

# POLÉTHIS

Council for Research Ethics and Scientific Integrity, Université Paris-Saclay

**NEWS/  
SPOTLIGHT**

**GDPR  
GENERAL DATA PROTECTION  
REGULATION**  
**REFLECTIONS ON THE ETHICS  
OF SCIENCE**



**TRAINING/  
INITIATIVES/  
EXPERIENCES**

**SCIENTIFIC  
INTEGRITY**

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## EDITORIALS

# ETHICAL MOBILIZATION WITHIN OUR INSTITUTION

**SYLVIE RETAILLEAU**

*President, Université Paris-Saclay*

The first issue of this newsletter goes to press as I step into my new role as President of Université Paris-Saclay, following Gilles Bloch.

I would like to thank all the colleagues who contributed to creating POLÉTHIS. I would also like to take this opportunity to reiterate my keen interest in pursuing the in-depth work and mobilization of our communities initiated by the *Conseil pour l'éthique de la recherche et l'intégrité scientifique* (Research Ethics and Scientific Integrity Council) at Université Paris-Saclay.

The articles in this first issue highlight such foundational topics as the notions of a responsible university, the importance of a shared culture of ethical reflection, the political stakes of a trusting relationship between science and society, and the utility of acquiring skills in research ethics with regard to the disciplinary and interdisciplinary scientific diversity present at Université Paris-Saclay.

Within these important areas for a university, commitment is measured, in my opinion, as much through the actions of contributors as in the institution's capacity for mobilization. I will be an attentive and involved participant.

# THE ETHIC OF PERSONAL CONVICTION AND THE ETHIC OF COLLECTIVE RESPONSIBILITY

**GILLES BLOCH**

The Council for Research Ethics and Scientific Integrity (POLÉTHIS) was established at Université Paris-Saclay in 2017. First, its creation is part of a process encouraged by the High Council for Evaluation of Research and Higher Education (HCERES), which has set up the French Office for Scientific Integrity (OFIS), a national, overarching and independent entity. Secondly, and naturally, its establishment was also inspired by the commitment of all communities under Université Paris-Saclay to reflect on ethics and scientific integrity since the university was established in 2015. In this respect, a network of advisors from all institutions is at work to help in the training of young researchers and engage them in an epistemological discussion, as well as in reflecting and acting on practical cases in their daily lives.

For me, that's what the question really is. As a biophysicist and a physician, I have long been personally aware of the question of the responsibility of scientists. In the mid-1970s, the Asilomar Conference, and the "self-moratorium" established by the involved scientists to better define the conditions of their research and prevent genetically

modified bacteria from spreading in the environment, have guided a growing awareness among researchers of my generation. Throughout my career in ministerial cabinets, I have also been confronted with the political dimension of research—with the "ethic of responsibility", as described by German sociologist Max Weber in 1919; which, in a pragmatic, compromise-driven effort to realign aims with means, can become the "ethic of success" despite opportunistic drifts that must be carefully monitored.

With this in mind, I see the ethic of personal conviction and the ethic of collective responsibility as inseparable concepts in the practice of science. While the search for scientific truth and its undistorted transcription remain at the basis of our work, the exercise of science has become a very complex activity in the current context. Indeed, our societies are becoming hyper-industrialized and politicians are relying on "experts" for the development of programs and answers to societal questions. Yet this does not mean we are free from complying with these standards when practicing and defending fundamental

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The French version of this publication is available on the POLÉTHIS website



# ESTABLISHING POLÉTHIS

## ETHICAL COMMITMENT AT UNIVERSITÉ PARIS-SACLAY

### EMMANUEL HIRSCH

President, Council for Research Ethics and Scientific Integrity (POLÉTHIS),  
Université Paris-Saclay

#### A certain freedom of thought

Never before have ethics and scientific integrity been so debated. It appears that some people foresee the gravity of a threat weighing on what we are most attached to: our democracy and the significance of the struggles that have made us humans “free and equal in dignity and rights.” We must pay attention to this ethical stirring: it should help us develop, together, a political momentum capable of providing innovative ways of exercising our democratic responsibilities.

At Université Paris-Saclay we wish to support a demand for knowledge, opposing interpretations, and the confrontation of ideas in fields that necessitate critical thinking and, therefore, a certain amount of free thought. Are not the missions of a university open to the world, attentive to producing knowledge and technology that serve the values of humanity, part of an engagement at once ethical and political? Our university’s Council for Research Ethics and Integrity (POLÉTHIS), working with the entire university community, seeks to encourage reflection on, sharing, and enacting the values that inspire a responsible approach to science.

The missions of a university open to the world, attentive to producing knowledge and technology that serve the values of humanity, are part of an engagement at once ethical and political. We wish to support a demand for deeper understanding, opposing interpretations, and the confrontation

of ideas in fields that necessitate critical thinking and, therefore, a certain degree of free thought. Ethical reflection is an exercise in shared responsibility.

In order to provide the understanding necessary to make choices on shared decisions made together about the common good, ethical intention aims to question the hypotheses, methods, means, and ends of the technological innovation to which everyone hopes to contribute.

#### Staying vigilant: concerns and convictions

Our society places, at times, an irrationally limitless hope in science. In return—and therein lies the paradox—distrust and suspicion regarding scientific practices and their impacts, especially in regard to society, incite worry and concern. Such ambivalence justifies not only our pedagogical efforts, but also a demand for loyalty, rigor, transparency, and justice. The challenge is to create an environment favorable to the honest and vital examination of the responsibilities necessary to accept and carry out *here and now*, but also with future generations in mind.

It means staying vigilant and concerned, and protecting moral convictions from the temptations of tacit consent, capitulation, or withdrawal. With coherence, rigor, competence, and resolution, we accompany indispensable scientific advancements while maintaining an unconditional attachment to our democratic values. What happens to our fundamental freedoms when the public sphere and our private sphere risk being appropriated by technology that distorts the meaning of our relationships with

others, our relationship to the world, and our ideas of a future that could easily be handed over to the digital order without further discussion?

Above all, research ethics is not an intellectual exercise or a set of erudite arguments between experts who devote long discussions and craft imposing opinions about concerns deemed “serious” to emergencies “from above” that will elevate our collective consciousness. Ethics is evoked, alive, and embodied in everyday commitments; it is this “down here” ethics that inspires within us a concept of dignity, respect, and justice, one which we personally guarantee. We must develop this “field ethics”, this ethics of discussion in laboratories and research departments, within institutions and in “third places”, interfacing with society, before experimental protocols are enacted and as they are being monitored. Our duty is to invent this ethics, one justified by on-the-ground expertise, but also enriched by a multitude of viewpoints gathered within the framework of regular dialog, which enables the development of a proven robust methodology that everyone must appropriate.

I honor those who enable us to have faith in the values they honor and defend. They raise these values to a standard that continues to defy inhumane indifference and unacceptable compromise.

In 2018, the challenge facing our conceptualization of research ethics is maintaining the capacity to exercise the freedom to decide what kind of humanity we wish to embody, accept, and defend. The intention is resolutely political, since we must invest in a tangible approach, demonstrating a commitment to involvement where society must rally its intelligence, talent, and solidarity.

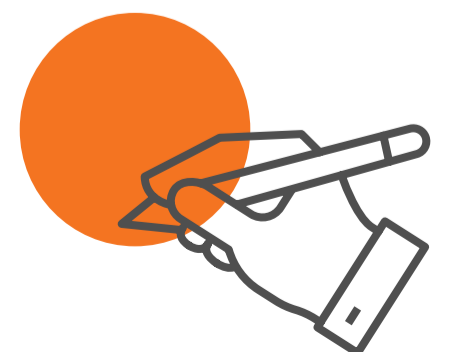
This is how I envision the meaning of ethical commitment at Université Paris-Saclay: the commitment of a prestigious scientific community united by a universal conception of knowledge based on a sense of humanity.

Our university’s Council for Research Ethics and Scientific Integrity (POLÉTHIS), working with the entire university community, encourages reflection on sharing, and enacting, the values that inspire a responsible approach to science. The challenge is to create an environment favorable to the honest and in-depth examination of the responsibilities that need to be accepted and carried out here and now, but also with future generations in mind.

“Recognizing that:  
(a) scientific discoveries and related technological developments and applications open up vast prospects for progress made possible in particular by the optimum utilization of science and scientific methods for the benefit of humankind and for the preservation of peace and the reduction of international tensions but may, at the same time, entail certain dangers which constitute a threat, especially in cases where the results of scientific research are used against humankind’s vital interests in order to prepare wars involving destruction on a massive scale or for purposes of the exploitation of one nation by another, or to the detriment of human rights or fundamental freedoms or the dignity of a human person, and in any event give rise to complex ethical and legal problems [...]”<sup>1</sup>

<sup>1</sup> Recommendation on Science and Scientific Researchers, preamble (a), UNESCO, November 13, 2017.

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ETHICS  
RESEARCH  
TRAINING  
R F RENTS  
CONCERTATION  
SCIENTIFIC  
INTEGRITY

## MISSION AND RESOLUTIONS

### ENCOURAGE A CLIMATE OF TRUST AND MUTUAL RESPECT

*Excerpted from the conclusion of the brainstorming workshop "Research ethics and scientific integrity: for a responsible approach at Universit  Paris-Saclay," organized January 16<sup>th</sup>, 2017 in preparation for the creation of POL THIS 1.*

"Objectivity, rigor, and independence must be explained. Only they can construct an argument distinctly different from an opinion. In other words, it is important to argue the legitimacy of a scientific approach, but the original and authentic thinking to which it leads should also be emphasized in such a way that the acquisition of personal acknowledgement of the issues may render each actor aware of his or her responsibilities and encourage an ethical practice within the framework of group dialog. This awareness is not exempt from explicit ethical requirements defined and confirmed with input from reality on the ground. It is also important to consider ideas like the structuring of scientific expertise; the structuring of control standards and regulation procedures for scientific activities; the call for scientific integrity and standards of good practice; and the consideration of societal demands and the various

forms of interaction with the public. The future will depend on the academic community's level of awareness regarding the importance of research ethics and the preservation of scientific integrity.

This, then, implies questioning research practices by uniting researchers, teacher-researchers, students, and civil society in a democratic enterprise.

Let us think of ethics, in the practice and construction of knowledge, as also constituting a genuine added-value for scientists. Scientific integrity also implies setting high standards for the production of sound scientific knowledge.

Encouraging a climate of trust and mutual respect is essential to this goal, which demands exemplary practices considerate of the common good, justice, transparency, and shared responsibilities."

### RESPONSIBLE AND HONEST RESEARCH

Established by the university president in June 2018, the *Conseil pour l' thique de la recherche et l'int grit  scientifique* (Research Ethics and Scientific Integrity Council) (POL THIS) at Universit  Paris-Saclay strives to encourage a shared culture of ethical reflection and engagement within the university.

Universit  Paris-Saclay is committed to taking an approach that promotes strong values and is mindful of developing a trusting, constructive relationship between science and society. In this way, it asserts its identity as a responsible university, as well as its desire to create favorable conditions for thoughtful research that serves the common good.

POL THIS calls upon the skills and expertise of the entire university community to offer training on issues surrounding research ethics and

scientific integrity, within the networks that unite various elements at Paris-Saclay.

Within the framework of a dedicated committee, POL THIS offers researchers support in terms of monitoring developments in ethical subjects and consultation in order to anticipate the ethical aspects and social impact of their research projects. Through seminars, thematic working groups, and colloquia, POL THIS strives to produce innovative research and ethical initiatives adapted to the needs of teams and the standards of responsible, honest research.

It also seeks to achieve honest scientific production, with honorable practices that respect inarguable principles. Scientific integrity lies in upholding personal and institutional standards in collaborative relationships as much as in the relevance and fairness of research work.



*Universit  Paris-Saclay is committed to taking an approach that promotes strong values and is mindful of developing a trusting, constructive relationship between science and society.*



## CREATION OF THE *CONSEIL POUR L'ÉTHIQUE DE LA RECHERCHE ET L'INTÉGRITÉ SCIENTIFIQUE* (RESEARCH ETHICS AND SCIENTIFIC INTEGRITY COUNCIL) (POLÉTHIS)<sup>1</sup>

**December 6, 2017**

The Research Ethics and Scientific Integrity Council (POLÉTHIS) is a Université Paris-Saclay council charged with overseeing actions related to research ethics and scientific integrity within the university.

### Missions and duties

POLÉTHIS has the following primary missions:

- Ensure the organization of training in research ethics and scientific integrity for doctoral candidates and students enrolled at Université Paris-Saclay; conduct outreach activities and provide training resources; organize the network of trainers;
- Implement and supervise the institutional ethics review committee (C3E)<sup>2</sup> in charge of ethics evaluations related to research protocols;
- Oversee the network of scientific integrity contacts at Université Paris-Saclay;
- Facilitate the network of research teams and units in the field of research ethics and scientific integrity at Université Paris-Saclay; organize community-building events drawing on research, in order to train trainers who are in contact with research in the field of research ethics and scientific integrity; ensure monitoring of new developments; carry out prospective studies.

It also has the following complementary interdisciplinary missions:

- proactively develop a determined, ambitious, coherent, and united research ethics and scientific integrity policy with councils, coordinating entities, and directorates at Université Paris-Saclay;
- implement, monitor, and promote this policy within the academic community as well as with society;
- ensure monitoring of available tools and of developments in ethical topics at the national and international levels, ensure relations with the *Office Français d'Intégrité Scientifique* (French Office for Research Integrity) (OFIS), through the conference of signatories of the ethics charter for research professions, as well as with counterpart bodies and other competent bodies at the national and international levels;
- ensure representation of Université Paris-Saclay at the national and international levels, in the media, publications, and at conferences and major events within POLÉTHIS's field of expertise;
- contribute to relationships between science and society in fields falling within POLÉTHIS's area of competence.

## THE 4 AREAS OF ACTION OF POLÉTHIS

### 1. The scientific integrity network

This network, which unites the points of contact for scientific integrity from Université Paris-Saclay establishments, is a forum for discussion, sharing experience, and giving advice for addressing scientific integrity violations. At the service of the entire community, scientific integrity contacts provide advice and instruct on circumstances falling within their field of expertise. The network also proactively recommends training on scientific integrity for doctoral candidates and supervisors. The approach encourages awareness, training, and prevention in an effort to develop research concerned with rigor, fairness, and integrity.

### 2. The research ethics and scientific integrity training network

In accordance with the May 25, 2016 decree establishing the national training framework and the conditions for obtaining a nationally recognized doctoral degree, the network provides training in research ethics and scientific integrity for doctoral candidates enrolled at Université Paris-Saclay. The training is both theoretical and practical, general and specialized, imparting references, knowledge, and expertise (especially for first-year students), as well as providing an on-going reflection developed in research situations, notably in the context of teams and laboratories. The goal is for each individual to incorporate the knowledge necessary for practicing responsible science.

### 3. Think tank and research network on the ethics of research/science and science integrity, promotion, and prospective studies

Eager to promote shared ethical reflection and a vital research dynamic within Université Paris-Saclay, the network is open to all research teams and units. It offers to organize community-building events (seminars, theme days, colloquia) with them and to support those initiatives that fall within its field of expertise. It carries out literature reviews and facilitates prospective studies and thematic research within a "laboratory of ideas" approach.

### 4. Comité d'éthique de la recherche de l'Université Paris Saclay (Université Paris-Saclay Ethics Assessment Committee) (CER-PS)

The Université Paris-Saclay Ethics Assessment Committee examines the ethical aspects of non-interventional research projects, with the exception of research targeting the development of biological and medical knowledge, when this research directly or indirectly involves human participants. CER-PS advisory opinions are delivered following an expert assessment of research protocols based on an ethical analysis of objectives, methods, and, more specifically, terms and conditions of inclusion, information, consent, collection and preservation of data, respect for confidentiality, protection and respect for dignity, integrity, and the rights of persons during research activities.

<sup>1</sup> Resolution no.3, ComUE, Université Paris-Saclay, December 6th, 2017, Title VIII — Instances of operational stewardship at Université Paris-Saclay, article 12, December 6, 2017.

<sup>2</sup> Named the "Université Paris-Saclay Research Ethics Assessment Committee," on October 17, 2018.

# DISCUSSION

## CONFIDENCE IN SCIENCE: A PREREQUISITE TO BIOETHICAL QUESTIONING

Current ethical concerns are of considerable importance, to an extent comparable to that of the incredible expansion of the possibilities open to humanity. They challenge researchers, doctors, citizens and public authorities alike. But how can we talk about these concerns if the truthfulness of the underlying science is questionable?

### PIERRE CORVOL

*Professor Emeritus at Collège de France,  
member of the Académie des sciences*

#### Acquiring a deep understanding of the contribution of fundamental science to technical progress

We are experiencing an unprecedented phenomenon in which scientific discoveries, inventions and innovations are accelerating. Never before has the history of humanity witnessed such technological revolution involving all sectors—communications, transportation, environment and health alike. According to the OECD, in less than half a century life expectancy has increased by almost 10 years. The human genome was decrypted only 18 years ago, and at this point, the genome of many animals, plants, and fossils has already been documented. Man can now read, understand and alter these genomes, including his own, to his own benefit. He has the incredible technical ability to pass down an “improved” version of his genome to his descendants. Digital sciences are disrupting data science, impacting biomedical reasoning itself. In addition to the research based on observations, hypotheses, experimentation and deduction that has prevailed since Claude Bernard, more and more research now relies on analyses of Big Data, which collection and use itself poses ethical questions. The generated data is used to establish relationships and correlations—yet it can never be used alone to establish a causal link.

Current ethical concerns are of considerable importance, given the incredible expansion of the possibilities open to humanity. These questions challenge researchers, doctors, citizens and public authorities alike.

Citizens are taken aback by this acceleration of knowledge acquisition

and the development of applications. It is technically complex, if not impossible, for individuals to acquire an in-depth understanding of the contribution of basic science to the technical progress that has become a part of their day-to-day life. As an example, a GPS relies on fundamental knowledge in electromagnetism, electronics and quantum physics; its principles are based on the theories of special relativity and general relativity. Now how could a GPS user know about such data and the algorithms enabling geolocation? This leads to another question: how much trust citizens place in science and researchers—a hot topic due to recent deviances in knowledge-transmission methods and the potential mercantile and ideological uses of such knowledge, as well as integrity breaches and conflicts of interest in research. Yet historically, that hasn’t always been the case.

In 1910, the great mathematician Henri Poincaré wrote that there can be no immoral science. According to him, science does not explicitly deliver any moral command. There must not be any because, as he puts it, in way, morality is consubstantial with science. The knowledge produced by science is the fruit of a collective work, a united enterprise at the service of humanity—therefore it cannot be immoral. “We can feel that we are working to the benefit of humanity, and humanity is so dear to us,” Poincaré said. He goes as far as suggesting that science should play a significant part in moral education and that if there ever were a breach to scientific conduct—which seems unimaginable to him—, “any form of legal intervention would be inappropriate and rather ridiculous.” Henri Poincaré brought to light the vision of “pure,” disinterested science to the benefit of all, in the great tradition of the Lumières movement.

#### Promoting integrity in research

Citizens must be able to rely on the honesty and reliability of the scientific community to provide access to rigorous, reliable information. It is often said that science has the ability to self-regulate— that in case of fraud the truth will come out sooner or later, and that it is useless, if not harmful, to disclose frauds and conflicts of interest to the general public for fear of altering public confidence in science and its institutions. Realistically, for many years, keeping conflict resolution between involved scientists was seen as the best solution. This is undoubtedly the reason why France was comparatively slow to solve these issues at the institutional level. The United States addressed fraud in the biomedical field through a political decision: after being asked about expenses resulting from rigged data funded by taxpayer money, the US government established the Office of Research Integrity (ORI) in 1992, a federal agency addressing cases of serious misconduct, including under criminal law when applicable.

The National Charter of Research Ethics signed in 2015 by universities and several major research organizations was also implemented on the basis of political motivations.<sup>1</sup> In his circular letter from March 15, 2017 on the policy for scientific integrity,<sup>2</sup> the Secretary of State for Research and Higher Education highlighted that “discoveries, inventions, innovations, and any new contribution to global knowledge require the facts reported to be fundamentally true. The public must be able to place trust in the words of researchers and experts [...] Tweaking, deviating or falsifying facts can have potentially serious consequences at the societal level and cast lasting, unjustified suspicion

on research and its purposes.” This circular letter follows up on the report submitted to the Ministry in 2016 entitled “Assessment and Proposals for the Implementation of the National Charter for Scientific Integrity.”<sup>3</sup> It highlights the necessity to provide doctoral students with information and training and the role played by public higher education and research institutions in the conduct of honest, responsible research. The letter led to the establishment of the Office Français d’Intégrité Scientifique (French Office for Scientific Integrity or OFIS), an independent, overarching entity acting as a monitoring center and a source of information and training resources for all issues related to scientific integrity.

