects of these excellence policies on research.

We first discuss the origins of the excellence strategy put forth by the European Community as a ramification of the Lisbon Strategy in 2000, which upheld the strategic nature of development based on the expansion and deployment of knowledge. The quest for excellence emerged at a time when budgets for education and research were being restricted. It most often refers to a governance method that becomes, for the persons in charge, a sign of good management, and for the researchers a necessary condition for enjoying increased backing and career advancement.

We then examine why the predominant recourse to the criteria of excellence integrates elements of bias and risk. Indeed, it exerts a strong influence on professional practice in research and, in all cases, induces distortions among the players involved that are not necessarily pertinent. The objectives of the policy directives associate the quest for excellence with the efficiency of public spending. This results in the perpetuation of thematic priorities, which has a negative impact on the diversity of scientific production. In addition, the criteria for assessing excellence can themselves be open to doubt, and the evaluation methods can lead to ethical lapses.

Such considerations aside, we address the question how a high level of research, which remains the objective of all institutions of higher education, can be fostered and consolidated. In particular, there is a pyramid of expertise in research, with the so-called excellent laboratories and researchers making up only the very top. We also ask what kind of relations should be developed between the base and peak of this pyramid, from the perspective of equity and performance.

Lastly, we propose a reflection on good practices for the purpose of attaining a high level of research, emphasizing the importance of the collaborative ethic and shared values. We then examine the question of the researchers' responsibility, especially for those who have achieved wide recognition, in terms of raising the capacities of society as a whole, for which intelligence and knowledge are presumed to be drivers of progress.

Analysis

1- Excellence: The managerial vision of the Lisbon Strategy

Europe's universities have devoted the past decade to the race for excellence. The [Lisbon Strategy](#), defined at the European Council summit meeting in Lisbon in March 2000, introduced the goal of making the EU "*the most competitive and dynamic knowledge-based economy in the world*" by 2010. Shortly thereafter, in 2003, the Shanghai international academic rankings (whose criteria are certainly not above criticism) underlined that of the top 100 universities, only five were German, three French and none Spanish (and the results for the top 200 are hardly better, especially for France). The conditions were ripe for making the competition for excellence a major challenge in the world of higher education and research (see, for example, the analysis by [P. Pol](#)¹).

The European states then adopted a deliberate policy of modernization, with the parallel ambition of developing highly competitive economies based on the need to redistribute budgets in order to boost efficiency. [The mixed results achieved at the halfway point](#) in 2005 led the European Commission to target specific actions in the quest for excellence in order to "*ensure high-quality research in comparison with American universities.*" The resulting benchmarking of research implies notions of coordination, rankings and standards that did not exist before, for the purpose of concentrating the resources. The European institutions conformed to these new models, contrary to their egalitarian tradition, and launched excellence initiatives conceived to ensure competitive capacity and international visibility. In Germany, a federal "[Exzellenzinitiative](#)" plan was launched in 2006, then renewed and reinforced in 2011, to finance excellence clusters and universities of excellence (a first assessment has already been completed). In Spain, an "International Campus of Excellence" initiative was introduced in 2008, and later discontinued due to a lack of resources. It is worth noting that in the United Kingdom severe choices have been made since the Thatcher government to bolster the resources of a limited number of universities. In France, the *Programme d'Investissement d'Avenir* (Investment in the Future Program) issued its first calls for proposals in 2010 (see § 2) and led to the development of a particularly complex mechanism.

The [results of the Lisbon Strategy](#) for the decade from 2000 to 2010 are largely disappointing. The EU fell far short of its objectives for increasing research budgets in relation to GDP: with a virtually unchanged average of 1.9% in 2008 (compared with 1.85% in 2000), we are far from the goal of 3% set in 2000. If we consider only [public R&D budgets](#), we still see the same stagnation, at around 1%. The European Union's new EU2020 strategy retains the broad outlines of the Lisbon goal. No large-scale national or Europe-wide debate has yet been able to define the conditions and specifications for strategic procedures associated with the pursuit of excellence. They refer most often to a governance method: for the persons in charge it's a sign of good management that is supposed to foster cooperative projects, closer links to the private sector and international visibility, and for the researchers it becomes a necessary condition for enjoying increased backing and career advancement.

