



Permanent Mission
of the Federal Republic of Germany
to the United Nations
New York

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Note Verbale

The Permanent Mission of the Federal Republic of Germany to the United Nations presents its compliments to the Chair of the Security Council Committee established pursuant to resolution 1540 (2004) and has the honour to transmit the attached document resulting from Germany's work with Academia in the fields of Export Control and particularly the „Erlangen Initiative.”

For the purposes of the objectives set in UNSCR 1540 and its follow up resolutions – specifically those in UNSCR 2663 (2022), including operative paragraphs 7, 11 and 14 – states, among others, are called upon to consider developments in the evolving nature of risks of proliferation and rapid advances in science and technology when implementing UNSCR 1540 (2004). Furthermore, states are encouraged to share relevant experiences, lessons learnt and effective practices with the 1540 Community and other states in the areas covered by UNSCR 1540 (2004).

Germany delivers the attached document outlining discussions and lessons learnt under the German “Erlangen Initiative” and specifically from the second global Erlangen Conference that took place in November 2024 and with that particularly relating to programmes and tools to work with and inform the academic sector, in accordance with operative paragraph 8 (d) of UNSCR 1540 (2004).

The document, titled “Export Controls: The Importance of Engaging Academia” seeks to share experiences and is intended to be used by states on a voluntary basis in implementing UNSCR 1540 (2004).

Germany would be grateful if the document could be uploaded to the website of the 1540 Committee, potentially within the section “National Implementation - Experiences Shared, Lessons Learned, and Effective Practices”.

To the Chair of
the Security Council Committee
established pursuant to resolution 1540 (2004)
(e-mail: sc-1540-committee@un.org)

The Permanent Mission of the Federal Republic of Germany avails itself of this opportunity to convey to the Chair of the Security Council Committee established pursuant to resolution 1540 (2004) the renewed assurance of its highest consideration.

New York, 07 July 2025



Export Controls: The Importance of Engaging Academia

Due to rapid advances in science and technology and their potential associated risks for the proliferation of weapons of mass destruction and their means of delivery, the academic sector has become an increasingly important stakeholder in regard to export controls. A strong partnership between academia¹ and governments is crucial to developing a shared understanding of the responsibility of academia within export controls.

Through Resolution 1540 (2004) (UNSCR 1540 (2004)), the United Nations Security Council decided that all States shall take and enforce effective measures to establish domestic controls to prevent the proliferation of nuclear, chemical, or biological weapons and their means of delivery, including by establishing appropriate controls over related materials. To this end, states shall, among other, establish, develop, review and maintain appropriate effective national export and transshipment controls, including establishing end-user controls.²

United Nations Security Council Resolution 2663 (2022) encourages Member States to develop appropriate methods to work with and inform civil society, including industry and academia, of their obligations. In addition, it encourages Member States to share their experiences, lessons learned, and best practices regarding implementation of UNSCR 1540 (2004).³

This paper is a part of the effort to promote UNSCR 1540 (2004) and share related lessons learned and best practices. Its content stems from discussions at the second “Erlangen Conference” in 2024.

In 2023, the German Federal Foreign Office, with the support of the United Nations Office for Disarmament Affairs (UNODA), the German Federal Office for Economic Affairs and Export Control (BAFA) and the Fraunhofer Society, launched the “Erlangen Initiative”. The “Erlangen Initiative” is an informal outreach process to academia, mirroring the Wiesbaden Process initiated in 2012. The Wiesbaden Process promotes the outreach by regulators to industry. The Erlangen Initiative in turn seeks to support academia in learning about export controls, to identify effective export control compliance mechanisms, and collect guidance for regulators to design effective outreach to academia programmes.

Germany would like to share the outcomes of the second “Erlangen Conference”, which were compiled in cooperation with international regulatory and academia representatives, to be used by other States and academia on a voluntary basis in implementing UNSCR 1540 (2004):

1. Recommendations for Effective Academia Outreach - Approaches

2. Key Elements to include in Academia Outreach – Content

¹ For better readability, the term “academia” includes universities with professors, scientists and scientific staff as well as non-university research institutions, colleges, and polytechnics.

² UNSCR 1540 (2004) OP3

³ UNSCR 2663 (2022) OP11

1. Recommendations for Effective Academia Outreach - Approaches

Many regulators around the world have developed successful approaches for industry outreach and raise awareness for export control provisions. Yet, outreach to academia cannot simply copy and re-use these approaches, but needs to differ significantly from outreach to industry. As a result, outreach to academia may be a relatively new or challenging field for regulators, and suitable outreach strategies need to be designed carefully. The following points were highlighted as essential elements for preparing, conducting, and refining outreach to academia.

