

The Infinite Frontier: Space Colonization and the Law

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SPUI25 in Spe

Amsterdam, 14 September 2018

A photograph of a crowded indoor event, possibly a conference or networking gathering. People are seen in the background and foreground, some talking, some holding drinks. The lighting is warm and indoor. The word "SPACE" is overlaid in large, colorful, sans-serif letters across the upper middle of the image. Below it, the words "law???" are overlaid in large, black, sans-serif letters.

SPACE

law???

SCIENCE

Space Lawyers Are A Thing. And We Talked To One About The Future Of Cosmic Mining

Dr. Frans von der Dunk weighs in on the space bill that just passed Congress and what exactly being a “space lawyer” entails.

The role of law in general

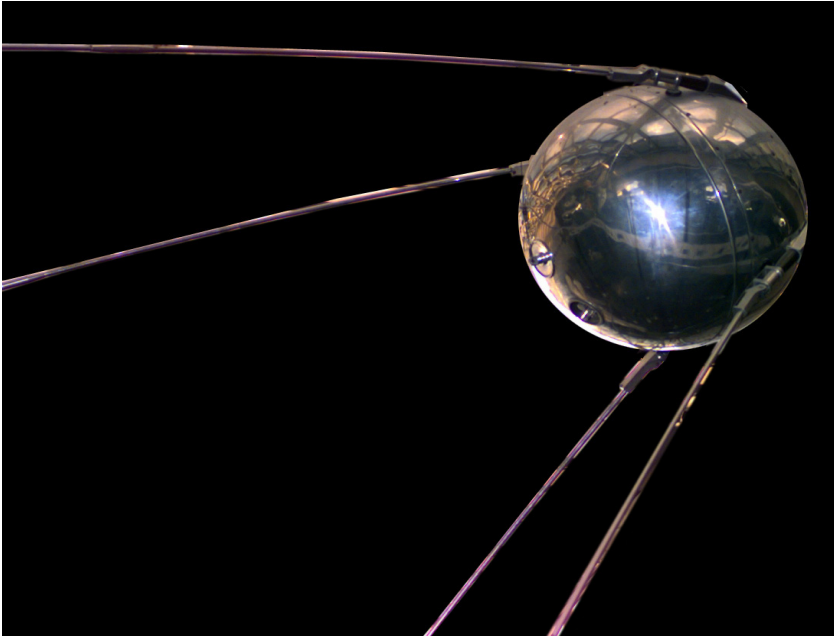
- ◆ To address human interaction and activity
 1. Ethical: to reflect a general sense of justice and fairness
 2. Practical: to establish some level of predictability

From taxation to law



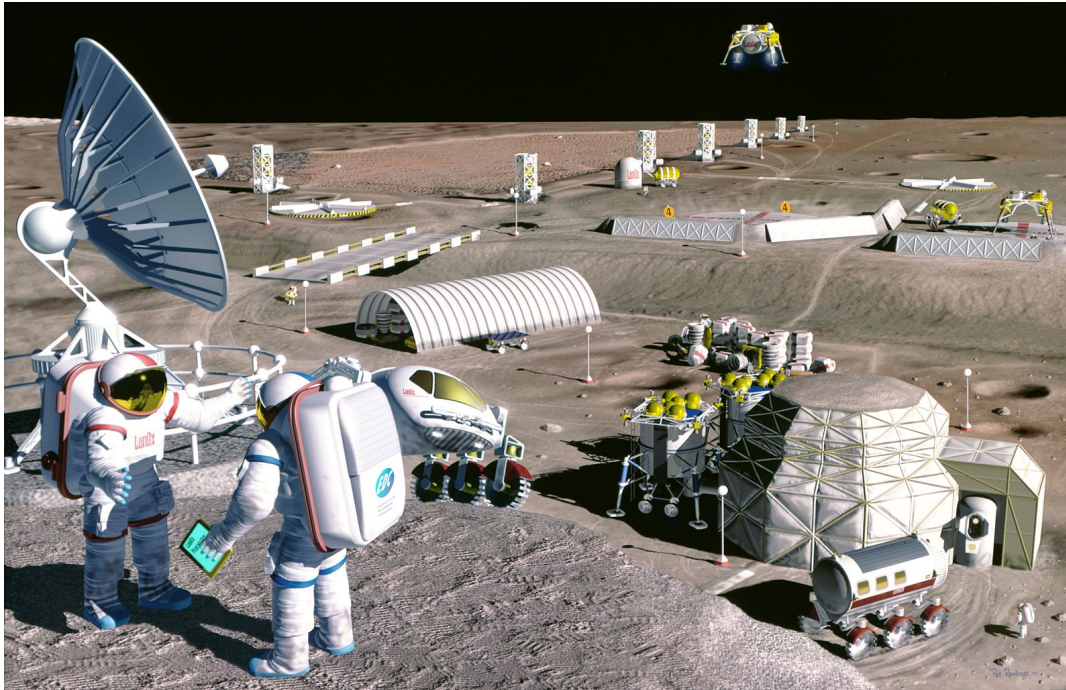
Law comes to be developed once humans start relevant activities – and follows their lead...