*“We can feel that we are working to the benefit of humanity, and humanity is so dear to us.”*

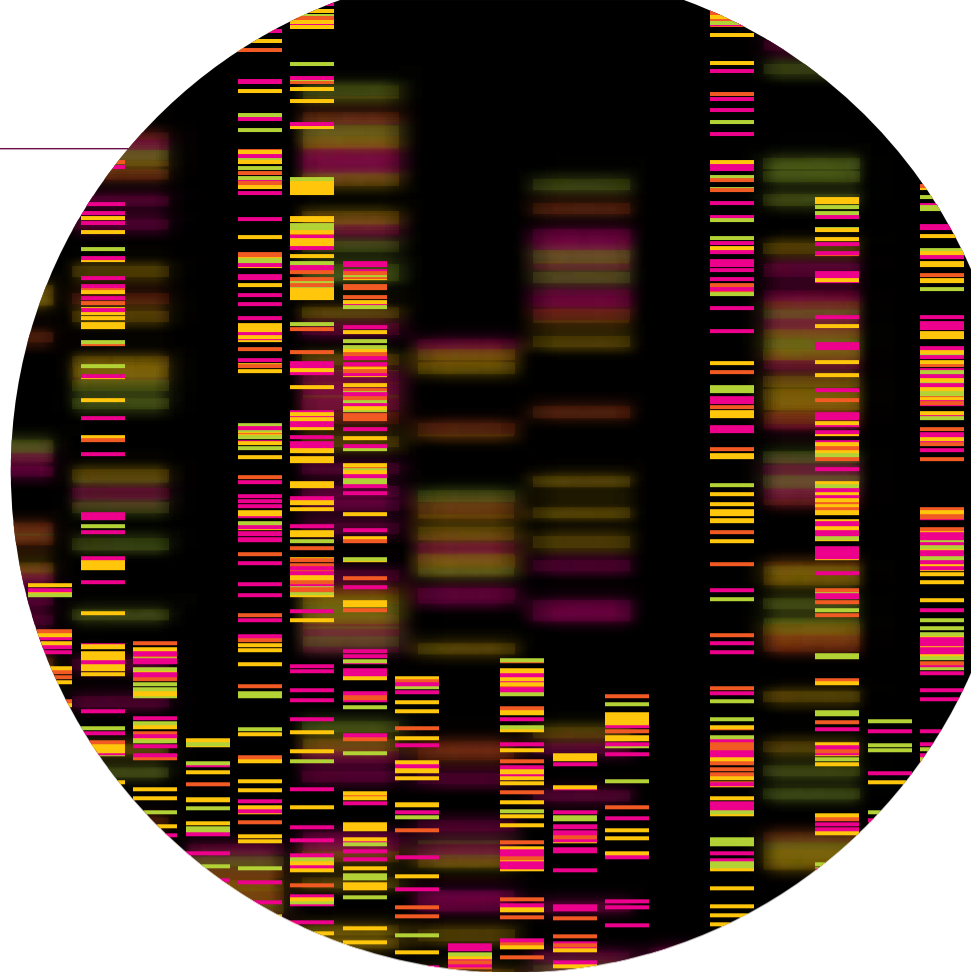
— Henri Poincaré

The extensive debates generated by the current revision of the Law on Bioethics rely on unlimited trust in the results claimed by biomedical research contributors—a research that proves particularly complex and sensitive to new technologies and ideologies and which can create potential financial interests. This trust can only exist if those responsible for research remain honest. How can we talk about ethics if the veracity of the underlying science is questionable?

<sup>1</sup> [http://www.cnrs.fr/comets/IMG/pdf/charte\\_nationale\\_deontologie\\_signe\\_e\\_janvier2015.pdf](http://www.cnrs.fr/comets/IMG/pdf/charte_nationale_deontologie_signe_e_janvier2015.pdf)

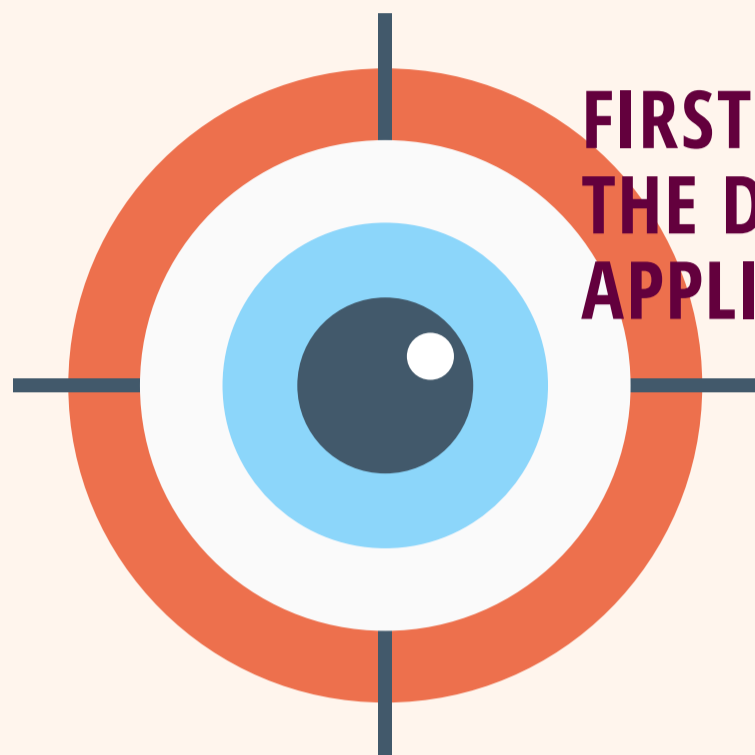
<sup>2</sup> [https://cache.media.enseignementsup-recherche.gouv.fr/file/Actus/84/2/Rapport\\_Corvol\\_29-06-2016\\_601842.pdf](https://cache.media.enseignementsup-recherche.gouv.fr/file/Actus/84/2/Rapport_Corvol_29-06-2016_601842.pdf)

<sup>3</sup> [https://cache.media.enseignementsup-recherche.gouv.fr/file/Actus/84/2/Rapport\\_Corvol\\_29-06-2016\\_601842.pdf](https://cache.media.enseignementsup-recherche.gouv.fr/file/Actus/84/2/Rapport_Corvol_29-06-2016_601842.pdf)



# NEWS/ SPOTLIGHT

## GENERAL DATA PROTECTION REGULATION (GDPR)



# FIRST OBSERVATIONS REGARDING THE DATA PROTECTION LAWS APPLICABLE TO RESEARCH

The legal framework regarding the protection of personal data put into effect in France in recent months recognizes specific processes related to research activities by granting them a specific legal status. What data? What guarantees? What are the rights of the individual concerned? What is the field of application? Explanations.

### OLIVIER COUTOR

Research officer at the National Commission for IT and Liberties (CNIL)

#### On the importance of strict supervision of data processing

The new regulations regarding the protection of personal data<sup>1</sup> that have come into effect in France in the recent months recognize the specificities of data processing in the framework of research activities by granting them a specific status.

Recent events highlight the importance of having a strict legal framework for the processing of data for research purposes. A few facts suffice to illustrate this. First, the GAFAs are investing more and more in research in health and artificial intelligence and choose which researchers are granted access to their mega databases on the basis of their own criteria. Also, part of the data used by Cambridge Analytica was collected through the work of a researcher who had justified this collection saying that it was for “academic” purposes. Additionally, a Belgian researcher who tweeted a study on activism during the “Benalla Affair” over the summer posted two Excel tables listing the names of accounts that had been very active in this affair.

In this context, it can prove useful to establish an initial inventory of all new regulations, even though many grey areas remain, in particular due to the abundance of documents dealing

with related subjects which are not yet fully adjusted to one other. We will successively examine the conditions under which data can be used for research purposes (1), the measures that must be taken to ensure that their processing is entirely legal (2), the rights granted to the data subject (3), and finally, certain details on the field of application of this new framework (4).

#### 1. More on the type of data and its processing

The first relaxation of the rules of data protection lies in the principle of limitation of purpose. Its scope is limited. Two hypotheses are to be examined.

1° When the data is collected from the data subject directly for the purpose of research, the data subject must be informed of its objectives (or purposes), which must be “determined, explicit and legitimate.” However, the purposes of the research can be defined in less precise terms than is customary for other categories of data processing. The idea is to leave room for the purpose of the research project to evolve, taking into account its possible redefinition, in an extensive or restrictive sense, as shaped by necessities.

2° When the data have already been collected for purposes that differ completely, whether or not these are related to an initial research project, the new objective envisaged must be compatible with the aims that originally

justified their collection. However, the RGPD introduces a presumption of compatibility in research that derogates from the principle of purpose limitation: any subsequent processing for research purposes is, in principle, considered as a lawful processing operation compatible with the original purposes. Yet this extension of purpose does exclude any use of the data to make decisions with regard to the data subject.

Another exception turns out to be very substantial. The prohibition which, in principle, is valid in cases of processing categories of data which are, by nature, particularly sensitive in relation to fundamental freedoms and rights—race, political opinions, religious beliefs, genetic data, biometric data, health data, life or sexual orientation, etc.—does not apply to the processing of public research carried out after a justified, published opinion issued by the CNIL. Quite naturally, the processing of such data requires the adoption of appropriate safeguards.

The processing of health data on the basis of public interest benefits from the same derogation.

Data from public archives that have been selected to be retained beyond the period necessary for the purpose of their initial processing may also be used for research purposes for their administrative utility or their scientific, statistical or historical interest. Their use is possible only with the authorization granted by the archive administration and after approval of the statistical

confidentiality committee (for data covered by statistical confidentiality) and the administration issuing the documents.

It is stated in the GDPR<sup>2</sup> that such dispositions shall not apply to deceased individuals.

*Data processing for research purposes must occur under “appropriate and specific measures” to protect the fundamental rights and interests of the persons concerned.*

#### 2. The guarantees

Data processing for research purposes must occur under “appropriate and specific measures” to protect the fundamental rights and interests of the persons concerned. First we shall outline that in this respect, in the field of research, there is no derogation to the principle of limitation of data collected and/or processed to what is strictly necessary to achieve the purpose pursued.

Technical and organizational measures must always be implemented to pursue this purpose, such as those set up by

<sup>1</sup> It results from the EU General Data Protection Regulation (GDPR), applicable as of 25 May 2018, the new version of the loi Informatique et Libertés resulting from a law of 20 June 2018, and its implementing decree of August 1<sup>st</sup>, 2018.

<sup>2</sup> Cf. preamble 160

## NEWS/SPOTLIGHT

the French Secure Data Access Center (CASD, Centre d'accès sécurisé aux données), a secure infrastructure that allows users, researchers in particular, to access the very detailed individual data that they strictly need, all under high security conditions.

Among these measures, the GDPR strongly encourages *pseudonymisation*, i.e. the adoption of measures to prevent processed data from being attributed to a specific, identified or identifiable natural person without resorting to additional information. This implies that such additional information must be stored separately.

Although the registration number of individuals listed in the French National Natural Identity Register (known as social security number) can be used unencrypted for data processing in the context of health research, other requests for research purposes can only be accepted if the social security number has previously been subjected to a cryptographic operation, substituting it for a non-significant statistical code. This operation must be renewed at a frequency defined by decree of the State Council, requested after approval from the CNIL. The cryptographic operation and the interconnection of files using the specific non-significant code derived from it cannot be provided by the same person or by the controller.

In cases where the data is shared with another research institution, one solution could be to set up a system ensuring the traceability of all personal data communicated in such a way as to inform the new controller of their legal status by including several pieces of information, such as the date of the information on the purposes, the date and scope of the explicit consent, etc. This kind of solution should be put in place in other fields of activity that require the same level of awareness of the legal framework applicable to the use of received data.

All data must have been anonymized before it can be shared. Yet the regulations establish some derogations i.e. in cases where such sharing is absolutely necessary and the interest of third parties in this diffusion prevails over the fundamental rights and liberties of the people involved, or if the dissemination of identifying data is necessary for the presentation of the results of the research.

The status of prior authorization is maintained for cases of health research processing only. However, researchers are exempt from this for research projects that are, in all respects, a reference methodology approved by the CNIL (currently, there are six). In this case, a CNIL conformity declaration must be sent to the CNIL.



*All data must have been anonymized before it can be shared.*

### 3. The rights of data subjects

The principles of loyalty and transparency require that, every time data are collected from a data subject, the latter should be informed about several points including the identity of the data controller, the purposes of the research projects and legal grounds for data processing,<sup>3</sup> the data retention period, future data transfers outside of France, and the subject's rights, including, where appropriate, the right to withdraw consent at any time.

The same conditions apply when the controller considers re-processing the data for another purpose. Where the data has been collected from third parties, in particular where data collected by that third party for other purposes is being reused, information of the same nature must be provided to the data subject within one month or when it is first transmitted to a third party.

The only derogations from common law apply when the provision of such information proves impossible or would require disproportionate efforts, or it may make impossible or seriously jeopardize the achievement of the processing's original objectives. To apply this provision, the RGPD advises to take into account the number of individuals concerned, the age of the data and the guarantees provided elsewhere.

Data controllers must also implement the rights open to the individuals covered by the GDPR, unless it is

possible to derogate from it for treatments related to research activities. This is the case for the rights of access, rectification, opposition and limitation of processing<sup>4</sup>, where their exercise might "render impossible or seriously impair the achievement of the objectives of that processing". The scope of these derogations should, however, be very limited.

Similarly, the right to erasure may be excluded for processing in a research context as soon as there is a risk that it will make impossible or seriously impair the achievement of the objectives of that processing.

On the other hand, the data subject must always be able to object to a processing for research purposes, for reasons relating to his/her particular situation which he/she must specify, unless the processing is necessary for the completion of a mission of public interest.

### 4. Scope

A few details are provided in the GDPR on the "research activities" covered by these derogations. It essentially consists of "scientific research," with the exception of historical and genealogical research. This term is considered, in a broad sense, to cover technology development, fundamental research, applied research, private sector-funded research, and public interest studies in the field of public health.



<sup>3</sup> Any processing must rely on at least one of the following criteria to be lawful (i.e. "legal grounds"): the consent of the individual, the execution of a contract, a legal obligation, a mission of public interest, or the legitimate interests of the controller or a third party.

<sup>4</sup> The data subject may request that the data be retained but only used with the consent of the individual. This implies that the accuracy of the data is disputed, or that their processing is considered unlawful, or that the right of objection has been exercised.



# RESEARCH AND THE GENERAL DATA PROTECTION REGULATION: WHEN ETHICS MEETS THE LAW



At the heart of the GDPR lies the responsibility of all persons who process personal data. This translates into many aspects including the responsibility of the controller in charge of data processing, the data protection impact assessment (especially in cases where the processing relies on emerging technologies), the appointment of the Data Protection Officer, and the role of the authorities supervising personal data (in France, the CNIL).

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## PERSONAL DATA PROTECTION REQUIREMENTS AND THE PRIORITIES OF RESEARCH

The entry into force of the Regulation on the protection of natural persons with regard to the processing of personal data (GDPR) in all EU member states on 25 May 2018 has already given rise to abundant exchanges of opinions.<sup>1</sup> The establishment of a high “level of protection of the rights and freedoms [of individuals] equivalent in all Member States”<sup>2</sup> is indeed to be welcomed, especially in a context where some see the commodification of data as the best way to ensure their protection.<sup>3</sup> And yet the GDPR immediately caused concern, and the difficulties in its implementation were highlighted in the media. As the private sector is particularly targeted by this new regulation, the MEDEF has been proactive in raising awareness as regards to the Regulation through a series of actions, including a MOOC for companies. It’s true that the maximum administrative fine for infringement of the Regulation is quite striking.

So what are the links between the GDPR and ethics, especially the ethics of research? The Regulation as a whole is underpinned by an ethical concern, as expressed in Article 1: it seeks to strike balance between the fundamental right of natural persons to

protection regarding the processing of personal data with the free movement of data within the European Union.<sup>4</sup> The individual has a number of rights including access to, rectification or restriction of processing of personal data and objection.<sup>5</sup> These rights are complementary and, for them to be respected, the Regulation recognizes an unprecedented place for the consent of the individual.

Considering this, the responsibility of all persons who process personal data lies at the heart of the GDPR. This translates into many aspects including the responsibility of the controller in charge of data processing, the data protection impact assessment (especially in cases where the processing relies on emerging technologies), the appointment of the Data Protection Officer, and the role of the authorities supervising personal data (in France, the CNIL).<sup>6</sup> A large

*The individual has a number of rights including access to, rectification or restriction of processing of personal data and objection.*

number of highly diverse companies and institutions process personal data, which contributes to making the GDPR a reference document.

In this context, reconciling the new requirements for the protection of personal data defined in the framework of the GDPR with the imperatives of research has become essential. Beyond the diversity of potentially relevant disciplines, the application of the Regulation to the processing of personal data in the context of scientific research, including “in the public interest in the field of public health” as well as for historical research or statistical purposes, is explicitly envisaged.<sup>7</sup> Research has not been excluded from the scope of the GDPR, which takes into account the diversity of data and provides for adjustments and derogations.

## “SERVING HUMANITY”

Although the Regulation does not apply to the processing of anonymous data “including for statistical or research purposes,”<sup>8</sup> the protection of personal data is organized in the field of research with a specific focus on genetic, biometric and health-related data.<sup>9</sup> The “special categories of personal data,” in broader terms, are prohibited from processing because of their eminently sensitive nature, with exceptions that include scientific research purposes. In this case, certain conditions must be respected, including respecting “the essence of the right to data protection.”<sup>10</sup>

The reconciliation of the right to the protection of personal data with the right to freedom of expression and information, including processing for academic expression purposes, is

expressly entrusted to the legislator, although exemptions and derogations may apply.<sup>11</sup> In France, Article 23 of the Decree of August 1st, 2018 specifies the guarantees and exemptions applicable to the processing of data for scientific or historical research or statistical purposes, with accessibility to authorized persons being subject to compliance with approved “codes of ethics applicable to the various processing sectors.”

Relativity to the principle of goal limitation in the field of scientific research is noteworthy. As stated, “data subjects should be allowed to give their consent [...] when in keeping with recognized ethical standards for scientific research,” yet only “to certain areas of research or [...] parts of research projects to the extent allowed by the intended purpose.”<sup>12</sup> However, the retention period for data for scientific research purposes is longer than commonly accepted.<sup>13</sup> That said, the principle of personal data minimization, which imposes that data be “adequate, relevant and limited to what is necessary in relation to the purposes for which they are processed,”<sup>14</sup> is not ruled out when it comes to scientific research.<sup>15</sup>

Make no mistake, whichever persons apply it, the GDPR lays humanistic and even universalist claims: it does state that “the processing of data should be designed to serve mankind.”<sup>16</sup> The sharing of data in research will have to tackle this twofold challenge in an international context.<sup>17</sup>

1 Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data, and repealing Directive 95/46/EC (General Data Protection Regulation), O.J.E.U., 4.5.2016, L 119/1. In the French context, the law on personal data protection (*loi n° 2018-493 du 20 juin 2018, J.O.R.F. du 21 juin 2018*) and its application decree (*décret n° 2018-687 du 1er août 2018 pris pour l'application de la loi n° 78-17 du 6 janvier 1978 relative à l'informatique, aux fichiers et aux libertés, modifié par la loi n° 2018-493 du 20 juin 2018 relative à la protection des données personnelles, J.O.R.F., 3 août 2018*) adapt French law to the new European regulation and details its conditions of application.

2 Recital 10 in the Regulation preamble.

3 Pour une étude générale quant aux développements les plus récents de la collecte et de l'exploitation de données (*For a general study on the most recent developments in data collection and use*), Mokrane Bouzeghoub, Rémy Mosseri, *Les Big Data à découvert*, CNRS éditions, March 2017, 350 p.

4 Regarding this aspect, see the Regulation preamble. The individual right to personal data protection is protected by the Charter of Fundamental Rights of the European Union (article 8 paragraph 1) and the Treaty on the Functioning of the European Union (article 16 paragraph 1).

5 Articles 15, 16, 18 and 21 of the Regulation, respectively.

6 Articles 24, 35, 37 to 39 of the Regulation, respectively. The content of the impact assessment is specified in Article 25 of the Decree.

7 Recitals 159, 160 and 162 of the Regulation preamble.

8 Recital 26 of the preamble.

9 See definitions of paragraphs 13, 14 and 15 of article 4 of the Regulation.

10 Article 9 paragraph 2 *j* of the Regulation, recital 52 of the preamble.

11 Article 85 paragraph 1 of the Regulation and recital 153 in the preamble.

12 Recital 33 of the preamble and, even more so, article 5 paragraph 1 *b* of the Regulation. Regarding the obligation to inform the person, the «right to be forgotten», such as the length of time data are retained, see, for the derogations specific to scientific research, articles 14 paragraph 5 *b*, 17 paragraph 3 *d* and 5 paragraph 1 *e* of the GDPR, respectively. For the right to object, see article 21 paragraph 6.

13 Article 5 paragraph 1 *e* of the Regulation.

14 Article 5 paragraph 1 *c* of the Regulation.

15 Recital 156 of the preamble and article 89 of the Regulation, even though derogations are envisaged.

16 Recital 4 of the preamble.

17 Gilles Adda, « Quelles conditions d'application pour les Big Data ? » (*What conditions for the application of Big Data?*), *Les nouveaux territoires de la bioéthique. Traité de bioéthique IV*, E. and F. Hirsch (dir.), érès, 2018, pp. 501-511.

# NEWS/ INITIATIVES



## AN ETHICAL REVIEW OF RESEARCH PROTOCOLS UNIVERSIT  PARIS-SACLAY RESEARCH ETHICS COMMITTEE

The Research Ethics Committee (CER Paris-Saclay) in the heart of POL THIS is charged with carrying out ethical reviews of research protocols at Universit  Paris-Saclay. How does it work? What are its missions? How is it accessed?

