KNOWLEDGE SECURITY
A MORAL ENQUIRY

GOVERNANCE & INTEGRITY INTERNATIONAL

TU Delft

Contents

Governance & Integrity International (G&I) works to ensure the integrity of organisations all over the world. G&I analyses, designs and redesigns, improves and builds integrity systems for and within organisations, thereby enabling them to act in accordance with justice. G&I's Education & Science team works together with universities and other academic instituations to systematically get to grips with all aspects of integrity in the broadest sense, from moral learning processes and prevention strategies to repression, and from social to academic and organisational integrity.

CREDITS

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Foreword

In a letter dated 27 November 2020 addressed to the Dutch parliament, the ministers (at the time of publishing) Engelshoven, Grapperhaus and Keijzer expressed their concerns about knowledge security with regard to international collaborations for scientific research (Ministry of Education, Culture and Science et al, 2020). The ministers pointed out "the revival of power-political competition between states and the way in which this affects international collaborations between knowledge institutions". They were referring in particular to the People's Republic of China, which with its prominent aim to acquire high-quality, sensitive knowledge in the Netherlands, according to the AIVD (the General Intelligence and Security Service of the Netherlands), pursues an "assertive foreign policy".

The letter raised three points for Dutch universities to address:

- *Signalling and preventing* the undesirable transfer of sensitive knowledge and technology which may imply negative consequences for national and international security and for Dutch innovative strength;
- *Signalling and preventing* covert influence and interference activities by state actors in higher education and science. Such influence may lead to self-censorship and infringement of academic freedom;
- *Proper consideration* of ethical questions related to collaborations with persons and institutions from countries where fundamental rights are not respected (Knowledge Security Office, 2022).

These concerns of the ministers are shared by TU Delft's Executive Board. The Board notes that the risk of state actors putting direct or indirect pressure on TU Delft in order to acquire specific knowledge, spread ideologies, and prevent knowledge acquisition and knowledge sharing, has increased over the past few years. According to the Board, "This pressure presents a threat to the integrity of the university, its collaboration partners, employees and students" (Delta, 28-10-2021). In the same document, Tim van der Hagen, chairman of the Executive Board, admitted with a sigh: "Three years ago, our collaboration with China could not go far enough; but now we cannot be careful enough."

TU Delft wants to share responsibility for Dutch knowledge security policy and for protecting universal values within international collaborations. Yet its ambition to collaborate with Chinese and other knowledge partners aligns with its strategic agenda to be a top university, as stated in the TU Delft Strategic Framework 2018-2024 Impact for a better society (TU Delft, 2018). For TU Delft, finding

an appropriate approach to engaging in international collaborations against the backdrop of the risks posed to knowledge security is therefore a matter of urgency: how is it possible to ensure honest, secure and strategic international collaboration, while at the same time paying due attention to the risks associated with knowledge security?

It is for this reason that in 2021, TU Delft's Executive Board set up the temporary Integrity in Third-Party Collaboration committee at the Faculty of Electrical Engineering, Mathematics and Computer Science (EEMCS). During a pilot project – a testing ground – the committee was to focus on weighing up current, complex proposals for collaborations with external partners who would be put forward by the EEMCS faculty. The aim of the testing ground was to give substance to a moral investigation into decisions concerning international collaboration and knowledge security. Researchers from EEMCS conducted the research themselves. The committee's work was supervised by Governance & Integrity International.

The testing ground was set up as a moral experiment within a moral learning process. During the committee's moral deliberations, decisions about envisaged international collaborations in which there were doubts about knowledge security were examined for their moral correctness. Extensive reports were made about the investigations in the testing ground. This booklet is a summary of the most important starting points and findings.

Preface

In this booklet, we describe the moral investigation method that was used (chapter 2) and offer an overview of the work carried out by the Integrity in Third-Party Collaborations committee (chapter 3). We offer insights into the core dilemma that arose in the decisions under investigation. For instance, we discovered that these decisions always involved the restriction of two principles of academic research: the human right to science, and academic freedom (chapter 4). During our investigations into the considerations underlying the decisions about knowledge security and international collaborations, we came upon a list of moral principles that recurred to a greater or lesser extent each time (chapter 5). In the final chapter, we make recommendations and offer perspectives whereby we bring together the moral learning process and the compliance practice (chapter 6). It is only through an integral approach that universities and research institutions can ensure that when engaging in an international collaboration, they are not intentionally or unintentionally complicit in undermining national or international security, democracy, the legal order or the rule of law. This approach also ensures that they do not carry out any criminal acts, and that they do not contribute to the erosion of academic freedom, nor to violations of human rights and the right to science.

Problem

Knowledge security is about…

… the undesirable transfer of sensitive knowledge and technology, which has negative consequences for national and international security and for Dutch innovative power;

… covert influencing and interference activities of state actors in higher education and science. Such influence may lead to self-censorship and the infringement of academic freedom.

… collaborations with persons and institutions from countries where fundamental rights are not respected.

1. Knowledge security: a rampant problem

International collaboration with universities, research institutions and businesses is the fuel powering high-quality financed research, researchers' careers, and a university's reputation. Such collaboration forms the basis of the human right to science and academic freedom. In most cases, international collaboration with state or non-state actors is therefore a good thing. However, it's not that simple.

1.1 Unease and concerns

> "The open character of Dutch science has given us a lot, but it also makes us vulnerable to espionage, takeovers, investments and undesirable technology and knowledge transfer." (AIVD, MIVD, NCTV, *Threat assessment of state actors*).

Over the past few years, unease about collaboration with state and non-state partners has grown (Rathenau Instituut, 2020, 2022). China in particular is under a magnifying glass. The reason for this is that many universities, including TU Delft, have collaborative alliances with Chinese universities or with companies or institutions linked to China. There is great concern about China's assertive foreign policy, the authoritarian character of the Chinese state, and China's poor or non-observance of human rights. What's more, many Chinese students are studying in the Netherlands, and are vulnerable to influence from China or to discrimination from the Netherlands: "Can we trust them?" Since 24 February 2022, when the war in Ukraine began, unease about knowledge security has grown even further. Democratic constitutional states, for which human rights are the benchmarks, are facing authoritarian, non-democratic world powers that violate human rights and do not shy away from aggressive, violent international politics. This is causing Dutch universities to place knowledge security under a sharp focus.

A world without applications of scientific research is unthinkable. We encounter science in everything from chemical fertilisers and surveillance cameras to solar panels and healthcare robots, hearing aids and battlefield drones. Scientific knowledge is used to solve problems large and small throughout the world. But such knowledge can just as easily be used against national and international security, against the rule of law and to undermine constitutional states and democracy. Technology is being used by criminals, in wars, for terrorism and to oppress population groups. This is why modern research universities cannot be bystanders who stand aside when knowledge security is at stake. In a world that revolves around knowledge, universities must be active geopolitical actors who fight injustices caused by misuse of science, and who stand for a just, prosperous, peaceful and secure world.

"What we should and shouldn't do is something we don't always have an answer to. The situation isn't just black-and-white. If only it were that simple. I think it's important for us

now at TU Delft to engage in debate with one another, and gradually learn which choices to make." (Delta, 05-07-2021). This was how Tim van der Hagen summarised how knowledge security and international collaboration are presenting TU Delft's management and researchers, for whom international collaboration is of great importance, with difficult decisions to make. Knowledge security is a "wicked problem" – and a rampant one.

1.2 Signalling, prevention and assessment

Research into knowledge security reveals that there is a lot at stake when deciding to work together with international partners in (authoritarian) countries. International collaboration and knowledge security touches on the rights, interests and wishes of many of those concerned: students, researchers, supervisers, financers and their partners, consumers of science, and members of the public. This applies anywhere in the world, nearby and far away, now and in the future. *Signalling, prevention and assessment* are the key words used by the ministers in their letter urging the universities to take action. Several publications (Kamerbrief, 2020; UNL, 2020; KNAW etc., 2022; Loket Kennisveiligheid, 2022) advocate "an agile and transparent approach" to knowledge security in international collaborations. In our view, signalling, prevention and assessment entail an integral approach to knowledge security in international collaborations, supported by four pillars: a preventive cycle; a repressive apparatus; moral deliberation; and moresprudence.

> A **preventive cycle** signals the possibility of and prevents universities and research institutions from being complicit, intentionally or unintentionally, in the undermining of national or international security, the rule of law, democracy and the constitutional state; criminal activities; the erosion of academic freedom or the violation of human rights or the right to science through international collaboration with state or non-state partners.

> A **repressive apparatus** signals, investigates and punishes violations of rules and regulations in respect of knowledge security involving international collaboration. The apparatus ensures that enforcement is practised with care in international collaborations.

> In **moral deliberation**, questionable decisions on International collaboration and knowledge security are considered on the basis of their moral correctness. The decisions taken will do justice to all those involved, and wrong decisions should be avoided. Deviations from the mission and principles of the university will be signalled at an early stage, thereby reducing the burden on employees to form their own judgements.

> Moral deliberation leads to **moresprudence**. This is grounded, authoritative moral knowledge about international collaborations involving knowledge security which guides scientific practice, university governance, national and international policymaking. moresprudence leads to knowledge that is transferable within and between universities. It may also lead to the refinement of policies, rules or instruments, or to further moral investigation.

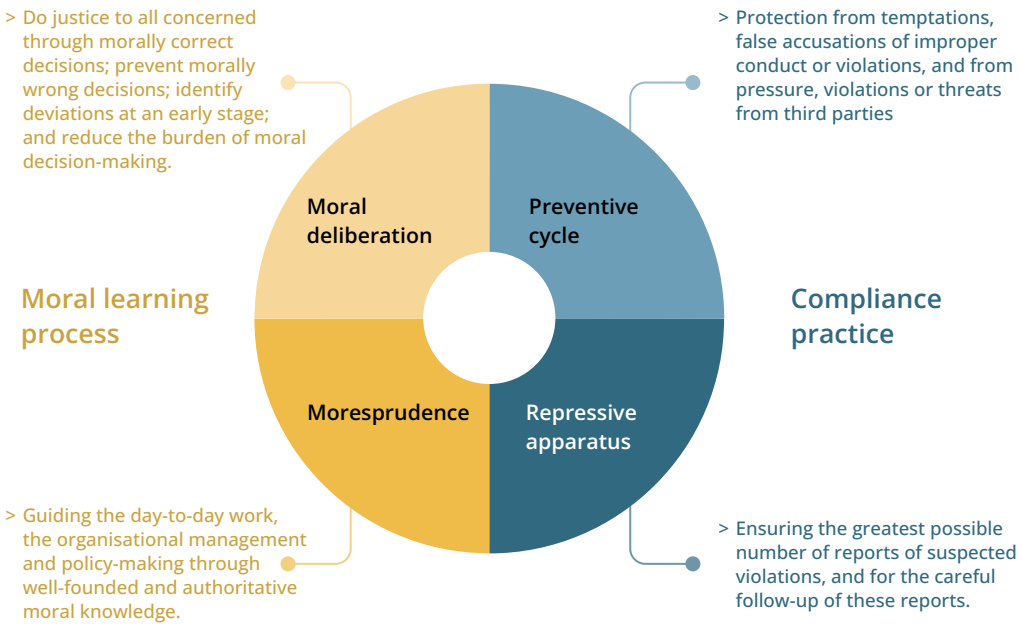


Figure 1.

1.3 Self-regulation

In various publications and in consultation with the Dutch government, Dutch universities recognise the need to actively get to grips with knowledge security. But there are also concerns about the limitation of academic freedom, the right to science, the independence of universities, the openness of knowledge institutions, the decline of Dutch innovative strength and opportunities for high-quality academic research. The UNL and its successor, the Universities of the Netherlands, have therefore warned against an overly rigid approach to knowledge security (UNL, 2020). This has been endorsed by (then) minister Dijkgraaf, who wants knowledge security to become an "integral

part" of university policies, and to make "binding agreements" about this. Yet he does want to guard against "blunt instruments" that could cause the knowledge system to be put "behind lock and key".

Within this tension-filled area, universities want to be able to weigh up the various considerations themselves. With regard to finding a suitable approach to international collaborations for scientific research and education, and a balanced approach to knowledge security, the universities therefore advocate self-regulation with governmental support. Universities such as TU Delft can only perform their important work if they are independent. An independent university provides the best guarantee of the right to science, academic freedom, scientific collaboration and excellence in scientific research. The legitimate focus on knowledge security may lead to the restriction of this independence by a regulatory and intrusive government. The Universities of the Netherlands (UNL) has expressed its fear that all the attention being paid to knowledge security may lead to interventions that are too rigid. This is why the universities are keen to take a responsible approach to knowledge security themselves.

