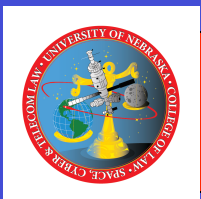


National space legislation

Frans G. von der Dunk

University of Nebraska-Lincoln, College of Law



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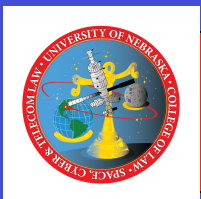
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Int'l & nat'l *space* law

- Point of departure: **international law**
 - UN Treaties, Resolutions etc.
 - General principles & customary international law
 - ➔ Implementation in **national law**
- Increasing focus on earth / mankind
 - Applications ➔ **functionalist, non-space regimes** become involved
 - **Practical** problems ➔ need for refinement
 - Implementation & elaboration at **national** level



International vs. national

- **Formally:** int'l > nat'l law
 - Wherever relevant, states should implement nationally → *vis-à-vis* citizens, companies ...
 - Absent or contrary nat'l law no excuse!
- **In reality:** very often int'l < nat'l law
 - No global legislator, adjudicator, executive ...
 - Application int'l law depends upon state
 - Many areas not regulated at all, internationally (or not in sufficient / workable detail!)



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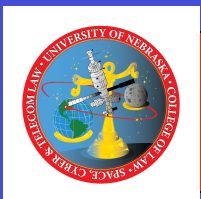
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Space activities & nat'l law

■ National *space* law

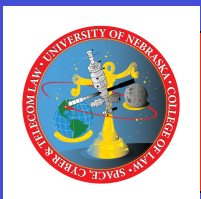
- ***Broad perspective:*** all nat'l law relevant for space (activities)
 - ◆ E.g. law establishing nat'l space agencies or nat'l space programmes; implementing specific elements int'l space law
- ***Narrow perspective:*** focuses on private entities
- ↔ State-oriented character int'l space law
 - ➔ How to bind private entities to int'l space law?
 - ➔ Does int'l space law take private interests into account?



Towards nat'l space law (1)

- Further to national (space) policies
 - Control over private space activities
 - ◆ Licensing system
 - ◆ Involvement central government body for licensing
 - Stimulation of private space activities (?)
 - ◆ Subsidies for R & D
 - ◆ Partial liability reimbursement
 - ◆ Tax incentives

→ *Which* private space activities?



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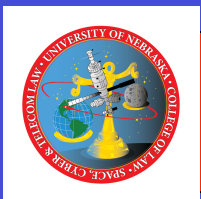
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Towards nat'l space law (2)

■ Under the OST

- Art. VI *obliges* authorization & continuous supervision
- It *suggests* to do so by means of a national space law
- Art. VII *suggests* dealing with liability consequences, by national law or otherwise
- Art. VIII *suggests* to apply available jurisdiction for both purposes, & to add registration-based jurisdiction if applicable



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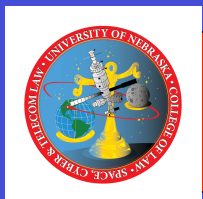
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In other words:

- States better legislate domestically to cover responsibility for “national activities”
- States better legislate domestically to cover liability for cases where qualifying as “launching State(s)”
- States better use available jurisdiction, and / or add registration as a tool



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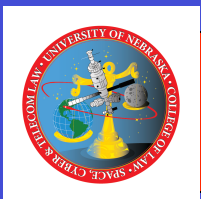
Current nat'l space laws (1)

■ Norway

- 1969 Act on launching objects from Norwegian territory into outer space

■ United States

- 1934 Communications Act declared applicable to satellite communications in 1970
- 1984 Commercial Space Launch Act (amended)
- 1984/1992 Land Remote Sensing Acts
- 1998 Commercial Space Act



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National space legislation

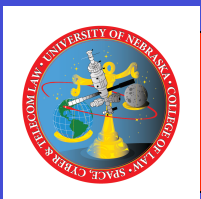
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Current nat'l space laws (2)

- Sweden
 - 1982 Act & Decree on Space Activities
- United Kingdom
 - 1986 Outer Space Act (being amended)
- Russia
 - 1993 Law on Space Activities (amended 1996)
- South Africa
 - 1993 Space Affairs Act



