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The argument for adopting a jurisprudence platform for scientific misconduct

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ABSTRACT

In this paper we will describe the arguments to adopt a jurisprudence platform for scientific misconduct, we argue that this will increase the principle of legal certainty, improve procedures, and will promote scientific integrity in other, indirect ways. With the platform that we are currently setting up in the Netherlands as a motivating example, we finally also describe the prerequisites for such a platform, its contents as well as its value in the international context.

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Codes of conduct have been drafted and adopted by various institutions and organizations to codify and foster good scientific conduct. The content and framework of these codes are quite variable in their framework of reference, definitions, investigative procedures, and consequences if breaches are established, as has been described by others (Desmond and Dierickx 2021a; Resnik et al. 2015; Grey et al. 2019; Gunsalus, Marcus, and Oransky 2018; Desmond and Dierickx 2021b; Mello and Brennan 2003). These variations are perhaps best summarized by the simple, but all telling, indicator of the word count of these documents, which for European countries ranges from 880 to 44,000, with the extremes being the geographically and culturally not so different countries of Norway and Sweden (Desmond and Dierickx 2021a).

The basis for these codes of conduct is often a handful of guiding principles. For example, the Dutch Code of conduct uses honesty, scrupulousness, transparency, independence, and responsibility (NWO 2018). Codes from other (European) countries often use a (slightly) different set of principles, as they help inform the choices and actions of researchers. Next to this, codes often offer more detailed information, such as definitions of misconduct, references to applicable laws or regulations, or the consequences of non-adherence to the guide.

Despite this, there is often ample room for interpretation of the code during investigative procedures – especially when one considers the infrequent and idiosyncratic nature of allegations. In this paper, we will argue, while using the

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Dutch code as an example, that the quality of the procedures regarding scientific misconduct, and by extension the effectiveness of the code, can be increased through a jurisprudence platform in several ways.

The Netherlands code of conduct

The first Code of Conduct for scientific practice in the Netherlands was published in 2004 at the request of the Association of Universities in the Netherlands (U-NL). It was written to formulate rules with grounds for admonishment and disciplinary actions for institutes with societal roles, mainly universities (NWO 2018). Since its implementation, several revisions were made in 2008, 2014, and 2018. The latest revision is based on an advisory report conducted in 2016, which concluded that this code should be viewed as “a dynamic document which needs regular updates based on jurisprudence from standing committees investigating alleged cases of scientific integrity and the National body for scientific integrity” (translated from Dutch). Additionally, future cases should be made public in a standardized way (2016).

These recommendations led to the latest version of the Code, which was published in 2018. This version has a fine-grained approach, which not only mentions the five guiding principles as stated above but also includes 61 standards for good research practices. Noncompliance falls into 3 different categories (misconduct, questionable research practice, and minor shortcoming) in part depending on a set of 11 criteria that allow context to be taken into account. (see [Table 1](#) for a selection of these 61 standards for good research practices, which also include references to fabrication, falsification, and plagiarism) It also describes the role of the institutions to foster good research practices and how to handle cases of alleged misconduct. This includes a national body of appeal when those involved do not agree with individual proceedings.

In the Netherlands, there have been reports of ~170 complaints covering one or multiple breaches of research integrity since the inception of a national code in 2012 (2022). However, based on our experience, this number is likely to be an underestimation as this reported number does not include complaints that were deemed inadmissible or the 175+ appeal cases handled by the National appeals body. Additionally, the number of cases handled by different institutions varies significantly, both between institutions and within institutions from year to year, with a clear trend toward more cases in the more recent years. A precise answer to this question can however only be provided with the help of the platform.

Because of the elaborate code, and its accompanying strong and well-developed national system for handling and investigating cases of alleged scientific misconduct, the current Dutch approach resembles a positive-law-based system. This system has developed and professionalized itself over the last 15 years (e.g., switching from ad-hoc to standing committees, from 23

Table 1. Examples of the 61 standards for good research practices, according to severity category.

Falsification, Fabrication Plagiarism	Other forms of research misconduct	Questionable research practice and minor shortcomings
Do not fabricate data or research results, and do not report fabricated material as if it were fact. (F)	If the research is conducted on commission and/or funded by third parties, always specify who the commissioning party and/or funding body is.	Do not make unsubstantiated claims about potential results.
Do not remove or change results without explicit and proper justification. Do not add fabricated data during the data analysis. (F)	Ensure that sources are verifiable.	In research with external partners, make clear written agreements about research integrity and related matters such as intellectual property rights.
Present sources, data, and arguments in a scrupulous way. (P)	Ensure a fair allocation and order of authorship, in line with the standards applicable within the discipline(s) concerned.	Do justice to all research results obtained.
When making use of other people's ideas, procedures, results, and text, do justice to the research involved and cite the source accurately. (P)	Refrain from making an assessment if any doubts could arise regarding your independence (for example, because of possible commercial or financial interests). Be open and honest about potential conflicts of interest.	All authors are fully responsible for the content of the research product unless otherwise stated. Do not delay or hinder the work of other researchers in an inappropriate manner.