1.4 The testing ground for the committee for Integrity in Third-Party Collaborations

The question of how such a self-regulation system should be set up is a crucial task for universities. For this reason, TU Delft's Executive Board set up a temporary Committee for Integrity in Third-Party Collaboration together with the Faculty of Electrical Engineering, Mathematics and Computer Science (EEMCS) in 2021. In so doing, TU Delft was able to give substance to a moral learning process about international collaborations involving knowledge security. In a pilot project – referred to by the Executive Board as a testing ground – the committee was to focus on making moral deliberations "regarding current, complex proposals for collaborations with external partners, which will be put forward by the EEMCS faculty".

The testing ground of the Integrity Committee for Third-Party Collaboration represents an experiment with the moral learning process. During the committee's moral deliberations, decisions about proposed international collaborations whereby there are doubts about knowledge security are examined for their moral correctness. The focus is on analysing collaborations with partners in (authoritarian) countries outside the European Union. This testing ground for the moral learning process had to find out which key dilemmas and moral principles are at stake in decisions on international collaborations involving knowledge security; whether the method of moral judgement and moral deliberation is of value in such decisions; and how to develop the process of advising scientists on these kinds of issues.

The testing ground for Integrity in Third-Party Collaboration was a self-examination from the very start. As part of this self-examination, the eight committee members – who were all prominent scientists and experts from EEMCS and TU Delft – conducted their own moral assessment of the prospective proposals for international collaboration in the light of knowledge security. With this in mind, the committee members were trained in the method for forming moral judgements. They worked as co-researchers throughout the process, together with the specialists from Governance & Integrity International (G&I) who supervised the moral judgement formation process. This was of great importance for the pilot, because it enabled the development of the envisaged self-regulation process with respect to knowledge security in international collaborations, where scientists have a key role to play. TU Delft intends to use this testing ground to make a substantial contribution to the development of self-regulation by Dutch universities where international collaborations and knowledge security are concerned.

An independent university provides the best guarantee of the right to science, academic freedom, scientific collaboration and excellence in scientific research

Method

Just science…

'Just science' stands for a scientific practice organised in such a way as to ensure that scientific research does justice to people, animals, nature and the organisations with which and for which it works – both now and far into the future.

Morally just…

A decision is not morally just merely because it conforms to a set of norms and values, or to applicable laws and regulations. All we know at that stage is that the decision is normal or lawful.

A decision is morally just if it does justice to others.

A decision is morally just if it takes sufficient account of the rights, interests and wishes of all concerned.

2. Moral judgement formation and moresprudence

The choice to subject decisions on prospective international collaborations with state and non-state partners in authoritarian countries to a moral investigation was innovative and unconventional. In order to attain trustworthy and measurable moral knowledge about international collaborations involving knowledge security, one first has to answer three questions: When is a decision morally just? How can we arrive at a morally just answer? How can examining individual cases lead to moral knowledge?

In the Integrity in Third-Party Collaborations testing ground, individual decisions about a prospective collaboration are examined for their moral correctness. But when is a decision morally right? The answer to this question leads us to the moral judgement measure that we call justice: a decision is morally correct if justice is done to others. We discuss this answer in (2.1). The second question leads to the procedure whereby we examine a decision during a moral deliberation. This procedure – leading in seven steps to a morally correct decision – is discussed in (2.2). In the testing ground, we examined eight decisions about a prospective collaboration. How can these eight decisions lead to moral knowledge that is also applicable to future decisions about international collaborations and knowledge security? This brings us to moresprudence as grounded authoritative and guiding moral knowledge (2.3).

2.1 Justice: doing right by others

Morally correct decisions whereby much is at stake always disadvantage someone. This is also the case with decisions about international collaborations involving knowledge security: whatever decision is taken, someone is always seriously disadvantaged to a greater or lesser extent. A partnership with a company may be terminated; someone cannot take the next step in his or her career; or there are financial consequences. A decision about International collaboration and knowledge security may be unsettling and raise doubts due to the high moral costs that the decision may entail. This brings us to the key question: how can we know whether a decision is morally correct?

Justice: doing right by others

The short answer is that a decision is morally correct if justice is done to others, i.e. To everyone who has to bear the consequences of that decision. 'Doing right by others' is the measure that can be applied to every decision in order to determine whether it is morally right. We use justice as the measure for moral judgement. A decision about whether or not to enter into an international collaboration is morally right if it is in accordance with with justice: if it does right by others (De Jong, Geraedts, Meij, 2006; De Jong, Meij, Moerman, 2016).

Why make moral judgements?

- **To examine:** to ensure morally correct decisions that do right by all those involved in knowledge security involving international collaboration, by carefully assessing their rights and interests.
- **To obligate:** to help to determine and refine the rights of those involved, so that there are clear lower limits that are protected in decisions about internatio-nal collaborations.
- **To prevent:** To prevent ill-considered and unintended morally wrong decisions from being made.
- **To signal:** to show at an early stage when international collaboration threatens to deviate from the mission and moral principles of the university.
- **To unburden:** To reduce the moral jud-gement burden on individual scientists.
- **To protect:** to protect scientists' integrity, and to protect them from moral distress or moral injury.

Taking sufficient account of all concerned

Decisions on international collaborations involving knowledge security always involve many others whose rights, interests or wishes may be affected. For instance, researchers, students, faculties, the dean, the Executive Board, the university, prospective partners, the Dutch government, Dutch citizens, and people elsewhere in the world – now and in the future. In order to form an accurate judgement on whether a prospective collaboration is morally correct – in other words, whether it does right by others – we must know which rights, interests and wishes of those involved are at stake. Once we know which rights are at stake, we can make a decision that takes account of these.

We describe doing right by others as taking 'sufficient account of the rights, interests and wishes of all those involved.' 'Morally just' is therefore not the same as 'in accordance with prevailing norms and values' or 'in accordance with laws and regulations'. Examples of the above could be the university's mission, current export and sanction legislation, or Technological Readiness Levels. In that case, a decision may well be normal or lawful, but not necessarily morally correct. Justice – doing right by others – goes deeper. For scientific research and knowledge security, this is of great importance. After all, science often anticipates what is considered normal. Incremental scientific insights may raise new, previously unexamined moral questions for which no laws or regulations yet exist. This also applies to international collaborations involving knowledge security.

Rights, interests and wishes

The distinction between rights, interests and wishes helps to make a proper assessment in decisions about international collaborations involving knowledge security. Wishes are preferences that those involved may bring up in relation to their pursuit of wealth, freedom and happiness. Interests are to do with the aims that those concerned set themselves in this respect. For example, it is in researchers' interest to do as much research of their own choosing as possible. This contributes to a good international track record of respectable scientific research, authoritative and internationally respected publications, and – who knows – a better world. But you are not entitled to 'as much research of your own choosing' as possible. Interests can be met. Interests can be negotiated. Interests can be promoted or damaged.

With rights, the situation is different. Rights describe a minimum of an interest that we must respect, because otherwise we do injustice to others. An example can clarify this. It is true that each and every one of us has an interest in freedom. Since the end of the eighteenth century, with the French Revolution and the *Universal Declaration of the Rights of Man and the Citizen*, we have come to view freedom not only as an interest, but as a right that deserves protection. Yes, even as a prerequisite for a decent human life. From the moment that freedoms were recognised as the individual right of every human being – e.g. freedom of speech - they have been surrounded by laws, rules and customs that protect these rights. For instance, privacy legislation protects the inviolability of personal privacy in order to freely decide on the life you want to lead, without unwanted interference from others. Violation of privacy becomes a threat to human dignity. The twentieth century brought with it an explosion of rights. For many years already, these encompass not only rights related to freedom, but also economic, social and cultural rights. The rights of women, of employees, of people with disabilities, of children, of animals and, recently, the right of employees to work at a decent organisation where they are not overpowered, treated with contempt or humiliated.

Rights enable lower limits to be set. From rights, obligations towards others follow. If we sink through the lower limit, we commit an injustice. Rights must be respected and protected. Interests can be damaged; rights can be violated. This also leads to an unexpected consequence: the more rights we recognise, the more we can violate. This perhaps explains the moral unease that characterises our current zeitgeist. Rights also play a prominent role in international collaborations involving knowledge security, such as with the right to science or to academic freedom. In the Integrity in Third-Party Collaborations testing ground, we are trying to gain more insights and a better grip on these rights.

In moral judgement formation on a decision concerning a prospective international collaboration, interests recur in the form of *arguments of consequence*. These describe the advantages or disadvantages for the interests of those involved, following a decision of whether or not to enter into a collaboration.

Rights are formulated as *arguments of principle* that describe obligations arising from the rights of others. Because rights are about lower limits, principles bring decisive weight to the balance in a moral judgement. The protection of a human right outweighs a researcher's scientific reputation. Principles are the trump cards when determining the moral correctness of a decision. When forming a moral judgement, principles must first be weighed against one another, after which it is time to consider which interests carry the most weight.

Damage limitation

Let's suppose that, after careful moral deliberation, it has been decided that it is morally right not to enter into a prospective collaboration. Although the decision is morally just, this does not make the arguments in favour of starting the collaboration disappear. These may include the advantages for the scientist's academic career, the continuation of promising research, or respect for academic freedom. But they just carry less weight. The realisation that even morally just decisions almost always entail damage to those involved – particularly if there is a lot at stake – forces us to keep these moral costs as low as possible. The only way to do justice to all those involved is there is a serious effort to make good, reduce or compensate for the damage that the decision causes them.

Sufficient

A decision takes sufficient account of the rights and interests of all concerned if:

> the rights, interests and wishes of all concerned have been considered;
> all rights have been identified, respected and protected;
> the collective interests of all concerned, and the individual interests of each individual, have been maximised;
> the damage caused by the decision to the rights and interests of those concerned is made good, reduced or compensated to the greatest possible extent.

Having made these considerations, we can summarise justice as a moral judgement measure as follows:

> A decision is not necessarily morally just if it simply conforms to a set of norms and values, or to applicable laws and regulations. All we know at that stage is that the decision is normal or lawful.
> A decision is morally just if it does justice to others.
> A decision is morally just if it takes sufficient account of the rights, interests and wishes of all concerned.

To summarise, justice as a moral judgement measure sets the direction of moral judgement in moral deliberation. Through this requirement to do justice to the rights, interests and wishes of all concerned, moral deliberation also enables us to discover which sorts of decisions international collaboration and knowledge security entail, and which rights and interests are at stake.

2.2 Procedure: seven steps to a morally correct judgement

The second question brings us to moral judgement as a moral research procedure which, provided it is carried out well, will lead to an unambiguous and morally correct decision. The judgement measure points the way, while the procedure paves the path. The procedure consists of seven steps (De Jong, Geraedts, Meij, 2006; De Jong, Meij, Moerman, 2016).

Moresprudence is grounded, authoritative and guiding moral knowledge

Procedure: seven steps towards a morally correct decision

Step	Goal
1. What is the decision or choice I must make	To structure the decision as two plausible alternatives to choose between.
2. Who are those concerned: whose rights, interests or wishes are at stake?	To bring into view those who are concerned: those who have to bear the burden of the decision, because their rights, interests or wishes are affected.
3. Who takes the decision in this instance: who bears the moral responsibility for the decision	The answer must always be "I do". The aim is to enable participants to take responsibility for, and be accountable for, the decision that is ultimately taken.
4. What information do I need in order to take the decision in a responsible manner?	To gather all the information required to make responsible judgements.
5. What are the arguments for both of the alternatives?	To identify all relevant arguments supporting the two alternatives.
6. What is my conclusion? What can be done to limit the damage?	To make a decision based on the arguments presented. To examine how to reduce the harm caused by the decision.
7. How do I feel about the decision that has been taken?	To check the decision in terms of the feelings it arouses, in order to see whether anything has been overlooked.

2.3 Moresprudence: from case studies to knowledge

The aim of setting up the Integrity in Third- Collaborations testing ground was not solely to reach a morally correct judgement on specific decisions; the purpose of the investigation was also to generate moral knowledge that could provide guidance on future decisions about international collaborations where knowledge security is concerned. We refer to this knowledge as moresprudence. Moresprudence is grounded, authoritative and guiding moral knowledge.

> **Grounded** – Moresprudence is rooted in practice. It relies on examining a representative number of moral decisions, with the aid of the moral judgement method.
> **Authoritative** – Moresprudence derives its authority from methodically careful and unambiguous investigation into these decisions, by researchers authorised by the organisation to do so.
> **Guiding** – Moresprudence is guiding because the outcomes of moral judgement are consistent with justice as a moral judgement measure and have been compared with relevant theories and other research.

