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Export Controls 4 Space

New Space Economy

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for Economic Affairs SECO

The views and opinions expressed are those of the lecturer and do not necessarily reflect the official policy or position of SECO or the Government of Switzerland.

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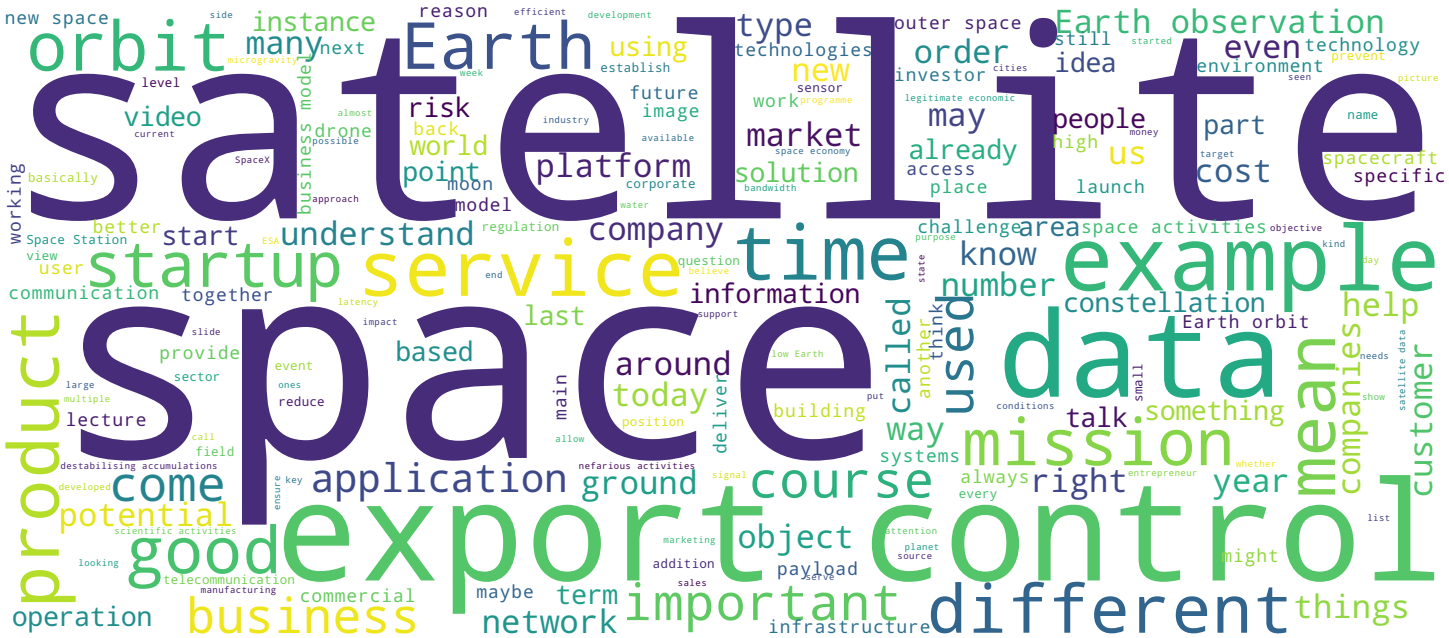


Search MOOC

Video

EPFL

Introduction

- What Export Controls are (not)
- Why Export Controls matter
- The International Community
- Your Government and You
- Take Home Messages

Hello, everyone. Welcome to this video on export controls for space. I'm Moritz, and I'm an expert on export controls with Switzerland's State Secretariat for Economic Affairs. Please note that the views and opinions expressed here are my own and do not necessarily reflect the official policy or position of the government of Switzerland. Today, I will give you an overview of export controls and highlight why they are an important factor to be taken into account when working on space-related projects. Among other things, I will explain what export controls are, and almost as importantly, what they are not, why they matter for you as a researcher, entrepreneur, what regulations the international community has put in place, and how you can contribute to making export controls effective and efficient. I will conclude with some take-home messages that underline how export controls can have a positive impact on space activities, that is, truly being export controls for space.