The code lists 61 standards for good research practices. Non-adherence to four is categorized as serious misconduct, 19 as other research misconduct, or a less serious violation within certain circumstances. The rest is initially categorized as either questionable research misconduct or a minor shortcoming, again depending on the circumstances, only in rare circumstances will nonadherence to these remaining standards will constitute research misconduct.

“best practices” to 61 “standards for good research practice”) and the experience of approximately 500 cases, the current Dutch system also has some characteristics of both common law as well as civil law.

National jurisprudence platform

For national users, the platform will primarily serve as a tool to help interpret and apply the Dutch code on research integrity. A single case, easily discoverable through the search function, may be more valuable for a national user than all other cases combined. The role and added value of a national jurisprudence system need to be established, but there are strong arguments in favor of its initiation. In this paper, we will argue that such a platform will help to do three things: it will increase the principle of legal certainty, improve current procedures and further promote scientific integrity and good scientific conduct in ways that go beyond single cases.

Increase the principle of legal certainty

A code of conduct is more convincing and thereby more successful if the code and the actions related to the code are applied similarly as much as possible given the circumstances of the case; all should expect to be treated equally under the code. This principle of legal certainty tells us that variations between cases, institutions, and time can lead to randomness (or worse) and therefore needs to be negligible. This requires an active approach, where preceding cases should actively inform decisions on current and future ones. We believe that there are three distinct ways a jurisprudence platform can help with this.

First, jurisprudence **promotes clarity of the code**. That is, actors are aided in their understanding of what is written in the code. Jurisprudence will help define concepts prescribed in the code in a way that is not case-dependent. If needed, jurisprudence can also provide the context of certain rules if that will help in the understanding of what is codified. A special form of this clarification is that a jurisprudence platform will help **define the reach of the code**. That is, it helps to define which activities fall under the code and which do not. After all, it is not completely clear to what extent all academic activities strictly fall under scientific activities. This is at best illustrated by a recent case, in which a former president of a Dutch university was accused by journalists of plagiarism not only in her thesis written years earlier but also in recent speeches given in that role. This accusation led to a formal complaint and therefore the question was raised to what extent these activities, which are academic, but not necessarily scientific, are covered by the Dutch Code on research integrity. Third, it will **aid in the interpretation of the code**. That is, it helps to translate general concepts that are used in the code to specific cases. Additionally, cases of alleged scientific misconduct are not void of context, and it is this context that can influence the rulings and consequences. Even when some rules on taking the context into account can be codified, as is done in chapter five of the Dutch code of conduct, the interpretation of these rules will be aided by jurisprudence. Please note that this third point differs from the second described above in that it helps in the application of the rule to a single case, not the understanding of the rule.

Improving procedures

Variations in the procedures can harm the quality of the procedures, which can affect individual players involved in cases of alleged misconduct and the public's trust in science. We believe that a jurisprudence platform will help to improve procedures over time in several small but meaningful ways. The quality will rise as the rules and procedures around scientific integrity issues become more clear over time. The accumulation of knowledge and experience will help to define concepts and principles, and thereby the **room for discretion becomes more**

clear. This is especially the case in those cases where fueled by appeal cases, **procedural hiccups previously experienced are better prevented in the future.** We should also not neglect that by simply implementing a jurisprudence platform, with accompanying agreements and standardization on the reporting of cases, **the quality of the reporting on the procedures may increase.** Others have identified variations and suggested different methods to improve the quality of procedures, which we think can benefit from a working jurisprudence platform (Grey et al. 2019; Loikith and Bauchwitz 2016).

Additional to this, **the procedure time will be reduced.** The time it will take for procedures to run their course can be reduced substantially, as information is readily available for all those involved in the procedures. More importantly, the relevant information used in procedures from previous cases will be indexed, categorized, searchable, and annotated, aiding the navigation of the yearly growing number of cases. The time gained can be used to incorporate a more thorough revision of relevant cases but also put more time into the reporting of the ruling which could help understand the context of the ruling.

