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Economic impacts of national space legislation and the establishment of fair conditions for commercial activities

Matxalen Sánchez Aranzamendi
Resident Fellow, ESPI

Why space legislation?

- Space activities are highly risky and commercial activities are growing >

  >The state must control that commercial activities will not compromise national security and international relations

- Space legislation is passed to ensure general application of international obligations >

  >Legislations stipulate authorisation, supervision and registration and allocate responsibility and liability between state and private parties

But also:

- National legislation can support competitiveness
- Can national space legislation facilitate business?

Three elements with economic impact

- Authorisation mechanisms: types of licences and authorising bodies
- Supervision:

  a priori control: technical, financial, moral requirements, insurance

  a posteriori control: supervision during operation
- Liability: calculation, caps, state warranty

Disparity

- Same contents but different approach
- National legislations address different national realities
- Authrorisation and control competences are allocated differently in each country. Different degrees of power
- Liability allocation responds to different criteria according to the country specificities.

	Sweden	UK	Belgium	The Netherlands	France	Norway	US	South Africa	Ukraine	Australia
1. Authorization										
1.1. Type of authorization	Permit per operation	Permit per operation	Permit per operation	Permit per operation	General licence certifying capacity. + Permit per operation (if the licence does not carry authorisation for certain operations)	Permit per operation	Permit per operation	Permit per operation	Certification of Space Facilities And licensing of space activities	- General Space Licence - Launch permit - Overseas Launch certificate - Authorisation of return
1.2 Material scope	Launch, operation, in orbit manoeuvring, signal reception and launch of sounding rockets expressly excluded)	Launch, operation, in orbit manoeuvring, procurement	Launch, flight operation, guidance of space objects	Launch, flight operation, guidance of space objects in outer space	Launch, attempt to launch, control a space object during its travel in outer space	Launch	Launch, launch services, re-entry, re-entry services	Activities directly contributing to the launch and operation of a spacecraft	Space research, design and application of space technology and use outer space	Launch, return
1.3. Jurisdiction	If on Swedish territory or if carried out by persons of Swedish Nationality	If on UK Territory or if carried out by persons of UK nationality	If on Belgian territory or are property of the Belgian State or under Belgian control (jurisdiction or carried out by persons of Belgian nationality.	If from Dutch territory/ship/aircraft or facultative and wholly/partially applicable if carried out by a person of Dutch nationality or the organisation of space activities from Dutch territory	If on French territory or if carried out by persons of French nationality	If from Norwegian territory or if carried out by persons of Norwegian nationality	If US citizen or if from US territory or if from foreign territory unless there is an agreement with the government of the foreign country	If from South African territory Or from the territory of another state on behalf of a of a person incorporated/ registered in the South Africa	In Ukraine or under the jurisdiction of Ukraine outside its borders	From Australia by someone not holding authorisation yet from overseas by someone not holding authorisation yet
1.4 Bodies with issue competence										
> Governmental level	Ministry of Enterprise, Energy and Communications	Secretary of State grants licence	King, Minister of Science Policy	Minister of Economic Affairs	Ministry of Research	The ministry of trade and industry	Secretary of transport. Secretary of State for the observance of safety conditions.	Department of Trade and industry	Cabinet of Ministers establishes licensing proceedings	Minister for innovation, industry, Science and Research
> Executive Agency	Swedish National Space Board (SNSB)	British National Space Council (BNSC)	Belgian Federal Science Policy Office	Agentschap Telesom	CNES	Norwegian Space Centre	Relevant executive agencies	South African Council for Space Affairs	Ukrainian Space Agency	Space Licensing and Safety Office (SLASO)
> Body issuing authorisation	SNSB	BNSC	Minister of Science Policy	Minister of Economic Affairs	Ministry of Research	Not provided for by the space law	Federal Aviation Administration (FAA) launch, space transport Federal Communications Commission (FCC)	South African Council for Space Affairs	Ukrainian Space Agency	SLASO

Some scenarios

a) All embracing legislation

Covers private activities, public programmes and military action
Establishes the national space authority > charged with autorisation >authorisation criteria on a case by case basis
Other requirements depend on general lawor other ministry
e.g. Ukraine