Notes

Summary

0m 04s

What Export Controls are (not)

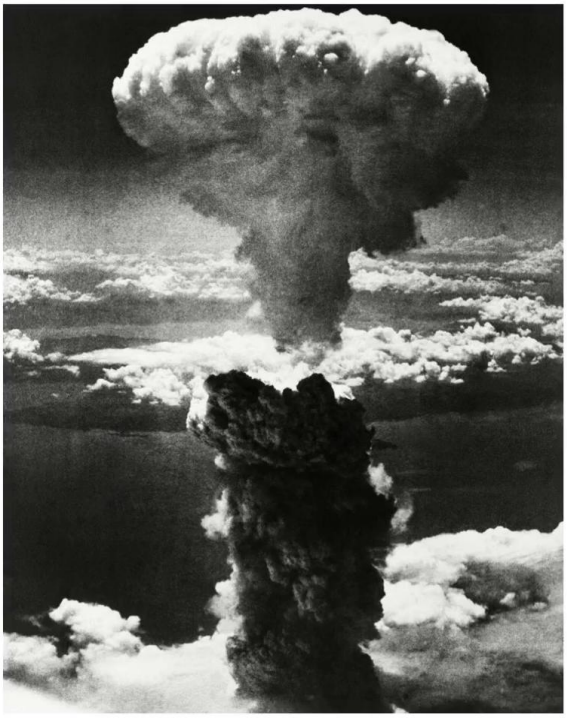


Figure 1: Atomic bomb explosion in Nagasaki, 9 August 1945 (Source: AP-Shutterstock)

What you see here, the mushroom cloud following the explosion of an atomic bomb in Nagasaki on 9th of August 1945, is what export controls try to prevent. That is, the spreading, also known as proliferation of weapons of mass destruction. In short, WMD, which comprise nuclear, biological, and chemical weapons, and their means of delivery. For instance, ballistic missiles, cruise missiles, and unmanned aerial vehicles or drones.

Notes

Summary

1m 02s

What Export Controls are (not)

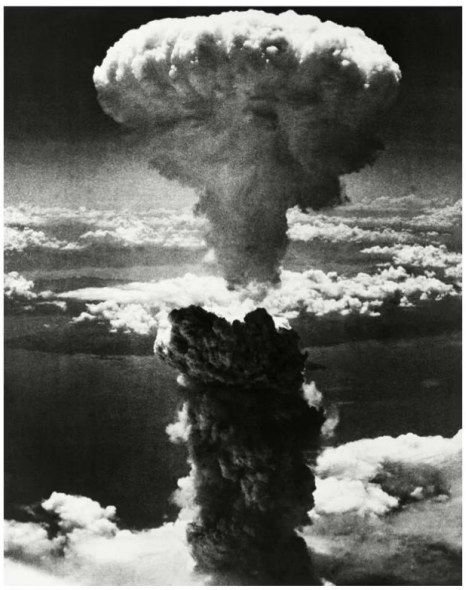


Figure 1: Atomic bomb explosion in Nagasaki, 9 August 1945 (Source: AP-Shutterstock)

- **Security policy instrument to prevent**
  - the proliferation of weapons of mass destruction, including their means of delivery
  - destab. accumulations of conventional weapons

In addition, export controls are designed to prevent so-called destabilising accumulations of conventional weapons or, put differently, arms buildups that may increase regional tensions and instability.

Notes

Summary

1m 30s

What Export Controls are (not)

- **Controls – but not a ban**
  - seek to ensure a legitimate end-use
  - without unduly restricting economic and scientific activities

Export controls are therefore a security policy instrument, but unlike sanctions or embargoes, they are controls but not a ban. The idea is to try to ensure that export goods serve a legitimate end-use rather than contributing to the spread of WMD or destabilising arms buildups. At the same time, export controls should not unduly restrict legitimate economic and scientific activities.

Notes

Summary

1m 45s

Why Export Controls matter

- **Dual-use goods**
  - for both civil and military applications
  - common phenomenon in space activities

One of the major challenges in export controls is that many goods are so-called dual-use goods, which means that they can be used for both civil and military applications irrespective of the original design intent. This phenomenon is particularly common in space, where civil and military developments have always been closely intertwined.