Promote scientific integrity even further

Next to these direct effects on the procedures in case of alleged scientific misconduct, there are also some indirect positive effects to be considered that have no such direct effect. More specifically, a jurisprudence platform provides a framework to keep the conversation on scientific values and norms as part of the daily routine in the scientific enterprise, and not only discussed incidentally when an alleged case of misconduct arises.

The most important aspect of the platform might be that it can be used to **educate and train scientists.** It can provide the much-needed context of both general principles and specific cases of the past. We would like to stress that this training is not limited to Ph.D. candidates, but extends to senior faculty, especially if they have worked outside the Netherlands (i.e., under a different code) for a longer period. This ability to use the jurisprudence platform for this purpose is not just a beneficial side effect, but an intentional outcome of the design process – the platform will contain explainer-type articles and sections that bring together the landmark cases to help define the content and intent of the code (see below). Second, a platform will help **identify the need for updates to the code.** That is, changes in the norms of the scientific enterprise may inspire or even require changes in the code of conduct. Jurisprudence will help to identify those instances – with time the context of norm violations change and therefore the consequences thereof can also differ and will be captured in the jurisprudence. By studying the changes over time in jurisprudence, we might identify the necessity to change the code to update the norms for good scientific research, by either changing the content or the number of norms describing the desired behavior. Without a working jurisprudence platform, these revisions

have to rely on expert knowledge, and if we are lucky on some research. However, this research will not be able to benefit from systematically collected data and thereby a complete overview, thus opening up the opportunity to recency bias and missing small but significant signals.

This brings us to the insight that the platform will serve two purposes. First, it will help in the handling of cases of alleged misconduct. In this instance, the collection of individual cases is then used for retrospection and reference for those involved in the current case. The platform is then a record of experience which can be used as a tool in current cases. The second purpose is to promote good scientific integrity and good research practices in general. Here, reflection and research are perhaps fitting keywords to describe the activities that will ultimately lead to an increase in knowledge.

Concerns and arguments contra

Several concerns might arise with the introduction of a jurisprudence platform, especially regarding privacy, the legalization of procedures, and criminalization.

Privacy

Privacy is at odds with the completeness of data as well as the widely carried scientific notion of transparency. Currently, there is a strong variation in how different countries handle the privacy of those individuals involved in misconduct cases. This ranges from publicly available reports with individual names, titles, and positions, like in the United States (Integrity 0000) to only anonymized yearly summaries, like in Austria (Integrität, Ö.A.F.W). In the Netherlands, privacy is organized by keeping procedures confidential and publishing the outcome of individual procedures openly in a summarized and anonymized form. Irrespective of one's point of view on the necessity of anonymity in the light of the right to privacy, it must be argued that the level of anonymization should be standardized – which is currently not the case in the Netherlands where the degree of anonymization and summarization varies per institute. Of note, even with a standardized approach to anonymization, privacy through anonymity can never be guaranteed as the idiosyncrasies of a case can sometimes lead to a well-educated guess on the role of individuals in a particular case.

Furthermore, we believe that the usefulness and effectiveness of the jurisprudence platform have an inverse relationship with the level of summarization of individual cases. Only when complete cases are shared can we draw the right lessons for future cases. Therefore, when standardized procedures for anonymization are being drafted and implemented, the level of summarization should be kept at the minimum not only to maximize the usefulness of the jurisprudence platform but also because “transparency” is one of the guiding principles of the code.

Legalization of procedures

Building a jurisprudence platform can lead to an unwanted effect that scientific integrity is drawn toward the legal field, with lawyers perhaps taking over the debate on what good scientific practices might be. This in itself is an extremely undesirable outcome. But this argument negates that there is a distinction between interpreting and applying the code in cases of scientific misconduct on one side and promoting scientific integrity and good scientific conduct on the other. If that distinction is kept clear, especially during procedures investigating scientific alleged scientific misconduct we believe that the legalization of procedures will not have that undesired outcome. The advice provided by committees or national bodies on research integrity is not legally binding, but institutions may choose to follow it in order to ensure the integrity and quality of their research. Although the jurisprudence platform may be used to interpret the national code, it does not have the power to narrow the interpretation of the code and cannot be used to argue innocence in cases of alleged code violations. The evaluation of cases will be based on the code itself.

Criminalization

One might be concerned that a platform such as we described may lead to criminalization of research misconduct. Such a topic has previously been discussed at length (Dal-Ré et al. 2020) and we agreed that criminalization is generally not a desirable outcome, especially in the absence of other criminal offenses such as financial fraud or actions that violate medical-ethical laws. However, we do believe that jurisprudence does not necessarily leads to criminalization. In fact, jurisprudence, like in civil law, is intended to assist those who have to make a decision by providing them the information to do so in a fair and consistent decisions.