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### ENCOURAGING ETHICAL REFLECTION PRIOR TO ANY RESEARCH WORK

The Council for Research Ethics and Scientific Integrity/POL THIS at Universit  Paris-Saclay has several missions. One consists of implementing and overseeing the *Comit  d' thique de la recherche* (Research Ethics Committee, referred to hereafter as CER Paris-Saclay or CER-PS), charged with carrying out ethical reviews of research protocols.

#### Why the need for this type of committee and what specific role does it play?

Following World War II, as the number of human subjects increased significantly, reflection on the ethical nature of research activities resulted in a series of ever more prescriptive texts to frame, then regulate, the obligations of researchers wishing to carry out experiments on human subjects, and to define the rights of those subjects when participating in said research. This reflection began with the Nuremberg Trials (1947). Over the course of the hearings, 10 ethical and legal criteria were pronounced (the Nuremberg Code) which became key references for later texts related to medical experimentation, such as the Helsinki Declaration (1964, first version).

The primary motive for these texts was to create a framework for research in the field of health. In France, this motive gave rise to the law of December 20, 1988, relative to the

protection of persons who participate in biomedical research, which established *Comit s consultatifs de protection des personnes dans la recherche biom dicale* (Consultative Committees for the Protection of Persons in Biomedical Research/CCPPRB). In 2004, this law was revised to include measures from the 2001/20 CE directive and expanded in 2006 by decree 2007-477 of April 26, 2006. The CCPPRBs were replaced by *Comit s de protection des personnes* (Committees for the Protection of Persons/CPP), bringing together health professionals and representatives from organizations representing the ill and health system users, whose consentment is required before they may be included in any research. The last of these evolutions was the law of March 5, 2012 relative to research involving human beings, expanded five years later by decree 2016-1537 on November 16, 2016, which enlarged the referral perimeter of the CPP and strengthened their authority.

Equivalent institutions exist within the legal frameworks of a number of countries; in the Anglo-Saxon world, this role is played by IRBs (Institutional Review Boards), which have a much larger scope of action, as they may put forward opinions for all research involving human subjects.

As illustrated by the IRBs, an ethical framework for research involving human subjects goes far beyond the framework of the biomedical field and may concern studies in a number of fields in the human and social sciences (cognitive psychology, education sciences, economy, sociology, etc.). The fields potentially concerned are so numerous as to gradually impose the need to establish ethical reviews before

any research is undertaken. At least, this is the point of view defended by a certain number of important investors in research, first among them the European Union through its various programs to support research; but it is also the point of view imposed by a growing number of scientific publishers who demand that each publication using results from experiments involving human subjects explicitly mention the opinion of an ethical body (IRB type) to validate protocol.

### THE IMPORTANCE OF ETHICAL REVIEWS IN RESEARCH PROTOCOLS

In response to these demands, a certain number of French universities have worked to implement ethical review bodies concerning research protocols, with increasingly professional operations in response to growing demand for ethical insight. To this end, the CERNI (*Comit  d' thique pour les recherches non-interventionnelles*/Ethics Committee for Non-Interventional Research) was established in Grenoble in 2011 by a core of researchers in cognitive science; elsewhere (in Toulouse, Lille, and Paris-Descartes) other disciplines with strong local representation were catalysts for establishing similar committees. Today, there are roughly twenty such committees, each operating according

to empirically defined principles and delivering advisory reports in response to voluntary requests. These committees have adopted the generic name "X University Ethics Committee" and have been, since 2018 organized within a national CER federation whose ambition is to share its experiences and investigations and to act as a representative when dealing with public authorities, whilst keeping an eye on improving how their activities are supervised. It is of importance for CER operations to establish (empirically) an operational boundary between researchers in the biomedical field (which fall within the jurisdiction of CPPs) and other research (which can be addressed by CERs). This boundary is particularly difficult to establish for research that concerns psychology or, even more so, human physiology.

Investigations into establishing a Research Ethics Committee at Universit  Paris-Saclay began in 2015 and initially brought together two campus communities: researchers in information science (principally concerned with issues related to human-machine interaction and social robotics) and researchers in movement science at the Universit  Paris-Sud who already benefit from the services of an internal ethics committee at the UFR STAPS. This core has gradually grown to include other knowledge and expertise, as its operation and composition

*The CER meets monthly, which enables it to quickly process cases.*

## BECOME A MEMBER OF THE CER



The CER needs to include a sufficient number of experts from a variety of backgrounds. Expertise in a wide range of disciplines is welcome. CER working groups encourage exciting discussions that benefit the university community.

To learn more about the activities of the CER at Paris Saclay, to submit your own protocols or join the committee as an expert, see the [Université Paris-Saclay website](https://www.universite-paris-saclay.fr/polethis).

has formalized and following the committee's integration into the POLÉTHIS framework.

Since early 2017, the CER-PS has operated in a semi-official manner and has assumed the responsibility of developing roughly sixty research protocols, mainly in the fields previously mentioned, but also in the fields of neuroscience, food processing, and behavioral economics. To increase awareness around its activities, in December 2017 the CER organized a day-long workshop on ethical reviews for research. This workshop drew about 100 participants to hear a rich panel of guest speakers.<sup>1</sup> A second day-long workshop will be held in winter 2018-2019.

The CER meets monthly, which enables it to quickly process cases. Each case is analyzed by two commissioners who can validate the protocol as is or suggest improvements. Of course, a third possibility remains: refuse the protocol or suggest a transfer to a CPP considering the research it proposes to conduct. To correctly carry out the missions assigned to it, the CER must include a sufficient number of experts from diverse backgrounds. Today, this condition is not entirely met and POLÉTHIS must make progress in this area to ensure the committee operates with regularity and guarantees timely processing of cases. To learn more about the activities of the CER at Paris Saclay, to submit your own protocols, or to join the committee as an expert, see the [Université Paris-Saclay website](https://www.universite-paris-saclay.fr/polethis).

# THE AGROPARISTECH ETHICS AND DEONTOLOGY UNIT

ethics reliability  
honesty  
code of conduct  
transparency impartiality  
independence  
integrity

### MAIA DAVID

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AgroParisTech's think tank and instruction unit on ethics and professional conduct is connected to our professions and our activities. The unit was created in late 2016. It consists of fifteen permanent members including students, doctoral candidates, researchers, administrative and technical agents, staff of the human resources directorate, communication, security, the legal department, as well as a member outside the university.

The think tank and instruction unit can conduct work and deliver opinions on a wide variety of issues within or affecting our institution. These relate to training, research, expertise, the internal functioning of the institution and its external communication. Topics of reflection may include, for example, scientific fraud, animal welfare, secularism, recruitment procedures, data protection and personal liberty, partnerships with companies, etc.

Opinions expressed by the unit are advisory. They are intended to be general and do not concern individual cases.

The unit also exists to raise awareness and communicate about ethics and appropriate conduct in our professions.

The unit's work concerns every member of the AgroParisTech community (staff and students, auditors and doctoral candidates, permanent and contract personnel). Anyone can appeal to it and everyone has access to its opinions.<sup>1</sup>

The process is simple: self-referral, referral by authorities within the institution or any member of the working community (by e-mail, mail or intranet form) that raises a question related to ethics and the code of conduct. The referral can be made anonymously or confidentially.

The unit has several tools at its disposal: a specially created glossary, an AgroParisTech ethics charter, and a code of conduct handbook for each department. Opinions arise from the unit's own reflection (with external experts invited if needed), meetings with the concerned parties, and research into similar cases addressed by other ethics committees.

The unit has already delivered two opinions that are accessible via its intranet site.<sup>2</sup> The first concerns the conditions of animal raised on AgroParisTech sites, and the second concerns sponsorship of AgroParisTech year groups by one or more companies.

<sup>1</sup> The presentations can be viewed online at <https://journee-c3e-upsay.limsi.fr/>, the website created for the event.

<sup>1</sup> [ethique@agroparistech.fr](mailto:ethique@agroparistech.fr)

<sup>2</sup> <https://intra.agroparistech.fr/spip.php?rubrique1149>

# REFLECTIONS ON THE ETHICS OF SCIENCE



## RESEARCH ETHICS AS A REFLECTIVE APPROACH<sup>1</sup>

To avoid falling into the trap of standardizing research practices and contents—which would entail an inevitable impoverishment of the diversity of perspectives and knowledge—the ethics of research is here thought of as a reflexive pivotal point between scientific integrity and social responsibility.

### L O COUTELLEC

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### CRISE DU CONCEPT DE SCIENCE

The recent eagerness of institutions to address scientific integrity breaches forces us to clarify certain points: what exactly are these breaches and what political stance do we wish to adopt to solve them? In a somewhat schematic way, we currently identify two main types of answers to the question of the nature of these breaches: an ethical response and a socio-epistemological one. The first response is dominant; it

is a matter of asserting that the lack of scientific integrity is caused by a lack of deontological framework procedures and a lack of control on research ethics and practices. This tendency to deontologize research ethics was outlined by the CNRS delegation in its conclusions following the Third International Conference on Scientific Integrity held in Montreal in 2013: “One can notice the dominance of American conceptions when it comes to dysfunctions (FFP—fraud, falsification, plagiarism) and to questionable research practices (QRP), the vision of research as predominantly innovation-oriented, and finally the absence of reminders on the notions underlying the ethics of science in the broad sense” (CNRS, 2013). The second response is not as prevalent: these shortcomings are the symptom of a crisis over the very concept of science,

a crisis that is epistemological, ethical and political (Coutellec, 2015).

These two responses lead quite directly to two political stances. In the first one, the emphasis can be on strengthening the frameworks and promoting “good practices” in a standardization effort. As  tienne Verg s puts it, “one can qualify as scientifically honest an action of a researcher that complies

with the general standards of ethics and deontology of his profession, as well as the particular ethical standards relevant to his disciplinary field. Scientific integrity can therefore be defined as a scientific conduct that complies with general or specific ethical and deontological standards” (Verg s, 2009). In the second one, the focus is on the epistemological and ethical conditions conducive to quality research

*More specifically, we postulate the need for an articulation between three concepts that are also three aims: research ethics, scientific integrity and social responsibility.*

in an approach where close attention is paid to the context. In this case, scientific integrity breaches are a mere symptom of the challenges encountered in fully grasping the profound changes occurring in the landscape of contemporary scientific research.

### THE CONTEXT, VALUES, PURPOSES AND CONSEQUENCES OF SCIENTIFIC RESEARCH

The challenge is not to choose between these two stances but to understand their necessary complementarity. More specifically, we postulate the need for an articulation between three concepts that are also three aims: research ethics, scientific integrity and social responsibility. The challenge is to qualify each of these three fields and to formulate a method to combine them in a composition that must also distinguish between epistemological, normative and political issues. In a minimalist way, we qualify research ethics as a reflection on the context, values, purposes and consequences of scientific research: this is the socio-epistemological dimension. Scientific integrity as an approach to create a deontological framework around the “good practices” of a community is known as the normative dimension. Finally, the political dimension is the social responsibility of science as a political approach, characterizing the purposes and vision of science in a context of recognition of the engaged nature of science.

To avoid falling into the trap of standardizing research practices and contents—which would entail an inevitable impoverishment of the diversity of perspectives and knowledge—the ethics of research is here thought of as a reflexive pivotal point between scientific integrity (community-oriented approach) and social responsibility (society-oriented approach). The sole ambition of this proposal is to provide a framework for analyzing very concrete situations.

In this respect, the publication comes as a paradigmatic example. The increasing number of fraudulent article withdrawals (e.g., for data fabrication) can be explained by the potential flaws in reviewing processes (too many articles, too much data, lack of time and reviewers) which could lead to the implementation of control and standardization mechanisms in publication procedures. Yet what will remain unseen in this approach is

the deeply problematic nature of the race for publication, the competition it creates and its importance in achieving academic recognition (for researchers and institutions alike). Rather than letting the increasingly caricatured standardization of research practices slow us down, we have come to a point where certain socio-epistemological issues must be taken seriously: the temporality of processes underlying the production of scientific knowledge, the support of collective work in science, the recognition and respect of scientific pluralism, the consideration of the epistemological limits of massive and heterogeneous data processing approaches, and the extension of the notion of scientific quality to criteria that are no longer exclusively epistemic but also ethical and political (Longo, 2016) in particular. Such an approach makes it possible, for example, to apprehend the various and sometimes contradictory interests that contribute to the development or orientation of research. It is through this type of reflection that the numerous and legitimate calls to respect scientific integrity will gain relevance.

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<sup>1</sup> This is based on an excerpt from the following article: L. Coutellec, “Éviter le piège de la normalisation, renforcer les dimensions socio-épistémologiques” (*Avoiding the pitfall of standardization, strengthening the socio-epistemological aspects*), *Revue Française d'Éthique Appliquée*, n°5, 2018.



## REFLECTION COMMISSION ON RESEARCH ETHICS IN DIGITAL SCIENCE AND TECHNOLOGY (CERNA) THE STANDARDS OF RESEARCH



The progress resulting from research and development carried out in the fields of digital science and technology provokes enormous societal questions and kindles unprecedented ethical concerns. CERNA, the Allistene Alliance Commission for Reflection on Research Ethics in Digital Science and Technology, was created in 2012 to address these issues.

#### CHRISTINE FROIDEVAUX

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#### THE ACTIONS OF CERNA

Digital technologies are increasingly present in our daily lives, and they are transforming many human activities. The recent advances made possible by R&D in digital science and technology raise societal concerns and unprecedented ethical questions. The Commission for Reflection on Research Ethics in Digital Sciences and Technology, or CERNA, was established in 2012 to reflect on those issues (referrals from Allistene or self-referrals).

Since 2015, CERNA has held—sometimes in partnership with other institutions such as INRIA, Société informatique de France, Académie des Sciences, and Collège des Bernardins—a total of about ten days of events on the themes of algorithms, data, machine learning and artificial intelligence, and digital sovereignty. These events on themes chosen according to issues that made headlines involved members and experts from CERNA and targeted members of the research sphere, politics, the press and the private sector, allowing debates between different actors.

## REFLECTIONS ON THE ETHICS OF SCIENCE

CERNA has published several notices on emerging subjects with a strong ethical dimension: robotics<sup>1</sup>, machine learning<sup>2</sup> and digital sovereignty.<sup>3</sup> It is currently working on several themes: values, chatbots, women in the digital era, and anonymisation—the latter becoming central in the application of the General Regulation on Data Protection (GRDP). It also contributes to national studies on digital technologies (OPECST, Villani report on AI).

### CERNA'S POSITION

CERNA recommends that research institutions set up operational ethics committees. Researchers must view their research projects from the perspective of the common good and respect for fundamental human values, and refer to operational ethics committees when their project seems eligible for reflection. CERNA calls for researchers to show the highest level of integrity and invites them to communicate with the media in a pedagogical way, without seeking to amplify or anticipate their discoveries or those of their colleagues, or creating unjustified dreams or fears.

When CERNA points to ethical issues resulting from research in digital sciences, it requests that researchers, developers and decision makers address it, as well as policy makers. Rather than proposing a normative approach, CERNA issues a series of recommendations calling for vigilance and ethical questioning to prevent any unethical situation emerging from this research. Its positions on the social responsibility of individuals when it comes to research and innovation are widely shared by the scientific community.

With regard to digital sciences and technologies, CERNA encourages the public to consider the following aspects: system security and personal data confidentiality, keeping in mind that researchers must have access to massive data sets to advance science; high quality of data (varied and non-discriminating) and algorithms (fair and transparent); the necessity of being able to evaluate digital systems and being held accountable (traceability, explicability and audit) from conception (auditable by design).

CERNA adheres to the approach of the platform TransAlgo, which tackles the issue of system accountability and transparency assessment.<sup>4</sup>

#### **For robotic systems specifically, CERNA outlines several aspects, including:**

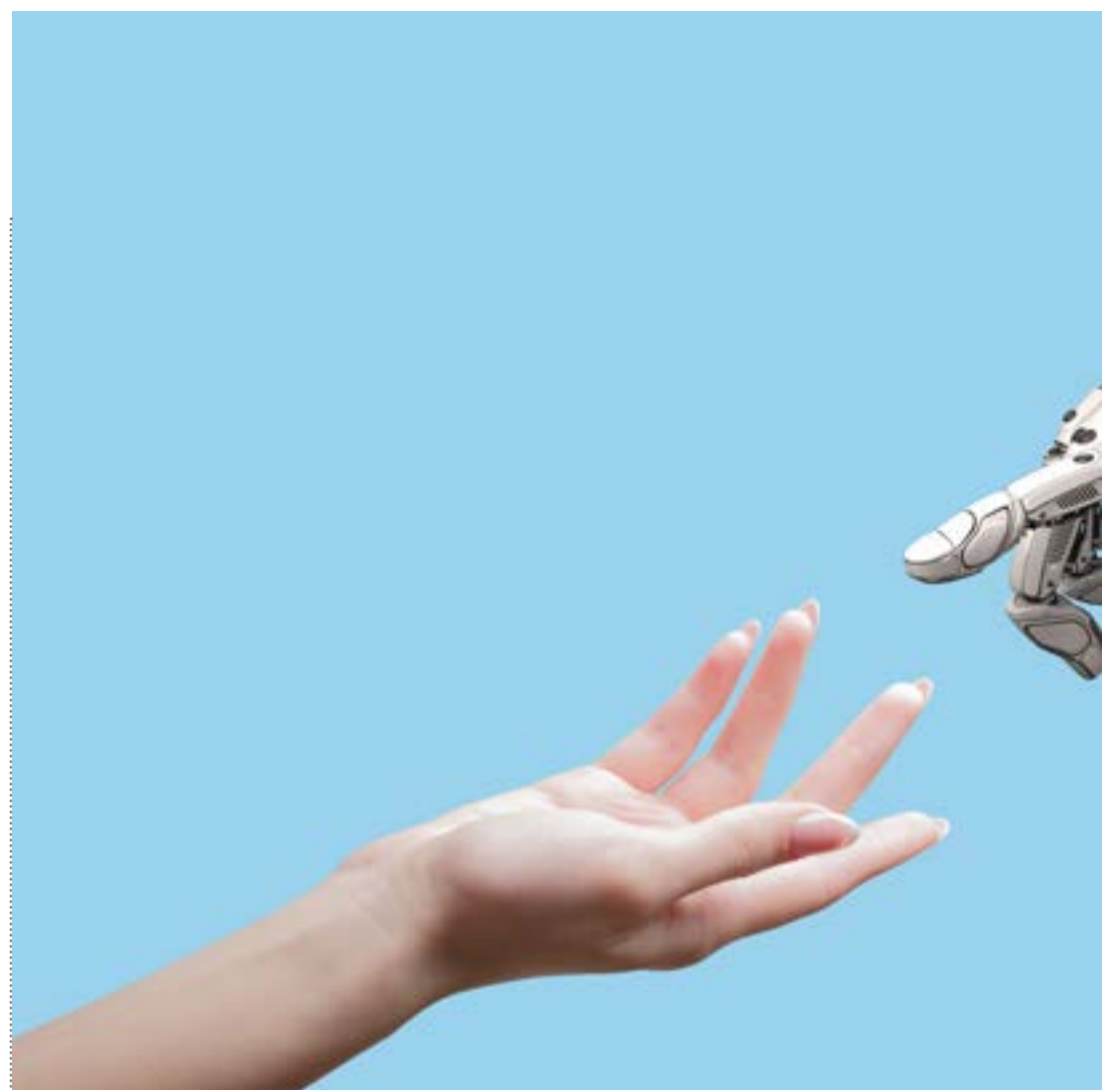
- the importance of preserving emotional and social interactions between humans in addition to relationships with machines (companion robots);
- the risk of biomimetic developments that can blur the boundaries between human beings and artifacts;
- the risks and stakes of augmented humans.

#### **For systems relying on machine learning, CERNA highlights:**

- an increasing difficulty in interpreting and explaining system behavior, behavioral uncertainties and reproducibility issues;
- the delicate choice of quality training data and the resulting risk of interpretation bias;
- the caution required when processing personal data resulting from automatic predictions and the need to keep a human perspective in the case of decisions supported by learning systems, particularly in the medical field;
- the difficulty for learning systems to identify responsibilities (due to the role of the trainer).

