

## DTU guidance on dual-use

### What is dual-use?

Dual-use is an umbrella term for items/technologies that can be used for both civil and military purposes, including items/technologies that can be used for the production of weapons of mass destruction. Research into and development of dual-use items/technologies are made for the benefit of society, but if they fall into the wrong hands, they may harm society in certain circumstances.

Dual-use items/technologies are subject to export controls in the EU (Council Regulation No. 428/2009) which means that you need an export authorization from the Danish Business Authority (Erhvervsstyrelsen), if they are to be exported. If you work with items/technologies listed on EU's control list (Annex 1 to the Regulation), you must always apply for an export authorization. The control list is updated regularly.

Items listed on EU's control list are by definition "dual-use":

#### EU'S CONTROL LIST

- 0 Nuclear materials, facilities and equipment
- 1 Special materials and related equipment
- 2 Materials processing
- 3 Electronics
- 4 Computers
- 5 Telecommunications and »information security«
- 6 Sensors and lasers
- 7 Navigation and avionics
- 8 Marine
- 9 Aerospace and propulsion

You can find further information about EU's control list and export controls at the Danish Business Authority: <https://danishbusinessauthority.dk/items-subject-to-control>.

It is important to note that:

- In this context "technology" means knowledge – i.e. documents, know-how and assistance. You should therefore be aware whether your scientific articles or collaborations are subject to the dual-use provisions (see flowchart).
- Technology/knowledge already publicly available is not subject to the provisions.
- Export means "border crossing" – primarily borders to third countries. In this context, information published on the internet or in scientific articles is considered as information with a cross-border potential. This also means that technology/knowledge may be exchanged in Denmark (you must however know the recipient) – but that the same exchange is an infringement of the export controls if it takes place to e.g. Syria (see the list of countries affected by sanctions: <https://eksportkontrol.erhvervsstyrelsen.dk/lande-beroert-af-sanktioner>). Please note that exchange of knowledge within Denmark can also be subject to other national provisions than export controls. In case of doubt, you should contact the head of department.
- The export control provisions contain a "catch-all" clause which means that even though the knowledge/equipment/substance is not specifically listed on the control list, it can still be subject to the provisions if it is similar to or has the same functional characteristics as an item on the list. You should be particularly aware of the "catch-all" clause if you work with:
  - Electronic equipment
  - New advanced technologies
  - Chemicals
  - Chemical plants – including process and production equipment
  - Laboratory equipment and analytical equipment
  - Freeze-drying and spray-drying plants
  - Vaccines, toxins, microorganisms and biological agents, including growth media (peptone) and synthetic biology and cloning experiments (see also Annex 1 to EU Regulation No. 428/2009 and the check list for technology control from Centre for Biosecurity and Biopreparedness in the fact box)
  - Equipment for spreading of or protection against such biological agents
  - Machine tools
  - Software and technology for production, development or use of the above-mentioned products

### **What is the task?**

The surrounding community expects researchers to address and manage knowledge that can be misused. Consequently, it is important for the individual researcher to reflect on his/her research, e.g.:

- to examine whether the product or the technology (including publications and collaborations) is subject to the control/"catch-all" list or implies a risk of potential misuse which should be addressed (see flowchart in the fact box)
- to consider whether the research/experiment generates knowledge which may be misused
- to assess the possible misuse potential as compared to the utility potential
- to find out whether you need to apply for an authorization if a dual-use potential exists
- to address the misuse potential, if any.

## Risk assessment

Knowledge often possesses a misuse potential, and there is no clear limit or value to distinguish between use and misuse. The departments are therefore recommended to apply a level of acceptance for their research activities that they can vouch for to the outside world and which allows them to argue for their risk assessment/risk management in connection with the individual projects.

Ultimately, it is the head of department who must approve the level of acceptance. In case of doubt, the head of department can clarify the level of acceptance with DTU's Provost.

## Responsibility

At the international level it is discussed whether the risk assessments should be made by the legislators/authorities or the researchers themselves. In Denmark – as in many other countries – the authorities suggest that it should be the researchers. There are two main arguments for placing the responsibility with the researchers. On the one hand, the person generating the knowledge is well-informed on the subject and thus expected to be best qualified to make the assessment. On the other hand, we base our work on the basic rule that the person generating the knowledge also determines the relevant classification (Security circular issued by the Ministry of the State of Denmark (link in Danish) <https://www.retsinformation.dk/Forms/R0710.aspx?id=166206>).

The responsibility for the process regarding the practical implementation, assessment and management of research in relation to dual-use lies with the head of department. The head of department can delegate the actual assessment within his/her own organization.

The assessment must build on the competencies of the people making the assessments. Researchers are therefore not expected to acquaint themselves with scientific disciplines outside their own field of research, e.g. weapon production processes.

## Further information

For questions regarding applications for funding, please contact Research Support DTU, Office for Research and Relations: <https://www.inside.dtu.dk/en/medarbejder/forskning-innovation-og-raadgivning/finansiering-fonde-og-legater/vaerktoejer-til-at-skrive-den-gode-ansoegning?fs=1>

For questions regarding biosecurity, please contact Karin Grønlund Jakobsen from CAS/ABB: <https://www.inside.dtu.dk/Medarbejder/HR-og-arbejdsmiljoe/Arbejdsmiljoe/Biosikring?fs=1>

For questions regarding research projects of a technical nature, please contact Henning Heiselberg from Security DTU: <https://www.inside.dtu.dk/da/dtuinside/generelt/telefonbog/person?id=63226&cpid=219466&tab=1>

In connection with export controls, the Danish Business Authority offers its assistance with the assessment of your project description with respect to the dual-use control list. **You should however be aware** that this assessment is made by external experts and that the Danish Business Authority therefore sends the project material to external and unknown persons which may be

inappropriate, e.g. with respect to protecting the confidentiality of ideas for inventions and requests for access to documents.

On the Danish Business Authority's homepage you can find statistics on the authorizations granted during the past year (link in Danish): [https://eksportkontrol.erhvervsstyrelsen.dk/produkter\\_0](https://eksportkontrol.erhvervsstyrelsen.dk/produkter_0)

## Examples

Below are listed examples of cases relating to research where the dual-use provisions have been used:

- An Iranian citizen was rejected when he applied for renewal of his residence permit in Norway to study advanced satellite technology. The rejection was based on a threat assessment made by the Norwegian police's security service (link in Norwegian): [http://www.dagbladet.no/2009/10/27/nyheter/atomvapen/politiets\\_sikkerhetstjeneste/8759066/](http://www.dagbladet.no/2009/10/27/nyheter/atomvapen/politiets_sikkerhetstjeneste/8759066/)
- How to balance academic freedom and biosecurity? This question was raised in connection with a case between the virologist Ron Fouchier and the Dutch authorities in which it was to be decided how publication of sensitive studies should be handled in the EU with respect to dual-use: <http://www.sciencemag.org/news/2015/07/dutch-appeals-court-dodges-decision-hotly-debated-h5n1-papers>
- An American researcher working with infectious diseases was accused by the United States Department of Justice and was, among other things, found guilty of illegal transport of samples containing plague bacteria, when he exported samples to Tanzania in connection with his research projects: <https://academic.oup.com/cid/article/43/2/259/335407/Update-on-Dr-Thomas-Butler>