A. Finding your audience

Identifying the appropriate target group is a critical first step in designing effective outreach. This “mapping process” requires an understanding of the academic landscape and key players on the regulator's side.

A distinctive challenge in this process are the different scientific disciplines that make academia a diverse audience, but also the different types of institutions, ranging from small spin-offs to universities with thousands of staff. While it is paramount to reach large higher education institutions and research institutes due to their high research output and level of internationalisation, outreach to individual researchers is important, too. The same is true for start-ups with strong research capabilities, which can be challenging to engage due to a lack of institutionalized contact points. Given this diversity of the audience to be engaged, it may not be feasible to reach all institutions and relevant individuals at once. Therefore, prioritizing outreach efforts is crucial. Which audience should be addressed first, and the ease of doing so, depends on specific circumstances and the scientific landscape in the country. The list of key questions below can serve as guidance to determine which audience to focus on primarily, and which groups may be addressed at a later stage.

Key questions that could help regulators when “mapping”:

- How many institutions of higher education as well as research institutes exist in your jurisdiction, and what percentage should be approached during the initial outreach cycle?
- Are there any national front runners in export control compliance within academia?
- Are there any universities or research organisations with a history of particularly close cooperation or in recent contact with the regulator?
- Are there universities with a particularly high level of internationalisation, e.g. a high number of international cooperation projects and/or visiting scholars?
- Should national top universities or state-universities be involved with priority?
- Can academic institutions be categorised according to the focus of their research activities, e.g. technical universities?

Upon selection of the target audience outreach needs to be performed as a recurrent and long-term task. Reaching a level of sustained awareness requires more than a single interaction between regulators and their audience. High staff turnover at academic institutions may further complicate efforts to sustain awareness of export control requirements among scientists and

other relevant personnel. As resources are often limited, selecting a priority audience for an initial outreach cycle, to then expand the audience in subsequent cycles can be helpful.

B. Identifying relevant scientific fields and institutions

Different academic disciplines often vary significantly in their needs and practices. For example, certain scientific disciplines frequently deal with sensitive goods and technologies, while others may rarely ever come into contact with them. Hence, mapping disciplines according to the extent they are affected can help identify priority audiences. Research linked to national or global security interests may be especially significant in the context of export controls. Related fields of study should thus be a key target audience of the regulator's communication. In the past, important scientific fields for export control outreach have included **nuclear technology, physics, telecommunications and information technology, electrical engineering, and materials technology**.⁴ However, even civilian research and other fields not typically associated with export controls can have dual-use potential, regardless of the intended direction or motivation of the research, such as **biology including biotechnology and medicine, chemistry and biochemistry, energy and environmental technology**. Key disciplines highlighted for outreach efforts at the Erlangen conferences included additionally: **artificial intelligence, quantum technologies, semiconductors, aerospace and propulsion, life sciences, and process as well as mechanical engineering**.

In contrast to in industry settings, which foremost relates to the export of concrete dual-use goods, it is often difficult for “outsiders” to adequately assess which research programme comes with a particularly high-risk profile. For this reason, raising awareness at both the institutional and individual levels is crucial in academia—scientists are the most familiar with their research projects and their potential dual-use applications.

C. Engaging academia – suitable formats

Findings from the Erlangen initiative conferences revealed that academia views proactive outreach by regulators as reasonable and necessary. Regulators should not wait for academia to initiate inquiries, but take the lead in launching outreach initiatives.

States may select the formats and media most suitable for their national academia. Among different outreach formats, holding **national conferences**, where regulators invite relevant academia to attend and inform and discuss with them about export control legislation were suggested as the most effective. Such conferences could be complemented by organizing **subject-based working groups** tailored to smaller audiences, where applicable and needed. Another important tool is supporting academia with **written information** about export control laws and regulations applicable to them. Academia representatives at the Erlangen conference found the information shared on regulators’ or other **dedicated websites** highly useful. In addition to this, regulators could draft more **detailed handbooks** with clear guidelines and a thematic focus on the academic sector. Further helpful information material may include flyers containing the most important information about regulations and licensing processes, and

⁴ This list is not exhaustive. Many scientific disciplines and related knowledge can be relevant for export control.

hotlines through which academia can easily contact the regulator to pose questions and raise concerns.