Notes

Summary

2m 10s

Why Export Controls matter

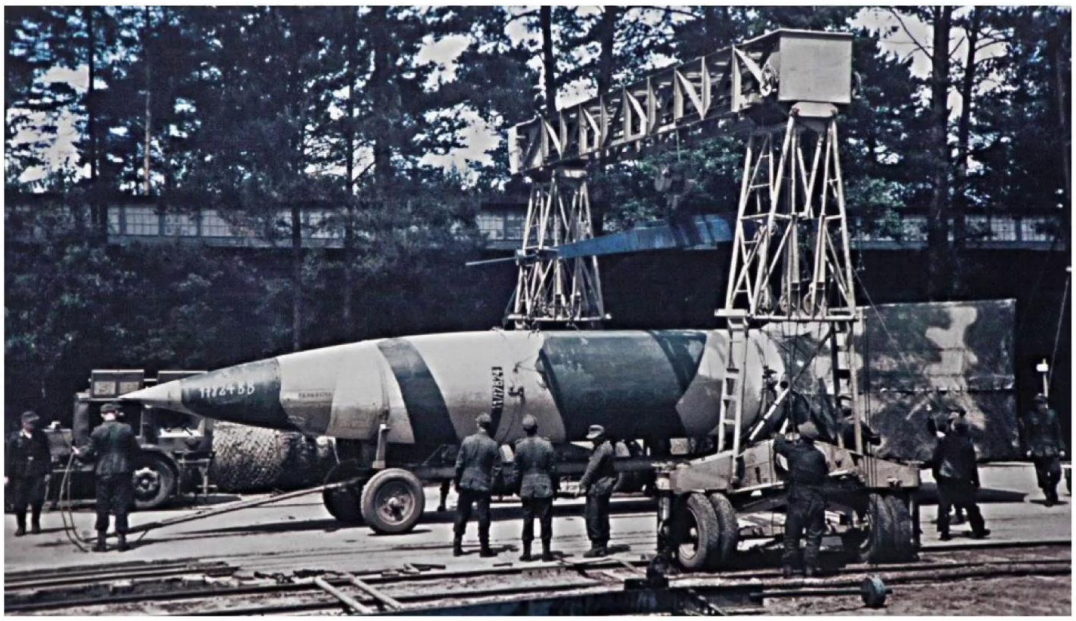


Figure 2: V2 ballistic missile (Source: Public Domain, via Wikimedia Commons)

Let us recall that, for instance, the V-2, the first manmade object to reach outer space in 1944, was also the world's first ballistic missile. It was extensively used by Nazi Germany against London, Antwerp, Paris, and other cities in the late stages of the Second World War, claiming roughly 8,000 mostly civilian lives, in addition to up to 20,000 forced labourers involved in the German missile production. Following the war, Wernher von Braun and other German rocket engineers moved to the US, where they continued their work for military and civil rocket programmes.

Notes

Summary

2m 29s

Why Export Controls matter

Figure 2: V2 ballistic missile (Source: Public Domain, via Wikimedia Commons)

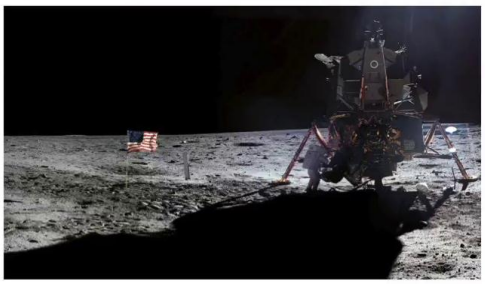


Figure 3: Neil Armstrong with lunar lander «Eagle» (Source: NASA)

- **Dual-use goods**
  - for both civil and military applications
  - common phenomenon in space activities
- **Risk of (inadvertently) contributing to**
  - WMD and their means of delivery
  - destabilising conventional arms build-ups

von Braun eventually became NASA's Chief Architect for the Saturn V launch vehicle that brought the Apollo missions to the moon. While von Braun was undoubtedly very much aware of the military dimension of his work, dual-use goods always create the risk that a researcher or an entrepreneur, despite his or her best intentions, inadvertently contributes to nefarious activities.

Notes

Summary

3m 03s

Why Export Controls matter

- **Dual-use goods**
  - for both civil and military applications
  - common phenomenon in space activities
- **Risk of (inadvertently) contributing to**
  - WMD and their means of delivery
  - destabilising conventional arms build-ups
- **Joint effort government, industry, academia**
  - prevent misuse of dual-use goods
  - reduce reputational, legal and economic risk
  - effective, efficient and mutually beneficial

Government, industry, and academia, therefore, have a shared responsibility to work together in order to prevent the misuse of dual-use goods and reduce the reputational, legal, and economic risk for the country, the company, and our research institution, and also for individual researchers, and entrepreneurs themselves. Working together ensures that controls are effective in preventing WMD proliferation and destabilising accumulations of conventional arms; that they are efficient and mutually beneficial in terms of reducing the burden and safeguarding unhindered legitimate economic and scientific activities.

Notes

Summary

3m 26s

The International Community

- **UN Security Council Resolution 1540 (2004)**
  - Proliferation of WMD and their means of delivery
  - International law, legally binding obligation for States to adopt and enforce export controls

The establishment, implementation, and enforcement of export controls is legally binding for states in accordance with United Nations Security Council Resolution 1540 and aims at preventing the proliferation of WMD and their means of delivery.