Man, outer space and the law



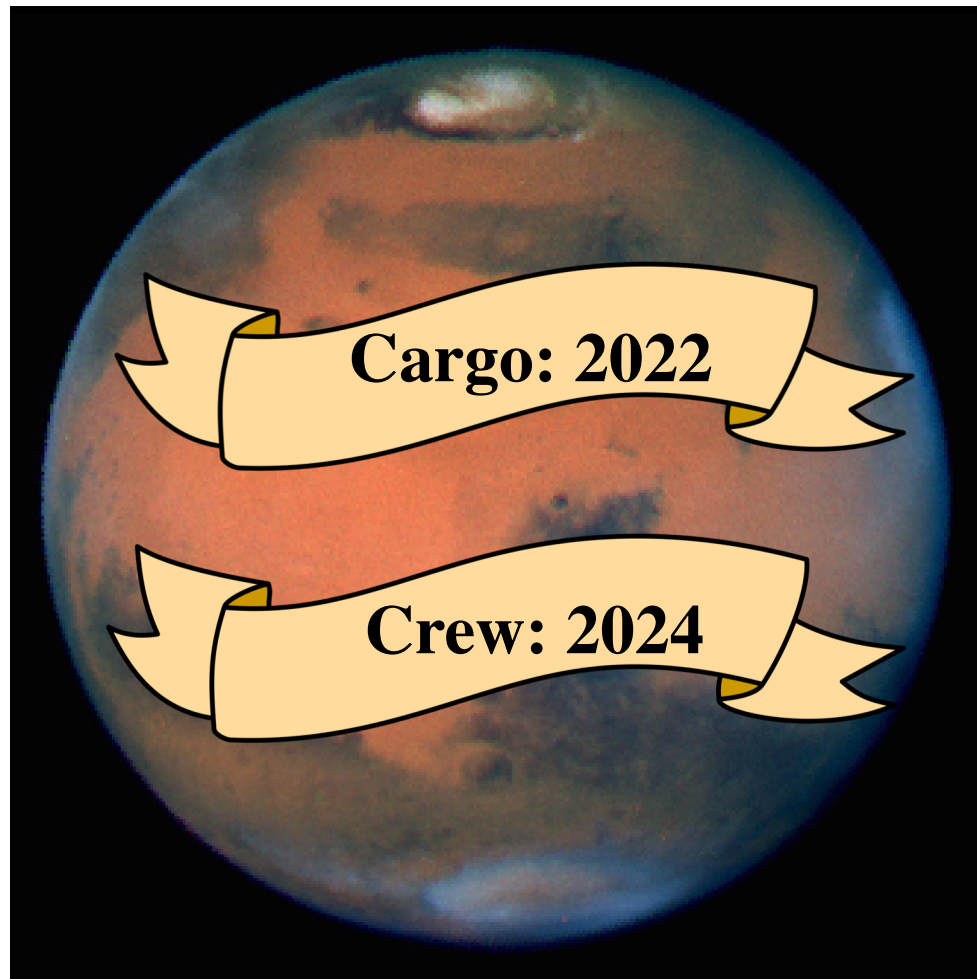
- 1957: Sputnik-I launched
by Soviet Union
- 1958: UN discussions
 - 1963: UN Resolution
 - 1967: Outer Space Treaty

What is '(space) colonization'?



Seeking human settlement of a (quasi-)permanent nature (in space)

- On celestial bodies
- Free-floating



the Reality Check



WALES

AMSTERDAM

BERLIN

LONDON

English Channel

PRAGUE

VIENNA

AUSTRIA

HUNGARY

SLOVENIA

Manchester

Birmingham

The Hague

Utrecht

Hanover

Magdeburg

Poznan

Cardiff

Bristol

Brighton

Southampton

Wroclaw

Opole

Plymouth

Le Havre

Cherbourg

Ostrava

Brest

Rennes

Nantes

Loire

Brno

Paris

La Rochelle

Limoges

Toulouse

Lyon

Geneva

Milan

Verona

Trieste

Ljubljana

Zagreb

Bay of Biscay

Bordeaux

Garonne

Rhône

Turin

Genoa

Bologna

Venice

Pula

Rijeka

Bosnia and Herzegovina

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Amsterdam-
Venice
1,000 km

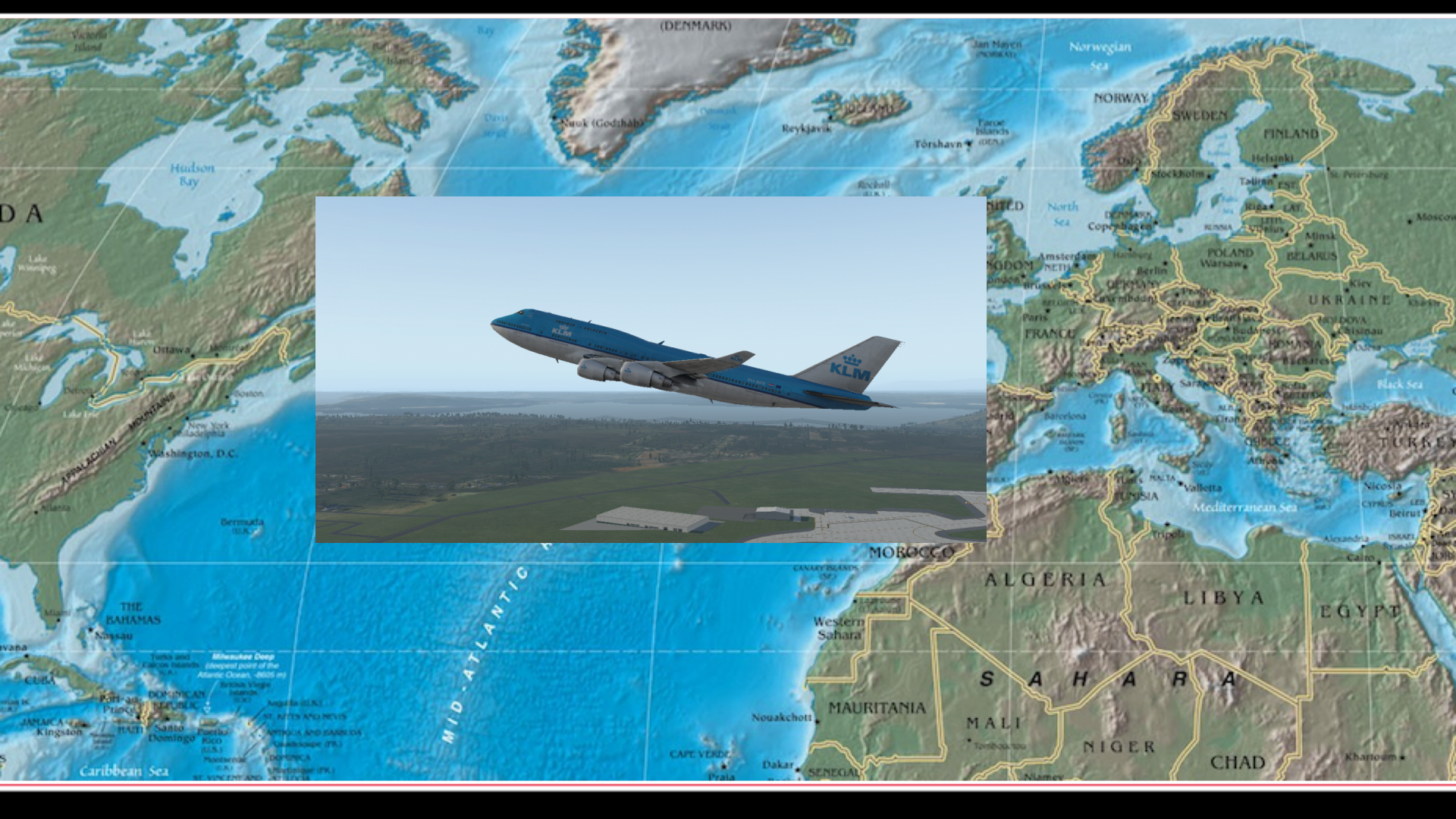
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Return flight