One could question the effectiveness of this competitive approach for improving the results of research. However, the ethically-inspired reflection presented here focuses primarily on the human consequences.

2- Excellence as part of the national research policy

The [Investissements d'Avenir](#) program brings a complex, targeted funding system centered on excellence to the saturation point. In the national budget, [the annual performance plan for 2014](#) of the

¹ Patricia Pol: "*La Passion de l'Excellence dans l'Enseignement Supérieur en Allemagne, en Espagne et en France*" ("The Passion for Excellence in Higher Education in Germany, Spain and France"), *Repères*, N°14. May 2012.

Ministry of Higher Education and Research² emphasizes excellence in the definition of its goals: “*In an increasingly competitive international context, excellence must remain the number one objective for French research.*” The tools for measuring excellence are well-known³: “*This excellence is measured essentially by the number and above all the quality of scientific publications, as well as international awards and the success rate in EU and international calls for proposals.*” In an effort to ensure efficiency in public spending, the same plan adds that the perimeter of research must be characterized by specialization, identifying 10 “*broad major scientific and technological priorities that make it possible to meet the key socioeconomic and/or environmental challenges that must be faced in the coming decades, and thus to address vital issues concerning society, the economy, industry or energy independence.*”

The effects of the announced scientific priorities on creativity

The choice of priority topics is thus justified by the societal challenges that research must help meet. However, pitting research teams against each other in projects based on these priorities has negative consequences ([COMETS position paper, 2010](#)). In all cases, it induces distortions among the players involved that are not necessarily pertinent, possibly leading to the opportunistic reshuffling of research teams or units, and more generally to individualistic behavior.

The reduction in, or even disappearance, of perennial financial support in favor of targeted funding is also especially detrimental to teams working in rare or highly specialized fields, or in cutting-edge fields that are not within the scope of international calls for proposals and comparisons. Moreover, how can one keep the door open to unexpected or accidental discoveries, which require freedom of investigation and which can take place in emerging structures that do not necessarily fit into the categories of excellence? Creativity needs a degree of freedom that allows risk-taking, for public administrations as well as for individuals, which implies not limiting research to fashionable topics, but also backing researchers who are blazing new trails outside of the predominant fields. But the possibilities for encouraging risk-taking have been much reduced: changes of activity are usually heavily penalized by the current funding systems and by the necessity of delivering a fast return on investment.

What are the criteria for assessing “excellence”?

The justification and evaluation of excellence imply the multiplication of expert committees at all levels, which comes at considerable cost, if only due to the time required — time that could be devoted to research activities. In addition, the recognition of so-called excellence in research is itself founded on ambiguity. Even if we adhere to the definition given above, excellence is generally determined by an upstream evaluation, often based on work that is already in progress, which, taken to the extreme, amounts to recognizing as excellent only work that has already produced favorable results and is not in the developing stages. Moreover, excellence is rarely subjected to an in-depth downstream evaluation, for example at the end of a research contract. This situation also limits the learning and improvement processes that are one of the expected purposes of such evaluations.

In addition, assessing the excellence of people, work teams, establishments, research projects, etc., through a rankings system recognized by the research institutions most often preempts any in-depth reflection on the selection criteria. Paradoxically, the time devoted to evaluation and the discussions of

² Pluridisciplinary scientific and technological research, draft 172.

³ In a 2014 [position paper](#), the COMETS mentioned the disparities that can result from the use of certain measurement tools.

criteria among the evaluators has been reduced, nearly in proportion to the increase in the number of evaluation operations. Everything proceeds as though the excellence postulated by the evaluators were considered to be sufficient. But the risks are obvious: specialization of the evaluators, decontextualization of the evaluations, one-dimensionality, overrepresentation of certain disciplines and a lack of transparency in the criteria. The [ERC](#) (European Research Council) offers a highly instructive example, as its methods are considered to be the “gold standard” in evaluation: it mobilizes various types of expertise combined in a single high-level panel. The goal of identifying supposedly “excellent” researchers has largely been reached. However, some preferential selection has been noted: the candidates working in the best context have an advantage; interface topics are not as easily recognized; fashionable fields of research are favored.⁴ In practice, there is no such thing as a perfect evaluation!