Notes

Summary

4m 07s

The International Community

The Australia Group

MTCR

WA

NSG Nuclear Suppliers Group

- **Four multilateral export control regimes**
  - Australia Group
  - Missile Technology Control Regime
  - Nuclear Suppliers Group
  - Wassenaar Arrangement

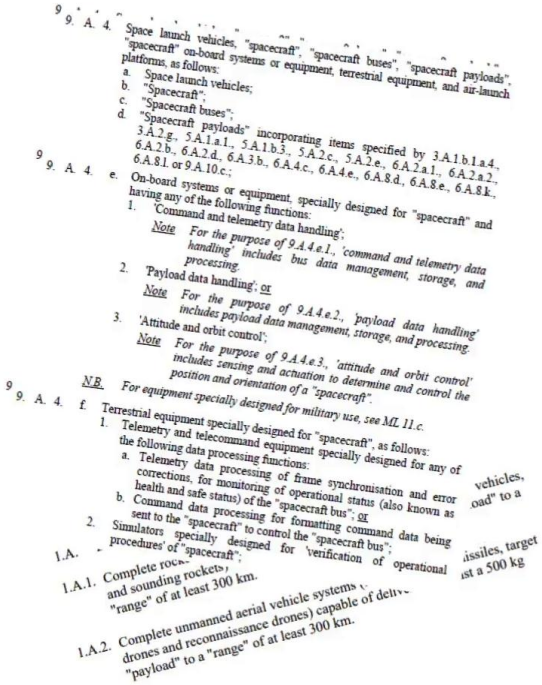
The four multilateral export control regimes coordinate export controls regarding biological agents and toxins, chemicals and related equipment, which would be in the Australia Group; delivery systems for WMD, which is handled by the Missile Technology Control Regime, MTCR; source and special fissionable materials, nuclear goods, and related dual-use goods, which are covered by the Nuclear Suppliers Group or NSG; and finally, conventional arms and related dual-use goods, which are covered by the Wassenaar Arrangement. Among the four regimes, the MTCR and the Wassenaar are the most relevant in terms of goods used for space activities.

Notes

Summary

4m 23s

The International Community



- **Functioning of the export control regimes**
  - Political commitment, consensus-based fora
  - Objective: harmonisation of export controls
- **Means used by the export control regimes**
  - Lists of controlled goods (updates)
  - Catch-all for unlisted goods (WMD)
  - Information sharing and denial notification

With regard to the functioning of the regimes, participating states agree by consensus to a political commitment to harmonise export controls by using commonly agreed and regularly updated lists of controlled goods, catch-all provisions to control unlisted goods where there is reason to believe that such goods are intended for WMD purposes, mechanisms for information sharing, and notifications on denied goods exports.

Notes

Summary

5m 04s

The International Community

- **Functioning of the export control regimes**
  - Political commitment, consensus-based fora
  - Objective: harmonisation of export controls

- **Means used by the export control regimes**
  - Lists of controlled goods (updates)
  - Catch-all for unlisted goods (WMD)
  - Information sharing and denial notification

It is important to note that states harmonise only what is controlled but not how it has happened. Establishing an export control legislation, implementing it regarding individual cases, and enforcing it where necessary, remains a purely national prerogative.

Notes

Summary

5m 29s

Your Government and You

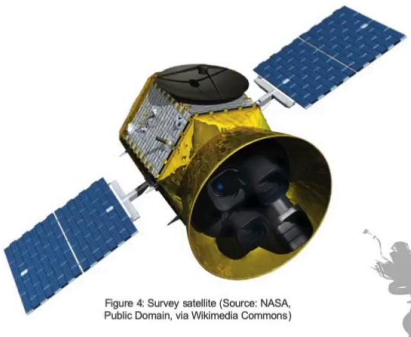


Figure 4: Survey satellite (Source: NASA, Public Domain, via Wikimedia Commons)

Figure 5: J-2X rocket engine (Source: NASA, Public Domain, via Wikimedia Commons)

Figure 6: Lecture at NASA Langley Research Center (Source: NASA, Public Domain, via Wikimedia Commons)

- **«Goods» controlled at the national level**
  - **Hardware** (systems, equipment, materials)
  - **Software**
  - **Technology**
    - Specific information necessary for the *development*, *production* or *use* of a product.
    - Information as *technical data* or *technical assistance.*
    - *Tangible* (e.g. blueprints) and *intangible* (e.g. CAD files, trainings and workshops) technology transfers.
    - **Not** if *in the public domain* or *basic scientific research*.