Prerequisites for a jurisprudence platform

Once convinced by the general arguments above, researchers and policy-makers should consider whether initiating a jurisprudence platform is right for them. We have come to the following lists of prerequisites that need to be fulfilled, to make the platform effective.

- **Presence of a code of conduct** - it is of cardinal importance that there is a code of conduct, or a document with similar status, to which the jurisprudence platform will be linked. Irrespective of our arguments regarding how jurisprudence can inform future versions of the code, it must be clearly stated that a jurisprudence platform informs on the code of conduct, and not vice versa. It must also be clear from this code of conduct to whom this code implies, and who is subject to the

code. Without the clear application of the code within the code itself, questions of admissibility cannot be solved, as jurisprudence provides context for the code, not the other way around. Of note, this implies directly that there cannot be a single jurisprudence platform globally.

- **Volume** - Even though the principles and concepts of a jurisprudence platform can be applied in combination with a code of conduct from a single institute, the lack of volume will render the platform ineffective.
- **Enforcing the code** - even in the presence of a code, the absence of a system to enforce the code negates the possibility of a useful jurisprudence system. This enforcement will likely take a passive form, where complaints trigger investigations and rulings in the alleged cases of misconduct. Please note that enforcement requirements do not imply that sanctions must be prescribed in the code. Especially in the absence of codification of sanctions, a jurisprudence platform will be informative for governing bodies that have to rule on a case.
- **Buy-in from stakeholders** - the value of a jurisprudence platform is a direct function to what degree people use the platform. This is not limited to the people who consult the platform but includes those individuals and organizations that have to “fill” the platform with content – when not complete, the jurisprudence platform should at least be as least selective as possible when it comes to what cases are included and which are not. To what extent buy-in from all stakeholders is required for success is dependent on the situation at hand.
- **Secured, long-term, funding** - we expect that the set-up costs exceed the operational costs of a platform, as it takes time to set up, obtain and maintain stakeholder support, process the backlog of cases, etc. We can imagine that this difference set up vs operational costs can be as big as a 5-7 fold. Despite this, it is the long-term funding that is critical for the success of a platform. Jurisprudence is a living record, and if not maintained, its value drops over time dramatically. Project funding is, therefore, suitable for the initial phase, but we would warn against efforts without a structural, long-term commitment from funders.

TEXTBOX: A jurisprudence platform for the Netherlands

A jurisprudence platform for the Netherlands

To fulfill the theoretical uses as described above, a jurisprudence platform for scientific integrity ideally has the following characteristics: **It should be complete**, so cases should be added without delay or selection to be able to act as precedents in current cases. Or, when this is not the case, such as in the buildup phase, the selection should be made clear to the reader. A decision to exclude a case should

not be contingent on the desires of funders or individual universities. **It should be annotated**, in the sense that the platform should provide context, or at least be more than just the collection of cases. We do so by providing Fact Sheets (short, primarily numerical overviews of selected themes). **The platform should be searchable**, which will require some (semi-automated) indexing of all cases. **The platform should be open** to use by all who have a role in scientific integrity and have standing with committees for scientific integrity, including the public. This can be accomplished with an easy, intuitive platform to search and consult its content, but also by providing a regular update to a FAIR copy of the dataset in various formats.

This is why we have opted for the following format in the Netherlands. The initiative for this platform comes from a group of individuals who are active in various capacities in the field of scientific integrity (chair of investigation committees, members of the national appeals organization for research integrity, integrity researchers, etc). Funding will be provided by U-NL (https://www.universiteitenvannederland.nl/en_GB/), the body that represents all universities in the Netherlands, thus minimizing the possibility for single universities or institutes to have a conflict of interest. We have opted for a platform developed by a publisher of jurisprudence platforms to cut down on development and hosting costs and make use of their expertise in indexing, summarizing the content, and other steps to optimize for findability and other research purposes. We understand that putting the data on a third-party platform makes it vulnerable in FAIR terms. However, the platform is meant for reviewing the content of the dataset, not research. For this, we will make regular, preferably automated, updates to a FAIR dataset hosted on a platform like Zenodo. Even though the platform allows individual uploads of new cases for each participating center, we have opted to keep data entry centralized initially for quality purposes. Decentralized uploads might be possible after the buy-in of all centers and relevant training. Next to listing and indexing the individual cases, we aim to provide the right context of these cases by providing annotations in three ways: reflection, deep dives, and fact sheets. Reflections are thought to be a more detailed reflection on a single landmark case and thus discuss the specificities of that case. Deep dives will take the inverse approach, explore a single key concept (plagiarism, authorship issues, etc), and provide the (historical) overview and reflection of that particular concept, naturally by combining external sources and referring to several cases. Fact sheets will describe quantitative trends over time, which include reports on the completeness of the platform. An overview of the process can be seen in [Figure 1](#).