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Current nat'l space laws (3)

■ Ukraine

- 1996 Law of the Ukraine on Space Activity

■ Hong Kong

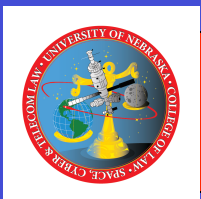
- 1997 Outer Space Ordinance

■ Australia

- 1998 Space Activities Act (amended 2002)

■ Brazil

- 2001 Administrative Edict & Regulation



Current nat'l space laws (4)

■ Belgium

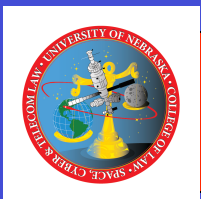
- 2005 Law on the Activities of Launching, Flight Operations or Guidance of Space Objects

■ South Korea

- 2005 Space Development Promotion Act

■ Netherlands

- 2007 Rules Concerning Space Activities and the Establishment of a Registry of Space Objects (Space Activities Act)



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Current nat'l space laws (5)

- France

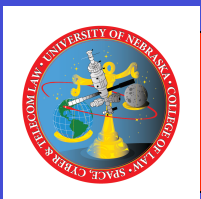
- 2008 Space Operations Act

- Austria

- 2011 Outer Space Act

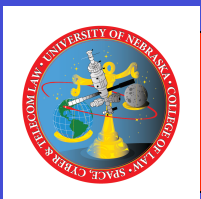
- Remote sensing on security only:

- Canada: 2005 Act governing the operation of remote sensing space systems
- Germany: 2007 Act on Satellite Data Security



Private sector involvement

- From subcontracted builders to space entrepreneurs
 - Satellite communications; launching; satellite remote sensing; private spaceflight
 - Requiring control (& appropriate stimulation)
 - ➔ National authorization / licensing system
 1. Ensuring proper implementation state responsibility
 2. Ensuring proper implementation state liability
 3. Ensuring qualification for spaceflight
 4. Ensuring monitoring mechanism (licensing agency)



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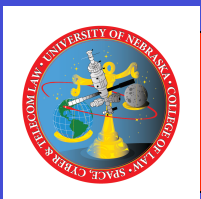
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1. State responsibility ...

- Art. VI, OST, requires “authorisation & continuing supervision” with regard to “national activities in outer space”
- Policy choices scope licensing regime:
 1. Only activities of nationals
 2. Only activities from national territory
 3. Both activities of nationals & from nat'l territory
 - Various exceptions – e.g. in case of possibility multiple licensing authority



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... & national space laws (1)

- Divergence in practice
 - **United Kingdom & Hong Kong:** nationals only
 - ◆ Includes *legal* persons
 - **Australia:** ≈ territory – but 4 types of license:
 - ◆ Launch permit; overseas launch certificate; authorisation & space license
 - **Norway & Brazil:** territory only
 - ◆ ... because only focusing on launch activities
 - ◆ Note: Norwegian Act is of 1969, that is before 1972 Liability Convention



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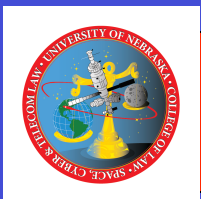
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... & national space laws (2)

- Divergence in practice – *ctd.*
 - **Sweden & Austria:** territory & nationals
 - ◆ Formulated unequivocally: ‘space activities conducted from Sweden / Austria or by Swedish / Austrian nationals’
 - **Russia & Ukraine:** territory, nationals & registered space objects
 - ◆ National Laws refer to activities conducted ‘under the jurisdiction of Russia / Ukraine’ in addition to references to ‘national entities’
 - ◆ Both explicitly add registered space objects



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... & national space laws (3)

- Divergence in practice – *ctd.*
 - **S Korea, Belgium & Netherlands:** territory; nationals only in (different) special cases
 - ◆ S Korea: if owned by S Korean government / nationals
 - ◆ Belgium: if provided for by international agreement
 - ◆ Netherlands: if not taken care of by another state ...
 - **USA** varied application:
 - ◆ Territory & nationals (launching)
 - ◆ Territory, nationals *and* 'control' (remote sensing)
 - ◆ Territory only (satellite communications)