± € 300

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Amsterdam-
New York
6,000 km

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Return flight

± € 1,000

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Virgin Galactic WhiteKnightTwo plus SpaceShipTwo



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Amsterdam-
outer space
100 km

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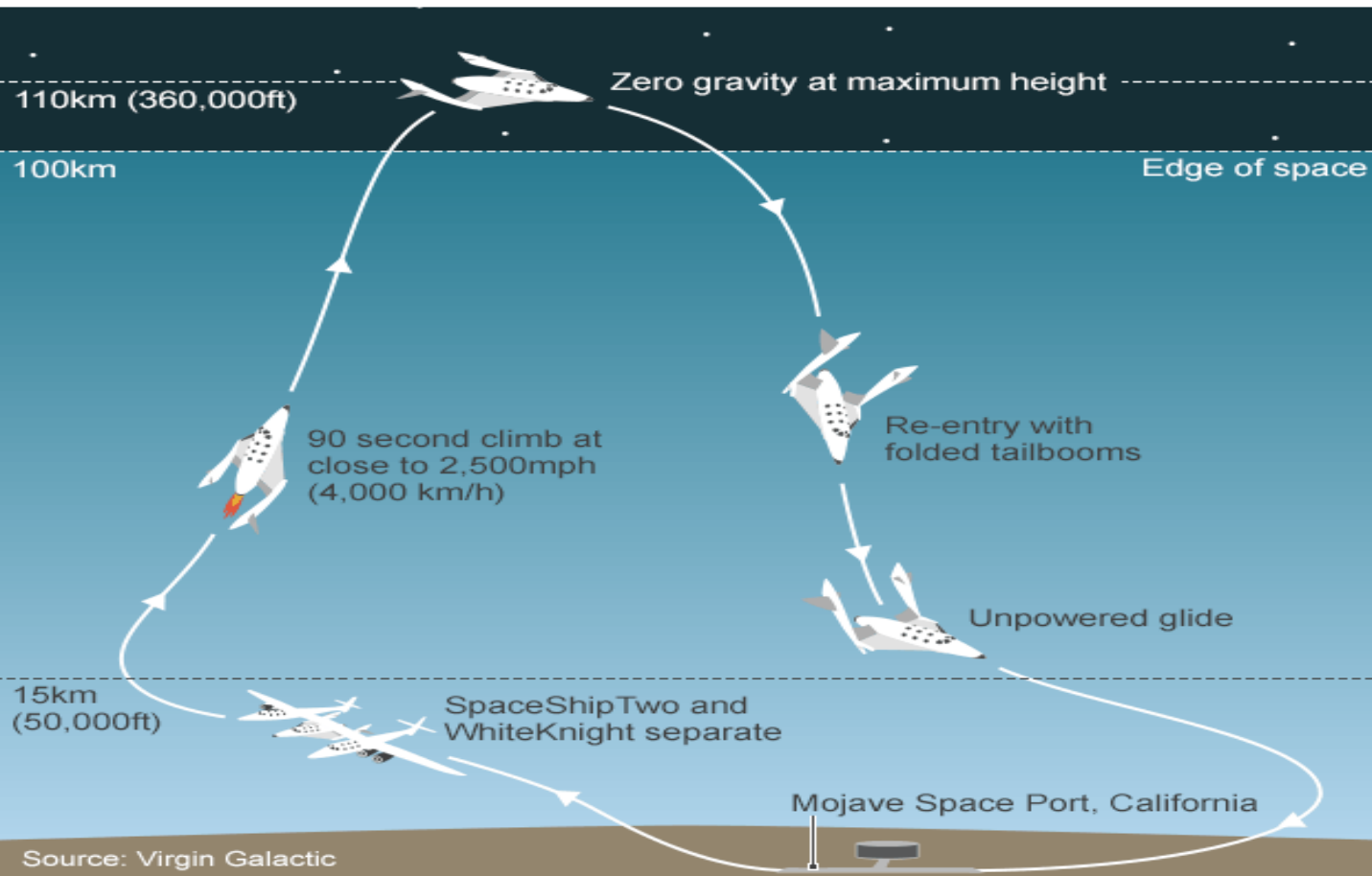
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Return flight