#### **On matters of scientific sovereignty, it recommends, for example:**

- The establishment of the means to ensure scientific sovereignty in the academic sector at the French and European level with an open science perspective; in particular, the submission of all national scientific production in the open HAL archive should become systematic and this approach should be encouraged at the EU and international levels;
- Granting access to all data necessary for the scientific activity of research institutions; in particular, access to text and data mining (TDM) should be provided without restriction for scientific purposes, under strict and audited conditions of scientific ethics, integrity and deontology;



*Rather than proposing a normative approach, CERNA issues a series of recommendations calling for vigilance and ethical questioning to prevent any unethical situation emerging from this research.*

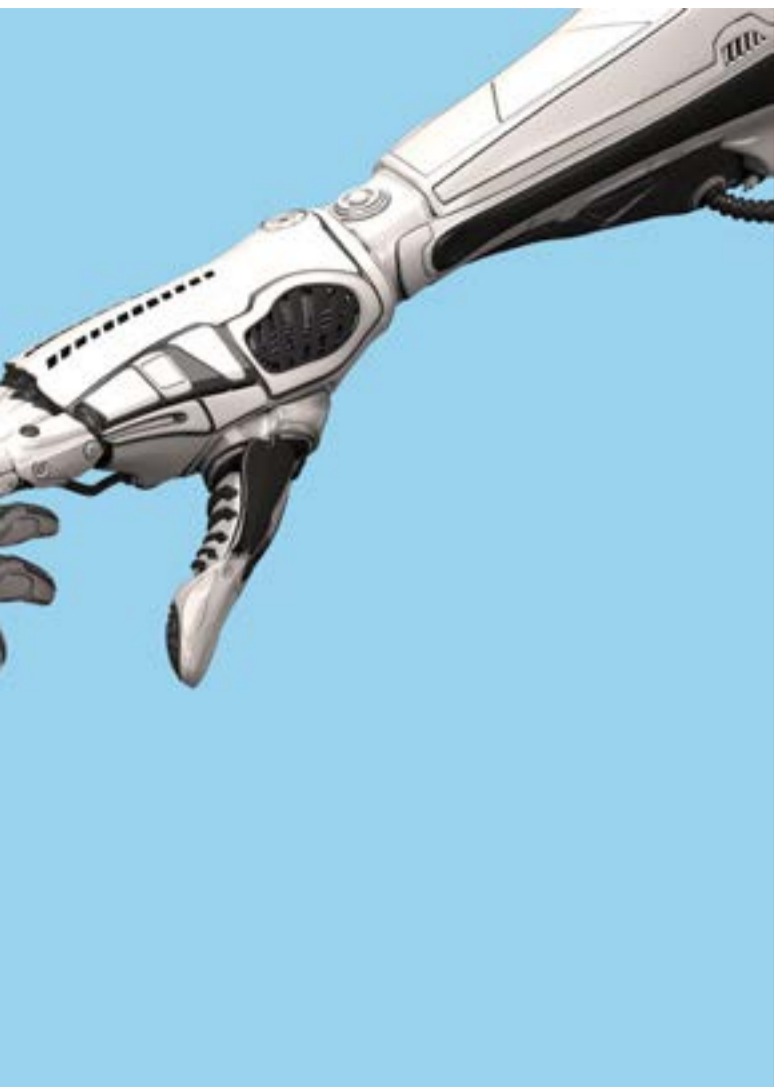


1 " thique de la recherche en robotique" (*Research ethics in robotics*), 2014 report, 63 pages.

2 "Proposition de formation doctorale. Initiation   l' thique de la recherche scientifique" (*Proposal for doctoral training. Introduction to the ethics of scientific research*), 2016 reports, 24 p, June 2016; updated 2018 version pending.

3 "Research Ethics in Machine Learning" published in 2018.

4 <https://www.inria.fr/actualite/actualites-inria/transalgo>



**Publications**

“Éthique de la recherche en robotique” (*Research ethics in robotics*), 2014 report, 63 pages.

“Proposition de formation doctorale. Initiation à l'éthique de la recherche scientifique” (*Proposal for doctoral training. Introduction to the ethics of scientific research*), 2016 reports, 24 p, June 2016; updated 2018 version pending.

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“La souveraineté à l'ère du numérique” (*Sovereignty in the digital era*), 2018 report, 38 pages.

**Acknowledgments**

*My gratitude goes to Max Dauchet and Claude Kirchner (CERNA) for their comments on a previous version of this article.*

- The implementation, discipline by discipline, of a policy for the equitable sharing of research data in agreement with national institutions and major Internet stakeholders, taking into account the specific requirements of the disciplines involved; and invites all professional organizations from various scientific disciplines to clarify their contributions to the reinforcement of scientific sovereignty.

With regard to the health sector, the CERNA observes that digital technology is increasingly present within the healthcare system; it affirms that the non-use of digital technology would lead to unethical situations. In this particular field more than anywhere else, a compromise must be found between health data transmission (to increase digital system efficiency) and respect for privacy (medical confidentiality). CERNA also draws attention to the risks of overly generalizing algorithmic medicine, which would lose sight of individual cases and would not give the patient their rightful place in the care process (here, a new form of consent is to be defined).

CERNA advocates that ethical reflection in digital sciences and technologies and their uses be structured along the lines of the *Comité consultatif national d'éthique pour les sciences de la vie et de la santé* (National Consultative Committee for Ethics in Life and Health Sciences).

The role of CERNA is not limited to raising awareness among research actors of the ethical dimension of their work and the social-technical objects that they design or that their work contributes to developing. CERNA was also established to remind researchers of the utmost importance of scientific integrity. Following the Corvol project on the subject, CERNA has produced a document that lays the foundation for courses in scientific integrity and the ethical dimension of research<sup>5</sup>, which has been widely shared in doctoral schools. It serves as a basis for the training of young researchers in research ethics and scientific integrity in several doctoral schools, including in Toulouse,<sup>6</sup> as well as at INRIA. It was also used as a reference document for the summer school organized by CERNA for doctoral students in September 2016.

All the reports and summaries of the presentations from events organized by CERNA are available at <http://cerna-ethics-allistene.org>. These documents inspired parts of the course “Research Integrity & Ethics in Information Sciences and Technologies” (STIC doctoral school, Paris-Saclay), available on the platform FUN.

*...The CERNA observes that digital technology is increasingly present within the healthcare system; it affirms that the non-use of digital technology would lead to unethical situations.*



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5 “La souveraineté à l'ère du numérique” (*Sovereignty in the digital era*), 2018 report, 38 pages.

6 See other article in this newsletter

## REFLECTIONS ON THE ETHICS OF SCIENCE

# ANIMAL ETHICS: RULE OF LAW AND ETHICS IN RESEARCH

Philosophers have successfully entered the field of animal ethics, developing numerous theories that must constantly evolve, just as lawmakers have been reflecting on the legal status of animals for the past several years. What are the issues at stake in research ethics?

### CLAIRE VIAL

Professor of public law, Universit  de Montpellier, Director of the European Institute of Human Rights (IDEDH, EA 3976)

#### Our responsibility towards others: non-human animals

Free thinkers, free teachers, free researchers and yet: whatever conception we may have of human dignity and the rights humans are accorded, we must never place ourselves in contradiction with these fundamental values in our teaching and research activities. This is not only a question of ethics; respecting rights also and above all commands us to teach and to carry out research without ignoring the principle of human dignity and without violating human rights. Better still, it commands us to teach and to carry out research while ensuring, even communicating, a respect for dignity and fundamental rights. Here, though this is not always the case, what is true for humans also holds true for animals: it is not only for ethical considerations, whatever they may be, that the teacher-researcher and the researcher must consider the animal as a sensitive being; the rule of law obliges them to do so.

Philosophers have successfully entered the field of animal ethics, developing numerous theories that must constantly evolve.<sup>1</sup> They are not the only ones to have upset our established relationship to animals; all of us, in every scientific discipline, participated in a reflective

movement that resulted in the abandonment of Descartes' horrible concept of the animal-machine. We continue to advance along this path, questioning ourselves more and more about the relationships that bond humans to others, to non-humans, encouraged to do so because "the situation is changing, happily, and it is now difficult to act as though non-humans were not everywhere at the heart of social life" taking, for example, "the form of a monkey with whom one communicates in a laboratory."<sup>2</sup> Several schools of thought intersect the field of animal ethics—teacher-researchers and researchers are free to adhere to any one of them—but only a few of these schools of thought are reflected in law. At the risk of over-simplification, one could say that in law, not only French law, but also, and especially, in European Union law, welfarism has trumped abolitionism, the utilitarianism of Bentham and Singer, which also largely explains the process of "accompanying animal subjugation [...] by humans."<sup>3</sup>

#### Animal ethics conditions research ethics

What are the consequences of our ethical choices? The evolution of the legal status of animals<sup>4</sup>—sensitive living beings, but subject to property law and the laws that govern it<sup>5</sup>—as sensitive beings justifies the full consideration of their well-being.<sup>6</sup> Animals continue to be exploited, but humans participate,



*We must teach our classes and carry out our research with total freedom but also in good conscience.*

and along with them teacher-researchers and researchers, a fact that produces two interesting effects for our purposes. On the one hand, we are increasingly associated with the process of developing law, as was recently demonstrated by the European Commission's establishment of a platform on animal welfare<sup>7</sup>, which envisions the participation of "independent experts from university and research institutions whose work in animal welfare sciences have an impact on the Union's policies."<sup>8</sup> On the other hand, we are subjected, in our teaching and research activities, to a rule of law that provides better and better protection for animals, as demonstrated

by the approach now taken with regards to experimenting on animals.<sup>9</sup>

The adoption on September 22, 2010 of the 2010/63/UE directive relative to the protection of animals used to scientific ends<sup>10</sup> was an undeniable advancement. The directive, which was applied in all member states and in France primarily by Decree No. 2013-118, published on February 1, 2013,<sup>11</sup> is a good example of applying the principle which currently governs, if imperfectly, the exploitation of animals, a principle that also governs researchers when they participate in this exploitation: the idea, now a requirement, that we must avoid all unnecessary suffering. The directive,

1 For an overview, J.-B. Jeang ne Vilmer, * thique animale* («Animal ethics»), Coll.  thique et philosophie morale, Paris, PUF, 2008.

2 P. Descola, *Par-del  nature et culture* («Beyond nature and culture»), Paris, Gallimard, 2005, reedition Coll. Folio Essais, 2015, p. 18.

3 O. Dubos, « L'Union europ enne peut-elle  couter "le silence des b tes" ? » (*Can the EU listen to the 'silence of animals'?*), *RAE*, 2017, n  1, p. 13.

4 This shift has been observed in many member countries. For a comparative law analysis, K. Blay-Grabarczyk, "L' mergence d'une communaut  des vues quant au statut juridique protecteur de l'animal : les pistes de r flexion sur sa possible prise en compte par la Cour EDH," *RSDA*, 2015, no. 2, p. 365.

5 Art. 515-14 of the Civil Code.

6 Art. 13 of the TFUE.

7 Commission decision of January 24, 2017, establishing a group of Commission experts called "platform on animal welfare," OJEC n  C 31, Jan. 31, 2017, p. 61.

8 *Ibid.*, art. 4,   2, d).

9 On this question, S. Desmoulin-Canselier, "Exp rimentation et protection des animaux : quelle dynamique du droit europ en ?", *RAE*, 2017, n  1, p. 63.

10 OJEU, n  L 276, Oct. 20, 2010, p. 33.

11 *JORF*, n  32, Feb. 7, 2013, p. 2199.



# REFLECTIONS ON SCIENTIFIC INTEGRITY

## A CLOSER LOOK AT THE MEANING OF WORDS

# INTEGRITY

**ARMELLE DEBRU**

Honorary Professor, Université Paris Descartes,  
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based on ethical considerations largely developed in its legal recitals—“animals have an intrinsic value that must be respected”<sup>12</sup>—imposes a set of ethics that researchers should appropriate for themselves. Animal ethics, as understood by law, inform research ethics. Note that these ethics are expected to evolve, if not in the short term, for the Commission refused to present new propositions regarding the matter,<sup>13</sup> in the long term, from the moment the end goal is that of “replacing all animal experimentation.”<sup>14</sup> Attaining such a goal is not without consequences: the question would no longer be to avoid unnecessary suffering, insofar as suffering would no longer be considered necessary; it would disrupt animals ethics—not that we can predict abolitionism’s overtaking welfarism, let’s not exaggerate—and research ethics with it.

Until animals cease to be used in laboratories—if this were to ever happen—or all animal exploitation ceases—an even less likely scenario—what is to be expected of teacher-researchers and researchers, whatever discipline they work in, regarding animal ethics, to which the ethics of research is subjected by the rule of law? Clearly: respect this rule and pass on the obligation to respect it. But beyond that, especially when no rule exists? We must teach our classes and carry out our research with total freedom but also in good conscience. In our current context—what luck we have to practice under the rule of law!—our conscience is defined by our responsibility towards humanity, whose dignity and basic rights we must protect, but not only that. It is also our responsibility towards others, towards the protection of non-human animals,<sup>15</sup> to accept the moral commitment Hippocrates formulated more than 2,000 years ago regarding human animals: “primum non nocere, first do no harm.”

A person is said to have integrity, in the moral sense, when their behavior is honest: that person does not lie, steal, let themselves be corrupted or seduced by money; they have not committed anything that could taint their morality. In the environment of a high-risk occupation, a person will be protected by their resistance to spontaneous or induced temptations. In cases where that person represents authority, the law, or money, they will not give in to any pressure, argument or feeling to make them deviate from what is true and fair—even less so to a personal advantage. A researcher is therefore considered to have integrity when they do not mislead about their approach or results, whether intentionally, negligently or out of ignorance. Integrity therefore consists, first and foremost, in resisting bad practices.

What is striking in all these expressions is that they all refer to values negatively. But what exactly is fundamentally excluded in the notion of scientific integrity? We can find out more by taking a closer look at the word itself. In integrity, the prefix *in-*, which can mean “inside”, also very often has the privative meaning of “no”, as in incomplete, independent, intolerable, etc. Such is the case in *integrity* and *intact*. In these two words, the second element is related to touch (*tactus*, from *tangere*). “Tegr”, from Latin *teger*, is one of its variants. *Integrity* therefore means “not touched.” By extension, it means whole, unaltered. It can be said of an object or a being in the concrete sense; yet it has mostly been used in the moral sense, while *intact* refers to the concrete sense.

*The notion of “touch” in integrity extends beyond the individual to the idea of contagion.*

*Noli me tangere* (“Do not touch me”): this phrase in the Gospel of John is the translation of the words spoken by Jesus to Mary Magdalene (Mary of Magdala) on Resurrection Sunday. This enigmatic scene, depicted in many paintings since the 14<sup>th</sup> century, has been the subject of countless interpretation attempts. This adage has become a legal term and the foundation of the rule of inviolability of the human body: sullyng the body is forbidden, except in extraordinary conditions (e.g., medical

care). Not letting oneself be touched or affected, literally and figuratively, has become the essence of integrity from a legal point of view. The notion of integrity is also associated with other values and their opposite, such as the idea of staining. Here, the paradigm of virginity is central. A woman’s honor used to be based on her physical integrity. The dishonor for violating it was on her before being transferred from the victim to the perpetrator. The same is true with the question of scientific integrity. Once unveiled, fraud should be a disgrace and a shame to the wrongdoer.

Nevertheless, the notion of “touch” in integrity extends beyond the individual to the idea of *contagion* (from *cum* and *tangere*). In French, *contage* used to refer to the invisible element that passed between beings and transmitted a disease. In a way, the one who has not been contaminated is considered as intact; their integrity is preserved. In such an atmosphere of contagion, the person of integrity does not let themselves be corrupted, that person makes themselves “incorruptible”. In today’s society, that individual may use vaccination for protection. Training in research ethics could be a kind of vaccine for oneself and others: indeed, danger lies in harmful elements’ capacity to “contaminate” the environment, and for corruption to be insidiously transmitted.

In the context of scientific integrity, the danger lies in everyone as much as in the environment. Fraud is contagious (“everybody does it, so...”) as it could also affect honest researchers who find themselves deceived or forced to participate in a corrupt system in order to preserve their careers. Fraud involves individuals, teams, institutions and practices. So in such a contagious world, how can we best preserve our integrity? Through science ethics courses, personal commitment, and “fair” institutions? Before answering that question, let’s take a look back at what those words really mean—it makes the notion of integrity more concrete, while highlighting the fragility of a negatively characterized (“unreached”) status. For this status to become positive again, and for integrity to be a strength, we should rather think of the idea of “unachievable” under a more positive light. How can a researcher become “out of reach”? This task, in today’s complex world, is both exciting and full of challenges—and at stake is the honor of the profession.

<sup>12</sup> 12th recital of the directive.

<sup>13</sup> Communication of June 3rd, 2015 upon the European citizen initiative « Stop Vivisection », COM (2015) 3773 final.

<sup>14</sup> *Ibid.*, p. 11.

<sup>15</sup> According to the phrasing retained in directive 2010/63, article 1, §3, a).

REFLECTIONS  
ON SCIENTIFIC  
INTEGRITY7 REASONS TO CARE ABOUT  
INTEGRITY IN SCIENCE

Why should we care about scientific integrity? The European forum Science Europe published a document entitled “Seven Reasons to Care about Integrity in Research.” These seven reasons to care about integrity in science are presented and commented on here.



## MICHÈLE LEDUC

Physicist, member of COMETS (CNRS Ethics Committee) and COFIS (Conseil Français de l'Intégrité Scientifique/French Council on Scientific Integrity)

Why should we care about scientific integrity? Just asking the question may seem paradoxical: indeed, almost by definition, the rigor of methodology and the accuracy of results lie at the very heart of research activity. These requirements oblige researchers to assume their responsibilities before society, which provides them with the means to advance knowledge and transfer it to the world of innovation. They contribute to increasing the well-being of all citizens. However, since the early 2000s, increasing preoccupation with scientific integrity has been observed in the media and research institutions, as evidenced by the rising numbers of participants at successive international conferences on the subject. In Europe, ethics committees are working together to establish shared charters and codes defining proper conduct in research. In France, research institutions are appointing integrity advisors whose activities are

beginning to be coordinated. In fact, it is not certain that the level of fraud or even small deviations from best practices, have increased spectacularly in recent decades. Plagiarism, for example, which is of increasing concern to universities, has always existed and may simply be more easily detected in our day and age because of computer software.<sup>1</sup> Nonetheless, the tension and competition inherent in the field of research are particularly strong today: it is therefore necessary to reaffirm and explain to researchers, young and experienced alike, why it is so important to care about integrity in science. To this end, the European forum Science Europe, in which I participated, published a document entitled *Seven Reasons to Care about Integrity in Research*: in the following article, I present and comment on the reasons for this concern.<sup>2</sup>

## 1

SAFEGUARD THE FOUNDATIONS  
OF SCIENCE

This reason seems to me by far the most important. Researchers have a responsibility to leave the entire scientific community reliable results and data on which other scientists may base their own research now and in the future. In reality, science doesn't progress in a linear fashion; experiments replicated with modern means may contradict older results, and theories may become obsolete or end up merging into a much larger conceptual framework. However, it is clear that if the foundation of knowledge on which research rests is unstable, science cannot advance and the idea of scientific progress loses all meaning.

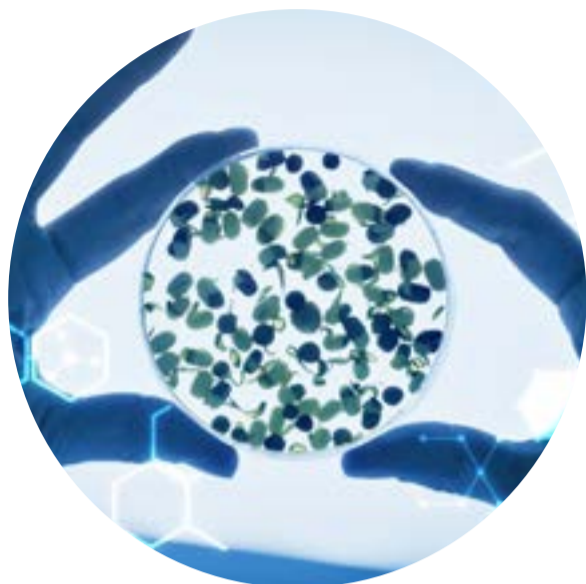
## 2

MAINTAIN PUBLIC CONFIDENCE IN  
SCIENCE AND RESEARCHERS

Surveys give regular indications as to the level of public confidence in science and scientists. This confidence remains high as far as science is concerned; it varies more for researchers and by field, with a tendency to rate lower. Many factors influence public opinion: fake news and other arguments transmitted via the Internet tend to discredit research; but the discovery of fraud plays a disastrous role in shaping public opinion. It is particularly important that researchers maintain the public's confidence to avoid being disqualified from their roles as experts in public life.

1 See the COMETS recommendation [http://www.cnrs.fr/comets/IMG/pdf/avis\\_2017-34-3.pdf](http://www.cnrs.fr/comets/IMG/pdf/avis_2017-34-3.pdf)

2 [https://www.scienceeurope.org/wp-content/uploads/2015/06/20150617\\_Seven-Reasons\\_web2\\_Final.pdf](https://www.scienceeurope.org/wp-content/uploads/2015/06/20150617_Seven-Reasons_web2_Final.pdf)



## 3

### ENSURE CONTINUED PUBLIC INVESTMENT IN RESEARCH

Public research is funded by the state using resources drawn from taxpayer money. Taxpayers have a right to expect researchers to provide high quality work in the context of exceptional freedom they enjoy. They hope to see a return on investment in terms of solutions provided to society's great challenges. Discoveries of research misconduct are likely to weaken the confidence of political decision-makers and lead to freezes on the funding necessary to continue research and, in the long term, weaken the country's intellectual capacity.

## 4

### PROTECT THE REPUTATION AND CAREERS OF RESEARCHERS

Breaches of scientific integrity can possibly ruin the reputation not only of the researchers found to be at fault, but also of all those who work with them, students and colleagues alike, who may be more numerous in the case of multi-disciplinary research, which often lengthens the list of signatories. Thus, all co-authors of a publication retracted for fraud are thereafter considered suspect in the scientific community, even if their participation in fraud was far removed or non-existent. Collateral damage can affect the fraudster's entire field of research, including the institution he or she belongs to.

## 5

### PREVENT ADVERSE IMPACT ON PATIENTS AND THE PUBLIC

Non-ethical and dishonest practices in the field of health can have serious consequences for the public. Clinical research is of course very regulated as far as medical applications are concerned. Nonetheless, incomplete or incorrect results from this research may impact protocol and harm patients. Even after being retracted, published false results may continue to be used if the error is not sufficiently communicated on. The same is true for other fields in human and social sciences, with possible consequences for the educational system, for example.