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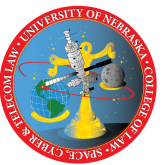
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... & national space laws (4)

- Divergence in practice – *ctd.*
 - **S Africa & France** complex combinations:
 - ◆ S Africa: territory & nationals (launching); nationals (other space activities), but may be extended
 - ◆ France: territory & nationals (launching & commanding space objects); nationals (other space activities)
- Generally: the more recent the law, the more complicated is the scope *ratione personae* thereof formulated



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Scope *ratione materiae* (1)

■ Norway

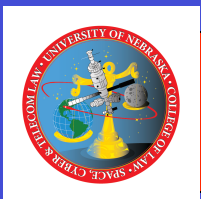
- Launch of objects into outer space

■ United States

- Satellite communications; launching & launch facility operations; satellite remote sensing – as per various Acts

■ Sweden

- ‘Activities in outer space’, plus launching or ‘affecting’ space objects in outer space



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Scope *ratione materiae* (2)

■ United Kingdom

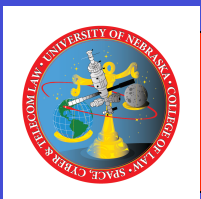
- Launching or procuring launch of a space object or operating it; any other activity in outer space

■ Russia

- Space activities, incl. creation, use & transfer of space technics, space technologies, other products & services required for space activities

■ South Africa

- Launching & other space(-related) activities



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Scope *ratione materiae* (3)

- Ukraine
 - All 'space activities' – defined quite broadly
- Hong Kong
 - Launching or procuring launch of a space object or operating it; any other activity in outer space – same as UK (!)
- Australia
 - Launching & returning of space objects; operation of launch facilities



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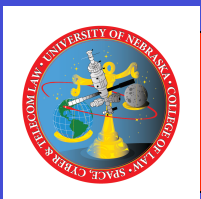
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Scope *ratione materiae* (4)

- Brazil
 - Launching (Alcantara & Barreira do Inferno)
- Belgium
 - 'Launching, flight operations & guidance of space objects'
- South Korea
 - Launch & accompanying activities



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Scope *ratione materiae* (5)

■ Netherlands

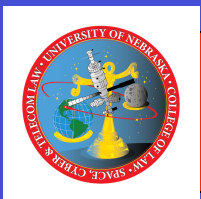
- ‘Launch, flight operation or guidance of space objects in outer space’

■ France

- Launching & returning space objects; procuring their launch; commanding them in outer space

■ Austria

- ‘Launch, operation or control of a space object, as well as the operation of a launch facility’



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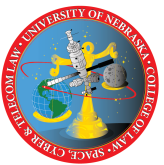
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2. State liability ...

- Art. VII, OST & Liability Convention make “launching state(s)” liable for damage caused by space object
 - Absolute liability for damage caused on earth
 - ↔ Fault liability for damage caused in space
 - Alternative criteria for qualifying as launching state: launch, procurement, territory, facility
 - Without principled limit to compensation
 - ➔ National derogation *vis-à-vis* private operators



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... policy options ...

■ Various policy choices for licensing:

- Issue 1: reimbursement proper
 - ◆ Unlimited? → problems for private party
 - ◆ Limited? → state *de facto* partial insurer
 - Fixed limit? Flexible limit? *Ad hoc* determination?
- Issue 2: insurance
 - ◆ Obligatory = transferring burdens to private party
 - To a limit? Same limit of liability, if indeed limited?
 - Also if liability unlimited?
 - ◆ Optional → creating subsidiary risk for state ...
- Or leave it to individual decisions / negotiations



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... & national space laws (1)

- Divergence in practice on liability
 - **USA:** complicated system
 - ◆ Third-party liability
 - MPL calculation ...
 - ... unless insurance available at reasonable rates is less
 - ... unless more than US\$ 500 M (= maximum maximum)
 - From SpaceShipOne US\$ 3.1 M to Delta 4-M US\$261 M
 - ◆ Inter-party liability *vis-à-vis* US government
 - Same approach – with maximum maximum US\$ 100 M
 - From SpaceShipOne US\$ 0 to Atlas 5-521 US\$ 100 M
 - ◆ Obligatory cross-waiver in all other contexts