b) The exahustive launch act

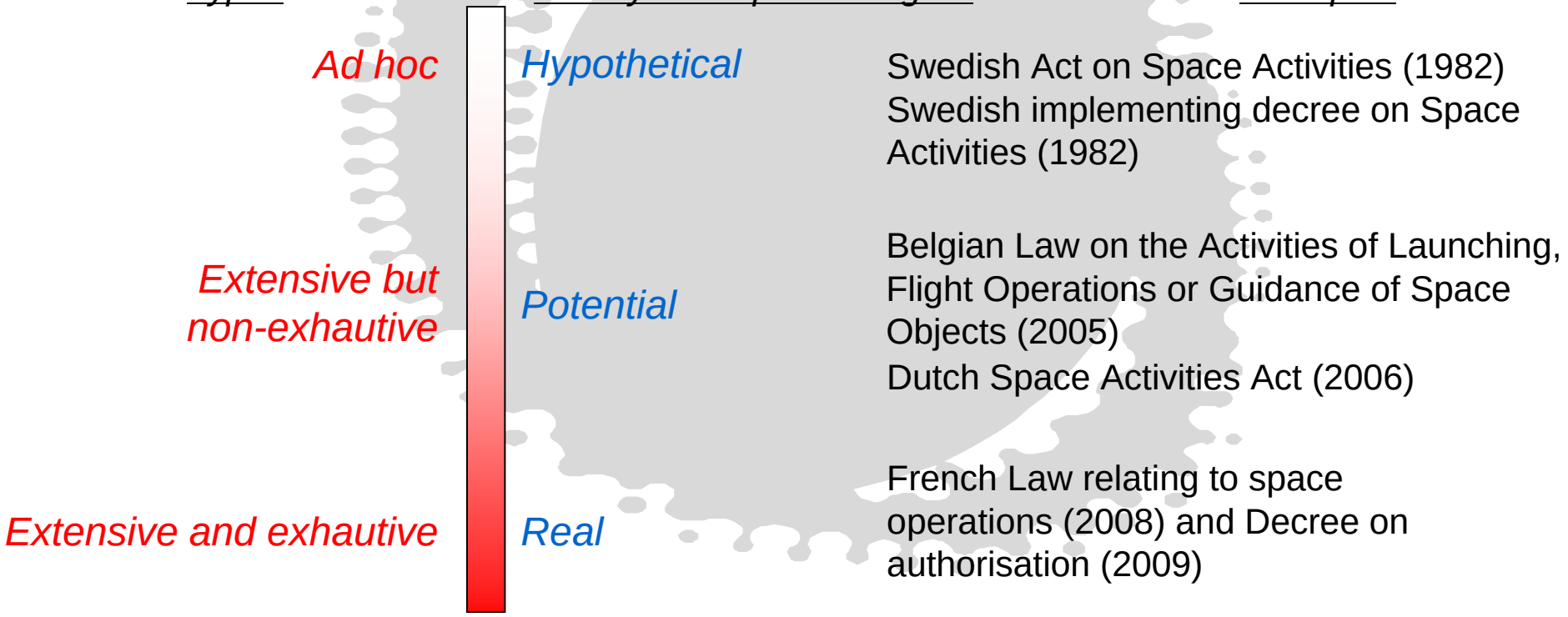
Focuses only on launch activites
Detailed in authorisation and control procedures with authorities competent for that purpose.
Includes detailed insurance and liablity criteria.
e.g. Australia

c) Dedicated acts

Different aspace activities are addressed by different acts and authorities
Rules for control procedures and authorisation requirements
Detailed insurance an liability requirements
e.g. US

Types of legislation

Public to private allocation of responsibility depends on the development of national commercial activities



Consequences for every country

General

- Uncompetitiveness vis a vis more lenient/non-existing regimes
- Polarisation of the market
- Exhaustive legislation may rubberstamp existing practices, create national champions, foreclose markets
- Open legislations may favour dominant companies/may attract other companies
- “Space operations” are focused on launching

Authorisation related

- Uncertainty whether authorisation will be granted
- Reformulation of business culture

Consequences for every country

Liability and Insurance

- Risk of passing unlimited liability onto commercial actors
- No insurer can bear unlimited liability and may let commercial actors out of business
- Liability caps improve competitiveness Some laws foresee liability caps according to different criteria: *ad hoc* decision (Belgium), fixed amount, insured amount (different criteria to fix required insurance)

Consequences for every country

Liability and state warranty

- Who pays over the liability cap? Some States foresee State indemnification
- State indemnification was introduced in the U.S. to support creation of commercial activities. Now France has adopted it, if lifted away, uncompetitiveness

Consequences for every country

Commercial space activities do not abide by market rules:

- Few players
- Public involvement is still very high

Case by case assessments are still feasible and not necessarily discretionary

National legislation must match national space capacity

But:

Preservation of national interests must not undermine competitiveness

National interests must not push unfair dominance.

No rules to protect industry but legislation to allow the same competitive level as others.

Space regulations, the next regulatory level for space

Type	Purpose	Regulatory instrument	
Space activities *stricto sensu*	Implementation of International obligations Protection of public security interests	Space legislation	
Space activities *lato sensu*	Market regulation Protection of civic rights	Non space specific regulation but relevant to space related activities	

Space legislation goes beyond outer space

The commercialisation of space activities has spurred the development of space applications:

-SatelliteTV broadcasts

-Satellite brodaband

-Navigation

-Encryption

-Cartography

-Meteo forecasts

-Integrated uses…

They have increased the demand for interoperability > increasing need for regulation

Scoping regulations

Space regulations are:

- All other rules binding or not
- applicable and essential to the functioning of space goods, applications and services
- not necessarily specific to space

a) Space may need a regulations of their own

b) Space may need a chapter of its own in the general law

c) The general law may apply by itself equally to space

Regulatory challenges

Data Policy

⇒ How to regulate data distribution for the development of competitive downstream markets?

Radiofrequency regulation

⇒ How to find the compromise between liberalisation and regulation of a scarce source?

Export Control

⇒ How to formulate a fair balance in space related dual use goods?

Standardisation

⇒ How to achieve respected common standards for a dinamic market?

Final conclusions

- The geographic scope of space markets is global
- Adequate regulation can facilitate:
  Interoperability
  Innovation
  Further integartion of space assets
- The lack of adequate regulation can facilitate the foreclosure of markets, reinforce dominant possitions and impeed the development of new products.
- The disparities between different national regulatory frameworks creates competitive advantages/disadvantages
- Harmonisation is essential for providing a level playing field for commer space actors

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