Moresprudence is a form of qualitative moral research and empirical ethics (Appiah 2008; Ives, Dunn, Cribb, 2017). Just as with other empirical sciences, one swallow doesn't make a summer. After using moral deliberation to examine a single case of international collaboration and knowledge security, we know what is morally correct in that case. But we do not yet have moral knowledge applicable to multiple cases. How can we then use moral deliberation on individual decisions to arrive at reliable knowledge that goes beyond the scope of individual cases? Our testing ground is unconventional in that it is not intended to support professionals dealing with complex moral questions arising from their work (Ashcroft et al, 2005; Van Dartel, Molewijk, 2020). Rather, in our investigation, moral deliberation is what organisation theory calls a c*ommunity of (moral) inquiry in a community of (scientific) practice* (Argyris, McLain-Smith, Putnam, 1985). Each moral deliberation is a moral experiment in international collaboration and knowledge security. On behalf of the organisation and under expert supervision, the participants, who are trained in the moral judgement method, examine questionable decisions derived from university practice for their moral correctness.

A precise protocol is drawn up from the outcome of each moral deliberation, and this is then kept in the moral archive for Knowledge Security in Third-Party Collaborations. The unified method enables protocols to be mutually comparable. Thematic analysis of the protocols leads to insights into underlying patterns and recurring principles (Verhoeven, 2020). A comparison of the outcomes of this analysis with state-of-the-art knowledge and research in the field of International collaboration and knowledge security generates grounded, authoritative and guiding moral knowledge that is also relevant outside the cases that have been studied (Governance & Integrity International, 2022).

Work in progress

When examining complex decisions about international collaborations and knowledge security, does moral deliberation provide us with any building blocks, such as moral principles, that EEMCS can use to develop an assessment framework that can be used more broadly within TU Delft?

What practical value does the methodology of moral deliberation have as an instrument of careful judgement formation in decisions about International collaboration and knowledge security?

How can a possible future standing committee advise and support scientists who wish to enter into a collaboration with third parties?

3. The design and implementation of the study

In the previous chapter, we set out the methodical principles of the Integrity in Third-Party Collaborations testing ground. In this chapter, we outline how the 2022 research was conducted by the Committee for Integrity in Third-Party Collaborations. We successively discuss the subject of the study and the question (3.1); the study design (3.2); and the way in which the study was carried out (3.3). We conclude with the most important insights about the study (3.4).

3.1 Subject of study and question

The testing ground should answer the question of what kind of contribution a moral learning process can make to the self-regulation of the university in respect of international collaboration and knowledge security. The testing ground should provide the answer to the following questions:

When examining complex decisions about international collaboration and knowledge security, does moral deliberation deliver building blocks, such as moral principles, that EEMCS can use to develop an assessment framework that can be used more broadly within TU Delft?

What practical value does the methodology of moral deliberation have as an instrument for careful judgement-forming in decisions involving international collaboration and knowledge security?

How can a possible future standing committee advise and support scientists who wish to enter into a collaboration with third parties?

3.2 The design of the study

In order to answer the study questions, we chose the following starting points. Together, they form the research design.

> **Self-examination –** From the very beginning, the testing ground was a self-examination in which scientists and experts made their own moral judgements on prospective proposals for international collaboration in the light of knowledge security.
> **Moral learning process –** The testing ground only focused on the moral learning process, not on the compliance practice.
> **Type of cases –** The choice of which cases to investigate was limited to state and non-state collaborations with partners who were formally or informally linked to 'authoritarian countries outside Europe'. Previously-made decisions were provided by EEMCS.
> **Reliable –** The cases that were studied had to provide a reliable picture of the dilemmas that researchers face when entering into international collaborations involving knowledge security issues.
> **Methodically unambiguous –** The process and the outcome of the moral deliberation during which the cases were examined had to be sufficiently thorough and mutually comparable. This was the reason why we used the moral judgement method.
> **Incremental insights –** The study was set up in such a way that dealing with cases through moral deliberation could lead to incremental insights which could be used in subsequent cases.

The testing ground was a self-examination in which scientists made their own moral judgements on proposals for international collaboration

3.3 The implementation of the study

Figure 2 shows the steps for the entire implementation of the study, from formulating the research question to developing the recommendations. The moral deliberation, where the formation of moral judgement takes place, is a part of this.

Figure 3 represents the steps within the moral deliberation up to and including establishing the recommendation to the dean.

The implementation:

> The researchers from TU Delft and the project leaders from G&I were joint participants in the moral deliberation. The specialists from G&I ensured uniformity in the guidance, and quality in the reporting.
> All but one of the six case studies selected involved state and non-state partners related to China, such as universities, Netherlands-based subsidiaries of international corporations. The non-China case study involved a financial institution.
> Figure 4 gives an impression of the type of collaboration and scientific research involved.
> The decisions studied were always formulated as a choice between two alternatives: entering into the prospective collaboration or refraining from doing so (at least for the time being). This meant that the stakes were high for those concerned (collaborate or not).
> After the moral deliberation, the case studies were investigated further by G&I. This led to moresprudence, enabling us to explore principles in greater depth and formulate additional insights.

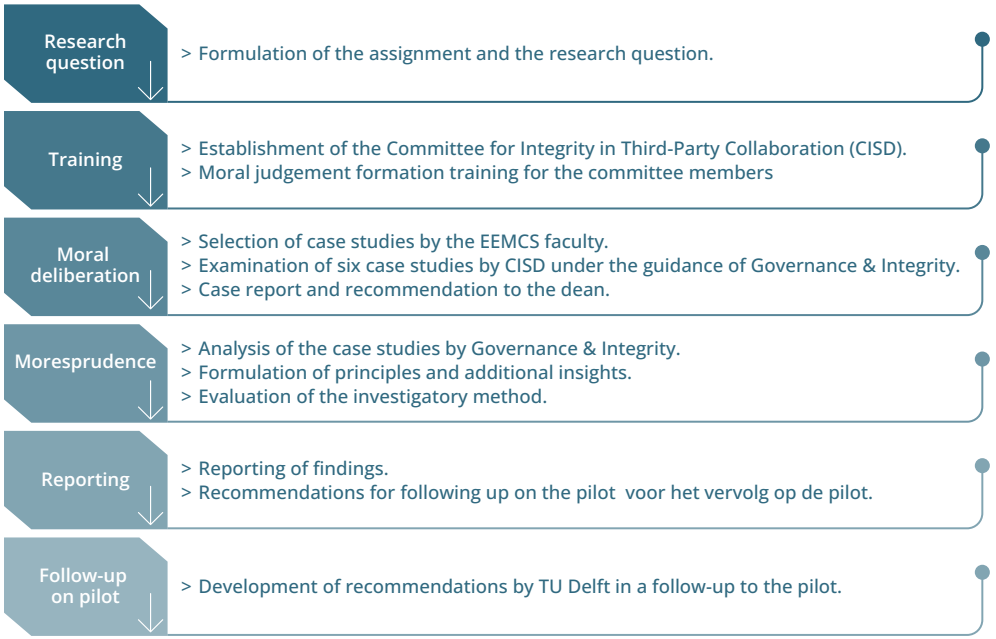


Figure 2.

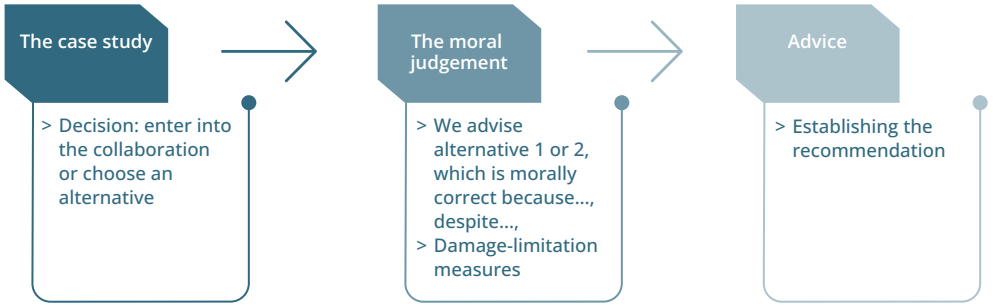


Figure 3.

What kind of collaboration was it?

> Joint undergraduate programme.
> Development of Monolitic GaN power converters.
> New radar-sensing techniques.
> Fairness-Aware Machine learning.
> GaN technology and audio amplification.
> High-performance, low-power chips.

Figure 4.

3.4 Looking back and forward

What is the scope of the Integrity in Third-Party Collaboration testing ground? The number and type of case studies that were studied in the testing ground are, of course, limited. The focus on China does no justice to the fact that knowledge security also plays a prominent role in other international collaborations. The case study concerning collaboration with a financial institution already indicated as much. Nevertheless, we can derive answers from the testing ground to the questions that we posed at the beginning of this chapter.

Does moral deliberation when examining complex decisions about international collaboration and knowledge security give us building blocks, such as moral principles, that EEMCS can use to develop an assessment framework that can be used more broadly within TU Delft?
The testing ground produced two important results. The first of these was the insight that the core dilemma related to International collaboration and knowledge security results from the possible curtailment of the human right to science and academic freedom by way of an appeal to safeguard knowledge security. The right to science and academic freedom are determinative principles underpinning the university. The fear of their curtailment explains the unease that exists about knowledge security. We discuss these two principles further in chapter 4.
The second result concerns the question of which principles can, from the perspective of knowledge security, place limits on the right to science and academic freedom. In the testing ground, we discovered a set of principles that we discuss further as 'the principles of International collaboration and knowledge security' in chapter 5.

What practical value does the methodology of moral deliberation have as an instrument for forming careful judgements on decisions about International collaboration and knowledge security?
The testing ground proved that the moral judgement formation method in moral deliberation was appropriate for examining difficult decisions about International collaboration and knowledge security, and for arriving at a morally correct judgement. This method objectifies the decision, thereby making the assessment reliable while also allowing the consequences for all those concerned, now and in the future, to be taken into account. The moral judgement method and the research in the moral deliberations also made the participating researchers feel safe and respected in the competitive world of science. We will return to this in chapters 5 and 6.

How can a possible future standing committee advise and support scientists who wish to enter into a collaboration with third parties?
The testing ground has led to moresprudence on the rights of those concerned, and offers a reference point for the further organisation and expansion of the moral learning process for knowledge security involving international colla-boration within the university. The testing ground also offers reference points for a preventive cycle and repressive apparatus. We turn our attention to this in chapter 6.

Moral judgement formation in moral deliberation is proven to be appropriate for making difficult decisions about international collaboration and knowledge security

Result 1: the core dilemma

"Academic freedom is an indispensable aspect of quality of learning, teaching and research in higher education as well as of democracy. It is a distinct, fundamental democratic right and protects not only individual scholarship and expression but also the free functioning of academic institutions in democratic societies. Institutional autonomy is constitutive for academic freedom. Academic freedom designates the freedom of the academic community. Academic freedom is also an essential element of democracy. Societies cannot be genuinely democratic without honouring academic freedom and institutional autonomy." (European Higher Education Area, Ministerial communiqué 2020 Annex 1)

"The States Parties to the present Covenant undertake to respect the freedom indispensable for scientific research and creative activity." (International Covenant on Economic, Social and Cultural Rights: Article 15.3)

"The arts and scientific research shall be free of constraint. Academic Freedom shall be respected." (Charter of Fundamental Rights of the European Union: Article 13)

4. Core dilemma: the right to science and academic freedom versus knowledge security

Since the end of 2020, a great number of initiatives and publications about international collaboration and knowledge security have seen the light of day. Among them is the UNL Framework for Knowledge Security at Universities, the National Knowledge Security Guide, and the Knowledge Security Desk (UNL 2020, KNAW 2022, Knowledge Security Desk, 2022). The common factor in all these publications and initiatives is, on the one hand, the recognition of the need to actively get to grips with knowledge security. On the other hand, they reveal concerns about the limitation of academic freedom; the right to science; the independence of universities; the openness of knowledge institutions; and the reduction in Dutch innovative strength and of opportunities for high-quality academic research.

The testing ground was set up due to unease over the concerns mentioned above. Examination of the case studies resulted in the deepening of that unease. In the testing ground, the key dilemma was found to be knowledge security versus the limiting of the right to science and to academic freedom. If international collaboration on scientific research and education is restricted by invoking knowledge security, this affects the right to science and to academic freedom. The right to science and to academic freedom carry considerable weight because these are two fundamental human rights. What's more, these are normative principles that justify the existence of universities and scientific research. In this chapter, we give a brief outline of these rights and of the responsibility they entail.

4.1 The human right to science

The human right to science was inaugurated in 1948 in de Universal Declaration of Human Rights (UDHR, UN, 1948). In 1976, this principle gained legal force when the International Covenant on Economic, Social and Cultural Rights (ICESCR) was ratified (UN, 1966). States that are signatories to the covenant undertake to take measures to fully realise the right to science and the development and dissemination of science and culture. They respect the freedom indispensable to carrying out scientific research and creative work. Lastly, they stimulate international contacts and international collaboration in the fields of science and culture.

Article 27 of the Universal Declaration of Human Rights (1948):
1. Everyone has the right freely to participate in the cultural life of the community, to enjoy the arts and to share in scientific advancement and its benefits.
2. Everyone has the right to the protection of the moral and material interests resulting from any scientific, literary or artistic production of which he is the author.