+ \$ 250,000

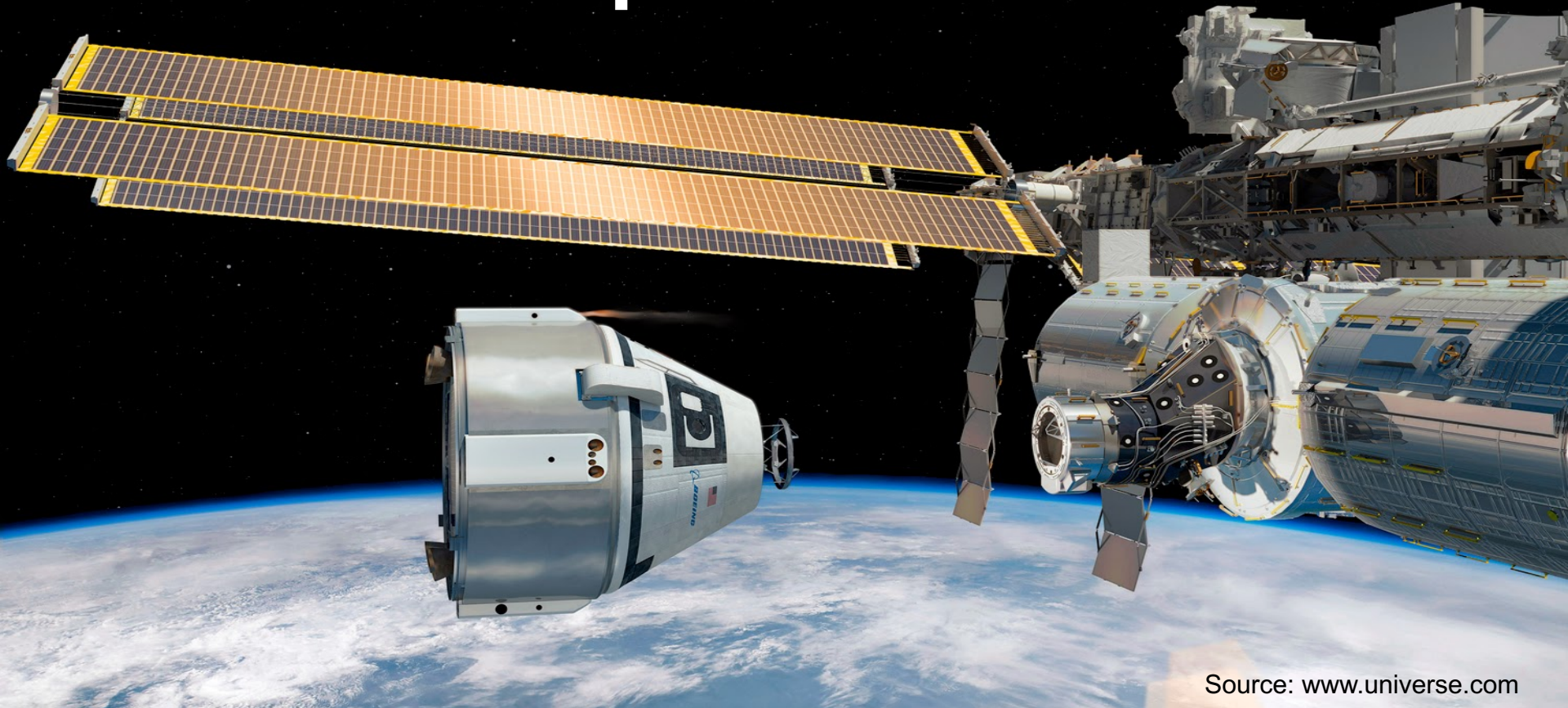
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SpaceShipTwo flight plan