## 6

### PROMOTE ECONOMIC ADVANCEMENT

The economic prosperity of nations is based in large part on the exploitation of research results, with a transfer of knowledge gained in laboratories to companies and its diffusion in society. A patent or copyright based on unreliable or purposely falsified results could have serious consequences: a costly lawsuit for the research institution with the company that acquired the patent and wasted intellectual effort on both sides.

## 7

### PREVENT AVOIDABLE WASTE OF HUMAN RESOURCES

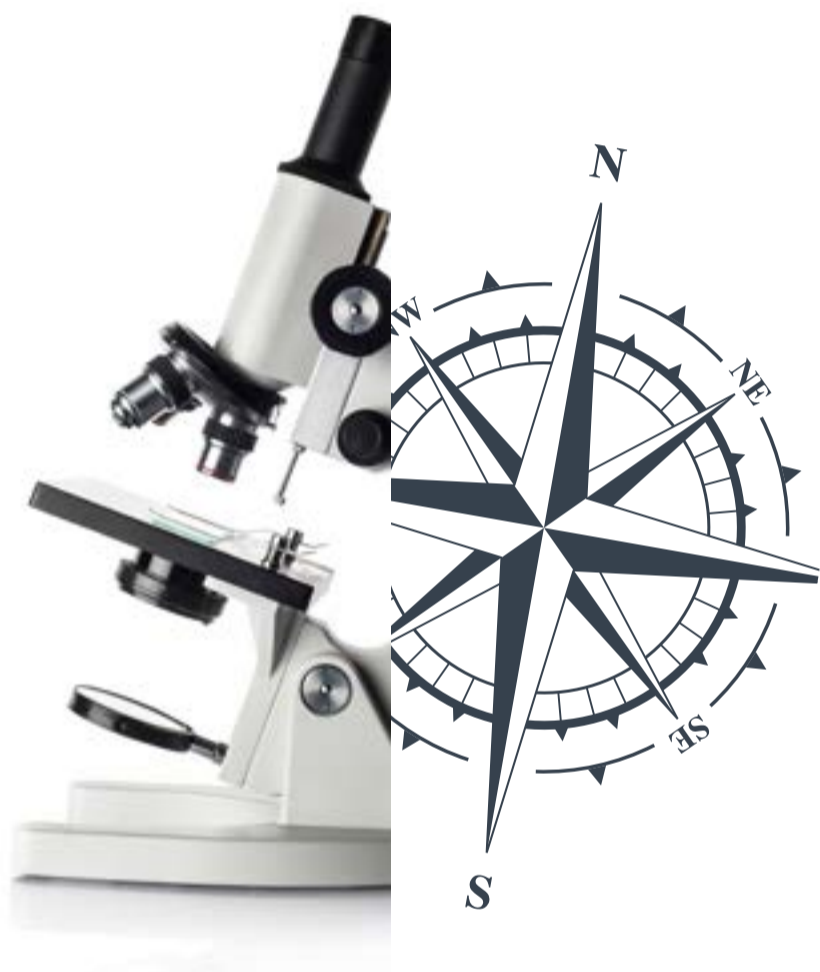
It is obvious that articles retracted for fraud, or simply because of an error due to a lack of serious methodology, or because results were not verified prior to publication, are a waste of resources provided by public funding. Should fraud be suspected, institutions must activate verification and assessment procedures, perhaps followed by sanctions, which all imply a considerable investment of time for many colleagues. The human resources wasted due to poor integrity can be considerable, even dramatic, when they result in misdirected research, lost time, or even ruined careers.

*Nonetheless, the tension and competition inherent in the field of research are particularly strong today: it is therefore necessary to reaffirm and explain to researchers, young and experienced alike, why it is so important to care about integrity in science.*



REFLECTIONS  
ON SCIENTIFIC  
INTEGRITYUNIVERSITÉ PARIS-SACLAY'S HIGH  
STANDARDS OF SCIENTIFIC INTEGRITY

By signing the National Charter for Ethics in Research Professions (*Charte nationale de déontologie des métiers de la recherche*), Université Paris-Saclay has highlighted the importance of the ethical and scientific integrity values that must prevail in any scientific research endeavor. The network of scientific integrity advisors within POLÉTHIS was established to better inform the scientific community and raise awareness on ethical questions, while developing and promoting good practices for honest, responsible research through coordinated action.



**HISHAM ABOU-KANDIL**  
Professor at ENS Paris-Saclay, Scientific Integrity Mediator, member of POLÉTHIS

To conduct research, one needs to adopt a rigorous, honest scientific approach. In a major university such as Paris-Saclay, it only seems natural to present knowledge ethically by relying on scientific and intellectual honesty. This means sharing knowledge in an open and constructive spirit, respecting regulations in force, being impeccably rigorous in the conduct of experiments, and verifying the validity of one's research results before their publication. With this in mind, one of POLÉTHIS's main areas of focus is to raise awareness, share knowledge and promote scientific integrity at institutions within Université Paris-Saclay through its network of "scientific integrity advisors."

POLÉTHIS' work at Université Paris-Saclay is conducted in the context of national and international efforts to promote scientific integrity as the guarantee of a trust-based relationship between science and society. Official documents highlighting the standards of research professions and promoting scientific integrity have already been adopted by research organizations and higher education institutions. Examples include Pierre Corvol's report "*Bilan et propositions de mise en œuvre de la charte nationale d'intégrité scientifique*" (Assessment and proposals for the implementation of the national scientific integrity charter), the guide "*Pratiquer une recherche intègre et responsable*" (Conducting honest and responsible research) by CNRS and the Conference of University Presidents, the Singapore Statement on Research Integrity, etc. It is also worth noting that France has recently established a National Office for Scientific Integrity (Office français de l'intégrité scientifique, or OFIS) with a mission of observation, expertise and communication in the field of scientific integrity.

Several institutions within Université Paris-Saclay have already appointed scientific integrity advisors who are part of an internal network facilitated by POLÉTHIS. In addition to holding prevention and information events at each institution, scientific integrity advisors may be informed confidentially (but not anonymously) by any member of the scientific community of cases of breaches of scientific integrity, as described in the *Charte nationale de déontologie des métiers de la recherche* (National Charter for Ethics in Research Professions). This includes characterized fraud, fabrication of data, plagiarism, and conflicts of interest. On the basis of evidence of such a breach, the advisor will seek a solution for the different parties involved. This solution could involve external expertise, which is to be requested following the approval of the head of the institution. The contact details of all advisors are available on the OFIS website:

<https://www.hceres.fr/Les-referents-integrite-scientifique>

The network of scientific integrity advisors within POLÉTHIS aims to better inform and raise awareness among members of the scientific community at Université Paris-Saclay with regard to the implications of scientific integrity, while participating in the design of doctoral courses in ethics and scientific integrity and developing and encouraging good practices for honest and responsible research based on coordinated actions.

Scientific integrity is a shared concern among all research stakeholders, regardless of their status and the nature of their activities. By signing the National Charter for Ethics in Research Professions, Université Paris-Saclay has highlighted the values of ethics and scientific integrity that must prevail in any scientific research process.

*In addition to holding prevention and information events at each institution, scientific integrity advisors may be informed confidentially (but not anonymously) by any member of the scientific community of cases of breaches of scientific integrity, as described in the Charte nationale de déontologie des métiers de la recherche (National Charter for Ethics in Research Professions).*

Links to the official documents mentioned in the article:



**Charte nationale de déontologies des métiers de la recherche (National charter for ethics in research professions)**

[http://www.cnrs.fr/comets/IMG/pdf/charte\\_nationale\\_deontologie\\_signe\\_e\\_janvier2015.pdf](http://www.cnrs.fr/comets/IMG/pdf/charte_nationale_deontologie_signe_e_janvier2015.pdf)



**Pratiquer une recherche intégrée et responsable (Conducting honest and responsible research)**

[http://www.cnrs.fr/comets/IMG/pdf/pratiquer\\_une\\_recherche\\_integre\\_et\\_responsable\\_un\\_guide\\_05.12.2016-2.pdf](http://www.cnrs.fr/comets/IMG/pdf/pratiquer_une_recherche_integre_et_responsable_un_guide_05.12.2016-2.pdf)



**Corvol report on scientific integrity**

[http://cache.media.enseignementsup-recherche.gouv.fr/file/Actus/84/2/Rapport\\_corrvol\\_29-06-2016\\_601842.pdf](http://cache.media.enseignementsup-recherche.gouv.fr/file/Actus/84/2/Rapport_corrvol_29-06-2016_601842.pdf)



**The Singapore Statement on Research Integrity**

[http://www.singaporestatement.org/Translations/SS\\_French.pdf](http://www.singaporestatement.org/Translations/SS_French.pdf)

# PLAGIARISM AND AUTHOR'S RIGHTS

## REFLECTING ON FALSE BELIEFS

The issue of “plagiarism” is of the utmost importance for scientific integrity. However, and contrary to widely held belief, plagiarism is not synonymous with counterfeiting. This article intends to facilitate the distinction between the two terms, which are often confused.

**JULIE GROFFE**

Senior Lecturer in Private Law,  
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member of POLÉTHIS

### PLAGIARISM: A MORALLY, ETHICALLY REPREHENSIBLE USE OF SOMEONE ELSE'S WORK

The theme of integrity in research is at the heart of a researcher's life as it represents the standards of the academic community in terms of individual and collective responsibility. Quite naturally, in this regard, the question of “plagiarism” is a major concern. Yet, and contrary to widespread belief, plagiarism is not synonymous with counterfeiting. The purpose of this contributing article is to help make the distinction in a context where these two concepts are often mistaken for one another.

Admittedly, both notions refer to the same idea, which consists in the unauthorized use of the work of others in order to make it one's own. Yet this is all that these two concepts have in common. The notion of plagiarism is actually an extra-legal notion, i.e. a notion that is outside the scope of the law. Plagiarism is a use of others' work that is morally and ethically reprehensible. The notion therefore has a purely moral and ethical inclination. For this reason, it is not surprising that the term plagiarism itself is absent from all the codes currently in force, with one exception: the code of ethics of architects, whose article 24 states that “plagiarism is prohibited.” In other words, the only occurrence of the term is in a code of ethics, i.e. in rules that govern the good practices of a profession.

Unlike plagiarism, counterfeiting

*Contrary to widely held belief, plagiarism is not synonymous with counterfeiting.*

constitutes both a civil fault and a criminal offence; it's a behavior sentenced by the law which consists in the infringement of an intellectual property right (see diagram to understand the structure of intellectual property rights). This article focuses on author's rights: counterfeiting is considered as the unauthorized use of intellectual work protected by author's rights. Two conditions must be met for there to be “works of the mind”: a creation of form (a formalization, an exteriorization—regardless of its form: literary, musical, etc.) that is original (a creation that bears the imprint of the author's personality, reflecting his or her free, creative choices).

There is no set response to the question of whether plagiarism can be sanctioned on the grounds of counterfeiting. Plagiarism can be considered as counterfeit or, on the contrary, not considered as such. Here, two examples help understand the nuances.

#### Example 1

PhD thesis A is “plagiarized” into PhD thesis B. It has been said that author's rights only protect intellectual works, i.e. creations of original form. Therefore, if thesis A is indeed a creation of original form, it is considered as works of the mind protected by author's rights. This leads to two alternative hypotheses: in the first, passages from thesis A—or even the entire thesis—were copied to thesis B with varying levels of skills and dissimulation; we must keep in mind that counterfeiting is not limited to literal copying as it also encompasses reproduction by imitation, meaning that the individual who copied content from thesis A will not escape punishment on the pretext that he or she has not “literally” copied the work of others but that he or she has “concealed” that use. Under this first hypothesis, there will be the unauthorized reproduction (whether servile or by imitation) of the thesis and the author will be able to press charges on the grounds of counterfeiting. In this case, plagiarism will indeed constitute a counterfeit. In a second hypothesis, only the ideas defended in thesis A have been copied, so it cannot be said that the content of the thesis has been reproduced—either literally or by imitation—; only the ideas



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it contains have been reused. In this case, plagiarism does not enable to press charges on the grounds of counterfeiting. Indeed, one of the main principles of author's rights is that "ideas travel freely": while author's rights protect the original form, they do not protect the idea itself. In this case, however, it is not the work that has been unlawfully reproduced, but the idea within the work, and this idea is not protected. In this case, no matter how morally and ethically reprehensible, plagiarism cannot lead to the pressing of charges on the grounds of counterfeiting.

### Exemple 2

Thesis A provides a large amount of raw data which are collected by the researcher. Such data are included in thesis B as original data. Information and other raw data are actually excluded from protection under the author's rights in the same way as ideas, since, like ideas, they are not considered as creations of original form. This is considered as plagiarism, but not counterfeit.

It is therefore very clear that plagiarism and counterfeiting are not synonymous. At most, the two concepts can sometimes cover the same reality. For the rest, what can be implemented is the ethical rules established by scientific communities. Ethical rules and other charters of good practice are being developed at the national, European and international level, providing for the possibility of enforcing disciplinary sanctions within the institution. Consequently, and thankfully, the fact that a lot of the time plagiarism cannot lead to the pressing of charges on the grounds of counterfeiting does not mean that the plagiarist does not face consequences. The difference will lie in the nature of these consequences, in a context where the silence of the law is being replaced by an increasing consideration for ethics and deontology. This translates into the implementation of procedures and sanctions by the scientific community, which, in so doing, makes all of its members accountable.



# INTEGRITY: A SUBJECT OF TENSION BETWEEN SCIENTIFIC REVIEWS AND INSTITUTIONS

Scientific reviews are on the frontline when it comes to suspecting scientific misconduct. The mission of scientific reviews is not to detect misconduct. Institutions (research organizations, universities, even investors) must ensure the integrity of their researchers. Reviews analyze and publish manuscripts assuming good faith.

### HERV  MAISONNEUVE

Author of the blog [www.redactionmedicale.fr](http://www.redactionmedicale.fr)

#### POP culture

Mutual incomprehension is at work here: scientific reviews feel institutions ignore the alerts they give and want to protect their image; institutions think reviews have no business questioning the integrity of their researchers, or even that they choose articles poorly. POP culture (Publish or Perish) undermines the proper functioning of the publication system by encouraging a race to produce more articles rather than higher quality articles. A resume with 1,000 articles or more ensures a researcher's reputation, when in fact such volume is shameful.

#### How do reviews point out misconduct on the part of researchers?

Suspected misconduct is identified during manuscript analysis or following publication. An experiment in an article or embellished data may arouse suspicions in readers or editors during manuscript review. Editors then question the authors, who often provide reassuring responses. After publication, whistleblowers and comments on social media may raise questions about results. The blog Pubpeer and the site RetractionWatch relay comments to authors and institutions, who often ignore these alerts. It's important to be aware that anonymous and/or malicious comments may also arise from personal conflicts.

#### Editorial boards don't have the means to investigate research sites

When faced with a suspicion of misconduct, an editorial board has neither the resources nor the authority to investigate and perhaps even meet with researchers and whistleblowers. Scientific reviews must first inform the researchers, and if they don't respond (or respond unsatisfactorily), inform their employers. The responses given are always reassuring and make it clear that onsite investigations are not the domain of scientific reviews. Institutions want to protect their image; they don't respond to the reviews or respond that there is no reason to suspect misconduct. Review staff ends up rather disappointed because their efforts rarely result in launching an investigation.

#### Reviews also engage in bad practices

Editorial boards and reviewers, who are often anonymous, have their own financial and non-financial interests in mind. They tend to favor their own interests, school of thought, and religious, political, and professional commitments. They are also part of the research system and can advance friends, slow down the work of competitors, or even steal ideas. Editors who engage in practices that support strategies to improve their review's impact factor are following bad practices. The race for recognition and innovation leads to good articles being rejected; articles considered "negative" or that replicate research (replicability is the most important attribute of research) are rejected.

#### Researchers, authors, editors, reviewers, and evaluators are often colleagues or competitors

These same people hold several different positions; they know how to benefit colleagues or even themselves. Most reviews are owned by academic societies: editorial boards apply the same strategies as the administrative boards within those academic societies. The editor in chief may be a member of the governing bodies of the academic society that owns the review! Can that person refuse an article by a member of the administrative board who appointed him or her editor in chief?

*Scientific reviews, which are in competition with each other, are never strict enough.*

#### Tools available to reviews

Scientific reviews, which are in competition with each other, are never strict enough. They don't always have the competence to apply the tools necessary to prevent misconduct: recommendations similar to those issued by the ICMJE; respect for writing guidelines; systematic evaluation of articles by a statistician; open access to source data according to the principles of open science; evaluation of the authors' potential conflict of interest statement; clearly indicating the shared interests of reviewers and editors. In the case of suspected misconduct, reviews can respond in one of three ways: correction, an expression of reserve, and retraction. Retracting an article requires the agreement of the authors or an investigative report.

**For more information:**

COPE Committee On Publication Ethics. Diagrams of COPE best practices. 2008. <https://publicationethics.org/files/French%20%281%29.pdf>

ICMJE International Committee of Medical Journal Editors. Recommendations for the management, presentation, writing, and publishing of research submitted to medical reviews. Updated December 2017, <http://icmje.org/recommendations/translations/>

Maisonneuve H. "Le management des erreurs et fraudes scientifiques par les revues biomédicales : elles ne peuvent pas se substituer aux institutions." (*The management of scientific errors and fraud by biomedical reviews cannot replace institutions.*) *La Presse Médicale* 2012;41:853-860.

Moosa I.A. *Publish or Perish. Perceived benefits versus unintended consequences*. Edward Elgar Publishing. 2018: 232 pages.

Wager E, Kleinert S, Garfinkel M, et al. Cooperation and liaison between universities and editors (CLUE): recommendations on best practice. *BioRxiv preprint* posted on May 19, 2017 <https://www.biorxiv.org/content/early/2017/05/19/139170>

**What can be done to advance and improve relations between reviews and institutions?**

Opening access to data, as recommended by research institutions, could help facilitate evaluations carried out by reviews. Reviews no longer publish articles with hidden source data. Reviews using open peer-review evaluations have transparent practices. Nominating truly independent editorial boards is difficult. Recommendations called CLUE (Cooperation and Liaison Between Universities and Editors) were discussed during the fifth World Conference on Research Integrity. The principles are transparency in research, archiving, and open access to data. It will take time to change certain behaviors. The DORA declaration (Declaration On Research Assessment <https://sfedora.org/>), signed in 2018 by a majority of French research institutions, recommends allocating resources and abandoning the impact factor as a criterion in evaluating research and researchers: this is a good resolution. Now it's just a matter of carrying it out to encourage ethical practices on the part of research professionals.

# SCIENTIFIC INTEGRITY AND OPEN SCIENCE

## A RESEARCH LIBRARIAN'S APPROACH

Librarians support open science, notably by supporting an information policy attentive to countering closed science and participating in the movement for open access publications and data. They are also committed to scientific integrity, notably concerning data quality. These two commitments are linked.

**CLAIRE LEBRETON**

Head of Research Services,  
Directorate of IST Libraries, Université de  
Versailles St-Quentin-en-Yvelines-Paris-Saclay

**ETHICAL PRINCIPALS FOR  
SCIENTIFIC INFORMATION  
PROFESSIONALS**

In 2007, a group of CNRS archivists published *Principes déontologiques des professionnels de l'information scientifique et technique dans l'environnement de la recherche* (Ethical principals for scientific and technology information professionals working in research).<sup>1</sup>

This ethical code, developed with the help of a legal expert, draws on general existing codes and states the values expected of IST professionals in a "code of conduct" that draws on the research process.<sup>2</sup>

The professional commits to the code through 4 themes outlined in article L 112-1 of the *Code de la recherche* (2004):

"Contribution to the development and advancement of research": responsibility for IST's political choices, objectivity, integrity, professional confidentiality, conformance with legal texts, "rational use of means and resources," service evaluation.

"Diffusion of scientific knowledge, the promotion and conservation of research results" via the establishment of holdings and the added-value documentary products. The first mission implies that the professional "ensures the permanency of scientific and technological information," ensures that his or her services are visible, and "may work to contribute to or encourage contribution to open archives." The second mission implies that the professional cites sources, respects intellectual property, and avoids "any

1 "Code de déontologie. Principes déontologiques des professionnels de l'Information Scientifique et Technique dans l'environnement de la Recherche" (*Code of ethics. Ethics principles for information and techniques professionals in the research world*), 2009 version [Online]. Available at: [http://renatis.cnrs.fr/IMG/pdf/Code\\_version\\_29\\_-\\_01\\_-2009.pdf](http://renatis.cnrs.fr/IMG/pdf/Code_version_29_-_01_-2009.pdf)

2 C. Aubry and C. Beck, "Vers un code de déontologie à l'usage des professionnels de l'information du monde de la recherche (suite). Origines, déroulement, démarche" (*Towards a code of ethics for information professionals in the research world [part 2]. Origins, process, approach*), *Documentaliste-Sciences de l'Information*, vol. 44, no 3, p. 228-236, 2007.

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deformation or falsification of the content of data or documents.”

- “Improvement of knowledge of participants in the information process” concerns the continual improvement of skills and the importance of “integrating as best as possible into the research process.”
- The “application of ethical principles” establishes an Ethics Committee.