Article 15 (1) International Covenant on Economic, Social and Cultural Rights (1966):
Everyone has the right to:
A. Take part in cultural life;
B. Enjoy the benefits of scientific progress and its applications;
C. Benefit from the protection of the moral and material interests resulting from any scientific, literary or artistic production of which he is the author.

Greater focus on the right to science

The right to share in the benefits of scientific progress; the right to participate in cultural life; the spiritual and material rights of researchers; together with the right to education, constitute what are described as cultural rights. The drafters of the UDHR regarded Articles 23 to 27, which describe the four cultural rights, as the most fundamental rights, because these are the rights that focus on "the realisation of the right to the full development of one's person" (Claude, 2002; Morsink, 1999; Porsdam, 2022).

For a long time, the human right to science received relatively little attention. This has been changing over the past decade, particularly through the publication of *General Comment No. 25 on science and economic,*

social and cultural rights in 2020 (United Nations, 2020; Mancisidor, 2022, Porsdam, 2019; Porsdam, Porsdam Mann, 2022; Saul, Kinley, Mowbray, 2014). The *General Comment* is recognised as authoritative for countries, including the Netherlands, that have joined the IVESCR. The Comment emphasises that scientific knowledge is distinct from other types of knowledge, such as revelation and worldview, because it relies on critical and experimental research, and is publicly falsifiable and testable. This makes science a resource for the well-being of every human being, anywhere in the world, now and in the future. The availability and accessibility of scientific knowledge is crucial to the quality of life of all people, irrespective of their religion, gender, race, origin or belief. This justifies the 'right to science' being a human right.

The university as guardian of the right to science

Universities are the guardians of the right to science. Unimpeded scientific research and the growth of scientific knowledge go hand in hand. In order to guarantee this free scientific research, the modern research university must keep its distance from ideological, political or economic influence (Rüegg, 2011). This is achieved through the university's institutional autonomy and independence. It is only as an autonomous institution that a university can serve the human right to science, so that humankind can enjoy the yields and benefits of scientific knowledge and its applications. Protection, promotion and restoration of the human right to science is the supporting principle of every university and institution for scientific research.

4.2 Academic freedom

Knowledge security also touches on academic freedom. "The ability to make research results freely available, and the freedom to choose research subjects, are and remain the most important academic achievements. Academic freedom is explicitly enshrined in the EU Charter and in the European Convention on Human Rights as a fundamental and human right", according to the UNL Knowledge Security Framework for Universities (UNL, 2020). Academic freedom is the second normative principle of a university and of scientific research.

About academic freedom

Academic freedom serves the practice of science, the human right to science and democracy. In its important 2021 publication about academic freedom, the Royal Netherlands Academy of Arts and Sciences provides an overview of what is at stake when it comes to academic freedom (KNAW, 2021). Academic freedom stands for:

> The choice of topics to be researched;
> The choice and application of one's own research questions and methods;

> Access to sources of information;
> The publication and sharing of information through conferences, lectures and memberships of scientific groups;
> The choice to enter into collaborations with scientific partners;
> The interpretation of scientific education.

Academic freedom is the right of every individual scientist. Yet scientists also have an obligation to act independently of third parties. Independence is one of the principles of scientific integrity. To ensure academic freedom, it is essential for scientists to be able to shape and share their education and research free from pressure from politics, business, civil society or public opinion. Independence is equally an important principle when scientists engage in international research collaborations. Academic freedom and the human right to science go hand in hand.

Universities as guardians of academic freedom

Academic freedom protects not only the freedom of research, but also the free functioning of academic institutions in a democratic society (European Union, 2020a, 2020b). Conversely, the institutional autonomy of universities protects academic freedom. Universities are not only guardians of the human right to science, but also of academic freedom. Therefore, academic freedom too requires universities to distance themselves from ideology, politics and economics. Universities must ensure independence. The KNAW also argues that academic freedom is not absolute. Nonetheless, the KNAW and the UNL advocate great restraint in limiting academic freedom, including when entering into international collaborations. Globalisation, working in academic networks, economic valorisation, and collaboration with non-academic partners make academic freedom a great, although inherently vulnerable, asset.

4.3 The right to science and academic freedom versus knowledge security

Knowledge security invokes the protection of national and international security and the rule of law; seeks to counter the possible covert influence of higher education and science; and aims to protect human rights in authoritarian states. This limits the human right to science and to unfettered scientific research and limits academic freedom. This represents the restriction of a human right.

On the other hand, the right to science needs institutions and scientific practitioners that distance themselves from forms of ideological, political or economic influence. After all, such influence leads to research and education in which various considerations that are not strictly scientific become decisive. Unconsidered international collaborations can also put pressure on academic freedom in universities and institutions for scientific research. The right to science and academic freedom cannot do without independent universities and accessible, reliable science that puts itself at the service of the right to science. Paying attention to knowledge security can limit the right to science, but

it can also protect it – namely where it contributes to an autonomous university and independent scientific research. Moreover, paying attention to knowledge security can contribute to safeguarding the independence of scientists and universities - and thus the human right to science (KNAW etc., 2018). When the right to science and academic freedom are limited, this can only be done on the basis of principles that trump these rights in special cases. Limiting academic freedom and the right to science thus requires careful consideration time and again.

4.4 Complicity

Dealing with the right to science and academic freedom in a responsible manner means that when engaging in international collaboration and research, universities and scientists guard against becoming unintended accomplices in undermining national or international security or the rule of law, academic freedom or the right to science. It means that they do not become complicit in violating human rights. Complicity is often stealthy, invisible and unintentional, because scientists often conduct research worldwide. Often with good intentions and with inspired colleagues. What's more, the consequences of scientific research may only become visible in the longer term.

> The boundless pursuit of academic freedom and the right to science, understood as unfettered scientific research, can, intentionally or unintentionally, result in complicity with the undermining of international security and the rule of law, the academic freedom of others, the right to science, and human rights.

Further to Birnbacher (2006), we distinguish four forms of complicity:

(1) You are directly part of the cause. For instance, when your partner uses an investigation into 'sophisticated audio equipment' to infiltrate the privacy of members of the public without you directly taking part in this as a researcher (direct complicity).

(2) You are indirectly part of the cause. For instance, if you are careless in handling sensitive scientific material that is on your laptop when visiting your collaboration partner, thereby enabling them to use your information for undesirable dual-use purposes (indirect complicity). (For ethics and dual-use, see Ehni, 2008; Miller, Selgelid 2007).

(3) Through the international collaboration, you lend acceptance to actions that are objectionable in the light of knowledge security. For instance, by entering into an international collaboration with a partner who does not respect human rights to a similar extent, thereby allowing other scientists to think that this is possible, and making human rights violations more likely (evaluative complicity).

(4) You condemn public acts that are reprehensible from the perspective of knowledge security, yet reap the benefits of collaborating with partners who are involved with these reprehensible acts. For instance, by publicly condemning the violation of human rights in China, yet entering into collaboration agreements with questionable Chinese partners (symbolic complicity).

International collaborations may thus involve complicity in acts that are reprehensible from a knowledge security perspective. In the case of direct and indirect complicity, a violation will almost certainly be involved. In the case of evaluative and symbolic complicity, there will be a morally wrong act. Preventing complicity is an important obligation in the responsible handling of the right to science and academic freedom. When it comes to protecting the right to science, preventive and repressive compliance is the right answer; the likelihood of evaluative and symbolic complicity is decreased through the moral learning process. Academic freedom is not solely a fundamental right of scientists. It is also linked to other fundamental rights. Scientists must take into account the legitimate rights and interests of the stakeholders in their research.

> Focusing on the right to science can limit the right to science and academic freedom, but it can also protect it

4.5 Knowledge security, self-limitation and moral judgements

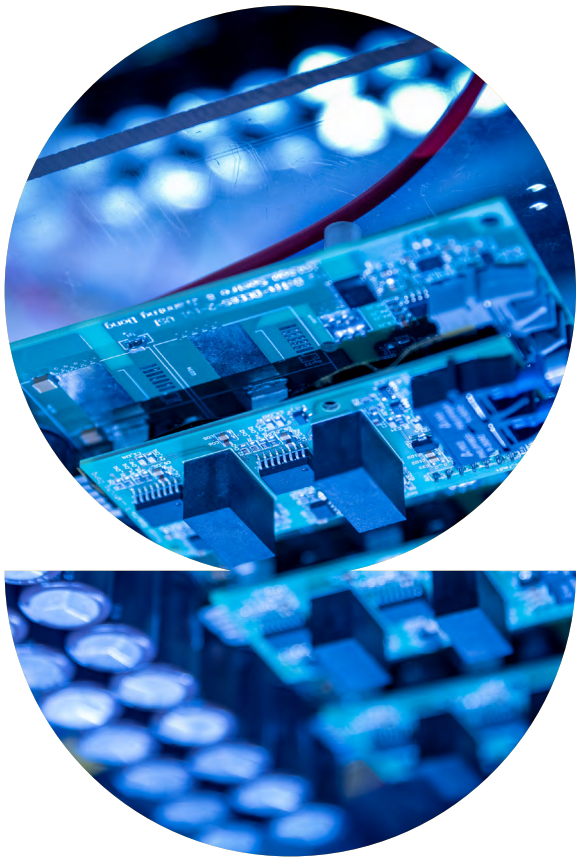
Decisions about international collaboration and knowledge security involve the following question: when does invoking knowledge security justify limiting the right to science and academic freedom? What are good reasons to limit academic freedom, especially in respect of International collaboration and knowledge security? What should be limited, why, and by whom?

This brings us back to moral judgement and the moral learning process. By examining decisions during a moral deliberation with scientists and experts, the limits of academic freedom and the right to science are explored by the academic community itself. By using moral judgement, self-limitation of academic freedom in international collaborations tests academic freedom and the right to science using justice as its measure. It is justice, which is understood as doing right by others, or as taking sufficient account of the rights, interests and wishes of all concerned, that helps define the boundary.

This brings us to the second result of the Integrity in Third-Party Collaboration testing ground. One important result from the testing ground is the insight that in decisions about International collaboration and knowledge security, more moral principles are involved than merely the right to science and academic freedom. When deciding whether or not a collaboration may go ahead, these principles must be assessed too. In chapter 5. we discuss a list of eleven moral principles. These moral principles are obligations that derive from the rights of those concerned, such as Dutch citizens, citizens elsewhere in the world, students, scientists, partners and universities. There may indeed be good reasons not to enter into a prospective collaboration, or at least to proceed with caution – reasons that in special cases may outweigh the right to science or academic freedom. For instance, when the prospective collaboration would make you complicit in human rights violations or undesirable dual-use. And also when the collaboration could weaken the independence of the university; damage the accessibility of science; or put undue pressure on the integrity or independence of the scientist. The promotion of fair partnership, a reduction in the disadvantages of knowledge security for researchers' careers and well-being; and a reduction in feelings of exclusion and discrimination also indicate weighty moral principles. A collaboration can also not go ahead (or at least not for the time being) when due diligence – a process to analyse risks and assess compliance with laws and regulations – has not yet been carried out. We consider this in more detail in the next chapter.

"Scientific knowledge and the awareness of individual scientists are indispensable, but not sufficient. It can only be the scientific community which should arrange committees to fulfill the necessary tasks resulting from the duties of [just science]" (Ehni, 2007).

The testing ground, in addition to international research, proves that self-limitation requires not a monologue but rather a learning dialogue (Argyris, McLain Smith, Putnam, 1985; Ehni, 2008; Miller, Selgelid, 2007). Self-limitation requires joint deliberation. This is not strange as far as scientists are concerned. Scientific research is, after all, always joint research carried out by a 'community of inquiry' of scientists. It is solely universities that, as moral learning communities, can be guardians of the human right to science and academic freedom, and can prevent complicity in unsafe national or international collaborations.



Result 2: principles

[1] Right to science: everyone has the right to participate in cultural life and to enjoy the benefits of scientific progress and its application.

[2] Academic freedom: all scientists have the right to the academic freedom indispensable to conducting scientific research.

[3] Human rights: everyone has the right to protection from direct or indirect violations of human rights by applications of science or technology resulting from international collaboration.

[4] Dual-use: everyone has the right to protection against the undermining of national or international security, the rule of law or democracy, as a result of the sharing of sensitive knowledge.

[5] Independent, accessible and reliable science

[5.1] University independence: everyone has the right to autonomous science and independent universities.

[5.2] Mental and material interests: scientists have the right to protection of their mental and material interests resulting from their scientific research.

[5.3] Scientific integrity: scientific staff have the right to adequate protection of their scientific integrity against internal or external pressures.

[6] Fair partnership: collaboration partners have the right to bear (joint) responsibility for the collaboration and the scientific research.

[7] Damage to well-being or careers: scientific staff have the right to adequate protection against possible risks or damage to their careers or well-being as a result of international collaborations involving knowledge security.