The limits of the excellence strategy

We must recognize the fact that there is a pyramid of expertise in the world of research, with the so-called excellent laboratories and researchers making up only the very top. But if all the funding were to go to what is perceived as excellence, the base would no longer have the means to function. Taking the idea to the extreme, excellence would eliminate everything else, which in turn could only be fatal for excellence itself! We must never underestimate the role of research that takes place midway between the base and the peak. Exploratory research at the frontiers, often fraught with uncertainty, is a rich source of knowledge. New methods must be pioneered before they can be recognized, and sometimes history vindicates what was first considered to be an error... A broad base, far from being an obstacle to the emergence of innovative, high-performance research, is on the contrary needed to support the summit of the pyramid, which, building on the work of all the players in research, is thus raised even higher. The upper level is born of a conjunction of talents and opportunities. This is what must be cultivated across the board, breaking free of a rigid, unmotivating model that discourages many researchers from taking on projects that are deemed too ambitious for them.

We must also consider the upward and downward interactions between the base and peak of the pyramid, because excellence is multifaceted. In addition to the visible excellence at the top, there is also “niche excellence” or “hidden excellence” in the middle of the pyramid, which receives much less recognition. The rise of highly dynamic fields of research has often been preceded by periods — sometimes quite long — in which only a few researchers are active, working outside of the funding circuits and international competition. This “niche excellence,” which we must be able to identify and foster, can become the excellence of the future. We must also make room for highly specific or low-profile areas of research, whose disappearance would be a punishing loss for our know-how and intellectual heritage. Lastly, very high-level but unrecognized research can be conducted by teams working in close cooperation with the industrial sector, but kept secret due to the requirements of economic competition. Nonetheless, this type of excellence is vital in the business world, although rarely visible in relation to the public sector’s evaluation criteria.

Let us keep in mind that the current context implies the urgency of sharing the fruits of scientific activity throughout the country while taking the various needs of the business world into account. Innovation often emerges from laboratories that are not connected to the most high-profile establishments — top-level production is not developed solely through the classic channels associated with France’s elite, trained in preparatory schools and prestigious universities. The technological channels, technical institutes and mid-level engineering schools also produce researchers of all levels,

⁴ Review of the statistics for ERC funding activities by the ERC managers as part of the review sessions attended by all of the panel chairs (November 2013).

who find jobs that correspond to societal needs. We also note that the development of high-level research needs a favorable breeding ground within a given geographic area (university laboratories, engineering schools, business clusters and cultural complexes): a diversity of skills nourishes the scope and prowess of world-class institutions, MIT in the United States being a good example.

How can we foster and consolidate high-level research?

The legitimate ambition of publicly funded research is to operate at a very high level. But in order to succeed, it must be recognized that the production of top-quality research obeys a dynamic that, by its nature, cannot be programmed. It is not entirely anchored in the landscape of research as it is perceived, frozen by evaluations at a given time and in a given place.

The first step is to create the conditions that will attract the best researchers to our laboratories. The kind of minds that are likely to develop a passion for research can be found almost anywhere — the most brilliant and creative thinkers are not confined to the most prestigious universities, and so-called laboratories of excellence can sometimes turn into ivory towers. How one starts out is not the sole determining factor. For these reasons, it is important to ensure a multiplicity of incubators, maintaining skill pools that communicate with each other. The possibility of career mobility for all researchers, as well as the capacity to react quickly and adapt to new situations, are essential conditions for intellectual enrichment. We must facilitate trajectories that can change and take off in any direction, avoid premature specialization, and generally create conditions under which a researcher's professional path can be revised at any time throughout his or her career.

On the other hand, once a research effort is well underway, we must provide conditions that allow it to grow and, more importantly, to continue over time. Short- and medium-term projects that have produced promising results should have the possibility of being extended. More generally, we must maintain the skill levels of high-quality teams. However, the system of calls for proposals too often rewards topics that fulfill the criterion of novelty rather than creating conditions for the effective mobilization of skills. Achieving excellence over time means not hindering reactivity or the ability to adapt to new situations.