Those familiar with the *Charte de déontologie des métiers de la recherche* (Code of ethics for research professions) (2015) will recognize similarities with researcher engagements:

- Shared values: respect for legal and regulatory measures, impartiality, independence, research results intended “to be shared with the scientific community and the general public”;
- Shared objectives: permanence and diffusion, hunting down “falsification, fabricated data, plagiarism.”

Both texts clearly draw from the same source that answers to its community and society: this final aspect is linked to the programmatic idea of open science.

### LIBRARIANS ARE COMMITTED TO OPEN SCIENCE AND SCIENTIFIC INTEGRITY

Several years ago, the European Research Area defined open science as exoteric science that engages with society in several ways: open access to publications; open data or open access to research data; and citizen science, or participative science that aims to involve citizens in research as audience and co-constructors. Importantly, the term *open science* entered the vocabulary used by the European Commission in 2014 following public consultation<sup>3</sup>.

The values shared by researchers and librarians are rooted in open science and give rise to a shared tangible result. Indeed, these two communities are behind the oldest element of open science, open access, which was

developed in the 1990s, defined in the 2000s, enriched by open data and, coupled with participative science, anchored in the political arena in the 2010s.

In France, these communities can draw on two texts to advance open science: less than two years after article 30 of the *Loi pour une république numérique* (Digital Republic Act) (2016), which gave researchers, under certain conditions, the right to publish under open access even while under a conflicting editorial contract, the powerful *Plan national pour la science ouverte* (National Plan for Open Science) was revealed on July 4, 2018.

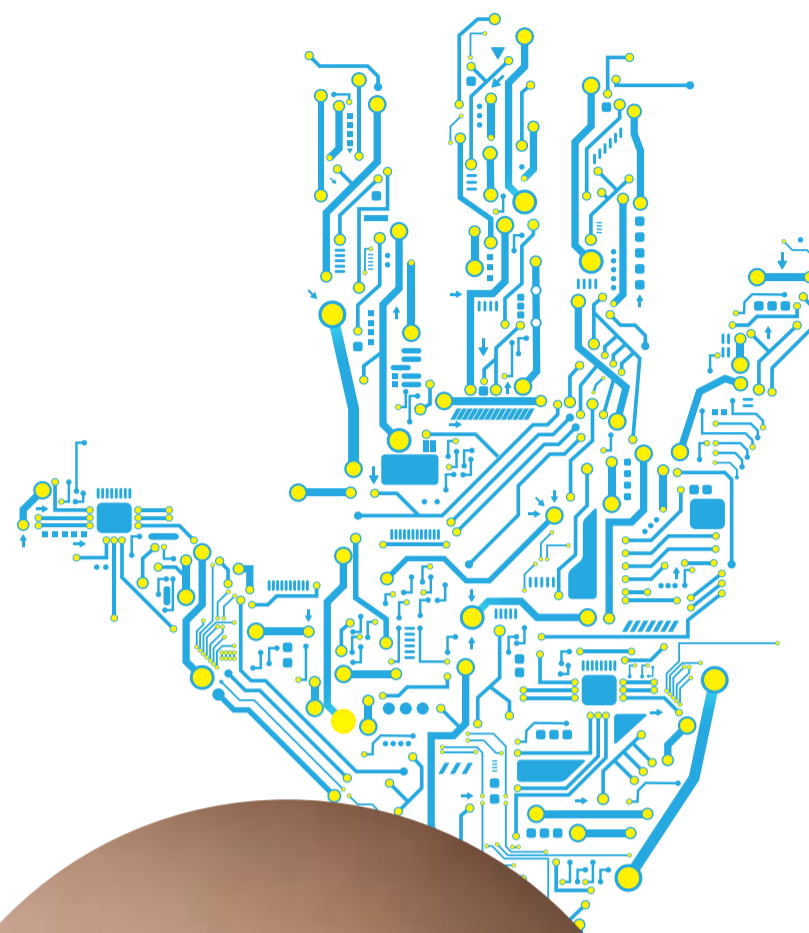
*The values shared by researchers and librarians are rooted in open science and give rise to a shared tangible result.*

Pierre Corvol stated the positive links between integrity and open science; his 2016 report includes a section dedicated to open science. “Scientific integrity is woven from the same cloth as science for all”; similarly, in his discourse given to accompany the *Plan national pour la science ouverte*, Frédérique Vidal associated the fate of open data with scientific integrity.<sup>4</sup>

As a research librarian, I have observed that my integrity and that of my colleagues in similar posts, unites the two areas.

Librarians support open science through:

- Documentary policy attentive to countering closed science—increasingly cost-prohibitive databases held by large editors—via membership in the purchasing consortium COUPERIN, tight negotiations, and subscription cancellations as statements of protest.
- Participation in the movement for open publications and data: librarians



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observe and make suggestions; manage warehouses to ensure the permanence of publications and data; manage portals (open archives, catalogs integrating open-access publications, thesis portals); train doctoral students and lead cultural actions; specialize in research data and bibliometrics (data librarians); and support open publishing (epi-journals).

Librarians support scientific integrity by:

- Curating reference metadata; helping to establish data management plans: their expertise is associated with integrity because data quality generates trust and ensures trustworthy access to research work.
- Raising awareness among doctoral students: good bibliographic

practices; alerting students to plagiarism, predatory editors, the excesses of an evaluation system which in some fields is based on the impact factor and, when coupled with a “publish or perish” attitude, may encourage falsification of results to obtain one more article<sup>5</sup>; this encourages calls for evaluation reform as much as open science promotes it through manifestos like DORA or Leiden.

3 M. Vanholsbeeck, “La notion de Science Ouverte dans l’Espace européen de la recherche. Entre tendances à l’ exotérisation ‘et à la ‘ gestionnarisation ‘ de la recherche scientifique” (*The concept of Open Science in the European research area. Between trends of exoterisation and extensive management of scientific research*), *Revue française des sciences de l’information et de la communication*, no 11, August 2017.

4 “National plan for open science: speech by Frédérique Vidal - ESR”: enseignementsup-recherche.gouv.fr. [Online]. Available at: <http://m.enseignementsup-recherche.gouv.fr/cid132531/plan-national-pour-la-science-ouverte-discours-de-frederique-vidal.html>.

5 Thank you to Mr Manuel Durand-Barthez, currently co-organizer of the 7th URFIST Network National Day, December 7, 2018 “L’intégrité scientifique au prisme de l’IST” (<https://urfistjne2018.wordpress.com/>), for this clarification on our role in training doctoral students.



# SCIENTIFIC INTEGRITY/ A EUROPEAN INITIATIVE



## THE EXPERIENCE OF CEIS AT THE UNIVERSITY OF LIÈGE

### SCIENTIFIC ETHICS AND INTEGRITY

Integrity in research is not limited to the simple, spontaneous observance of a few established rules; it cannot be achieved through the sole sanctioning of infractions or breaches. Instead, it requires a collective, explicit and considered culture that promotes an informed, responsible attitude towards research.

#### FLORENCE CAEYMAEX

Senior research associate at F.R.S.-FNRS, MAP-Materialities of Politics, Center for Political Philosophy, University of Liège

In collaboration with the Council for Ethics and Scientific Integrity (CEIS)

### THE DYNAMIC OF PROMOTING QUALITY AND ETHICS IN RESEARCH

The Council for Ethics and Scientific Integrity (*Conseil à l'éthique et à l'intégrité scientifique* or CEIS) at the University of Liège was established in November 2013 on a decision by its Board of Directors. The same year saw a case of scientific fraud in one of the other French-speaking universities in the country, highlighting the importance of having capacities in place to identify and neutralize obvious research integrity breaches through *ad hoc* institutional mechanisms. The FRS-FNRS, one of the main funds for research funding in the Federation Wallonia-Brussels, had already adopted guidelines on integrity in 2007 and carefully circumscribed the question—which, at the time, remained unclear to many researchers—by identifying a series of flagrant breaches, whether in terms of scientific knowledge obtention methods (through the falsification or deletion of data, for example), collaboration and publication procedures (citations comprising intentional errors, use of primary data without requesting the project manager or collaborator's authorization, etc.), research funding or expertise for third parties.<sup>2</sup> The FRS-FNRS also provided that each university (in charge, by delegation, of the researchers it

had hired) be provided with a Board established to implement a specific procedure in the event of a suspected breach; it described its perimeter in a fairly precise manner, aligning the practices with recommendations from the European Commission and, more broadly, with a movement initiated by the academia on an international scale. Following suit, under the leadership of its Vice-Rector of Research in office at the time, our University soon established a procedure granting members of the CEIS significant leeway to instruct the file, hear the parties and, if necessary, solve the issue—even prior to informing the Rector. It also envisaged the possibility of having a commission intervene to establish the facts (*commission chargée d'établir les faits* or CCEF).

Yet our University had broader ambitions when establishing the CREIS. The institution wished to integrate that new apparatus—initially focused on case investigation, conflict resolution and, where appropriate, the sanctioning of proven integrity breaches in accordance with the legal procedures in force—in a dynamic way, encouraging quality and ethics in research and involving the responsibility of researchers directly. Unlike the FRS-FNRS which provided for the appointment of a small council with commissions of inquiry, on the initiative of its new Vice-Rector for Research, the University chose to expand its Board to eight members—some members representing institution's various existing ethics committees in specific fields, such as the ethical board of the Psychology and Education Faculty, others from the Hospital-

Faculty environment—and to extend its missions to the competence of opinion for integrity and ethic-related matters, to the capacity to issue recommendations on specific cases and more general situations and, more broadly, to efforts for the promotion of ethics through academic courses, including for doctoral students.<sup>3</sup> The idea is to grant access to as many resources as possible to all researchers submitting applications for projects at the EU or French level, as these projects are now assessed on the basis of their scientific proposal *and* their ethical dimension, as described by the researcher in specific application forms.

### FOSTERING A SENSE OF RESPONSIBILITY AMONG RESEARCHERS

Through this new system, the University aims at aligning its practices with the recommendations of the European Charter for Researchers adopted by ULiège in 2006<sup>4</sup> and with its Human Resources Strategy for Research, which was officially recognized by the EU at the University of Liège in January 2011. This *integrated* perspective aims at fostering a responsible behavior among researchers by offering them a respectful and honest supervision framework that helps them develop their research in a confident, harmonious environment.

This integrated approach can be represented as concentric circles. *Integrity* in research is not limited to the simple, spontaneous observance of a few established rules; it cannot be achieved through the sole sanctioning of infractions or breaches. Instead,



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1 [https://www.recherche.uliege.be/cms/c\\_9022717/fr/ethique-et-integrite-scientifique](https://www.recherche.uliege.be/cms/c_9022717/fr/ethique-et-integrite-scientifique)

2 <http://www.fnrs.be/docs/IntegriteRecherche.pdf>

3 As an example, the University established an interfaculty project in 2009 specifically dedicated to teaching ethics and *in vivo* experimental methods.

4 <https://euraxess.ec.europa.eu/jobs/charter>

## SCIENTIFIC INTEGRITY/ A EUROPEAN INITIATIVE

it requires a collective, explicit and considered culture that promotes an informed, responsible attitude towards research—this is what we call *ethics* in research. And such ethics, in turn, only makes sense in a context where the academic institutions, public agencies funding research and public authorities encourage and support high-quality research and where these authorities assume the responsibility of providing researchers with an environment that allows them to achieve such quality.

One more word on ethics, as it guides us: ethics is not a ready-made reservoir of rules or values, as sometimes implied when used as an adjective (e.g. “ethical” research) or when confused with a moral code. Instead, ethics is more of an activity that consists in the development of norms, by the communities involved, on what is “worth” to them. Unlike a moral code that calls for the enforcement of a rule, ethics relates to the construction of these rules or their enunciation in response to certain problematic cases. For this reason, it is an open process. In a globalized context, ethics is intrinsically linked to the critical questioning and public debate within these communities on the rules and values they “care” about, by which they live, and that they want to pass on. With this in mind, promoting ethics in research and encouraging a responsible attitude goes beyond addressing one’s moral conscience; as philosopher Luc Bégin puts it, “it involves an ethical model of ‘shared values’ with enabling control, rather than a compliance model with coercive control.”<sup>5</sup>

### REFLECTION ON ETHICS AS THE SOURCE OF SHARED VALUES

All things considered, countless studies have demonstrated that the ever-increasing competition in scientific research and the race to obtain results and funds constitute an incitement to fraud; that systematic competition causes more harm to the quality of research than it ever promotes.<sup>6</sup> Once again, ethical questioning is a matter of collective interest, as the issues at stake are the conditions imposed on the production, sharing and valorization of knowledge. In this context, ethical reflection as a creation of shared values seems inseparable from the researcher’s critical and lucid knowledge of the research policies of which they are the beneficiaries on the one hand, and on the other, from the ability of research communities to be active in the shaping of these policies. Such is the objective of the “Ethics, Research & Society” interdisciplinary workshop held annually by the CEIS since 2016, providing researchers at the University of Liège with resources to become engaged in research ethics.<sup>7</sup>

The large number and wide variety of cases<sup>8</sup> addressed by CEIS over its first five years of existence has demonstrated the importance of a specific council to address situations in which scientific values and rules are at stake. They have also been formative years, during which we were able to assess the scope of training and awareness-raising events to organize and to witness the interest of certain institutions and scientific communities for research ethics on an international scale.<sup>9</sup> Our conclusion is that, parallel to sharing the results of and evaluating research work, sharing good practices for ethics and integrity has become one of our most fundamental missions.

5 Luc Bégin and Lyse Langlois, La construction d’un dispositif éthique : l’expérience d’une tension problématique (*Building an ethical apparatus: the experience of a problematic tension*) [kl, *Pyramides* [online], 22, 2011, published online on February 16, 2015, viewed September 23, 2018. <http://journals.openedition.org/pyramides/907>

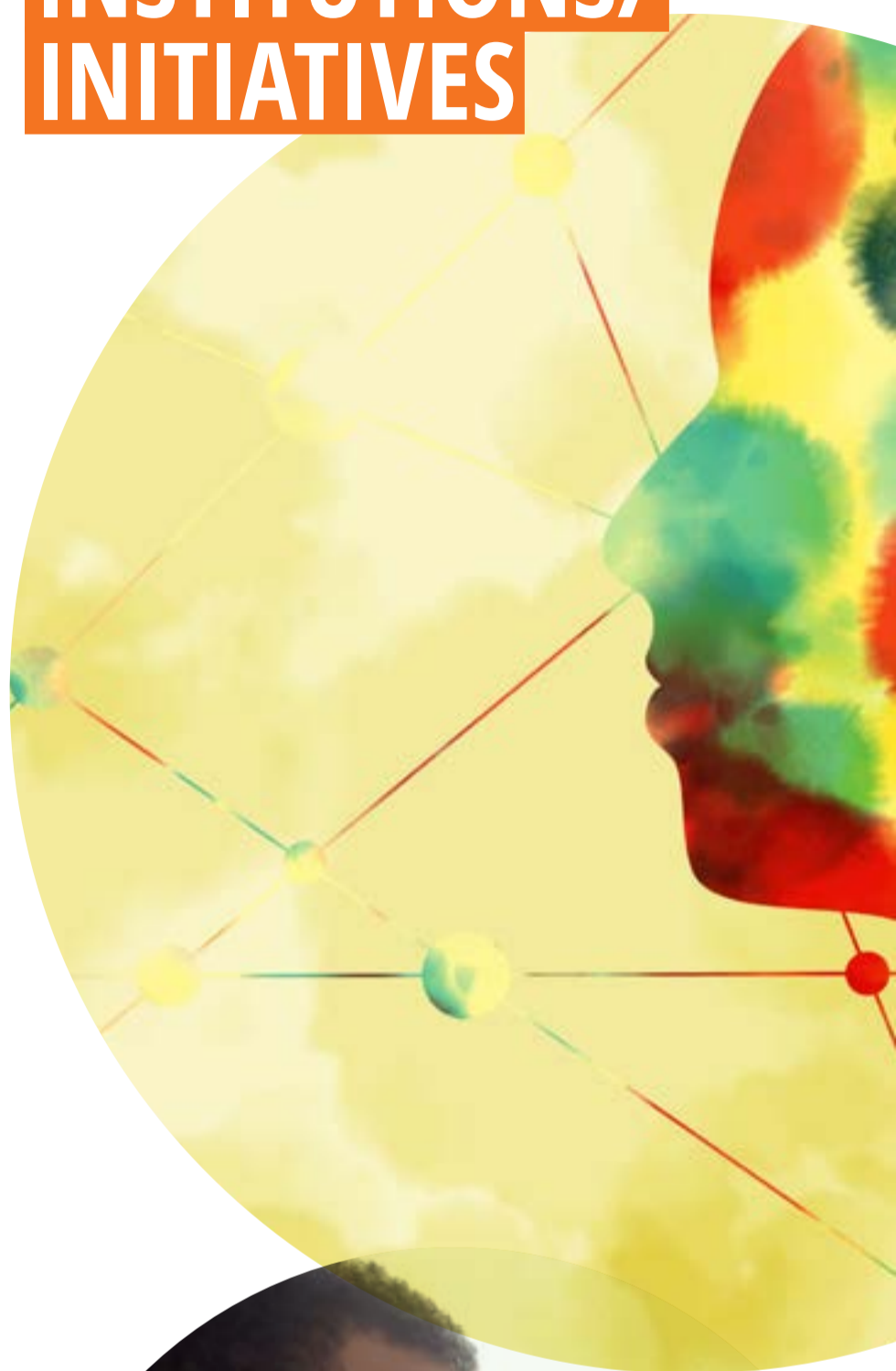
6 See «La politique de l’excellence en recherche» (*The politics of excellence in research*), notice of May 27, 2014 by COMETS-CNRS: [http://www.cnrs.fr/comets/IMG/pdf/avis\\_excellence.pdf](http://www.cnrs.fr/comets/IMG/pdf/avis_excellence.pdf)

7 [https://www.recherche.uliege.be/cms/c\\_9022734/fr/formations](https://www.recherche.uliege.be/cms/c_9022734/fr/formations)

8 A dozen integrity breach cases were referred to CEIS, as well as a dozen requests for advice. As an indication, these cases related to third party intellectual property infringement, co-authorship disputes, the questioning of scientific rigor, the use of original ideas by an evaluator external to the project, etc.

9 The activities of CEIS have raised awareness on the necessity to develop of meta-research on an international scale, to broadcast its studies and collaborate with the Ethical Platform of Lyon University. (through scientific meetings in particular - see <https://www.universite-lyon.fr/culture-sciences-et-societe/plateforme-ethique-de-l-universite-de-lyon/plateforme-ethique-de-l-universite-de-lyon-7755.kjsp> and through a MOOC on research ethics: <https://www.fun-mooc.fr/courses/course-v1:universite-lyon+91001+session01/about>).

## INSTITUTIONS/ INITIATIVES



# FRENCH OFFICE FOR RESEARCH INTEGRITY (OFIS)

## STRENGTHENING TRUST BETWEEN SCIENCE AND SOCIETY

Scientific integrity, coupled with ethics and a professional code of conduct, generate trust among research communities and between these communities and society. Created in 2017, the OFIS (Office français de l'intégrité scientifique/French Office for Research Integrity) aims to formalize and mutualize the issue of scientific integrity by encouraging research communities to share existing cultures.

### OLIVIER LE GALL

President, Conseil français de l'Intégrité Scientifique (French Council for Scientific Integrity), Director of Research at INRA

Scientific integrity, coupled with ethics and a professional code of conduct, generate trust among research communities and between these communities and society.

- Research ethics refers to striking a constant, vital balance between a changing society and scientific and technological progress. The resulting societal repercussions must be continuously debated within dedicated committees like the *Comité national consultatif d'éthique pour le domaine des sciences de la vie* (National Ethics Advisory Council for Life Sciences).<sup>1</sup>
- The professional code of conduct that applies to civil servants ensures citizens of their independence from any external pressure, especially conflicts of interests and holding multiple posts. Since the 2016 revision of the "Le Pors" law concerning the rights and obligations of civil servants,<sup>2</sup> professional conduct has attracted the attention of associations like the one recently established in spring 2018 within the Ministry of Higher Education, Research and Innovation,<sup>3</sup> as well as ethics contacts within research establishments.<sup>4</sup>
- Scientific integrity ensures that research results are trustworthy. Research collaborators in the same field or from different and sometimes distant fields can rely on each other's results. Together, at the highest level, citizens and decision makers, representing science and opinion respectively, can make the best

decisions concerning the challenges currently facing humanity worldwide. However, current affairs reporting occasionally points out cases of falsification or fabrication of research data, or of plagiarism; each instance has a lasting negative—and generally unfair—effect on the perception our fellow citizens have of science.

Aware of the need to formalize and mutualize the issue of scientific integrity, in January 2015, eight major research participants<sup>5</sup> signed a national charter, now ratified by 34 establishments and institutions, including the *Conférence des Présidents d'Université* (Council of University Presidents), which unites and coordinates, among other things, all French universities. More recently, in March 2017, in order to structure and advance the issue at the national level, Thierry Mandon, French Minister for Higher Education and Research, created the French Office for Research Integrity (OFIS) following the report he commissioned from Pierre Corvol, professor at the Collège de France, to evaluate the implementation of the 2015 charter.

A national, transversal, and independent institution, OFIS was created as a new department under the High Council for the Evaluation of Research and Higher Education (HCERES), which is the only independent administrative body in the field of research. The OFIS was given a three-pronged mission:

- An exploratory mission to establish reference points, opinions, and recommendations mainly intended for research establishments and communities;

- A supervisory mission to observe the implementation of engagements outlined in the 2015 charter and practices that conform to international standards;
- A facilitation mission to engage research communities in addressing these concerns with a view to developing a shared nationwide momentum rooted in European and international contexts.