[8] Inclusive university community: students and staff have the right to expect that exclusion or discrimination that may result from a focus on knowledge security are prevented.

[9] Risks: everyone with whom and for whom an international collaboration is entered into, and who must bear the consequences of the collaboration, has the right to an appropriate level of research into the risks and permissibility of the collaboration.

5. Principles of knowledge security and international collaboration

A decision is morally correct if sufficient account is taken of the rights, interests and wishes of all concerned. Interests are formulated as consequential arguments – involving advantages or disadvantages to those concerned – that will arise in the future as a result of the decision. Rights are encountered as arguments of principle. With principles, we do not look ahead to the future, but to the obligations that follow from the rights of those concerned. Whereas arguments of consequence are about maximising the interests of all concerned, arguments of principle are about not falling through the lower limit defined by the principle. Rights establish the minima of a dignified human life. Human rights are an attempt to get a grip on this lower limit. The inviolability of the body is one such limit. But so is the right to freedom of thought, conscience and religion; the protection of privacy, freedom of association; the right to education; and, as we have already seen, the right to science.

These considerations are important to moral judgements on decisions relating to knowledge security in international collaboration with state and non-state partners from 'unfree countries'. Then too, interests and rights must be assessed. The principles are a trump card in this assessment. They set the limits for maximising the interests of all concerned. It is therefore important to know which principles play a role in decisions about International collaboration and knowledge security. The testing ground of the Integrity in Third-Party Collaborations committee brought to light eleven principles, two of which we encountered in the previous chapter: the human right to science and academic freedom. In this chapter, we give a brief description of the principles we found. We divide them into three groups: normative, guiding and conditional principles.

Normative principles	Guiding principles	Conditional principles
The moral foundation of the university. For the university, these normative principles concern knowledge security, academic freedom and the right to scientific education.	Putting normative principles into operation shows how they should be interpreted, and solidifies rights and the resulting obligations.	These formulate standards of care that should be observed in order to be able to judge the moral correctness of entering into a prospective agreement.

Principles are about not falling through the lower limit of human rights

Obviously, not all principles are relevant to every decision. Rights and interests must be assessed afresh in making each decision, and it must be considered whether those concerned are justified in claiming the rights formulated in the identified principles. As a rule of thumb when making a moral decision, the relevant principles must first be subjected to a comparative assessment. Following this, it should be considered how the interests can be maximised for all concerned.

5.1 Normative principles

[1] The human right to science

Everyone has the right to participate in cultural life and to enjoy the benefits of scientific progress and its application. Universities, institutions for scientific research, the government and scientists have the obligation to protect this human right.

The human right to science is about the right to scientific research and the fruits it yields. "Science is culture in capital letters. Science is a fundamental human need, and not only because of its consequences for other rights, but also as a need in itself. Science makes us human, just like literature or music, or history or language diversity, and therefore it is a necessity in relation to the concept of dignity." (Mikel Mancisidor, Vice-Chair, United Nations Committee on Economic, Social and Cultural Rights). Scientists, institutions for scientific research and the state government have the obligation to protect this human right. The relationship to knowledge security has been discussed in the previous chapter.

[2] Academic freedom

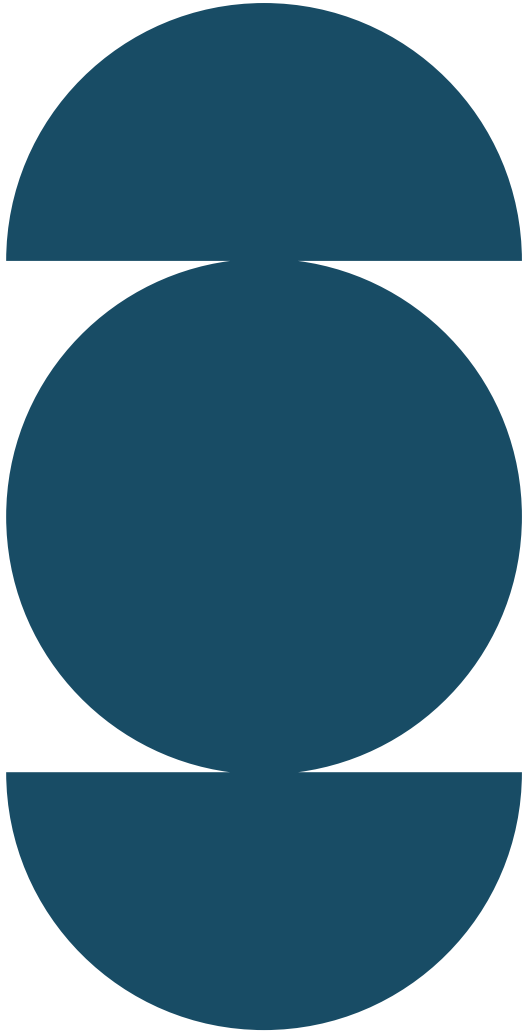
Academic freedom is the oxygen for conducting scientific research. Universities, institutions for scientific research, the government and the scientific press have the obligation to protect the academic freedom that is indispensable to conducting scientific research.

Academic freedom cannot be understood in isolation from the other normative principle: the right to science. Academic freedom is not the prerogative of a privileged scientist, but rather a necessary complement to the right to science. Without academic freedom, the right to science is not possible. The relationship to knowledge security has been discussed in the previous chapter.

5.2 Guiding principles

[3] Preventing human rights violations

Universities, institutions for scientific research and the scientific press bear responsibility for preventing complicity with direct or indirect violations of human rights resulting from a prospective collaboration with state or non-state actors, particularly where what may be referred to as 'non-free' countries are involved.



Complicity in human rights violations can occur consciously or unconsciously, and intentionally or unintentionally. For instance, research has shown that academic freedom and the value of research were 'automatically' valued more highly than knowledge security by university leaders when entering into collaborations with knowledge institutions in China (RON, 2020). This may unintentionally contribute to a more tolerant attitude among students, other science press or other universities towards human rights violations when entering into an international collaboration.

Complicity in human rights violations always involves the denial of fundamental rights, such as the right to freedom of expression, the right to education and healthcare, the right to participate in one's own culture, the inviolability of the body, etcetera. Human rights violations are never abstract and always intervene in people's daily lives. The violation of these rights, and intended or unintended contributions to this, are always associated with social suffering, overpowering, contempt and humiliation.

Addressing knowledge security in international collaborations means preventing, reducing or compensating for complicity in human rights violations. In the case of direct or indirect causal involvement, the consequence is that the intended collaboration does not go ahead. In the case of evaluative or symbolic complicity, it requires a balanced moral judgement and sufficient harm reduction measures.

[4] Preventing undesirable dual-use

Universities, institutions for scientific research and the scientific press have an obligation to the Dutch government, the general public and the international community to prevent sensitive knowledge from being used for purposes other than the civilian purposes for which that knowledge is intended, as this could pose a threat to national or international security and the rule of law or lead to human rights violations.

This principle is about preventing complicity in a violation whereby the result of scientific research is used for non-civilian, military purposes, thus posing a threat to national or international security and enabling it to be deployed against the lives and well-being of civilians. It is the obligation of scientists and the scientific community to avoid contributing to dual-use if it is contrary to the purpose of the research (Ehni, 2008; Miller, Selgelid 2007).

Complicity in the morally wrong use of research and technology is not necessarily only about non-civilian, military applications of scientific research. In a more general sense, forms of complicity as a result of national or international collaboration arise in all cases where scientific research is used by the partner or third parties for morally wrong purposes: acts that intentionally wrong civilians. This view is consistent with broader descriptions of the dual-use concept: "What is referred to as the 'dual-use dilemma' arises in the context of research in biology and other sciences as a result of the fact that the same scientific research sometimes has the potential to be used to harm as well as for good." (Miller, Selgelid, 2007).

Addressing knowledge security in international collaborations requires (among other things) that the collaboration does not lead to the intentional or unintentional sharing of knowledge or technology in a way that could form a threat to national or international security. Prevention of complicity in undesirable dual-use adds substance to this. Direct or indirect causal involvement in undesirable dual-use would then result in the prospective collaboration not going ahead. In the case of evaluative or symbolic complicity, a balanced moral judgement and sufficient damage limitation are required.

Dual-use and the Technological Readiness Level (TRL)

In the event of doubts about knowledge security and dual-use, the Technological Readiness Level is often applied. TLR levels distinguish between the Discovery phase (TLR 1, 2, 3), the Development phase (TLR 4, 5, 6), the Demonstration phase (TLR 7, 8) and the Deployment phase (TLR 9). The relevance for knowledge security is estimated to be lowest in the Discovery phase (pure scientific research) and increases as it involves more applied scientific research. Nevertheless, it is questionable whether this is a satisfactory scale from the moral point of view. Particularly when it comes to pure scientific research, the chance of unintended consequences and thus high moral costs is at its highest (EARTO 2014); Héder, 2017).

Complicity in human rights violations always involves the denial of fundamental rights

[5] Promoting independent, accessible and reliable science

This section covers three principles that deal with autonomous, accessible and reliable science. These encompass promoting (5.1) the independence of the university; (5.2) the accessibility of science; and (5.3) the reliability of the scientific press. All three serve the human right to science and academic freedom.

[5.1] Promoting university independence

Universities, scientific research institutions and scientists bear responsibility for protecting the autonomy of science and the independence of universities, such that decisions on international collaboration in research and education are made only on scientific grounds, in the service of the right to science and academic freedom.

The right to science and academic freedom needs to be robustly embedded in an independent university. University independence protects the right to science and academic freedom. An independent university places itself at a distance from covert or transparent ideological, political or economic influence. An independent university decides on its own research programme in response to questions raised from the global community.

This also applies to the international collaborations that the university and scientists wish to enter into. Scientific motives based on scientific freedom and the right to science must be the decisive factor when entering into a collaboration. To ensure this, a sufficiently diverse palette of collaboration partners is needed: a palette with state or non-state partners that respect human rights, democracy, the right to science and academic freedom. There must be enough to choose between.

Addressing knowledge security can also ensure the protection of the right to science and academic freedom. Scientists work in a competitive research field. They depend on international collaboration for their careers, research and education. Not only financially, but also to conduct high-quality research. They too should have enough to choose between. Independent scientists benefit from independent universities. It helps them resist 'easy money' and be guided only by scientific motives, in the service of the right to science and academic freedom. If a prospective collaboration reduces the independence of the university, that is a reason to forgo the collaboration.

[5.2] Promoting the mental and material interests of researchers

Universities and institutions for scientific research have an obligation to protect the mental and material interests of scientific staff, with a view to promoting the accessibility of science and the human right to science.

Accessible science is about the right 'to access and reap the fruits of scientific progress and its technological applications'. Accessible science safeguards the conditions necessary for this. Protection of the mental and material interests of researchers should also be seen in that light. General Comments 17 and 25 expressly state that this is seen as a safeguard of the right to science.

Intellectual Property Right (IPR) is a legal way to protect the spiritual and material interests of researchers. The protection of the mental and material interests of scientists, as creators and inventors, is seen as a generally valid human right that is not place- or time-bound, and aligns with the understanding of science as public property (UN, 2005, 2020). IPR, on the other hand, is a place- and time-bound legal right to the private ownership of the results of scientific research (Plomer, 2015, 2022). Ensuring that IPR belongs to the university and the scientist, together with a policy of open access and open science, prevents scientific research results from being used solely for commercial purposes and economic gain. This guarantees the accessibility of science and thus serves the human right to science. When it comes to knowledge security in international cooperation, IPR are directly relevant as a legal instrument to prevent unwanted dual-use. Indirectly, they are linked to the independence of the researcher and the university, in that both are an important institutional prerequisite for secure international cooperation. If the spiritual or material interests of the researchers are insufficiently protected, this is a reason to refrain from collaboration.

Independent scientists benefit from independent universities

[5.3] Promoting scientific integrity

Universities and scientific research institutions have a duty of care to their scientific staff to promote conditions that protect them sufficiently from temptations that may arise as a result of international collaboration or that breach the principles of scientific integrity: honesty, diligence, transparency, independence and accountability.

Trustworthy science, scientific integrity and the right to science are closely related. Scientific integrity is a guarantee of trustworthy science (KNAW, 2018). Science is reliable if non-scientists - from members of the public to politicians and policymakers and from patients to healthcare providers and consumers - can trust the scientific insights on which they are working. Reliable science ensures the human right to science.

International collaborations can put a scientist in a situation where the principles of scientific integrity come under pressure. This is particularly the case if such a collaboration is risky because of authoritarian state or non-state partners. Ensuring science is trustworthy by promoting conditions that protect a scientist's integrity contributes to an institutional environment that promotes secure international collaboration and reduces the likelihood of intended or unintended complicity. When it is anticipated that a scientist's scientific integrity may be compromised by the collaboration, this is a reason to refrain from the collaboration.