Nevertheless, the general structure of the internationally harmonised export controls goods lists is always the same. The term "goods" covers hardware, which comprises complete systems and components, equipment, and materials, software, and technology. Technology is the most comprehensive and also complex aspect of export controls, and therefore the most difficult to implement. Technology is understood as specific information necessary for the development, production, or use of a given item, and it comes in the form of technical data or technical assistance. It therefore covers transfers of both tangible technologies such as blueprints, and intangible ones such as computer-assisted design files, trainings, and workshops. Technology, however, is not controlled when in the public domain or limited to basic scientific research, which, in contrast to applied research, is defined as the requirement of knowledge of fundamental principles of phenomena or observable facts without serving a specific practical aim or objective.

Notes

Summary

5m 45s

Your Government and You

- **License requirement**
  - List(s) of controlled goods
  - Catch-all for unlisted goods
- **Caution**
  - Sanctions (unilateral or international)
  - End-use or end-user controls
  - Extraterritoriality of 3rd country legislation

As a researcher or entrepreneur wishing to export potentially sensitive goods, you have to check whether the transfer is subject to a license requirement, either because the good features on the list of controlled goods, or because there is reason to believe that unlisted goods are used for nefarious activities which could trigger the catch-all provision. In addition, one has to be particularly mindful of sanctions, whether they're unilaterally imposed or internationally agreed, of controls on specific end-users or individual end-users, as some countries have dedicated entity lists, and finally, of extraterritorial, potentially global applicability of certain third country legislation.

Notes

Summary

6m 51s

Your Government and You

- **Compliance**
  - What? *Know your product (dual-use).*
  - Where? *Destination of end-use.*
  - Who? *Know your customer (end-user).*
  - What for? *(declared) end-use.*
- **Tools**
  - Internal Compliance Programme (ICP)
- **Advice**
  - National export control authority
  - Specialised consultancies

In order to be compliant with export control laws and regulations, you should always know what the characteristics of your product are and whether it could serve a military purpose, where to you intend to export the goods and if they will stay there, who your customer and any potential intermediaries are, for what purpose the goods are used once they are exported. It is advisable to establish an Internal Compliance Programme and designate a person who is responsible for handling export control compliance. Your national export control authority is there to help you, as are specialised consultancies and law firms.

Notes

Summary

7m 30s

Take Home Messages

- **Export Controls**
  - contribute to peace and security – including in space
  - are neither a ban nor an obstacle to legitimate activities
- **Compliance is mutually beneficial**
  - reduces the risk of contributing to nefarious activities
  - safeguards the reputation of all stakeholders involved
  - avoids legal penalties (imprisonment, fine, activity ban)
- **You're in charge – but not alone!**
  - *First line of defence* = industry and academia
  - Export control authorities are there for you

I hope that this video has given you a better understanding of export controls in general and of their importance when you are being engaged in space activities. To wrap up, I would like you to remember the following three take-home messages. Export controls contribute to peace and security, including in space. They're neither a ban nor an obstacle to legitimate activities. Compliance with export controls is mutually beneficial, as it reduces the risk of contributing to nefarious activities, safeguards the reputation of all stakeholders involved, avoids legal penalties such as imprisonment, fines, or activity bans. Lastly, and most importantly, you're in charge but not alone. Industry and academia, that is, you as individual researchers and entrepreneurs, are the first line of defence when it comes to export controls, as you are the ones who know your products, what they're capable of, where they will end up, who your customers are, and for what purpose they want to use your products. However, you are not in this on your own The export control authorities are more than happy to assist you.

Notes

Summary

8m 07s

Take Home Messages

- **Export Controls**
  - contribute to peace and security – including in space
  - are neither a ban nor an obstacle to legitimate activities
- **Compliance is mutually beneficial**
  - reduces the risk of contributing to nefarious activities
  - safeguards the reputation of all stakeholders involved
  - avoids legal penalties (imprisonment, fine, activity ban)
- **You're in charge – but not alone!**
  - *First line of defence* = industry and academia
  - Export control authorities are there for you

Together, we can fight against WMD proliferation and destabilising accumulations of conventional weapons, while at the same time, ensuring that legitimate economic and scientific activities flourish. Thank you for your attention and your efforts to ensure that the export controls, too, are something for space.

Notes

Summary

9m 15s