Source: Virgin Galactic

Boeing CST-100 – docking with International Space Station



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Amsterdam-
ISS
400 km

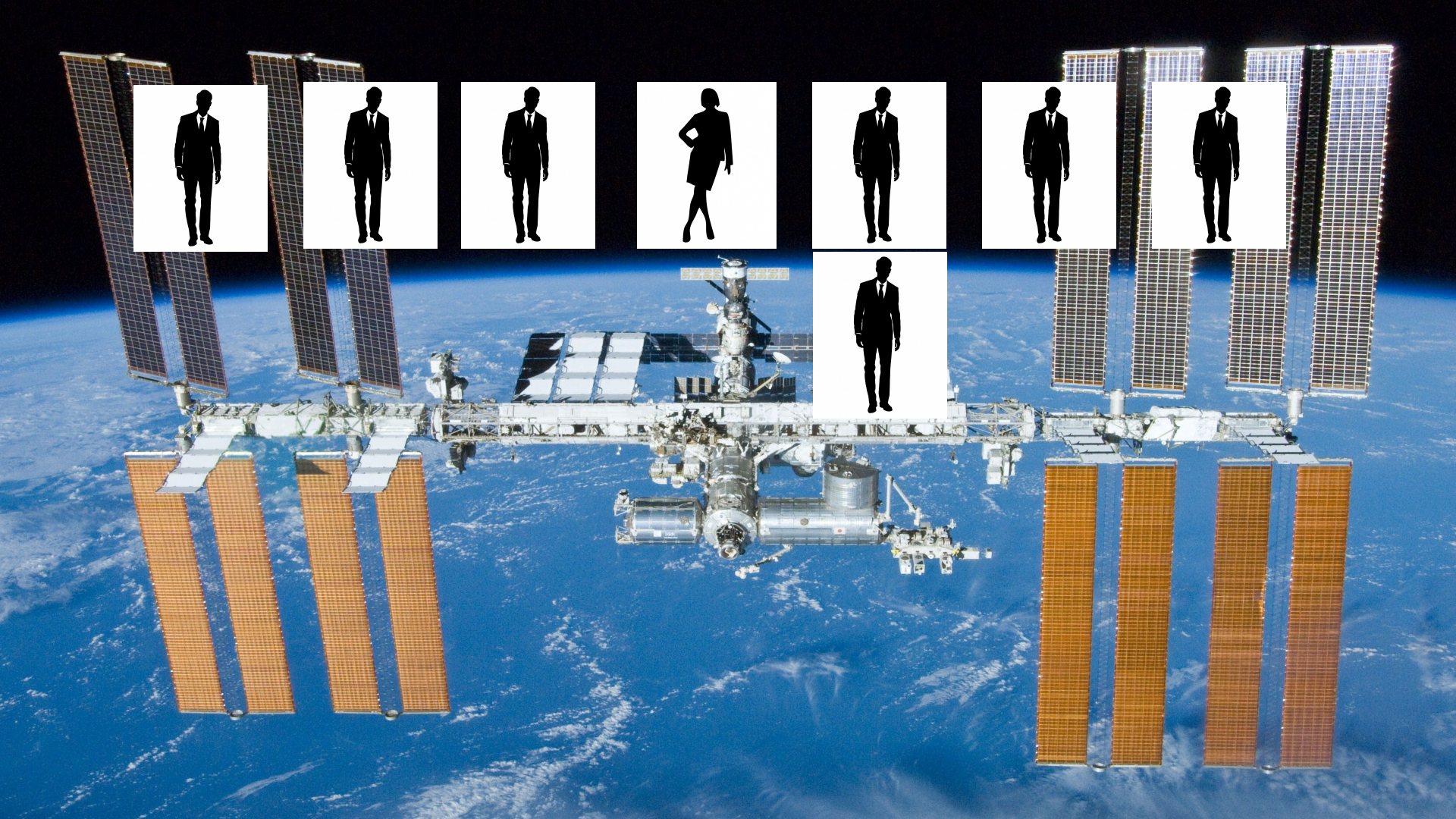
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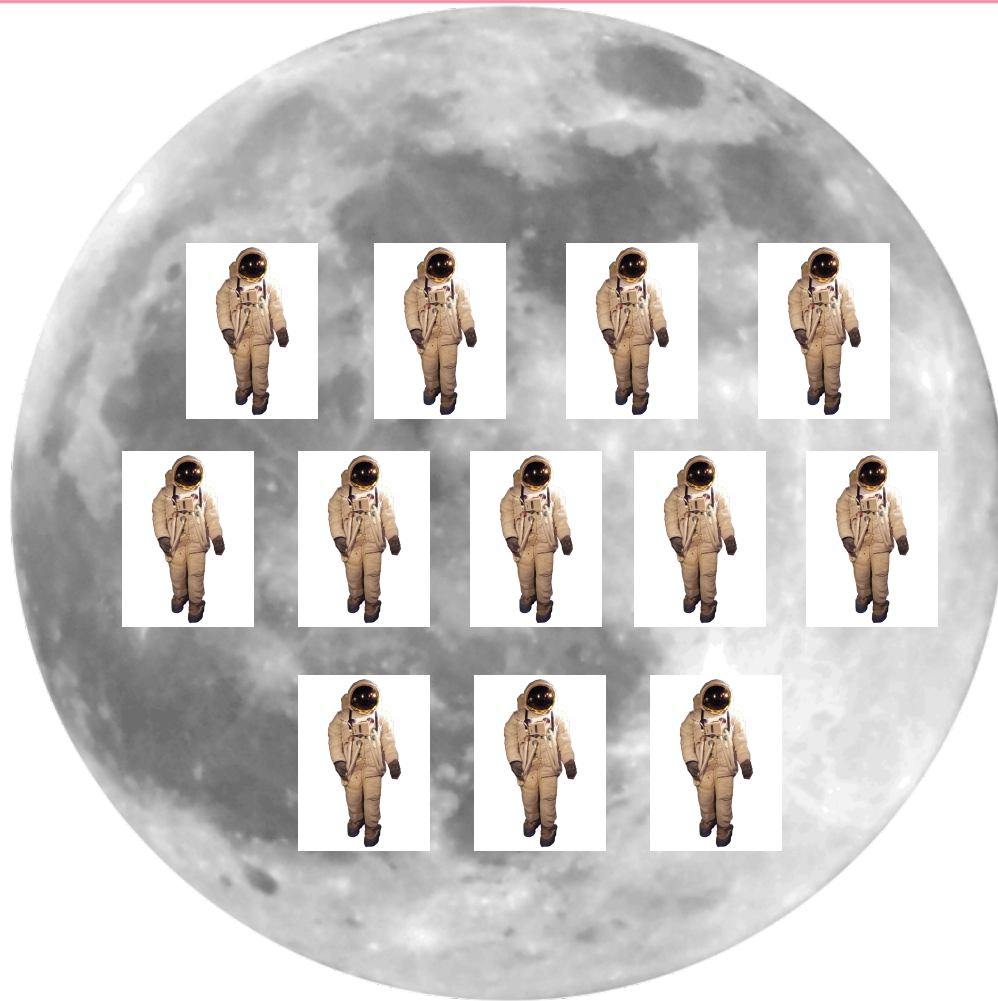
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Return flight