[6] Promoting fair partnership

Universities, scientific research institutions and the scientific press promote fair partnership that does justice to the autonomy of the partner in the prospective collaboration. This entails enabling the partner at all stages of the research to take responsibility or co-responsibility for the progress and the results of the research.

In international collaborations, partners' interests may diverge. This certainly applies to non-state business partners who often have a significant economic interest in the prospective scientific research. Public interests, scientific knowledge interests and private economic interests do not necessarily coincide.

When collaborating with a non-scientific partner, other, non-scientific interests come into play. Moreover, the research can also deeply affect the partner's organisation. In such a situation, enabling the partner to take reasonable responsibility for the progress and results of the scientific research ensures that justice is done to that partner. All of this comes under the principles of fair partnership.

Knowledge security burdens prospective collaborations with topics that are not easy to discuss with a prospective partner. The establishment of trust is the joint responsibility of the scientists involved, the university and the prospective partner. It makes ensuring knowledge security a common task. If fair partnership is too difficult to ensure, this may be a reason not to enter into the collaboration.

[7] Reducing disadvantages to scientists' careers and well-being

Universities and scientific research institutions have a duty of care to researchers to protect them from potential risks and harm in international collaborations, and to offer compensation if a collaboration cannot go ahead due to issues of knowledge security.

Universities such as TU Delft have a duty of care to their staff. This also extends to protecting their employees from risks and damage when entering into international collaborations. It is worth considering whether, as a result of the heightened focus on knowledge security, this should also apply if a prospective collaboration cannot go ahead. It is unfair to let the consequences fall of this unilaterally on (young) researchers. Universities should, therefore, lend a helping hand in finding compensation for cancelled collaborations.

The increased focus on knowledge security is – for good reasons – limiting the opportunities for international collaboration. This represents a particular challenge for researchers who are still fairly close to the beginning of their academic careers. On the one hand, they have

to avoid engaging in collaborations that may turn out to be harmful. On the other hand, they are being hampered in their opportunities for collaboration and thus in their careers. This means that these members of staff require extra attention, so that the burden of knowledge security is evenly distributed within the university.

[8] Reducing feelings of exclusion and discrimination

Universities and scientific research institutions have a duty of care towards students and scientific staff from countries that are the subject of discussions concerning knowledge security, in order to eliminate or reduce feelings of exclusion and discrimination resulting from the focus on knowledge security.

Knowledge security aims to ensure that international collaboration in science and education takes place in a safe manner. In discussions on knowledge security, this aim is emphatically placed in the context of principles that go to the heart of the academic community itself: the right to science and academic freedom. These normative principles establish the university as a scientific research community of free and equal students and scholars. One of the aims of knowledge security is to protect this community from the undermining of scientific freedom and the danger of self-censorship.

Those studying and working at Dutch universities include students and researchers from countries such as China, with whom international collaboration is under pressure as a result of concerns about knowledge security. The unintended consequence of focusing on knowledge security may be that these people feel unpleasantly affected and excluded by this debate. This is perhaps unavoidable. Nevertheless, Dutch universities want to be inclusive educational and research institutions that are free from discrimination. For this reason, universities are making efforts to prevent and reduce feelings of exclusion and discrimination resulting from the focus on knowledge security.

Conditional principles represent a duty of care for universities

5.3 Conditional principles

[9] Ensuring due diligence, risk analysis and compliance with laws and regulations

Universities, institutions for scientific research and scientists are, from a knowledge security perspective and due to their duty of care towards those with whom and for whom they wish to enter into an international collaboration, obliged to carry out due diligence to examine the risks of human rights violations and dual-use, as well as examining scientific integrity and applicable laws and regulations (such as those governing exports and sanctions).

Conditional principles are formal principles, relating to the duty of care, that must be met in order to make it possible to come to a judgement on whether or not to enter into an international collaboration. They are important in order to prevent foreseeable harm to data subjects. This represents a duty of care for universities to protect the rights and interests of students, scientists, the faculty, the university, the collaboration partners, Dutch citizens, citizens in the partner country, etcetera. If the conditional principles are not met, it is not possible to determine whether a proposed international collaboration takes sufficient account of the rights, interests and wishes of all concerned.

In any decision on international collaboration where knowledge security is at stake, sufficient information should be available on the intended partner organisation (due diligence). This also applies to information on risks of complicity in human rights violations, undesirable dual-use or infringement of scientific integrity. The same applies to obtaining information on applicable laws and regulations. Altogether, this provides the necessary information that is a condition for assessing whether a prospective international collaboration is also a safe collaboration.

5.4 A rule of thumb: collaborate or not?

In investigating the decisions submitted to the committee for Integrity in Third-Party Collaborations, insights into the aforementioned principles gradually grew. These insights helped the committee to arrive at a careful assessment that did justice to all concerned. These moral principles led to a rule of thumb for assessing decisions on entering into international collaboration when there are doubts about knowledge security. Roughly speaking, we can distinguish three types of outcomes:

Don't collaborate for now – It is morally wrong to enter into a collaboration at the present time, because sufficient information is lacking on due diligence, risks of human rights violations, dual-use and scientific integrity or laws and regulations. In this case, the conditional principles of careful decision-making have not been met. When the necessary information becomes available, collaboration can still be considered.

Don't collaborate – It is morally wrong to enter into collaboration because there is a real chance of becoming complicit in the violation of human rights, undesirable dual-use, the erosion of university independence, reliable science or scientific integrity.

It is not possible to take damage-limitation measures that sufficiently reduce the likelihood of complicity. Broadly speaking, it is the guiding principles that should outweigh the right to science and academic freedom.

Do collaborate – It is morally right to engage in collaboration. The right to science and academic freedom should carry the most weight. The guiding principles do not carry sufficient weight, or the potential harm can be sufficiently mitigated. This applies only when it comes to whether or not to enter into a collaboration. In the cases we examined in the testing ground, the issue was almost exclusively about whether the collaboration could go ahead or should be rejected. It is possible and likely that future decisions will also be examined whereby two alternatives for collaboration are examined and the question is which collaboration is best at doing justice to others. It will then transpire that all the principles in this chapter may argue for both alternatives to a greater or lesser extent. The best alternative is the one that is morally just, that best protects the rights of all concerned and leads to the greatest common good.

Collaborate or not?

> **Don't collaborate for now –** It is morally wrong to enter into a collaboration at the present time, because sufficient information is lacking on due diligence, laws and regulations, dual-use, risks of human rights violations, or scientific integrity.

> **Don't collaborate –** It is morally wrong to enter into the collaboration, because there are real risks. For instance, of becoming complicit in human rights violations, undesirable dual-use, or the erosion of university independence, trustworthy science or scientific integrity.

> **Do collaborate –** It is morally right to enter into the collaboration. The right to science and academic freedom must outweigh anything else. The above-mentioned arguments do not come into play, or do not do so sufficiently, or the potential damage can be sufficiently mitigated.

Perspectives

Recommendation 1 – *Ensure that knowledge security is handled responsibly by using an integral approach involving a moral learning process consisting of moral deliberation and moresprudence, and an compliance practice consisting of preventive and repressive compliance.*

Recommendation 2 – *Create a clear structure for moral learning about decisions on knowledge security, national and international collaboration that does justice to the academic freedom of the scientist, while at the same time allowing for moral learning to be scaled up to a higher level if the complexity of the decision and doubts about it increase and the moral costs become higher.*

Recommendation 3 – *Set up a moral learning process for knowledge security that pays attention to the broad palette of moral issues involved in knowledge security. Also, pay attention to knowledge security in collaborations with all types of partners with whom moral issues concerning knowledge security may come into play.*

Recommendation 4 – *Set up a moral learning process for knowledge security in general, and knowledge security in international collaborations in particular, with enough room for all TU Delft's faculties to participate.*

Recommendation 5 – *Set up a body to organise the interfaculty moral learning process on knowledge security; guarantee the expert supervision of moral deliberation; advise those concerned on knowledge security; and develop moresprudence on knowledge security.*

Recommendation 6 – *Establish a risk analysis of knowledge security and establish resilience for detecting complex and sensitive risks in knowledge security in international collaboration. This should also serve as a basis for pre-employment screening of employees in vulnerable positions and for post-employment risk profile discussions.*

Recommendation 7 – *Set up a combination of activities that ensure continuous awareness throughout an employee's career of the pitfalls and bottlenecks involved in knowledge security, particularly in international collaborations.*

Recommendation 8 – *Establish a living code of conduct for knowledge security that sets standards and makes it clear to all members of staff what is allowed and what is not allowed in the field of knowledge security.*

Recommendation 9 – *As part of an integrated reporting system, create a reporting system where employees or students can safely report suspected violations or improper actions in the field of knowledge security by members of staff, students or third parties.*

Recommendation 10 – *Ensure careful follow-up of reports with advice, investigation and disciplinary measures, and integrate this follow-up into other forms of integrity.*

6. Perspectives and recommendations: working on knowledge security

The work carried out by the Committee for Integrity in Third-Party Collaboration aimed to answer the question of what contribution a moral learning process makes to the responsible handling of international collaborations and knowledge security, thereby protecting and strengthening university self-regulation and independence. Specifically, it dealt with the following questions

When examining complex decisions about international collaboration and knowledge security, does moral deliberation provide building blocks, such as moral principles, that EEMCS can use to develop an assessment framework that can be used more broadly within TU Delft?

What practical value does the methodology of moral deliberation have as an instrument for forming careful judgments in decisions on International collaboration and knowledge security?

How can a possible future standing committee advise and guide scientists who want to collaborate with third parties?

In previous chapters, we dwelled extensively on two main results produced by the Integrity in Third-Party Collaboration testing ground. The first of these revealed insights into the core dilemma of knowledge security versus the limitation of the right to science and academic freedom. The second was an overview of the moral principles at stake in International collaboration and knowledge security that must be assessed in making decisions. Those chapters answer the first two questions.

In this chapter, we take up the third question. Backed by our experience in the testing ground, we go a step further. We outline the perspectives that guide an integrated approach to knowledge security and scientific research. We do so by outlining the contours of an integrity system which includes International collaboration and knowledge security, comprising a moral learning process, a preventive cycle and a repressive apparatus. Before discussing these contours, we briefly reflect on what we see as the heart of the what the living lab has produced: 'just science', self-limitation and self-regulation.

6.1 'Just science' and knowledge security: learning and enforcing

The German philosopher Hans Jonas argued that in a world dominated by science and technology, the ethics of tomorrow cannot be a continuation of the ethics of yesterday. It is a world of unintended consequences, which we know for certain will occur, although we do not know why or how; still less what our response to these should be (Jonas, 1979; Vallor, 2022).

Knowledge security or insecurity is an example of such an unintended consequence. The Integrity in Third-Party Collaboration testing ground set us on the track of what we call 'just science'. The committee's work showed that science can set its own limits for itself. Not by conforming to an ideological concept of a good life – be that Christian, Islamic, Jewish, Humanist, Communist or Scientist - but by submitting to justice as a measure of the morally right.

'Just science' stands for a scientific practice that organises itself so as to guarantee that scientific research does justice to people, animals, nature and organisations with whom and for whom it works - now and into the distant future.

'Just science' is science in the service of justice. It stands for scientific research and education in which scientists always ask themselves whether their research and education do justice to others. Given the global operation of scientists and the time horizon of science, which far exceeds an ordinary human life, this is no small task. It is certainly not a task scientists are capable of handling as individuals, although they are capable of doing so collectively (Ehni, 2008; Miller & Selgelid, 2007). The testing ground of the Integrity in Third-Party Collaboration committee was a prototype of a moral dialogue, and demonstrated what a moral learning community of scientists is capable of. In the

testing ground, TU Delft's scientists not only accounted for moral aspects of International collaboration and knowledge security: the investigation also led to keener insights into TU Delft's moral task as a modern research university. The codex of moral principles in International collaboration and knowledge security is a telling example of this.

However, in International collaboration and knowledge security, 'just science' not only requires a moral learning process to be organised, but also demands a systemic approach in which attention is paid to protection from temptations, false accusations of improper behaviour or violations, and from pressure, violation or threats by third parties (i.e. a preventive cycle). It also requires ensuring that as many reports of suspected violations as possible are made and that these reports are followed up carefully. In short: preventive and repressive compliance is needed.

Just like the moral learning process, ompliance should be organised and safeguarded in an integral manner and not depend on reactions to incidents or the fluctuating focus of stakeholders, persons or organisational units. Knowledge security broadly follows the development of integrity issues that have previously required attention within universities, such as organisational integrity (e.g. dealing with ancillary positions and personal interests); scientific integrity and social integrity. This brings us to our first recommendation that offers the prospect of an integral approach to knowledge security:

Recommendation 1 – Ensure that knowledge security is handled responsibly by using an integral approach involving a moral learning process consisting of moral deliberation and moresprudence, and an compliance practice consisting of preventive and repressive compliance.