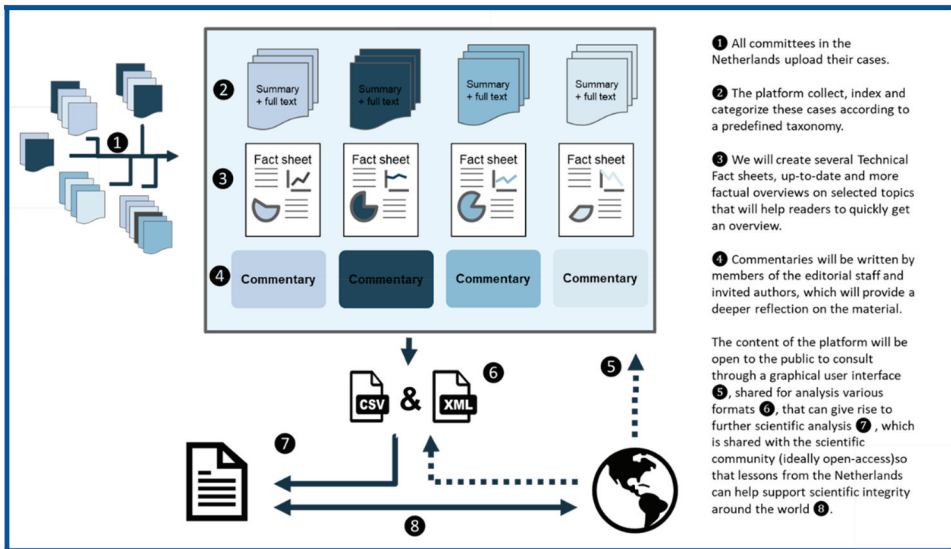


Figure 1. A diagram showing the organization and contents of the jurisprudence platform.

International context

In the prerequisites section, we have noted that the necessity of a code of conduct directly implies that there cannot be a single, global, jurisprudence platform. Also, setting up and maintaining a jurisprudence platform will not be feasible in various corners of the world. We would like to stress that this in our view does not mean that there is no value in a jurisprudence platform outside the country or region of origin, in our case The Netherlands. We believe that international users can still benefit from the platform's supporting analyses, even if they are not bound by the code of conduct. Because science is a global endeavor, where the notion of what good science is broadly recognized despite some cultural or national differences, lessons from other countries still hold value. These lessons can be derived from individual cases that bear a striking resemblance to a current local case, to the extent that they can even establish precedent. More realistically, in a short term, the added value for international users from a platform like this one comes from other documents within the jurisprudence (e.g., Technical Fact sheets and commentaries). It is our goal to provide these in both the Dutch and English language to facilitate its use internationally. We note that heterogeneity in definitions and variation in rules and norms are the best drivers for new insights and lessons, but only when they are well described. These lessons can primarily be used to strengthen individual local systems by minimizing that heterogeneity. Overtime, jurisprudence platforms will also be useful in how the rules of the game of science are defined and applied beyond the local application. In a world with multiple jurisprudence platforms, each one fitting for its local application, but also available for those from outside would be most informative for various readers. The lessons that can be taken from

a comparison of those platforms may very well be a starting point to improve the way we do and organize science in general. So despite its local application, we believe that jurisprudence platforms, including its factsheets and comments, can be a string contribution to the of international efforts required to do so.

Conclusion

The use of a jurisprudence platform will help further strengthen the principle of legal certainty, and improve procedures during investigations of scientific misconduct. It will also help to promote scientific integrity in a constantly changing scientific enterprise. We have identified five prerequisites for an effective platform, that are all fulfilled in the Netherlands. We do recognize that certain drawbacks come with implementing a jurisprudence platform, but given the current nationwide system of scientific misconduct handling in the Netherlands, a jurisprudence platform seems to be a good option for the next step in the professionalization of this system.

This is true for the Netherlands, but it might also be useful in an international context. If other countries implement a similar system, a systematic and continuous analysis of science (mis)conduct worldwide is within arm’s reach.

CASRAI CREDIT statement

The Authors’ Contribution statement based on CRediT can be seen below.

	Writing – review & editing	Writing – original draft	Visualization	Validation	Supervision	Software	Resources	Project administration	Methodology	Investigation	Funding acquisition	Formal Analysis	Data curation	Conceptualization
Name														
Erkens														
Pet														
Rosendaal														
Siegerink														

Disclosure statement

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