3- Ethical behavior: a prerequisite for “excellence”

Overly intense competition leads to lapses and reduced performance

In a position paper issued in [2014](#), the COMETS emphasized that unethical practices may appear in some laboratories, due in large part to the relentless competition for excellence. The most serious type of misconduct, which is rare although on the rise, involves fraud, such as the falsification of data or plagiarism. It is worth remembering the words of the infamous [South Korean hoaxer Hwang Woo-suk](#), who boasted of producing the first human clone: “*You cannot succeed at anything unless you are obsessed with success. We became crazy for our work and were blind to everything else.*” In our circles we more often encounter detrimental practices in the realm of publications: “forgetting” to include contributors in the list of authors, incomplete references, carelessly written papers, withholding information, etc. In the current competitive climate, induced by the race for excellence, we must be aware of the importance of ethics training for researchers. This type of training, which has long been practiced in [the English-speaking countries](#), is still underdeveloped in France. The COMETS has published a guide for “[promoting integrity and responsibility in research](#)” (“Promouvoir une Recherche Intègre et Responsable”), and believes that its use is especially appropriate today.

Visitors to the most prominent laboratories in North America are struck by the fact that scientific excellence in that country is largely based on a research group's ability to react to new ideas and rapidly mobilize a team of researchers on a new project. In France, the young researchers who join CNRS, often after several years of postdoctoral work in another country, have also acquired this capacity to mobilize for new projects, and for some, "excellence" goes hand-in-hand with winning a sizeable grant (ATIP Avenir, ANR, ERC, etc.). When aiming for this type of recognition, it is very tempting to forget that research is not the accomplishment of a single individual but rather of a cooperative group, and that sharing is a prerequisite for successful research as well as reactivity in relation to new projects. Still, one can hardly blame young researchers for adopting an individualistic attitude, knowing that the evaluation of their activity and the advancement of their careers are conditioned by the need to present projects that stand out from the ones presented by their own team directors.

It should also be noted that the current mechanisms for rewarding quality put the spotlight on individuals (through prizes, medals, bonuses, contracts, etc.). However, it would be more equitable (and more effective) to allot part of these benefits to the teams that contributed to the winning project. In particular, we draw attention to the so-called excellence bonus, now renamed the "*prime d'encadrement doctoral et de recherche*" (doctoral supervision and research bonus), whose attribution often causes tensions among researchers.

For a collaborative ethic

In a world of research structured by rivalry, where competition always takes precedence over cooperation, have we forgotten the meaning of *working together*?⁵ "*It's not easy to learn to cooperate; cooperation is a matter of acquired experience, rather than an unthinking act of sharing.*" And are we aware of the strong worldwide trend in today's scientific communities toward open data, data sharing and open scientific commons?⁶ The policy of calls for proposals rewards and encourages individualistic behavior. In extreme cases, the proliferation of ERC contracts in a university department, attributed to an individual as opposed to a team, can cause distortions that ultimately threaten the life of the community if there is no reasonable redistribution of the sizeable financial resources thus granted. Contracts, small or large, should nurture the life of the entire laboratory, a collective structure that is always essential for common fulfillment. Today we need to emphasize an obvious point: leading-edge research is developed by teams, which may vary in size from field to field, but whose range of talent, experience and age constitutes their greatest asset.

In addition, collaborations among teams or laboratories provide elements that strongly increase the competitive capacity of the entire group. Knowledge is more effective when it is shared rather than confined. There is much to be gained from promoting the development of thematic or multidisciplinary networks, providing them with significant resources in order to encourage the circulation of ideas, exchanges of PhD and postdoctoral fellows and international relations. Certain regions have a proactive policy for funding these types of networks, which must be sustained beyond mere contractual funding for limited periods of time. At CNRS, our research networks provide excellent tools for unified efforts, but they are, unfortunately, underfunded. We should also point out

⁵ "*Ensemble, Pour une Ethique de la Coopération,*" Richard Sennett, pub. Albin Michel ("Together: The Rituals, Pleasures, and Politics of Cooperation," Yale University Press).

⁶ A question that we will address in an upcoming recommendation.

that some of the short-term associations among teams, formed in response to a call for proposals, should ideally be continued after the contract expires, whether the project has received funding or not.

Recent studies, like those by [ANR PresTence](#) covering several establishments in different countries, clearly show that good ethical practices are beneficial to the development of very high-level research, and that in any case one cannot have excellence without ethics. One major factor for success is strong internal social control exerted by one's peers based on collectively defined values, which goes hand-in-hand with a degree of moderation in competition concerning quality, as well as the maintenance of a common scientific identity for all personnel, with a genuine commitment to the organization. We know that the art of working smoothly together in a laboratory or an institute can be disrupted by tensions within a team or among teams. The conditions for creativity and well-being are key elements of managerial policy: from the head of a large-scale organization to the laboratory director to the team leader, everyone has a vital role to play in maintaining a dynamic and a mindset that are conducive to the development of their staff's potential, avoiding the pitfalls of internal competition.