In the remainder of this chapter, we will first discuss the moral learning process, which is a follow-up to the Integrity in Third-Party Collaboration testing ground (6.2). We will then discuss prevention and protection 'at the front' (6.3). Finally, we will turn our attention to repression (6.4). For each of these components of this integral approach, we build on the work of the Integrity in Third-Party Collaboration committee to offer perspectives and suggest how these can be given substance within the university.

6.2 The moral learning process about knowledge safety

The Integrity in Third-Party Collaboration testing ground showed that the moral learning process makes a valuable and indispensable contribution to dealing with knowledge security in a responsible manner. It combined the two important components of the moral learning process: moral deliberation and moresprudence. This offers good starting points for other universities and scientific research institutions that wish to create a form of self-regulation to handle knowledge security in a responsible manner.

The experience with the testing ground also offers the prospect of a follow-up to the experiment with the moral learning process, and provides starting points as to

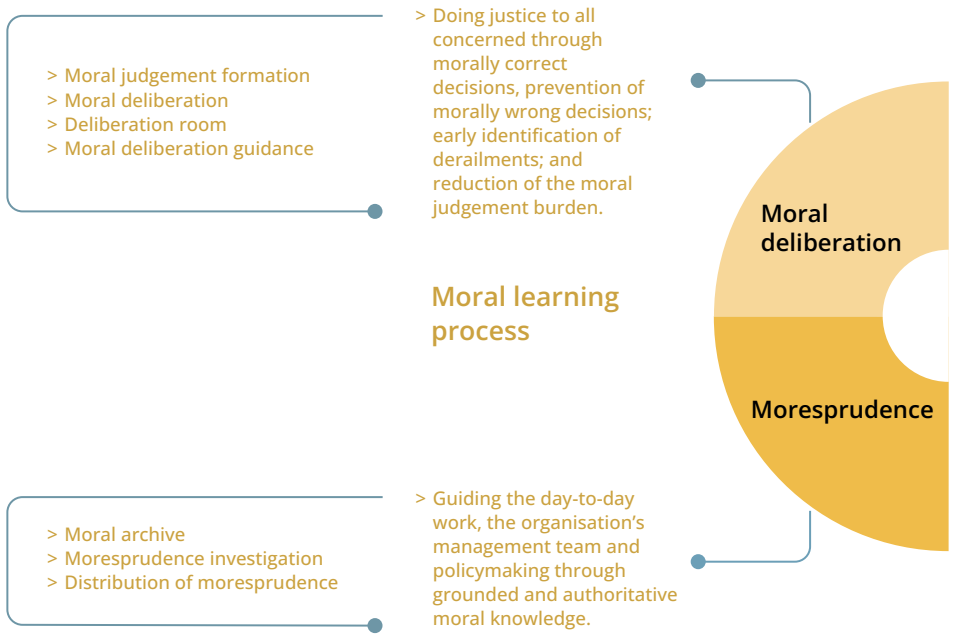


Figure 5.

what a structured moral learning process for knowledge security could look like.

Towards knowledge security as a bottom-up moral learning process

The initiative to engage in international collaboration often lies with researchers who see in it opportunities to do promising research, to boost their academic career and to raise funds for research and publication. All scientists can be expected to form an independent moral judgment, in consultation with colleagues, about the moral correctness and legitimacy of the collaboration they have in mind. This is an important aspect of their academic responsibility and the counterpoint of academic freedom. Academic freedom therefore requires that the moral learning process for International collaboration and knowledge security supports scientists to make the right trade-offs and come up with well-considered proposals for collaboration, after deliberating with colleagues and seeking advice. As the prospective collaboration becomes more complex and problematic, doubts increase and moral costs become higher, the moral learning process should enable the moral investigation of the prospective collaboration to be scaled up. This brings us to the second recommendation on the design of this moral learning process:

Recommendation 2 – Create a clear structure for moral learning about decisions on knowledge security, national and international collaboration that does justice to the academic freedom of the scientist, while at the same time allowing for moral learning to be scaled up to a higher level if the complexity of the decision and doubts about it increase and the moral costs become higher.

Figure 6 provides an overview of this moral learning process.

> The researcher forms the starting point – Decisions on intended international collaboration lie first and foremost with the researcher. After deliberating with colleagues, and in consultation with knowledge security specialists, the researcher arrives at an estimation of the risks and a moral assessment. The researcher then presents a well-considered proposal to the dean. The researcher may also request to submit the proposal to the university's Moral Deliberation Chamber for Knowledge Security.

> The dean and the faculty – The dean checks whether a proper preliminary assessment – including into moral doubts – has been carried out on the intended decisions, and, if so desired, submits them to the experts from the Knowledge Security body. This consists of specialists in the field of International collaboration and knowledge security. If so desired, the dean requests a moral deliberation by the Moral Deliberation Chamber for Knowledge Security.

> The Moral Deliberation Chamber for Knowledge Security – Moral deliberation on cases relating to knowledge safety which are put forward by faculties or researchers takes place in the university's Moral Deliberation Chamber for Knowledge Safety. This chamber is under the responsibility of a body for

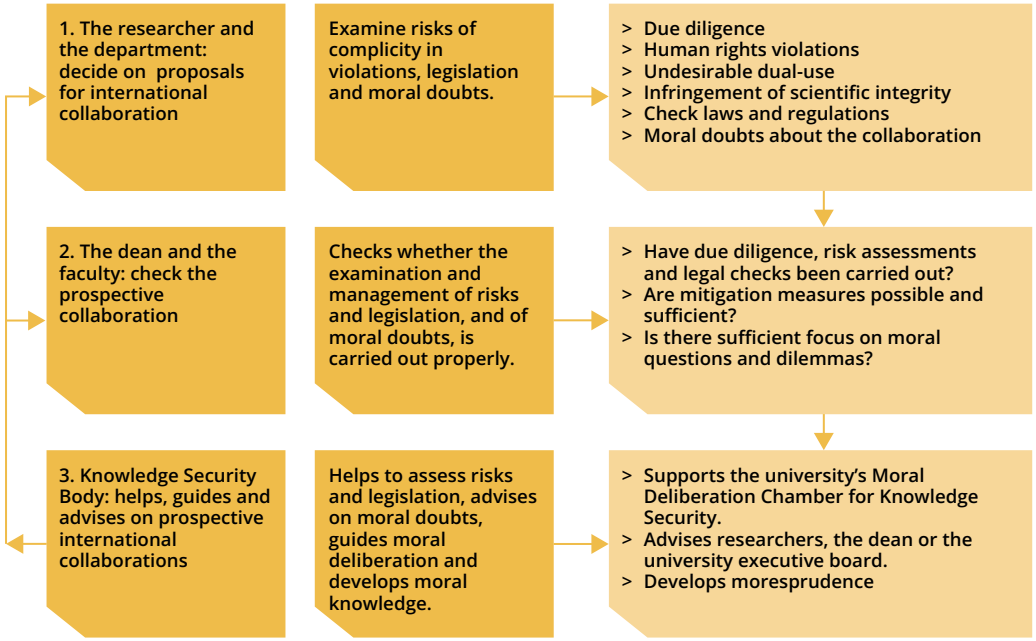


Figure 6.

knowledge security. It consists of permanent members of academic staff and internal specialists. When examining a decision, the deliberation chamber is supplemented by temporary members who are directly involved in the intended collaboration. .

> Knowledge Security Body - The knowledge security body, known at TU Delft as the 'Knowledge Security Team', advises scientists, deans and the Executive Board on knowledge security. The team organises and supervises moral deliberations, advises those concerned following moral deliberations, and builds up the moral archive for knowledge security and moresprudence.

Towards a broad approach to knowledge security

Knowledge safety is not only about international collaborations. It is also about the undermining of national or international security, the rule of law, constitutional states and democracy through the undesirable transfer of sensitive knowledge and technology. Moreover, it is about the undermining of academic freedom through the overt and covert influence and interference of state and non-state actors in higher education and science, and the complicity of scientific research in human rights violations. This whole palette of issues should be addressed in the follow-up to the testing ground.

Knowledge security and international collaboration are also not solely about state and non-state partners linked to China. In the follow-up to the pilot project, there should also be room to subject collaboration with other partners to a moral judgement if knowledge security is concerned. Hence this third recommendation, which offers the prospect of an integral approach to knowledge security.

Recommendation 3 – Set up a moral learning process for moral security that pays attention to the broad palette of moral issues involved in knowledge security. Also, pay attention to knowledge security and collaborations with all types of partners with whom moral issues concerning knowledge security may come into play.

Towards an interfaculty moral learning process for knowledge security

We can conclude from the Integrity in Third-Party Collaboration testing ground that knowledge security in general and knowledge security in international collaborations in particular are important issues for all faculties at TU Delft. This is an argument in favour of extending the testing ground and the moral learning process for knowledge security to all TU Delft faculties and creating a suitable, supportive organisation for it. This brings us to our fourth recommendation:

Recommendation 4 – Set up a moral learning process for knowledge security in general, and knowledge security in international collaborations in particular, with enough room for all of TU Delft's faculties to participate.

This expansion of the moral learning process for knowledge security deserves an organisational structure capable of building on the experiences gained in the testing ground. This structure should ensure that in the event of controversial or questionable decisions about a prospective International collaboration and knowledge security, this decision can always be the subject of a moral deliberation; that this moral deliberation is expertly supervised; that it leads to a well-considered recommendation to those concerned, and that it leads to moresprudence. This is covered in the following recommendation:

Recommendation 5 – Set up a body to organise the interfaculty moral learning process on knowledge security; guarantee the expert supervision of moral deliberation; advise those concerned on knowledge security; and develop moresprudence on knowledge security.

6.3 Preventive cycle: protection and prevention 'at the front'

Preventive cycle is aimed at protecting university staff from inadvertently breaching rules, and against temptations, false accusations or pressure and threats from third parties, such as criminal organisations and state and non-state actors seeking to misuse science and knowledge for improper purposes.

Although most universities do think about prevention in the field of knowledge security and national or international collaboration, they often do not do so systematically. Mutual exchanges often leave much to be desired. Risk analysis and risk management are also often lacking. To prevent knowledge security from becoming an issue only after violations have been committed or are suspected, we propose the following developmental directions:

> Development and implementation of a risk analysis for knowledge security and resilience;
> Development and implementation of practical screening and post-appointment instruments;
> Career-long awareness-raising, all the way from onboarding, through work-related meetings and personnel discussions, until the employee exits.

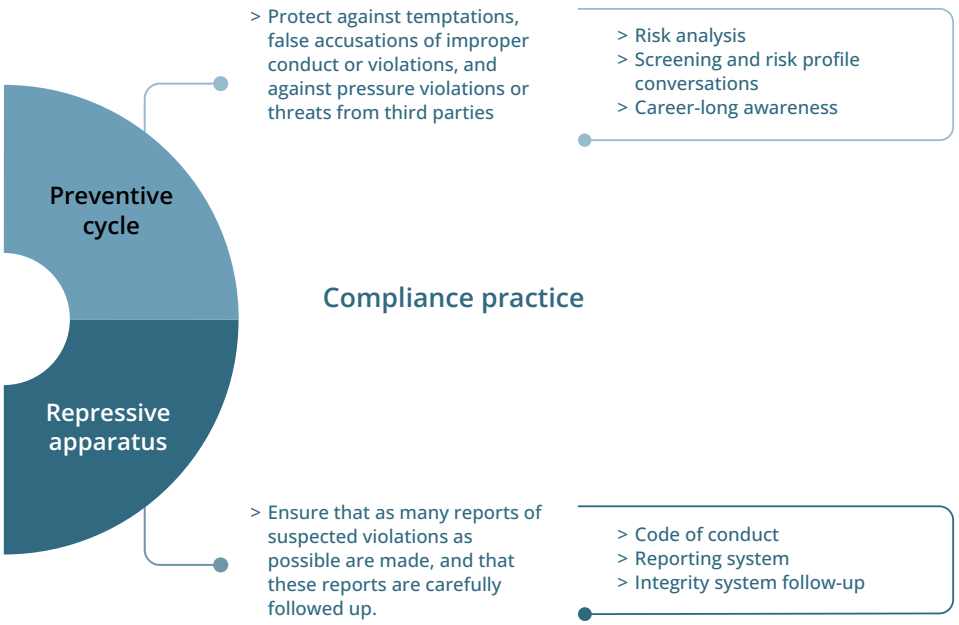


Figure 7.

Risk analysis for knowledge security and resilience

Universities need a better insight into their specific risks in the field of knowledge security where international collaboration is concerned. Where in particular do these vulnerabilities occur? Where does resilience leave something to be desired? What are the high-risk processes? Which state and non-state parties have an interest in gaining knowledge from the university? What is their modus operandi? Where, how and with whom do approaches, covert influencing, pressure or threats take place? How resilient are our staff and students? How can we enhance that resilience? Although an overall picture exists within most universities – mostly derived from past incidents and suspicions – an integral and early picture is lacking. This stands in the way of preventing and protecting. Universities need a specific risk analysis tool that they can develop and use independently, although preferably jointly.