> \$ 20,000,000

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Amsterdam-
Moon
400,000 km

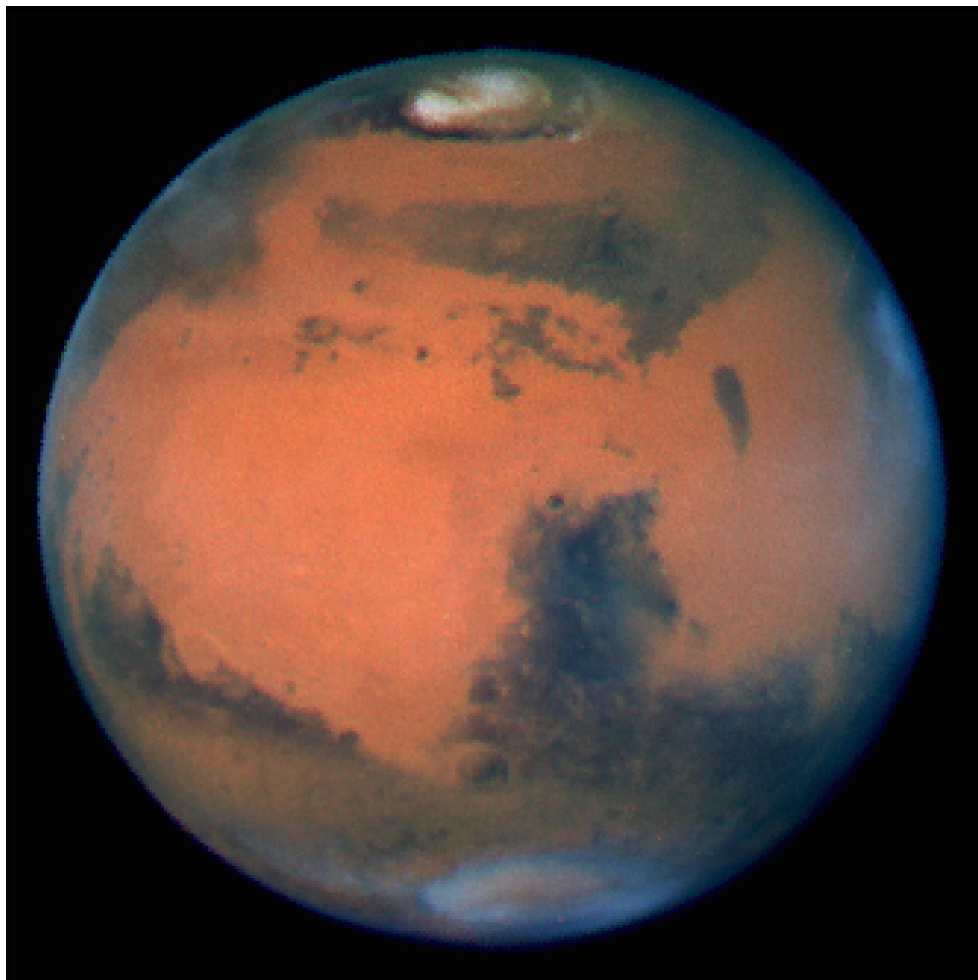
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Return flight

Many billions...

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Amsterdam-
Mars
> 50 million km

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???

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So what about the law?

We are only really starting to address space tourism and space transportation by way of law

– Remember: law follows man into outer space, it does not precede it –

And this also applies to space mining, and even more so to space colonization

The state of the law

- ◆ Outer space is international arena
- International law rules
 - 1967 Outer Space Treaty
 - 1979 Moon Agreement
 - National law implementing international law

1967 Outer Space Treaty

- ◆ 107 States parties & 23 signatories
 - Including all major space-faring nations
 - Generally considered customary international law
 - ◆ Focused on security / prestige & science
 - Nobody foresaw actual settlements in outer space
- Only handful of general principles applicable to status outer space, Moon & other celestial bodies

1979 Moon Agreement

- ◆ Effort to elaborate Outer Space Treaty
 - ◆ Focus on exploitation – not on settlement
 - ◆ Otherwise ≈ confirmation Outer Space Treaty
 - ◆ 18 States parties & 4 signatories
 - Includes ≈ no major space-faring nations
- Back to the Outer Space Treaty after all...