Key Outreach formats and materials:

- Large outreach events bringing a national key audience together. The composition of the audience can be derived from the initial mapping process and could, at the outset of outreach programs, include national top universities or state-owned universities.
- Events with a topical focus allow for in-depth discussions. Topics could include internal risk analyses in research institutions, assessments of internal compliance structures, working with case studies, among others.
- Regular exchange fora, online or in person, bringing together a key group of academia representatives who can function as multipliers in their respective institutions. The exchange fora function as a platform for open discussion and to develop effective support tools in collaboration with academia, e.g. handbooks.
- Digital information material on the regulator's export control webpage. This may include up-to-date information about laws and licensing procedures, including example cases of how regulations can be fully implemented.
- Intra-university training for academic staff and potentially students. In both cases invitations such training can be organised by higher education institutions, potentially with the support of the regulator.
- Regional and international cooperation meetings between regulators and academia may be helpful to exchange information on existing regulations, processes, and best practices, and to jointly define minimum standards to be upheld in the region or internationally.

D. Establishing active collaboration

Establishing an active and trustful collaboration with the audience is key to effectively spreading export control knowledge among academia. In order to reach sustained awareness and understanding, it appears **essential to repeatedly** highlight compliance requirements and jointly develop **strategies** to meet them.

It was found crucial that regulators **remain available to answer questions and provide tailored advice** both during and outside of outreach events. Similarly, academia may establish a dedicated channel for providing feedback to regulators. Erlangen conference discussions further revealed that academia is at large interested in being involved in drafting guidelines, handbooks, or other reference materials and that this could in turn enhance acceptance of export control regulations.

E. Finding the right language

Across all outreach formats, next to providing tailored information, it is essential to find and use appropriate language to engage academia. **Outreach at best fosters an open, collaborative dialogue** that functions as a foundation of the partnership between regulators and academia. Such a dialogue requires finding a shared language that is **clear and accessible**, recognizing that **researchers are not legal experts**.

Instead of using legal jargon, practical and straightforward information about export controls that appeal to persons from a non-legal background can be shared. Key terms should ideally be explained or contextualized, and real-world examples may be included so **legal terminology is illustrated with relevant case studies**.

F. Further aspects to consider:

- Encourage Academia to designate **Points of Contact**.
- Consider **collaboration** between the export control authority and the respective **local authorities** responsible for science and research or education and training. In some cases, such collaboration can be beneficial for identifying appropriate Points of Contact and promoting understanding and compliance within academic institutions.
- Consider academic project cycles.
It is **significant to engage with academia repeatedly and at different points** during a scientific project cycle. In order to foster the understanding and consideration of export control provisions, outreach may ideally start at the early phases of the project cycle, such as at the project proposal drafting stage. It continues to be important during all of the following stages, e.g. during the selection of project partners. The contact established through this early outreach allows for easier communication at all stages of the project cycle.
- Consider the need of identification of project partners for funding.
It could be **key for regulators to engage those institutions funding research** and to emphasize to them, too, the importance of export control regulations, highlighting potential risks associated with a project or discipline, and providing guidance where needed.
- Consider the availability of resources.
Academia often faces challenges in terms of both staffing and funding, which result in significant challenges when it comes to implementing export control regulations. Similar to industry, it is important to **reach management commitment and achieve a high level of awareness** of export control compliance at the university and institutional level. There needs to be a shared understanding that **research cannot be conducted without any consideration of its risks**, particularly contributing to weapons of mass destruction in any way.

2. Key Elements to include in Academia Outreach – Content

Outreach to academia requires a combination of suitable formats with relevant content. Awareness of relevant export control legislation, control lists, licensing/permit processes, and exemptions is essential. Participants of the Erlangen Conference also suggested highlighting potential consequences if regulations are knowingly or unknowingly violated, i.e. sharing information about penalties resulting from non-compliance.

It might not be obvious to scientists that malign intentions of third persons and organisations could put their research at risk of misuse. Thus, it is a key element of outreach to academia to sensitize researchers and explain the rationale behind export controls. Emphasis can be put on the fact that the aim of export control is not to limit scientific research or publications, but rather

to prevent major security-related abuse when sensitive goods or knowledge are transferred abroad. Below is an overview of suggested contents of academia outreach.

Export control related contents in academia outreach:

A. Overview of the aims of and reasoning behind export controls

UNSCR 1540 (2004) obliges all UN States to implement, among others, export controls to hinder the proliferation of Weapons of Mass Destruction. The establishment of such controls is an international obligation. It is important to inform academia that controls are implemented worldwide and not just at their national level, meaning that researchers around the world are affected in a similar manner. Export controls are already widely harmonized in their approach, creating a level playing field at an international level.

States may emphasise that within a framework of legal and international obligations, **export control laws are geared to uphold peace and stability worldwide by combating proliferation**. They are designed for the society they are part of, in consideration of the foreign and security policy interests of States, in particular internal security and peace.