When developing their own toolkits, universities can draw on long-standing tools that have been developed and deployed over the years to detect complex and sensitive risks, for instance those involving integrity. These have mainly been deployed at organisations such as municipalities, the Ministry of Defence, the Royal Military Academy and the National Police force, for example. In respect of knowledge security risks at universities, in addition to such existing techniques (and experience with them), collaboration is also possible with sector partners such as the AIVD (Dutch General Intelligence and Security Service), the police and parts of the Ministry of Defence. A reconstruction of previous incidents also helps to focus when it comes to the toolbox. Joint implementation with other universities ensures efficiency, provides visibility into which are inherent and which are university-specific risks, and offers the opportunity for joint management and other measures.

Recommendation 6 – Establish a risk analysis of knowledge security and establish resilience for detecting complex and sensitive risks in knowledge security involving international collaboration. Use the risk analysis as a basis for pre-employment screening of staff in vulnerable positions and for post-employment risk profile discussions.

Screening and post-appointment instrument for vulnerable positions

It is becoming increasingly common, including from a knowledge security perspective, to ask candidates questions in the pre-appointment

phase. If proportionate and relevant, these questions are often considered a form of screening. In our experience, the development of workable post-appointment instruments is still in its infancy at many universities. In other organisations, for example local governments (for aldermen and mayors), financial institutions, but also in the Ministry of Defence and the National Police force, it is now common practice for the most vulnerable positions to have a post-appointment risk profile conversation with an independent advisor. This is not about screening, but rather to give advice that not infrequently helps to prevent problems in the future. For instance, people in vulnerable positions where knowledge security is concerned (as shown by the risk analysis) can be advised on measures they can take in their private lives to prevent approaches or blackmail; on more or less compatible ancillary positions, investments and contacts; and on how to deal with invitations, private circumstances and pressure from an existing network.

Career-long awareness

Knowledge security involving national or international collaboration, like all other aspects of integrity, demands structural attention. It's not a matter of simply sending out a code of conduct, organising a short-lived project, creating poster campaigns or attracting attention on the intranet after an incident. Instead, it requires thought and awareness throughout a person's career. Starting at the beginning. Before the appointment; during recruitment and selection; and, just after the appointment, a risk profile interview for those in the most vulnerable positions. And then regularly in the normal course of the job: during work meetings, moral deliberations, staff interviews and training sessions. Knowledge safety and the employee's experiences should also receive sufficient attention in exit interviews.

Recommendation 7 – Set up a combination of activities that ensure continuous awareness throughout an employee's career of the pitfalls and bottlenecks involved in knowledge security, particularly in international collaborations.

6.4 Repression: clear standards, safe reporting and careful handling of suspicions

Whereas to prevention focuses on managing risks and preventing violations as far as possible, the repressive side of compliance aims to ensure that violations and suspicions are reported as often and as early as possible, and that these are carefully (and proportionally) followed up. First of all, this requires an easily accessible and safe reporting system, and secondly, well-equipped follow-up. Initial assessments and disciplinary investigations are among the possibilities, and sanctions can also be applied in extreme cases.

Like most universities, TU Delft already has a repressive apparatus in the area of organisational and social integrity to deal with fraud, conflicts of interest and also various forms of undesirable behaviour. Whereas in the past separate silos always emerged for the reporting and follow-up of reports in these areas, the approach is rightly becoming more integral at most universities. TU Delft has an independent Integrity Office, where professionals work on policy, advice and careful follow-up in the field of repression. This integral approach has major advantages in terms of quality and findability. People who wish to make a report no longer have to wonder which door to knock on.

Risk profile interview

A risk profile interview is a confidential advisory conversation with the person who will perform the vulnerable function. In this conversation, which usually takes approximately two hours, relevant issues from the person's personal life and history are discussed, with a focus on risks. The person is given recommendations to manage personal risks. The interviews are highly confidential and focused on increasing resilience. Most experience of such sessions has been gained in local government, where a form of post-appointment counselling is now implemented in a large number of municipalities.

Silo's

The term 'silos' refers to juxtaposed, disconnected systems that have developed over time and that deal with issues such as organisational integrity, social safety and scientific integrity, while having a lot of overlap in terms of content and function. The existence of separate silos quite often creates overlap, over-complexity and ambiguity.

We envisage the following developmental directions for the future:

> **Normative and living code of conduct.** This will include knowledge security.
> **Safe reporting system.** Clear, with a low accessibility threshold, and integrated into the existing infrastructure.
> **Careful follow-up.** Preferably within an integrated integrity body.

Normative and living code of conduct for knowledge security

A Knowledge Security Code of Conduct has important preventive effects because it prevents 'accidental' and unconscious violations. In addition, a code of conduct indicates the start of repression and also the port of call. After all, the code sets the standard. It therefore makes it clear to everyone what is allowed and not allowed in the field of knowledge security involving international collaboration. Besides the important preventive effect, the code also facilitates reporting, follow-up and possible investigation if the stipulations and prohibitions are violated or infringed.

Recommendation 8 – Establish a living code of conduct for knowledge security that sets standards and makes it clear to all members of staff what is allowed and what is not allowed in the field of knowledge security.

A good code of conduct has a clear link to the university's mission and vision. It includes normative, guiding and conditional principles, and the rules are clearly articulated and explained. The most successful codes of conduct were created or tightened up together with staff and students. They also include an awareness programme that periodically confronts staff and students throughout their careers or apprenticeships and makes them think about what is allowed and not allowed in respect of knowledge security. In order to avoid a proliferation of codes of conduct, and in most cases it is preferable, to eventually include knowledge security as part of a more integral code.

Safe reporting system – integrate with existing infrastructure

Staff and students who suspect that a violation has taken place in the field of knowledge security in international collaboration, or who have been approached by a third party with improper motives or who have witnessed an incident, should have easy access to a listening ear. It is usually assumed that they should be able to turn to their supervisor or manager in the first instance. And if that is not possible, to a specialist or, for example, an independent integrity agency. First-line help can be provided by confidential counsellors who can be spoken to safely and without consequences, and who can help the person decide whether or not to make an official report. It must be clear how whistleblowers are protected, where they can go and how confidential and anonymous reports are handled. If confidential counsellors cannot be found, or if there is a lack of clarity about which confidant is in charge of what, this dampens the willingness to make a report, thereby causing undesirable situations to persist.

Recommendation 9 – As part of an integrated reporting system, create a reporting system where employees or students can safely report suspected violations or improper actions in the field of knowledge security by members of staff, students or third parties.

Based on our experience, we advise making a reporting system for knowledge safety part of an integrated reporting system. A system analysis can clarify the various existing reporting channels and functions and give a picture of the set-up, awareness and accessibility of the reporting system. This analysis also helps to improve the reporting system. Ideally, there should be a 'single point of entry', where students and staff can go with all kinds of suspicions and reports, together with an appropriate follow-up depending on the nature and situation. This should also apply to matters concerning knowledge security. This means that developments should aim more towards the direction of an integrated reporting system than towards specific confidential counsellors and knowledge security reporting centres. Experience teaches us that organisational integrity, undesirable behaviour and breaches of knowledge security often occur in combination, so they need to be reported and followed up the same way.

Careful (repressive) follow-up and investigation: integrated and central where possible

We recommend integrating the organisational system whereby reports are followed up, such as by recommendations, investigations or possible disciplinary measures, with other forms of integrity. The advantages of integrated repressive follow-up comprise aspects such as efficiency, quality, independence and clarity. For example, a central body can prevent certain violations, or violations in certain parts of the organisations, from being assessed more or less severely than others. In addition, experts from a central body can build up sufficient experience due to the greater scale.

Recommendation 10 – Ensure careful follow-up of reports with advice, investigation and disciplinary measures, and integrate this follow-up into other forms of integrity.

Closing remarks

"Paths are made by walking", wrote Franz Kafka a century ago. The same applies to the thorny path of International collaboration and knowledge security. In the Integrity in Third-Party Collaboration testing ground, we tried to answer the question of whether moral deliberation and moral judgement can help TU Delft to arrive at a responsible, self-regulating approach to knowledge security. The results from the testing ground were more than encouraging.

Moral judgement has proven to be a thorough method of keeping on track

International collaborations involving knowledge security revolve around curtailing the human right to science and academic freedom. However, the latter are the founding principles of every university. Their curtailment is only justified if other principles around international collaboration involving knowledge security are weightier. In order to judge this, moral research is required. Moral judgement and moral deliberation have proven to be a well-founded and respectful investigation method when it comes to finding and keeping on the right track for international collaborations. It shows the way and enables people to remain whole.

Since the launch of the testing ground in early 2022, international relations have changed radically and dramatically due to the Russian invasion of Ukraine. More than we would like to admit, we are being confronted with the fact that knowledge and technology meant for a just and peaceful world are being used in the weaponry of a nation that is violating human rights. The acute threat of misuse of science and technology, for which dual-use is an innocent code word, puts a premium – not so much on the right to science – but on preventing suffering through science. The Integrity in Third-Party Collaboration testing ground has sharpened the focus on the great importance of independent universities as gatekeepers of the human right to science as well as guardians against the undermining of security, the rule of law, democracy and fundamental rights. Doing justice to others, human rights and 'just science' belong together. Moral learning, together with preventive and repressive compliance, can ensure that international collaborations always do justice to all parties concerned - everywhere in the world, now and in the future.

Glossary of the moral learning process

Moral deliberation A methodical and collegial moral enquiry into the moral correctness of an intended or actual action or decision.

Moral judgement The result of a moral deliberation in which an act or decision is examined for its moral correctness.

Moral judgement The method and the process of collegial moral enquiry, whereby justice is taken as the measure of judgement and the '7 steps' are the procedure for moral enquiry.

7-step procedure The procedure for moral judgement in a moral deliberation. Using the 7 steps, the goal is to arrive at an unambiguous decision in which all the rights and interests of those concerned have been assessed, and the damage has been made good, reduced or compensated as far as possible.

Justice The measure against which an action or decision is judged to be morally correct. The most general formulation of this measure is that an action or decision must do right by others .

Morally right An action or decision is morally right if it is in accordance with justice as a measure of judgment. In other words, if the action or decision does justice to the others by taking sufficient account of the rights, interests and wishes of all concerned.

Rights A right establishes a minimum of an interest that is a precondition for a dignified life. Recognition of the right of those concerned creates an obligation for others to protect this right. Rights can be violated. When forming a moral judgement, rights outweigh interests.

Interests Interests indicate the advantages or disadvantages for those concerned, now or in the future. Interests may, or may not, be met. Interests can be harmed.

All concerned All persons and institutions whose rights, interests or wishes are affected by an action or decision, now or in the future .

Moral archive The moral archive is the ordered and enriched collection of all moral judgements, as examined in a moral deliberation. The moral archive is important to the enquiry in the moral deliberation, because the decision or action under examination can be compared to previous enquiries. The moral archive is indispensable to the formation of moresprudence.

Moresprudence Moresprudence is grounded, authoritative and directive moral knowledge. It relies on moral judgements derived from practice; on research using the moral judgement method; and on justice as a measure of moral judgement, checked against relevant literature, theories and research.

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Afterword

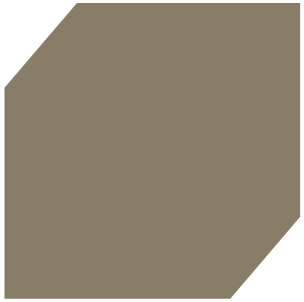
In recent years, there has been a sharp rise in geopolitical tensions throughout the world. This is also affecting universities in the Netherlands: the safety of research can be put under pressure of undesirable knowledge transfer, covert influences and human rights violations during the research process. For this reason, TU Delft is implementing a knowledge security programme through which researchers are offered tools to make their research safer.

This knowledge security policy raises all kinds of dilemmas with respect to research projects. How does shielding knowledge relate to the academic values of openness and knowledge sharing and the right to science? Can we simply bar researchers from countries outside Europe without discriminating against them? May science be subordinated to geopolitical interests? Are my scientific friends now my opponents? These questions do not allow for easy answers, and require a deeper and slower assessment process.

In 2022, a special experiment was conducted within the knowledge security programme. Under the leadership of the consultancy firm Governance & Integrity International, a Moral Deliberation committee was set up to consider precisely these dilemmas. Scientists and specialists discussed project proposals with researchers in order to see whether the proposals did sufficient justice to all concerned. This brought us insights and enabled us to go into the materials in greater depth, as well as providing an overview of arguments of principle that play a role in these moral considerations.

Governance & Integrity International has written this booklet in order to share the experience and knowledge from the experiment with anyone interested. It has become a thorough and clear account of a tool that will have a permanent place at TU Delft in the near future.

Peter Weijland
Knowledge Security Programme Director, TU Delft



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