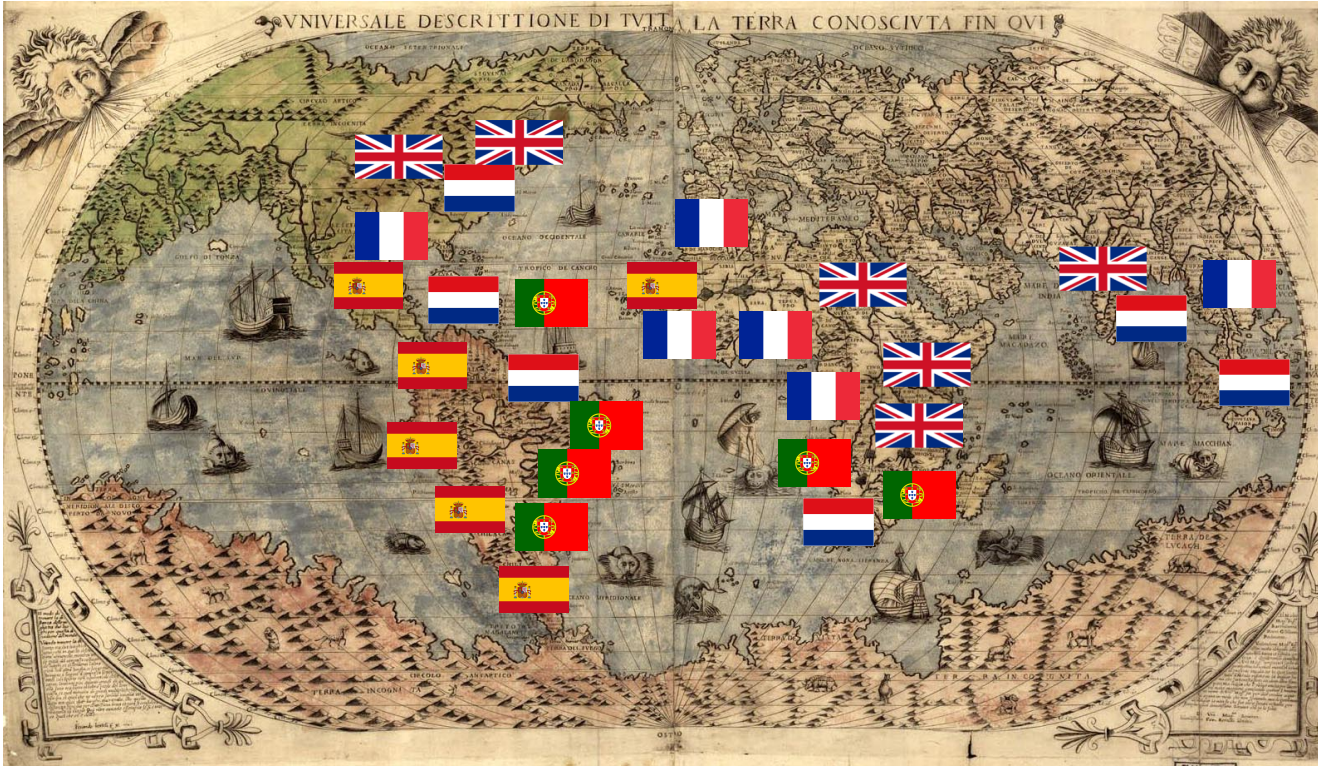
Baseline principles – Article I

- ◆ Outer space includes all celestial bodies
- ◆ Exploration & use outer space is ‘province of all mankind’
- ◆ Outer space free for exploration & use by all States
- ◆ Free access to all areas of celestial bodies

Baseline principles – Article II

“Outer space, including the Moon and other celestial bodies, is not subject to national appropriation by claim of sovereignty, by means of use or occupation, or by any other means.”

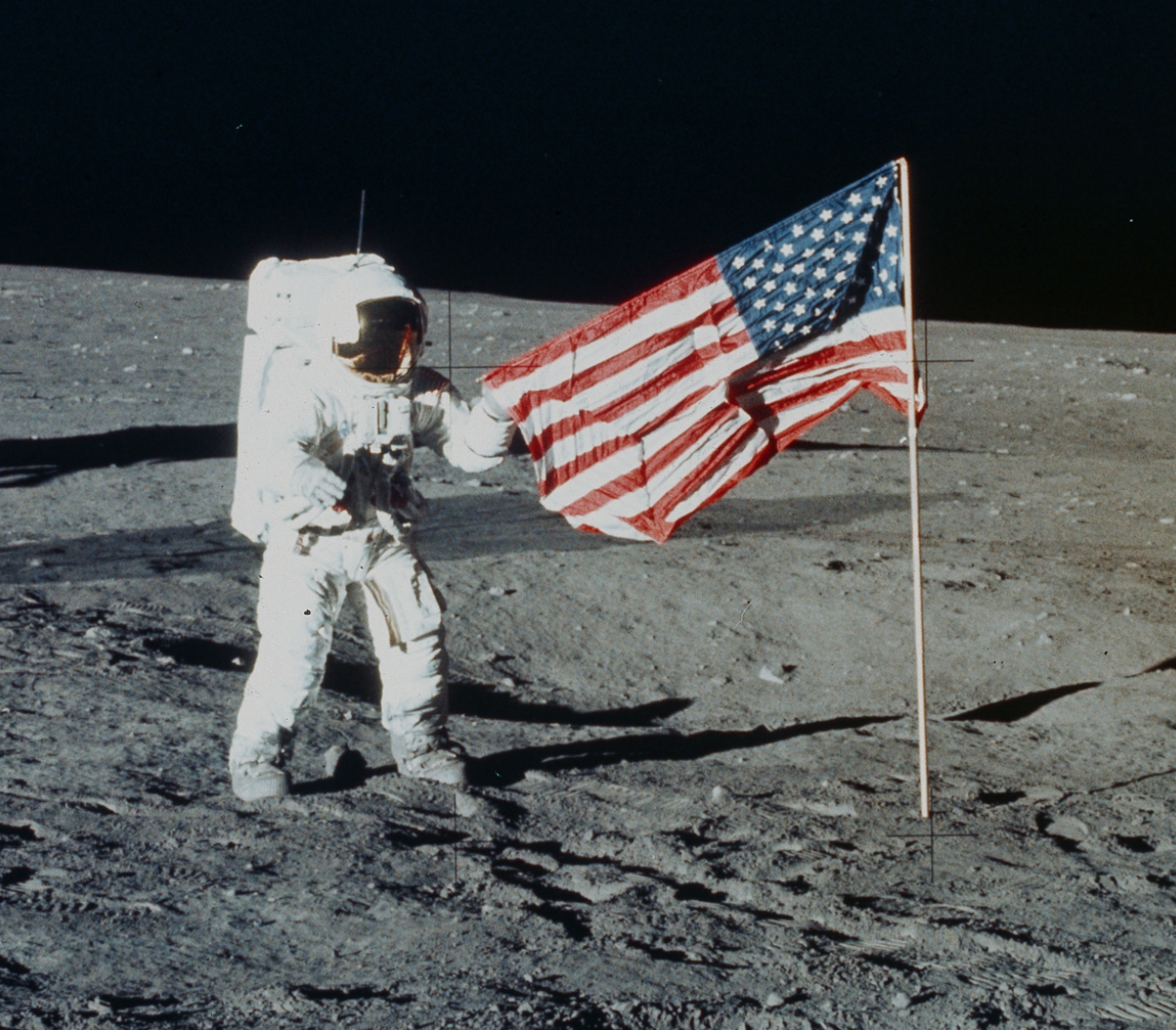
In other words...