To this end, OFIS communicates with the Conseil français de l'intégrité scientifique (French Council for Scientific Integrity/COFIS), a true "council of sages" made up of twelve members chosen for their fields of expertise and different career paths: researchers, teacher-researchers, a doctoral student in social sciences, a former university president, researchers involved in open science processes, a scientific journalist, etc. The council also communicates with research establishments at two levels: with the heads of these establishments as well as with their network of scientific integrity advisors.

Like the national reference texts (including the 2015 charter and the Corvol report) and international reference texts (including the European Code of Conduct for Research Integrity), OFIS encourages "upstream" actions of cultural exchange within research communities (training, facilitation, "let's talk", mutualization, etc.). Though OFIS's primary concerns remain research and addressing fraud and breaches of conduct, the office does not deal with individual cases, thereby respecting the prerogatives and responsibilities of each establishment.

The OFIS is directed by Joëlle Alnot, professor at the Université de Lorraine. The OFIS website <http://www.hceres.fr/ofis>, allows visitors to access a variety of resources, including the list of scientific integrity advisors in research establishments and the primary reference texts produced on the subject both nationally and internationally.



Research ethics refers to striking a constant, vital balance between a changing society and scientific and technological progress.

1 <http://www.ccne-ethique.fr/>

2 <https://www.legifrance.gouv.fr/affichTexte.do?cidTexte=JORFTEXT00000504704>

3 <https://www.legifrance.gouv.fr/affichTexte.do?cidTexte=JORFTEXT000036684330>

4 <http://www.cnrs.fr/fr/cnrsinfo/nomination-referent-deontologue>

5 CIRAD, CNRS, INRA, INRIA, INSERM, IRD, Institut Curie, as well as the *Conférence des Présidents d'Université*; <http://institut.inra.fr/Missions/Promouvoir-ethique-et-deontologie/Toutes-les-actualites/Charte-de-deontologie-des-metiers-de-la-recherche>.

## INSTITUTIONS/ INITIATIVES

# THE PRACTICES OF INSERM'S SCIENTIFIC INTEGRITY DELEGATION

*Scientific mediation is a mediation-conciliation type of approach inspired by professional methods for conflict resolution and based on the principles of integrity to help solve conflicts with a significant scientific dimension.*

**GHISLAINE FILLIATREAU**

*Scientific integrity representative at INSERM*

### SCIENTIFIC MEDIATION AND PREVENTIVE COUNSELING

The National Institute of Health and Medical Research (INSERM) established a project in 1998 to reflect on scientific integrity issues. It outlined that “preventing, detecting, addressing and, if necessary, sanctioning scientific integrity breaches is the responsibility of the institutions (research organizations, universities, hospitals, etc.) within which they may occur.”<sup>1</sup> In 1999, INSERM was the first to establish a Scientific Integrity Delegation (DIS) to prevent its teams from being involved in scientific integrity breaches and to address those that occur regardless.

Now that the DIS at INSERM has nearly 20 years of field experience in the biomedical field,<sup>2</sup> its experience can be of interest to other institutions, in a context where scientific integrity advisors are being appointed in institutions that have had no comparable structure up to that point,<sup>3</sup> where these same representatives and advisors have created a network for mutual support and the transmission of good practices (the ResInt network) and where, finally, the French Office for Scientific Integrity (OFIS)<sup>4</sup> is setting up a training and information platform on the subject.

First of all, we must keep in mind that out of nearly 150 cases that have been addressed by the delegation since 2010, only half a dozen were cases of deliberate falsification. This means that the problems of scientific integrity encountered on a daily basis are in the so-called “gray area:” that of conflicts between colleagues and

small discrepancies in scientific rigor or honesty, which can be shaped by preventative measures.<sup>5</sup>

Naturally, such prevention relies on education and training. With this in mind, INSERM organizes events (conferences, workshops) to raise awareness on scientific integrity issues and is involved in many initiatives started by higher education institutions. The delegation also works on prevention through day-to-day activities such as scientific mediation and preventive counseling.

Scientific mediation is a mediation-conciliation type of approach inspired by professional methods for conflict resolution<sup>6</sup> and based on the principles of integrity to help solve conflicts with a significant scientific dimension. These conflicts involve the sharing of equipment, data interpretation, and authorship rules enforcement in publications pending publication. They account for two-thirds of cases submitted to the delegation.

Such mediation is undoubtedly considered a preventive action; many studies of sociology of science, and our daily experiences, show that these conflicts are a major cause of scientific integrity breaches. They also make day-to-day life very challenging for all team members and can have lasting consequences for the career and behavior of those involved, especially those of young researchers-in-training.

When a new case is submitted to the delegation, it makes sure that all stakeholders are willing to actively participate in the search for a common solution and suggests conciliation approaches in accordance with scientific integrity principles.

A solution is found in 75% of cases.

This success rate can be explained by two favorable factors. First, the strong competition in the biomedical sector means that all stakeholders have a strong interest in solving the matter quickly. Secondly, common acceptance of the principles of scientific integrity on which the delegation bases its actions encourages stakeholders to establish an agreement on the rest of the project to prevent future conflicts.

The delegation also resorts to another awareness-raising method called “preventative advising.” At INSERM, anyone who is unsure about a conflict situation or a potential scientific integrity issue can contact the delegation to discuss it anonymously if they wish. In this case, the delegation and the individual can reflect on how to use the rules of integrity to help resolve the issue before it becomes more serious. It’s a very educational approach, despite the difficulties in formalizing it and in evaluating its impact.

Just like similar interventions developed in other institutions, these two examples would benefit from a more formal framework for the creation of a common basis of know-how, especially considering that, depending on the way each institution structures its response, these trainings can be implemented by professionals with different backgrounds (scientific integrity representative or advisor, counselor, scientific integrity counselor, advising deontologist, etc.).

Regarding how to address the possible scientific integrity breaches, the rule at INSERM is to ensure that “the presumption that the stated facts are real and that the stakeholders are being honest shall prevail, unless proven otherwise.”<sup>7</sup>

1 The reflection project report can be viewed at [https://www.INSERM.fr/sites/default/files/2017-08/INSERM\\_RecommandationsMissionReflexionInt%C3%A9griteScientifique\\_1998.pdf](https://www.INSERM.fr/sites/default/files/2017-08/INSERM_RecommandationsMissionReflexionInt%C3%A9griteScientifique_1998.pdf)

2 Three representatives have been in office since the delegation was established: Martine Bungener from 1999 to 2008, Michelle Hadchouel from 2008 to 2016 and Ghislaine Filliatreau since 2016. Michelle Hadchouel is currently a member of the OFIS Board for Scientific Integrity.

3 OFIS is a department at the High Council for the Evaluation of Research and Higher Education.

4 See the circular letter establishing the function of advisor in higher education institutions and research organizations at [http://gouv.fr/file/12/05/6/PDF\\_BO\\_ESR\\_12\\_739056.pdf](http://gouv.fr/file/12/05/6/PDF_BO_ESR_12_739056.pdf)

5 See “Fostering Integrity in Research” (2017). National Academies of Sciences, Engineering, and Medicine (US). (2017) à <https://doi.org/10.17226/21896>

6 See Pekar-Lempereur A., Colson A., Salzer J. (2008) “Méthode de médiation. Au cœur de la Conciliation” (*Mediation methods: at the heart of conciliation*), Dunod, 266p ; “La médiation” (2015, 7e édition), Guillaume-Hofnung M. PUF, coll. Que sais-je ?, 128p .

7 Report of the reflection project – *ibid.*



## PUTTING FACTS FIRST

“Putting facts first” implies carrying out substantial, methodical work. First of all, it involves being able to rely on lab logs and other “primary data” (various recordings by measuring devices, raw photographs, etc.) which must have been archived by the laboratory. All studies must be reproducible, and all the documents that make it possible must be durably stored by each laboratory. These are essential to establish the reality of research, to the extent that scientific journals consider the absence of evidence as an element of suspicion in itself. In the same way, more and more institutions consider that the absence of a lab log filled on a regular basis constitutes serious professional misconduct.

In this regard, we can note that the methods and tools currently being developed for “open science” such as those designed to improve the reproducibility and quality of research are particularly important for the development of scientific integrity.

Once the primary data has been collected, in most cases, one or several senior researchers with thorough knowledge of the field is asked to establish the facts precisely in their technical aspects.<sup>8</sup> Indeed, the facts need to have been thoroughly established to understand how they came to be, considering that, as already stated as part of the reflection project, “scientific integrity breaches vary widely in nature and gravity, from the lack of rigor in the design of an experiment or the presentation of experimental results to the deliberate desire to twist scientific facts.”<sup>9</sup>

In any case, the delegation must take action to ensure that any erroneous scientific data disseminated under the responsibility of the Institute is corrected as quickly as possible, most often by requesting the amendment or retraction of one or more publications.

Finally, it should be noted that as is the case in many institutions, most research units at INSERM are administered jointly with other research operators,

which implies that the instructional work is carried out in collaboration with advisors from other institutions. In the delegation’s experience, although this collaborative approach can prove to be a little more cumbersome due to the differences in procedures and uses between institutions, it is more methodologically sound as the different perspectives between advisors helps them be mindful of rules that can be complex to enforce.<sup>10</sup> As an example, this includes taking the appropriate precautions to respect confidentiality<sup>11</sup> during interventions or instructing in a neutral and impartial way for the benefit of all individuals involved, etc.

These few remarks highlight the wide variety of situations handled by the delegation on a daily basis. To do so, it naturally relies on the shared values of scientific integrity as set out in reference documents (the National Charter for Research Ethics, the European Code of Conduct for Research Integrity, and the Singapore Declaration for Research Integrity), but also on know-how acquired through experience. Considering that the reference documents are now widely acknowledged, the next step could consist of describing and refining the common procedures that will guide our actions on the field, based on the experiences of all involved.

*My gratitude goes to Michelle Hadchouel (Research Director Emeritus at INSERM, Member of the Scientific Integrity Council) for her guidance, Kamel Lairedj (PhD student in law, Université Paris 2 Panthéon-Assas) for his suggestions, and Marc Léger (scientific integrity advisor at CEA) and Béatrice Rochet (deontology and integrity advisor at Ifremer) for their thorough review of this article.*

## CONTRIBUTE TO DEVELOPING POLÉTHIS...

### SURVEY: “DEFINING AN ETHICAL APPROACH FOR UNIVERSITÉ PARIS-SACLAY TOGETHER”

Through this questionnaire, POLÉTHIS hopes to better identify, evaluate, and analyze the issues of ethics and scientific integrity within Université Paris-Saclay. With your invaluable help, this questionnaire will enable a better understanding of the interests and concerns held by everyone (teacher-researchers, administrators, students) and propose appropriate action and initiatives.

We thank you for engaging in this dialog and for contributing to maintaining the momentum of the university’s *Conseil pour l’éthique de la recherche et l’intégrité scientifique* (Research Ethics and Scientific Integrity Council).

#### 1. Your work, your research

1.1. In which activity or field of research do you work, and more specifically on what subject?

1.2. Have you ever benefited from outreach or training related to issues of research ethics and scientific integrity?

*If yes, please specify.*

1.3. In the context of your activities or your research, can you identify ethical issues that warrant further study, or even frameworks of investigation?

*If yes, please specify.*

#### 2. Your approach to research ethics and scientific integrity

2.1. Do you feel that research ethics and scientific integrity are important issues in the context of your activities or your training?

*Please elaborate.*

2.2. What practical suggestions do you think would be needed to disseminate a shared culture of ethical reflection within the university (conferences, brainstorming workshops based on concrete cases, introducing a module on ethics in doctoral theses, discussion of ethical issues related to work presented at laboratory meetings, other)?

#### 3. Your vision of the relationship between science and society

The relationship between science and society requires the university and the scientific community to demonstrate exemplary behavior, but it also demands regular dialog, the transmission of knowledge, and the cooperation necessary for a “scientific and technical democracy.”

3.1. Do you think this duty to address ethical issues applies to you and can you participate?

3.3. Is the evaluation of the impact and societal acceptance of scientific innovations essential to the development of a research project?

3.4. Do you have any proposals for initiatives in this area?

#### 4. You and Université Paris-Saclay’s Research Ethics and Scientific Integrity Council

4.1. What recommendations and proposals would you like to suggest be implemented within Université Paris-Saclay by its Research Ethics and Scientific Integrity Council?

4.2. Would you like to be informed about initiatives being developed by the Université Paris-Saclay Research Ethics and Scientific Integrity Council?

4.3. Would you like to contribute to the initiatives developed by the Université Paris-Saclay Research Ethics and Scientific Integrity Council?

**Fill out this questionnaire online or send your responses to: POLÉTHIS@universite-paris-saclay.fr**

8 It will have been verified that these experts are not subject to conflicts of interest and that they have signed a confidentiality agreement.

9 See «Renforcer l’intégrité de la recherche en France. Propositions de prévention et de traitement de la fraude scientifique» (*Reinforcing research integrity in France. Proposals for the prevention of and response to scientific fraud*) (2010), Alix J.-P. à <http://archeologie-copier-coller.com/wp-content/uploads/2015/10/J.-P.-ALIX.-RAPPORT-INTEGRITE.pdf>

10 See the Code of Conduct for Research Integrity (2017). ALLEA - All European Academies at <http://www.allea.org/wp-content/uploads/2017/03/ALLEA-European-Code-of-Conduct-for-Research-Integrity-2017-1.pdf>

11 The general management of INSERM is the only party informed of the opening of an investigation.

# TRAINING INITIATIVES, EXPERIENCES

## TEACHING DOCTORAL STUDENTS RESEARCH ETHICS AND SCIENTIFIC INTEGRITY

### A CASE STUDY AT THE ÉCOLE DES DOCTEURS OF UNIVERSITÉ FÉDÉRALE TOULOUSE MIDI-PYRÉNÉES

Classes in research ethics and scientific integrity for doctoral students enrolled at any one of the Université de Toulouse's establishments were launched in spring 2016 for four pilot sessions based on guidelines provided by the Allistene Commission for Reflection on Research Ethics in Digital Sciences and Technology (CERNA). The following describes the training and the evaluation methods used.

**CATHERINE TESSIER**  
ONERA/DTIS, Université de Toulouse

#### DISCUSS, QUESTION, AND DEBATE ETHICAL ISSUES

Classes in research ethics and scientific integrity for doctoral students enrolled at any one of the Université de Toulouse's establishments were launched in spring 2016 for four pilot sessions based on guidelines provided by the Allistene Commission for Reflection on Research Ethics in Digital Sciences and Technology (CERNA).<sup>1</sup> Thirteen sessions were held in 2016-2017 and twenty-two in 2017-2018. The goal for 2018-2019 is to hold about forty sessions in order to train eight hundred doctoral students each year, equivalent to a single graduating class on campus.

Based on the belief that doctoral students should be able to discuss, question, and debate issues around research ethics and scientific integrity that directly concern them in their own thesis, the training is organized in on-site sessions of no more than twenty students held over a full day (six and a half hours). The originality of this approach lies in the fact that the groups may be multidisciplinary, since they are open to doctoral students from the fifteen doctoral schools on

campus, and that each session is led by a pair of instructors, one from a scientific discipline (technology, health or engineering) and the other from the human and social sciences (law, economics, management). It is worth noting that in 2017 INRIA began training its first-year doctoral students using the same pedagogical foundation.

Training materials include a board game, a selection of exercises featuring ethical dilemmas, and trainer's manual.<sup>2</sup> In order to respect the training's ethos, instructors commit to following the intended structure, in other words: to base their intervention on student appropriation of the board game, to propose and lead a dilemma exercise, to ask each student to pose a question about ethics or integrity as it relates to his or her thesis, and to lead group discussions around those questions.

#### TRAINING PRINCIPLES AND BEST PRACTICES

In order to build and maintain a pool of instructors, instructor training is carried out *in situ*: instructor pairs are made up of an experienced instructor and a "newcomer," who may, if they wish, train another colleague. The pool currently includes around twenty instructors. This approach has the effect of raising awareness about research ethics and

scientific integrity among colleagues who invest time in the program.

The following lessons may be drawn from the experience of the last two years:

- Trainers do not necessarily have to be "experts" in ethics; however, they must appropriate notions of ethics, question their own practices, and take an interest in current events in science and the questions they raise; they enrich the board game with their own experiences and reflections.
- Trainers should not be afraid of troubling questions, difficult situations, or conflicting points of view, and, where appropriate, they should be able to cope with students' emotions; they must know where to direct doctoral students in difficulty.
- Training groups must be composed exclusively of doctoral students so that the questions they ask are addressed without pressure from "senior" colleagues.
- In order to ensure the training encourages free speech, it should be made clear from the beginning of the session that everyone (both trainers and doctoral students) will respect the confidential nature of the debates; doctoral students may remain anonymous about the questions they ask about their theses (questions are asked in writing on adhesive stickers provided by the trainers).

- Computers and telephones should be banned to encourage active participation by all.
- Trainers should make it clear that some questions—particularly research ethics questions—do not have a clear response, and that students should focus on familiarizing themselves with a process of reflection and debate.
- Immediately following the session, doctoral students who were present must receive the boards used by the trainers during the session; these boards include links to useful documents for further study (regulatory texts, charters, guides, articles, videos, etc.).
- The sessions have so far been given mostly in French; in regards to sessions offered in English, at least one of the two trainers must be perfectly English-speaking and the sessions should be reserved for a non-French-speaking audience (it is counterproductive for French doctoral students to attend these sessions "to learn English"); these provisions help ensure quality exchanges.

Doctoral students must complete the online evaluation questionnaire to validate their training. This allows a maximum number of opinions to be collected, especially the criticism that enables constant adaptation of training content and pedagogy. Of note are

<sup>1</sup> See: <http://cerna-ethics-allistene.org/Publications+CERNA/> (2018 update to come)

<sup>2</sup> <https://hal.archives-ouvertes.fr/cel-01452867v2> (version 3 in creation)





the following isolated, but interesting, observations:

- The dilemma exercise, which aims to elicit ethical debate via a confrontation of values, may be experienced as violent and provoke rejection. Conversely, it may be considered too far from reality or futile and judged irrelevant as a result.
- Philosophical and historical references may provoke intense or even hostile reactions, according to individual culture and beliefs.

The overwhelming majority of positive feedback has been reassuring to the training team and the doctoral school at the Université de Toulouse concerning their pedagogical approach: doctoral training in research ethics and scientific integrity carried out in small groups, based on debate, and focused on questions asked by the doctoral students present. The number of sessions held obviously comes with a cost, and instructor pay is an integral part of ongoing discussion.

*Thanks to Lucie Baudouin for her insightful remarks on the first version of this text.*

# ETHICS AND SCIENTIFIC INTEGRITY INITIATIVES AT THE DOCTORAL SCHOOL ABIES/AGROPARISTECH

The ABIES (agriculture, food, biology, environment, health) doctoral school is particularly sensitive to questions concerning ethics and scientific integrity, which should be among the concerns of future doctorates. For many years now, the school has been increasing awareness-raising initiatives for doctoral students and their thesis supervisors.

**IRINA VASSILEVA**

*Deputy director of doctoral programs at AgroParisTech and doctoral school ABIES, Université Paris-Saclay, member of POLÉTHIS*

## THE ETHICS UNIT AT AGROPARISTECH

The ABIES no. 581 doctoral school is particularly sensitive to questions concerning ethics and scientific integrity, which should be among the concerns of future doctorates. For many years now, the school has been increasing awareness-raising initiatives for doctoral students and their thesis supervisors.

The AgroParisTech establishment provides administrative, physical, and human resources, all of which are essential to ED ABDIES's continued operation. In recent years, AgroParisTech has adopted a Code of Ethics and Professional Conduct, a *Vade mecum* "Éthique et déontologie dans les activités de recherche" (Ethics and professional conduct in research activities), a glossary clarifying related vocabulary, and a tool to detect plagiarism called "Compilatio." The Director of ED ABIES participated in the Working Group "Éthique et déontologie" (Ethics and professional conduct) in 2015-2016. For nearly two years, the Deputy Director of ED ABIES and the doctoral programs at AgroParisTech have participated in the AgroParisTech Ethics Unit created in December 2016. This unit is made up of 14 permanent members, including a doctoral student representative. This advisory body issues ethics opinions and recommendations concerning teaching and research activities conducted within the institution. The unit's objective is to inform and raise awareness among the AgroParisTech community. Administrative entities and members of the community, including doctoral students and their supervisors, may refer to the unit on the subject.

The Executive Office of Doctoral Programs and ED ABIES also closely monitor the work of the Council for Research Ethics and Scientific Integrity/POLÉTHIS at Université Paris-Saclay, in particular projects proposed within the training program.

## "ETHICS AND SCIENTIFIC INTEGRITY" INITIATIVES FOR ABIES DOCTORAL STUDENTS

Each year in November, during orientation for new doctoral students, ABIES holds a mandatory session to address questions of ethics and scientific integrity. This dedicated session is organized in conjunction with the Research Directorate and the AgroParisTech Ethics Unit. Newly-enrolled doctoral students receive basic and very practical information on the professional code that applies to researchers (3-hour conference).