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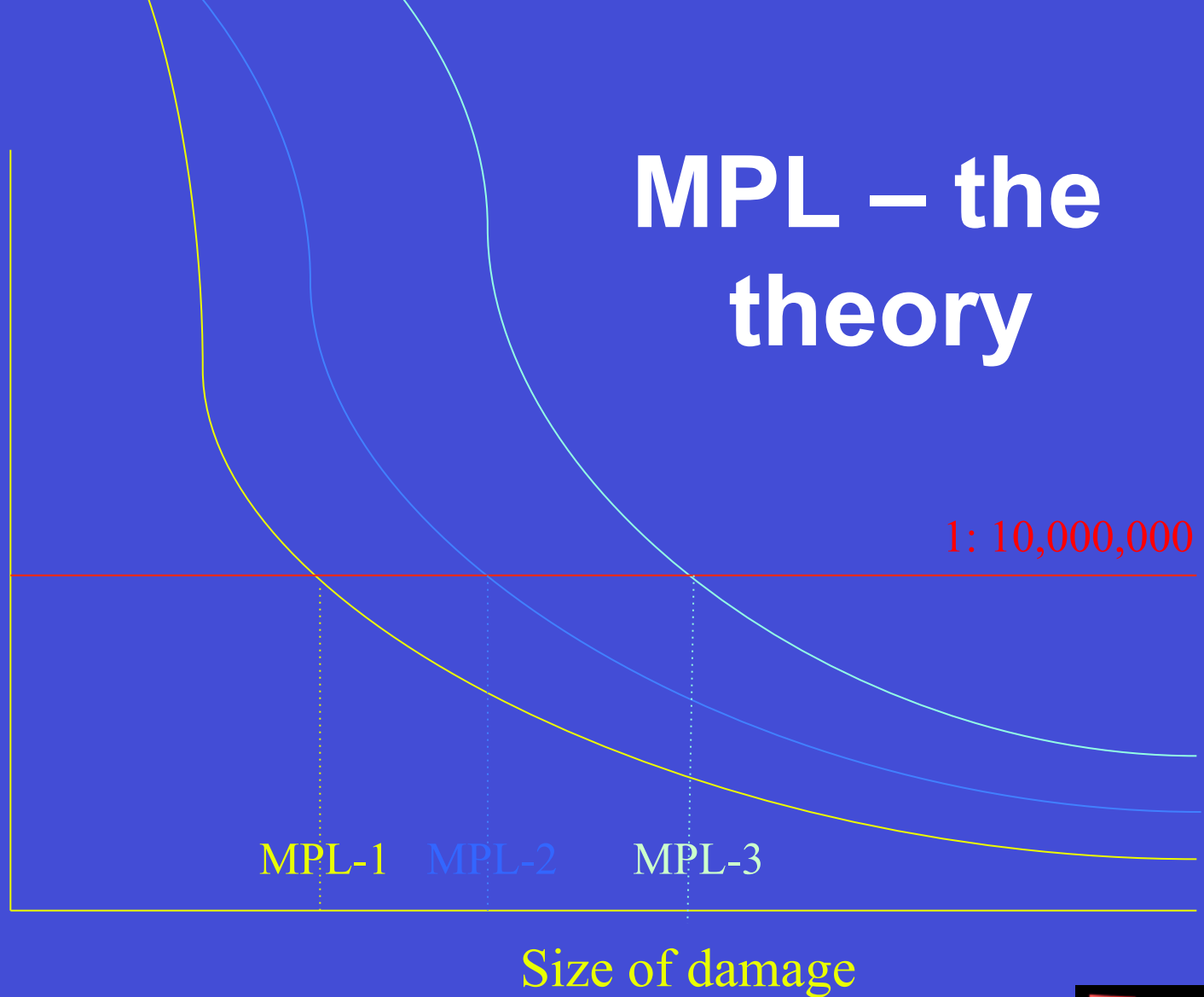
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MPL – the theory

Chance
of damage
of that size
happening



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... & national space laws (2)