B. Key actions that may be subject to export controls

Knowledge related to nuclear, biological, or chemical weapons and related missiles, as well as civil goods that are or could be intended for the use or development of such weapons, are a particular hazard just as much as these goods themselves. Hence regulators may highlight that academia is therefore not free to deliver these dual-use goods (or share related knowledge and technology) without a license to any recipient in any country (even if these goods are used predominantly for civilian purposes in everyday life).

Outlining example situations and specific actions relating to export control creates clarity among the audience. Within academia, export controls could pertain to the **shipment of tangible goods**, e.g. laboratory equipment, to recipients abroad, and **intangible transfers of technology and knowledge**. Attention therefore has to be paid when **entering international scientific cooperation with foreign research institutions**, conducting **joint research** with foreign researchers, participating in **international conferences**, or when there are **visiting scholars coming from abroad**.

Cooperation with guest researchers at institutes within national borders could be affected by export control regulations. If compliance is lacking, scientists, students, and technicians from countries that pose a proliferation risk could at worst have uncontrolled access to universities and other scientific institutions abroad and attempt to acquire and pass on highly sensitive knowledge of state-of-the-art technologies. This knowledge transfer can in turn constitute the potential basis for proliferating states to achieve scientific and technical independence in sensitive areas.

C. Existing export control laws and regulations

In order to achieve compliance with the provisions of export control, it is vital that academia learns about relevant export control regulations and key terms, including existing control lists.

Regulators may want to

- Highlight that scientific freedom, enshrined in many constitutions worldwide, thus not exempt research activities and researchers from the provisions of export control. There may be a need to clarify that regulations equally apply to private individuals such as scientists but also to legal entities such as research institutions or developing and manufacturing companies - regardless of the motivation and purpose of their activity. The objective potential for misuse of the good, technology, or knowledge is the sole criterion.
- Inform academia that an **export control licence is required when listed goods** are planned to be exported, for example, in the context of research projects or collaborations.
- Inform about the existing control lists by highlighting the **importance of technology**, and include **specific examples** of relevant listed goods.
- Inform academia that licensing requirements also cover the **transfer of knowledge** and thus **the transfer of research findings about technology** if these are crucial and could potentially be used for the development, production or use of a listed good.

D. Key paragraphs and key terms, such as:

- **Different control scopes** (exports, intangible technology transfer controls, knowledge transfer controls and catch-all clauses). The latter could be especially relevant for academia, as researchers often deal with cutting-edge technologies or knowledge. Such information may not yet be part of control lists, but still relevant in regard to export control and the implementation of UNSCR 1540 (2004). Therefore, catch-all controls could apply in many States.
- **Control lists and certain item types.**
- **The need for active cooperation and support of all stakeholders.**
- The importance of a **close look at the end-use and end-user** of transferred goods, technology or knowledge. Research institutions need to be alert to any suspicions of possible (unintentional) involvement in proliferation. For example, attention should be given to countries that are known or suspected to be seeking technical expertise relating to proliferation. Academia can consult with relevant authorities to clarify specific cases. Highlight to academia that requests or orders for the supply of goods or the provision of technical support services, as well as applications or requests for participation in certain events should be subject to a detailed examination if the person making the request raises any suspicions with regard to possible misuse. Academia needs to be aware that a thorough review is necessary if there are suspicious patterns of behaviour.
- Regardless of whether goods or technology are sent abroad, **personal sanctions (also known as financial sanctions or, colloquially, „terrorist lists“), where applicable, must be considered.** These prohibit the direct or indirect provision of funds or assets of any kind („economic resources“) to persons specified in the sanction lists. For research organizations, this means ensuring that the people they work with do not appear on the (national) sanctions lists.

E. Licensing processes

It is recommended to dedicate time and resources to outline licensing procedures and processes, both during outreach events, but also when designing written information material. Academia may profit from dedicated information for researchers on how to handle export controls and licensing applications and where to find information about listed goods and technologies concerned. Further, contact information to address questions about export controls and licensing procedures to is helpful.

F. Penalties for export control infringements

By complying with export controls, academia avoids legal violations and long-term reputational damage. Full export control compliance within academia makes responsibilities transparent, and protection against criminal liability issues can be improved.

G. Advantages for higher education and research institutions

Facts to convey may include that

- Academic excellence cannot be achieved without compliance with legal obligations. Nowadays, export control is an obligatory compliance standard.
- The establishment of effective internal export controls in turn enhances international cooperation.
- Export control aligns with the interests of academic institutions and individual researchers, particularly in protecting intellectual property and enhancing the institutions' international reputation.