In addition, an online course on "Ethics and Scientific Integrity" (5 modules) was launched in spring 2018 for ABIES doctoral students in the context of a partnership between ED ABIES, the University of



## TRAINING INITIATIVES, EXPERIENCES

Bordeaux and Agreenium. The content, generously provided by the University of Bordeaux, has been integrated into Agreenium's Moodle platform, following some modifications for ABIES/AgroParisTech. The program is self-assessed, and those who have successfully completed the modules receive 15 hours of additional training. The thesis supervisors, team leaders, and unit directors within the ED were informed of this initiative, which they welcomed wholeheartedly.

In addition, in 2017 and 2018 several ABIES doctoral students were attracted by the courses offered at Université Paris-Saclay concerning ethics and scientific integrity.

### INITIATIVES IN FAVOR OF ABIES SUPERVISORS

In 2012, the ABIES doctoral program adopted a support program for thesis supervisors. ABIES wants to support doctoral supervisors as their missions undergo unavoidable changes in the evolving context of doctoral training in Europe. The initiative is open to all supervisors at the doctoral school (with and without an accreditation to supervise research). It resulted in the formation of a voluntary pilot group. The first participants and respective unit directors were called upon to play the role of ambassadors within the community. The "ABIES Supervisors" Working Group is considering the best way to support supervisors. It implements actions and proposes appropriate tools, while facilitating interaction and the exchange of ideas and experiences between supervisors. Many concrete achievements have emerged since 2015: a mirror survey of supervisors/doctoral students on management practices; "ABIES Supervisor Frieze"; Supervisor Days (2016, 2017 and 2018); thematic workshops; collective reflection on the role of thesis committees and formalizing the results of these committees; etc. A new program, "ABIES Mentoring," was launched in November 2017.

### ETHICS AND SCIENTIFIC INTEGRITY IN THE SPOTLIGHT AT THE 2017 ABIES SUPERVISOR DAY

The ABIES Supervisor Day held on May 18, 2017 brought together researchers and teacher-researchers who make up the doctoral school's potential supervisory framework. The large number of participants (around 120) reflects supervisors' keen interest in the doctoral school's initiatives. An entire session focused on the theme of ethics and moral conduct as they relate to research professions. ABIES doctoral student supervisors are now involved in collective reflection; one of their missions is to help doctoral students become honest researchers respectful of ethical principles and professional conduct. The 2017 ABIES Supervisor Day was an opportunity to present existing initiatives in this area:

- at both European and international levels, with representatives from the Association of European Universities Council for Doctoral Training (EUA-CDE) and the League of European Research Universities (LERU);
- at a local level within AgroParisTech.



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## RESEARCH ETHICS TRAINING: THE CASE-STUDY WORKSHOP APPROACH

In addition to three general training sessions on research ethics and scientific integrity organized last spring by POLÉTHIS for all PhD students at Université Paris-Saclay, a workshop on the "Ethical and social aspects of science" was offered on June 18 and 19, 2018 to students from doctoral schools Structure and Dynamics of Living Systems, Plant Sciences and BioSign. The doctoral schools granted credits to students attending the workshop.

**DELPHINE BERDAH<sup>1</sup>, HÉLÈNE COURVOISIER<sup>2</sup>, KARINE DEMUTH-LABOUZE<sup>3</sup>, ANNICK JACQ<sup>4</sup>**

### HELPING DOCTORAL STUDENTS RECOGNIZE AND ADDRESS ETHICAL ISSUES

This two-day workshop was held with small groups of participants (15 students at most) to encourage discussions on theoretical concepts, practical situations and experiences aimed at developing critical thinking among PhD students on how the scientific community works, how knowledge is produced and shared, and the relations between science and society. It also raised awareness on one's ability to reflect on his/her own practices. Taking into account the ethical norms regulating these practices, the workshop highlighted the possible difficulties when applying them to the reality of day-to-day research. Rather than providing a defined set of rules, the workshop was intended to help doctoral students recognize situations that raise ethical problems and find adequate solutions to address them.

The workshop was segmented in four half-day themes, the first three being:

1. Scientific research and its norms, theory and "grey areas."
2. Science ethics in society, expertise and regulations.
3. The researcher's social responsibility.

Each theme was addressed through a short theoretical presentation (1h) followed by an analysis of and discussion on regulations or case studies. The doctoral students also shared their experience (2h).

During the last half-day session, the students reflected on the ethical issues and questions raised by their own research projects through discussions with a peer followed by group talks.

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# ONE STUDENT SHARES HER EXPERIENCE

## TRAINING IN RESEARCH ETHICS AND SCIENTIFIC INTEGRITY

### GRASPING THE DIVERSITY AND COMPLEXITY OF ETHICAL QUESTIONS

The analysis of the questionnaires filled out by the PhD students when they signed up for the class revealed that few of them identified ethical concerns related to their research project or the potential impacts of their work on society; they considered that their research was “too fundamental” to raise concerns. Some, however, referred to the “environmental impact” of their practices (GMO release, waste management, etc.) and the challenges of managing the collective tasks of a laboratory.

By the end of the workshop, the students felt that the theme addressed throughout the course and the many opportunities to share experiences helped them acquire a firm grasp of the diversity and complexity of ethical questions raised by the practice of scientific research, the links between science and society, and ways to integrate these questions in their projects. It was a great opportunity for them to take a step back and reflect on their work through free discussions on their own practices. They said it was a great learning experience which enticed them to maintain a reflective approach. One of the PhD students who also attended one of the courses on “Introduction to research ethics and scientific integrity” organized by POLÉTHIS also emphasized how complementary these two courses are.

The first edition of our course demonstrated the interest in a casuistic and practical approach with small groups of participants to develop critical thinking in research ethics. It suggests that the development of such workshops, as a complement to more general courses, allows all participants to pursue their reflection outside of the mandatory classroom training. With four speakers in two days who often lead classes with a peer in order to enrich the discussions, the course also raises questions on how to organize such workshops on ethics to the benefit of all PhD students and research practitioners.

My financial backer hopes to demonstrate this instead of that; I’m trying to demonstrate X but my experiments actually show Y—what do I do? I’m having a hard time getting published because my results are not statistically significant or to the editor’s liking. These and other questions force doctoral students to take a moment to talk about ethics. The training programs offered at Université Paris-Saclay hope to achieve this.

#### JEANNE TAMARELLE

*Doctoral student in epidemiology—UMR 1181—B2PHI  
“Biostatistics, Biomathematics, Pharmacoepidemiology and  
Infectious Diseases,” Université Paris-Saclay*

### TAKE A MOMENT TO TALK ABOUT ETHICS

The educational paths at Université Paris-Saclay are mainly scientific. You might think science has nothing to do with ethical concerns or societal issues; after all,  $1 + 1 = 2$ . It’s simple, it’s clear, and there’s nothing wrong with that. As a result, it’s easy to simply shrug off the need for reflection. However, the results of our research will later be expressed as technological innovations, education, and policy decisions. Researchers are not neutral; the subjects they choose to study and the methods used, the results generated, and the avenues of inquiry they open all have weight. We don’t do science for its own sake, but because through it, we contribute to progress within our societies. For this reason, I believe it is essential to investigate the entire chain of knowledge production, from the research question to the way in which society will appropriate our results. This is why training in research ethics is a necessary part of our scientific curriculum.

*Researchers are not neutral; the subjects they choose to study and the methods used, the results generated, and the avenues of inquiry they open all have weight.*

As far as the research question is concerned, it isn’t just pulled out of a hat; it often arises from an expressed or unexpressed demand from the population: it responds to a debate, a need, or a desire. Ethical investigation also implies taking a moment to ask: why is this question of interest? What need or desire are we trying to meet? Who is making this demand and who is interested in the responses? Will the means I have at my disposal enable me to effectively satisfy the initial demand? Sometimes we discover, to our surprise, that we might have “missed the point” a bit, or that our contribution is not necessarily the most beneficial.

Taking a moment to talk about research ethics and scientific integrity also allows us to engage in a little introspective exercise and uncover the motivating forces that drive us: my financial backer hopes to demonstrate this instead of that; I’m trying to demonstrate X but my experiments actually show Y—what do I do? I’m having a hard time getting published because my results are not statistically significant or to the editor’s liking; to secure certain funding I must claim that I will produce findings that will revolutionize technology, while in all honesty, I don’t think such findings are possible or even desirable; etc.

### OTHER DOCTORAL STUDENTS ARE ASKING THE SAME QUESTIONS

Generalities aside, this sometimes takes very palpable forms in our work. I struggle with ethical concerns and scientific integrity in my own thesis work. I’m participating in the establishment of an epidemiological study related to sexually transmitted diseases in women students. In this context I regularly communicate with the *Comité de protection des personnes* (Institutional Review Board/CPP). For example, each time we have to modify our protocol, we consider the underlying ethical issues, what is acceptable or not, how our modifications might cause offense or offend the values of others. I also communicate with the study developer, who requires us to continually demonstrate our scientific integrity. Fraud, distortion, manipulation, and concealing are all out of the question when the health of the individuals participating in research is at stake.

The training on research ethics and scientific integrity in which I participated in 2018 was genuinely interesting because we tackled general ideas but were also able to ask questions related to very tangible experiences in our work. Several hundred of us students from every discipline gathered in the amphitheater. Suddenly, you realize that other doctoral students have the same questions, even those working in very different fields. To rephrase a famous saying, “A researcher in isolation is a researcher in danger”; researchers must maintain relationships with society and with other researchers in order to discuss their methods and concerns. These trainings allow us to take a step back, and that’s when we realize we’re not alone in questioning the legitimacy or implications of our research.

# COMMENTING ON REFERENCE TEXTS

## ON UNESCO'S "RECOMMENDATION ON SCIENCE AND SCIENTIFIC RESEARCHERS" (2017)

Awareness of the essentially unsatisfactory nature of ethical theories when it comes to establishing rules for scientific research should spur us to reevaluate our conception of codes and charters. If science were understood as a "common good," these codes and charters could be the result of joint work between recognized competent agents from different fields, and their development could take place in an open, transparent and democratic manner.

**ANNA C. ZIELINSKA**

Teacher-researcher, Universit  de Lorraine,  
Archives Henri Poincar 

### WHAT KIND OF WORLD SHOULD SCIENTIFIC DEVELOPMENTS AND APPLICATIONS ENCOURAGE?

Normative charters and codes are documents often considered obsolete and formalist; we set them in opposition to the individual ethic of the researcher, which may be based on a moral theory, on virtues that ought to be developed in the more general context of a good life. And just as conceptions of ethics based not on principles but on more flexible, open notions, which allow for more freedom, are very valuable for thinking about individual morality, they seem to fall short in the context of research. Scientific research is essentially a collective activity, bringing together individuals from different moral horizons. It is wishful thinking to expect that one day a particularly powerful normative ethical theory will overcome every disagreement these individuals may have. This insistence on ethics has another drawback: it privatizes normative issues arising within the biomedical field that belong *de facto* to the public domain. What's more, these normative questions are not simply *ethical* in nature. They include epistemological, social, and, above all, political questions: what society and what world do we want to encourage through scientific developments and applications?

Awareness of the essentially unsatisfactory nature of ethical theories when it comes to establishing rules for scientific research should spur us to reevaluate our conception of codes and charters. These documents, when they are well constructed, do not rely on moral theories as a base for establishing rules and justifications. To the contrary, they are the result of joint work between recognized competent agents from different fields and their development is carried out in an open, transparent and democratic manner.

### CONCEIVING SCIENCE AS A "COMMON GOOD"

Science is a democratic undertaking as far as its internal (epistemological) and social practices are concerned. Here, the term "democratic" refers to the fundamental necessity of science to make heard a diversity of voices, to arise from "organization and control at every step, by rejecting the prerogative of divine origin,"<sup>1</sup> and by being accessible and useful to every individual, to cite Ludwik Fleck. A normative evaluation of science, in other words establishing its rules of operation, should also be approached through the lens of democracy. The development of the new "Recommendations on science and scientific researchers" adopted November 14, 2017 by UNESCO seems to have followed these requirements. Consultations carried out on an international scale, with responses published on UNESCO's website, resulted in 18 pages of text (within a

28-page document), all well written and truly engaging. The document replaces the 1974 recommendation and offers a truly contemporary way to consider science as a "common good."

There are several preambles to the recommendation. The first is the observation that scientific discoveries and applications can contribute just as easily to the good of humanity as to its potential endangerment, which should incite member states to implement mechanisms to prevent this second eventuality. The second preamble recognizes science as "a common good," the crucial role "talented and trained personnel" play in each member state, as well as the "open communication of the results, hypotheses and opinions." From the document's outset, the political, social and institutional elements of the scientific enterprise are called to the fore. The institutional question arises several times as the only guarantor of possibly having "vigorous and informed democratic debate on the production and use of scientific knowledge, and a dialogue between the scientific community and society."

According to the recommendation, nations should develop their scientific policies with citizens, despite the fact that effective forms of citizen counsel remain to be defined (as evidenced by the frustrations that accompanied the Universal Declaration on Bioethics in 2009 and 2018). Nonetheless, the very presence of such a premise in the document that constitutes the soft law of research within UNESCO member countries provides a strong, if not purely legal, reference point for engaging in controversial dialogue about certain strategic scientific decisions made by authorities without public consultation or a panel of sufficiently diverse experts.

Several of the points in the document are devoted to strictly ethical aspects of science. Ethics is understood here as the portion of evaluating science based on scientific protocols either ready to be implemented or already in development.



This evaluation is intended to be carried out by "independent, multidisciplinary and pluralist ethics committees," institutions whose decision-making authority is not based on ethical theory, but on actual discussion between people very likely to have different values. The legitimacy of the opinions they deliver is based on the democratic process, the only guarantee of the best possible result (though perhaps not perfect). Their role is not limited to delivering isolated opinions; they are also invited

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to weigh in on the subject of "scientific progress and technology" and "foster debate, education and public awareness and engagement of ethics related to research and development." This mission statement is one more element indicative of a paradigm shift and the abandonment of a naive and isolated conception of "bioethics." It results in normative considerations of scientific research being necessarily pluralistic and dynamic.

The 2017 recommendation is a political document in the best sense of the word. It does not introduce vague and arbitrary moralization, but intends to promote responsibility within the scientific world, whose governance will be held to the rules successfully imposed upon it.

<sup>1</sup> Ludwik Fleck, "Zur Krise der 'Wirklichkeit'," *Die Naturwissenschaften*, 1929.

# POLÉTHIS TRAINING PROGRAM 2018-2019

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## I. POSITIONING

The goal of the POLÉTHIS training program is to disseminate a shared culture of ethical reflection and engagement within Université Paris-Saclay. To achieve this goal, three positions were agreed upon.<sup>1</sup>

The first involves thinking of research ethics as a reflexive pivotal point between scientific integrity and the social responsibility of science. This positioning aims to encourage the appropriation of ethical issues related to scientific research by including its three approaches (reflexive, normative, and political), through training in investigation and the ethical approach.

The second involves providing training in ethics to not only doctoral students but also supervisors (senior researchers and teacher-researchers). The goal of this double-pronged training is to support the emergence of mutual trust, a prerequisite for exercising shared responsibility.

Finally, the third is intended to encourage the development of a “field ethics” and an ethics in action. It aims to promote a continuous process of ethical reflection, developed *in situ* and not only in a training context.

## II. METHODOLOGICAL FOUNDATION

Acquiring a culture of and an approach to ethical reflection supposes, on the one hand, the appropriation of knowledge and, on the other hand, the development of expertise and social skills (attitude, competency, positions) that are not the fruit of theoretical teaching but acquired through practice. It also presupposes a dialectic of experience and concept, of singular situations and systems of ideas.

The training developed by POLÉTHIS therefore includes (i) theoretical training during which references (in ethics, philosophy, history of science, epistemology, sociology of science) and key concepts (regarding, in particular, scientific integrity, the functioning of the scientific community and the relationship between science and society), are proposed, investigated and discussed; and (ii) ethical training delivered through the practice of ethical investigation using case studies.

## III. IN PRACTICE

### 1- “Training trainers”

Theoretical training consists of a day devoted to understanding the development of awareness of ethical issues in research; the institutional and regulatory context of scientific integrity and its challenges; the philosophical foundations of research ethics; the methodological contract and the quality of knowledge; and social responsibility and technological innovations.

Practical training consists of a simulation day intended for working through practical cases, following an introductory conference. The conference, which focuses on the process of ethical reflection, presents the materials (value, purpose, principle, norm, consequences, context) and tools (teleology, deontology) that enable ethical dilemmas to be identified and resolved, reconciling as best as possible consequences and principles, the good to be done and the duty to be fulfilled, or the ethics of responsibility and the ethics of conviction. It explains the different stages of practical reasoning that define the process of ethical investigation: analyzing the situation, identifying the tensions raised, determining the aim, deliberating the means, making decisions that lead to an action. The practical case study facilitates appropriation by using these stages to analyze proposed situations. At the end of this training, the trainers

will have grasped ethical concepts, appropriated tools for leading ethical discussions, and will have developed aptitudes, skills, and attitudes that they will be able to exemplify for young researchers.

### 2- Doctoral candidate training

The “common core” module, a first step in the ethics training course, involves a day of theoretical training (initial training in the basics of research ethics and scientific integrity) and practical training (analysis of practical situations).

A second part of the course involves participating in seminars and conferences organized by POLÉTHIS, and/or training modules offered by various doctoral schools within the university and approved by POLÉTHIS. For example, these modules may include reflexive workshops on ethical issues raised by doctoral research projects. By the end of this course, doctoral students will have acquired the means to pursue ethical reflection autonomously, to exercise their responsibility with regard to their community as well as society, and thus to contribute to the emergence of an “involved” science.

<sup>1</sup> See the reflexive workshop report “Éthique de la recherche et intégrité scientifique. Pour une démarche responsable à l’Université Paris-Saclay (Research ethics and scientific integrity. For a responsible approach at Université Paris-Saclay)” held on January 16th, 2017 by the *Collège doctoral de l’Université Paris-Saclay* (Université Paris-Saclay Doctoral College) and the *Département de recherche en éthique de l’Université Paris-Sud* (Université Paris-Sud Department of research ethics), [www.espace-ethique.org](http://www.espace-ethique.org)

## POLÉTHIS TRAINING PATHS

### I – Research ethics and scientific integrity training

#### Training for members of the network of “ethics contact points”

Understand issues of scientific integrity, research ethics, and the social responsibility of science in the current context of higher education and research. Become familiar with reflection and ethical discussion.

1<sup>st</sup> day  
History, foundations, and issues

2<sup>nd</sup> day  
Simulation

### II - Research ethics and scientific integrity training

Ethics studies

#### A. Courses taken between the 1<sup>st</sup> and 3<sup>rd</sup> year of doctoral studies “Common core” module

This training, a regular requirement of doctoral studies, is offered in a day-long format to doctoral candidates enrolled in the first year as well as to doctoral students enrolled in second year who have not yet received training in research ethics and scientific integrity.

#### 1. Introduction to the foundations of research ethics and scientific integrity

References, benchmarks, and method presented based on several situations.

Morning

- Foundations of research ethics
- Foundations of scientific integrity

#### 2. Research ethics and scientific integrity: practical examples

Students will be presented with two clinical situations in written form upon registration for this class (example: falsification of data; decisional dilemma [economy, AI, environment]; data processing; responsibilities). A student debate will follow an introductory presentation. Two students will present a summary.

#### B. Complementary courses taken within the first three years of doctoral studies

Seminars, colloquium

Doctoral candidates must complete a course in ethics within their first three years of study by following two seminars or symposiums proposed or validated by POLÉTHIS.

Seminars, first semester 2019

- “Ethics for engineers”
- “Big data in research”
- “The ethics of automatization, scientific approach, human and social impacts”
- “Animal ethics”
- “Environmental ethics”

**The complete training program and registration form are available at:**  
<https://www.universite-paris-saclay.fr/fr/POLÉTHIS>

# CASE DISCUSSION/ SHARING PERSPECTIVES



## THE POL THIS WEBSITE

**A platform for information and documentation about the ethics of research and scientific integrity**

- Presentation of POL THIS, its mission and governance
- Training – events
- Initiatives – POL THIS call for proposals
- POL THIS Newsletter – Information, knowledge sharing, news
- “The Essentials” – A video journey into the heart of research ethics and scientific integrity
- References & documents – Access to essential resources for reflecting on research ethics and scientific integrity
- Survey “Finding an ethical approach at Universit  Paris-Saclay together”

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## FINDING AN APPROPRIATE ETHICAL APPROACH

### WEIGH IN ON A CASE STUDY...

We invite you to share your point of view about a case study. A summary of your recommendations will appear in the next Newsletter on the POL THIS website.

Case study #1 was proposed by Sylvie Pommier, director of the Universit  Paris-Saclay doctoral school. We encourage you to send us cases for discussion.

### CASE STUDY #1

A research protocol plans to equip thousands of cars with IoT sensors in order to collect data to study how materials deteriorate under operating conditions (low load levels, long periods, variable environmental conditions). It intends to verify the hypothesis that decay mechanisms under operating conditions are different from decay mechanisms under laboratory conditions (high load levels, short periods, controlled environment). It is necessary to record the routes the vehicles take.

1. What ethical questions arise?
2. How might they be integrated into the research protocol?
3. How should participants be informed?
4. Should the advice of a committee for personal protection be sought?
5. And if so, how?

Send your responses to  
[POL THIS@universite-paris-saclay.fr](mailto:POL THIS@universite-paris-saclay.fr)

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