Excellence as an exemplar for the public awareness of science

Modern-day society, which is presumed to be a society of knowledge and intelligence, is increasingly confronted with major challenges in areas like energy, the environment and health, in which science plays a crucial role. France does not have a sufficient population base of people, whether policy-makers or members of the general public, with a good level of scientific education. It is vital to broaden this base, which makes up the bottom of a pyramid with top-level research at the peak, competing with the country's other needs, which also include priorities like capacity building. Indeed, we must not underestimate the public's coolness toward science (and especially scientists). Verified results are questioned by individual opinion, and the everyday benefits of many technologies are little-known or overlooked. At the same time, the public obviously has the right to expect a great deal from the work of scientists at all levels in order to meet the societal challenges of the future. Everyone working in research, at any level, shares an obligation to raise the overall level of society's scientific awareness, whether the students', the general public's or political leaders'. Of course, special attention must be paid to the young generation, which constitutes the pool of potential skills and knowledge that will one day take over from the researchers and engineers of today. However, the scientific and technical professions do not exert enough appeal. The time spent outside of their community by researchers who want to be involved in scientific communication — time that would otherwise be spent on research — must be taken into account in career evaluations (see the recent [COMETS position paper](#)). Seen in this light, the high profile and exemplary image enjoyed by the most prestigious laboratories and prominent researchers come with certain responsibilities. Sharing their research, and more generally their scientific approach, with the general public can be considered a necessity. Some of the winners of the Nobel Prize, Fields Medal and other major distinctions (awards for women scientists, etc.) have understood this point and are making an admirable contribution to the positive image of science, while sharing their enthusiasm with as wide a public as possible.

Recommendations

1 – The meaning of the term “excellence” has been trivialized by its overuse in any and all contexts. In terms of research operations, it would be better to limit its use, substituting the concepts of quality, high-level work and competitive capacity instead.

2 – Any benefit, selection, award, bonus or allocation of credits based on criteria of excellence implies the adoption of strict, transparent evaluation procedures, especially regarding the publication of results

and the beneficiaries' names. Excellence, by definition, implies differentiation. Therefore, the evaluators must be required to uphold principles of excellence in their evaluations. Moreover, an evaluation must be based on quality criteria and not exclusively on bibliometric indicators (see the recent [COMETS position paper](#)).

3 – The policy of excellence and the associated funding must provide sufficient means in terms of basic support and human resources for high-quality teams that do not necessarily meet the prevailing criteria of “excellence”.

4 – High-level research relies on the ability to react quickly to new topics that may be highly original and far removed from the usual paths of investigation. This capacity for rapid adaptation should be fostered by the decision-makers, facilitating the mobilization of teams to work on these topics (encouraging mobility, reactivity in funding).

5 – We must ensure the sustainability of high-level research over time. Too often, the calls for proposals encourage applicants to pursue only the newest topics, which are determined more in terms of fashionability than the good use of available resources. Short- and medium-term projects that have produced promising results should have the possibility of being extended. More generally, we must maintain the skill levels of high-quality teams.

6 – The pursuit of excellence quite naturally generates individualistic behavior. But high-level scientific accomplishments are rarely the work of a single individual, most often resulting from a collective effort. It is important for the laboratory directors to actively promote teamwork and a team spirit, possibly with the backing of those in charge of the National Committee. In addition, the mechanisms for the recognition of quality in research generally spotlight the individual: prizes, medals, bonuses, contracts, etc. It would be more equitable to allot part of these benefits to the teams, whose contribution is often overlooked.

7 – The competition induced by the race for excellence can lead to increased misconduct in the laboratories. We must be aware of the importance of ethics in the training of research personnel and implement the appropriate training mechanisms.

8 – Researchers who are recognized for their “excellence” have a particular duty toward the scientific community as well as the general public. They are seen as models, and their high profile comes with a responsibility to share their research, and more generally their scientific approach, with the young generation, the general public and policy-makers.