- Divergence in practice on liability – *ctd.*
 - **Australia:** MPL, with max. max. of A\$ 750 M (US\$ 705 M)
 - **France:** € 50-70 M (US\$ 67-94 M)
 - ◆ So far only Arianespace € 60 M
 - **Austria:** max. € 60 M (US\$ 81 M)
 - **S Korea:** max. 200 B SKWon (US\$ 186 M)
 - **Others:** no specific reference to an amount; some suggest limitations, others do not



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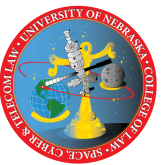
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... & national space laws (5)

- Divergence in practice on insurance
 - **USA, S Korea, France, Netherlands & Austria:** obligatory, up to liability cap
 - **Russia:** obligatory, in principle up to – non-determined – cap in spite of unlimited liability
 - **Ukraine & Brazil:** obligatory, cap t/b established
 - **UK policy:** obligatory up to £ 100 M (US\$ 160 M)
 - **Australia:** depends on type of license
 - **Norway, Sweden, Hong Kong, S Africa & Belgium:** *de facto* optional



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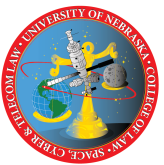
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... & national space laws (6)

- Divergence in practice on insurance – *ctd.*
 - **USA** also allows proof of ‘financial responsibility’
 - **Russia** – figures from an insurer:

Proton	US\$ 300 M	Tsyklon	US\$ 100 M
Soyuz	US\$ 100-300 M	Rockot	US\$ 100 M
Molniya	US\$ 150 M	Cosmos	US\$ 100-150 M
Zenith	US\$ 150-500 M	Strela	US\$ 100 M
Dnepr	US\$ 100-150 M	Start	US\$ 80 M



Scope *ratione materiae*

■ Procurement issue

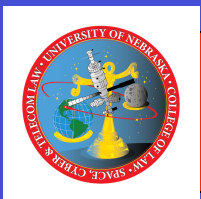
➤ Normal interpretation: “allowing launch to take place” ...

- ◆ Only paying for the launch?
- ◆ Also licensing? Indirectly financing?

➤ **UK & France:** procurement requires license

➤ **Others** make no direct / explicit reference to procurement, but ...

... e.g. **Austria:** operator operating or controlling space object requires license



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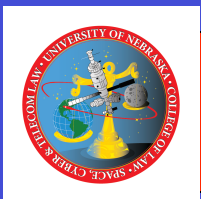
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3. Due qualifications ...

- Technical & economic
 - For safety- & liability-related reasons
 - Incl. on-site inspection; power to stop activities
- Usually inserted in license:
 - Compliance with public health & safety demands
 - Compliance with international policy interests & with international law binding upon state
 - Increasingly: provisions on 'after-life' handling, e.g. disposal of near-defunct satellites



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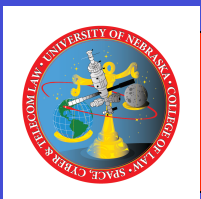
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... & national security ...

- National security also through license
- Some special cases / aspects:
 - **USA & France:** foreign involvement launch providers & EO operators separately controlled
 - **USA:** also specific national law-clauses on (VHR) remote sensing: 'shutter control' → 'buy-to-deny'; 'Israel-clause'
 - **Russia & Ukraine:** fundamental roles DoD
 - **UK:** defense agency for technical assessment



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... & Canada & Germany

■ Canada

- 2005 Act requires licenses for generation / distribution raw data / remote sensing products, only granted if authorities determine absence of security risks to Canada

■ Germany

- 2007 Act requires self-assessment in case of security-sensitive data generation / distribution, with fallback option authorities to doublecheck, before license could be granted



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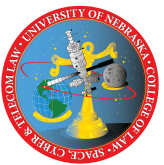
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4. Monitoring agency

- Providing national (space) agency with monitoring & enforcement powers
 - Existing agencies endowed with powers
 - ↔ Specifically established agencies
 - Monitoring powers
 - ◆ Inspection of sites, facilities, records
 - ◆ Stopping ongoing activity / demanding specific action
 - Enforcement powers: sanctions & penalties
 - ◆ From suspension / cancellation of license to criminal liability / impositions of fines / imprisonment



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Concluding remark

- With increasing privatization of space activities in specific sectors, often in a very international context, the role of national legislation in properly ensuring compliance private activities with international space law in a coherent & transparent fashion has become ever more important