...
that's
all
history
now!

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‘A small step for
(a) man, a giant
leap for
mankind...’

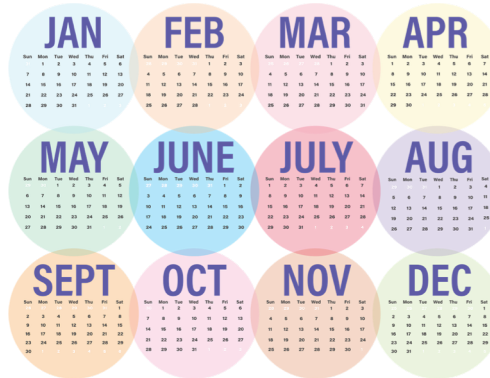
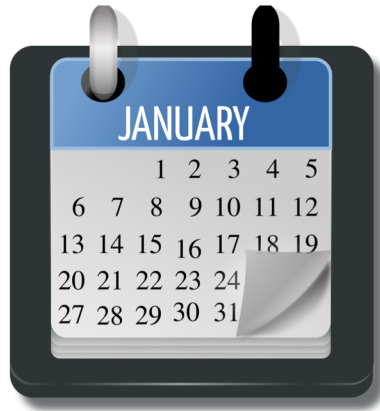
*[not just for the
United States]*

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The core conflict

- ◆ Freedom of space activity including settlement
- ↔ Prohibition of settlement if (quasi-)permanent & amounting to territorial occupation



Harmful interference: Article IX

- ◆ States should try to avoid harmful interference with legitimate activities other States & with environment Moon & other celestial bodies
- ◆ States should enter into consultation in case harmful interference might result

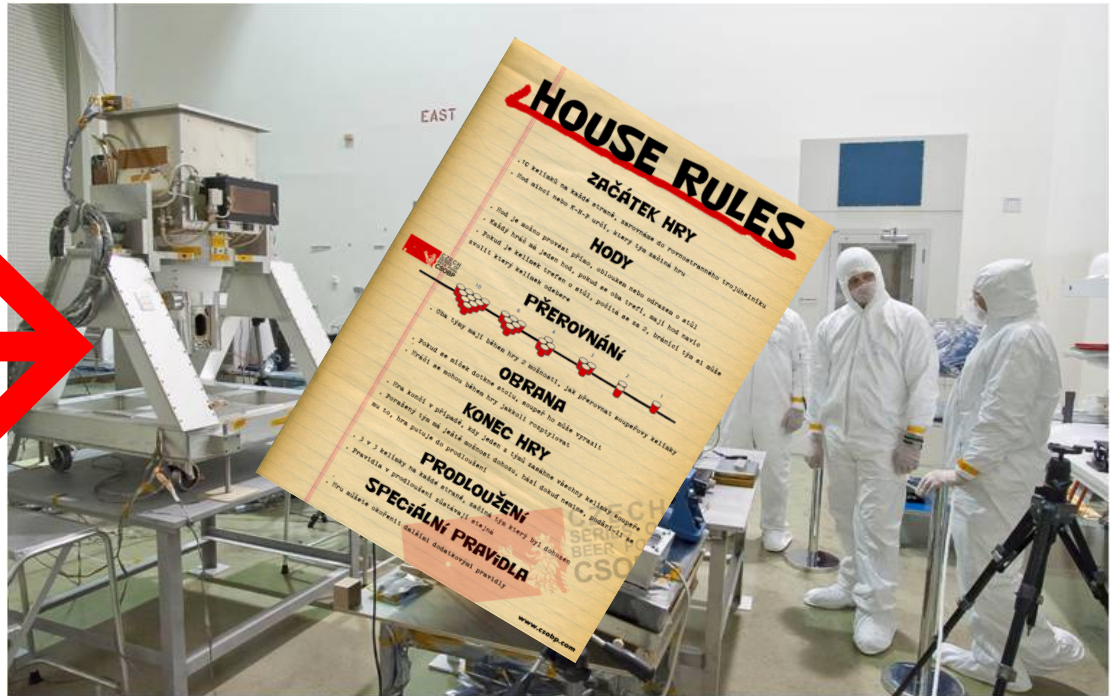
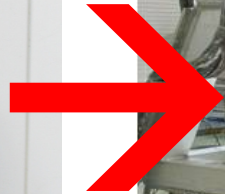
In other words...



Open access: Article XII

- ◆ *“All stations, installations, equipment and space vehicles on the Moon and other celestial bodies shall be open to representatives of other States.”*
- ◆ Subject to reasonable advance notice, safety precautions & non-interference with normal ops

In other words...



Responsibility: Article VI, pt. 1

- ◆ “States (...) shall bear international responsibility for **national activities in outer space** (...) carried on (...) by **non-governmental entities**, and for assuring that national activities are carried out in conformity with the provisions set forth in the present Treaty.”

Responsibility: Article VI, pt. 2

- ◆ *“The activities of non-governmental entities in outer space, including the Moon and other celestial bodies, shall require **authorization and continuing supervision** by the appropriate State Party to the Treaty.”*

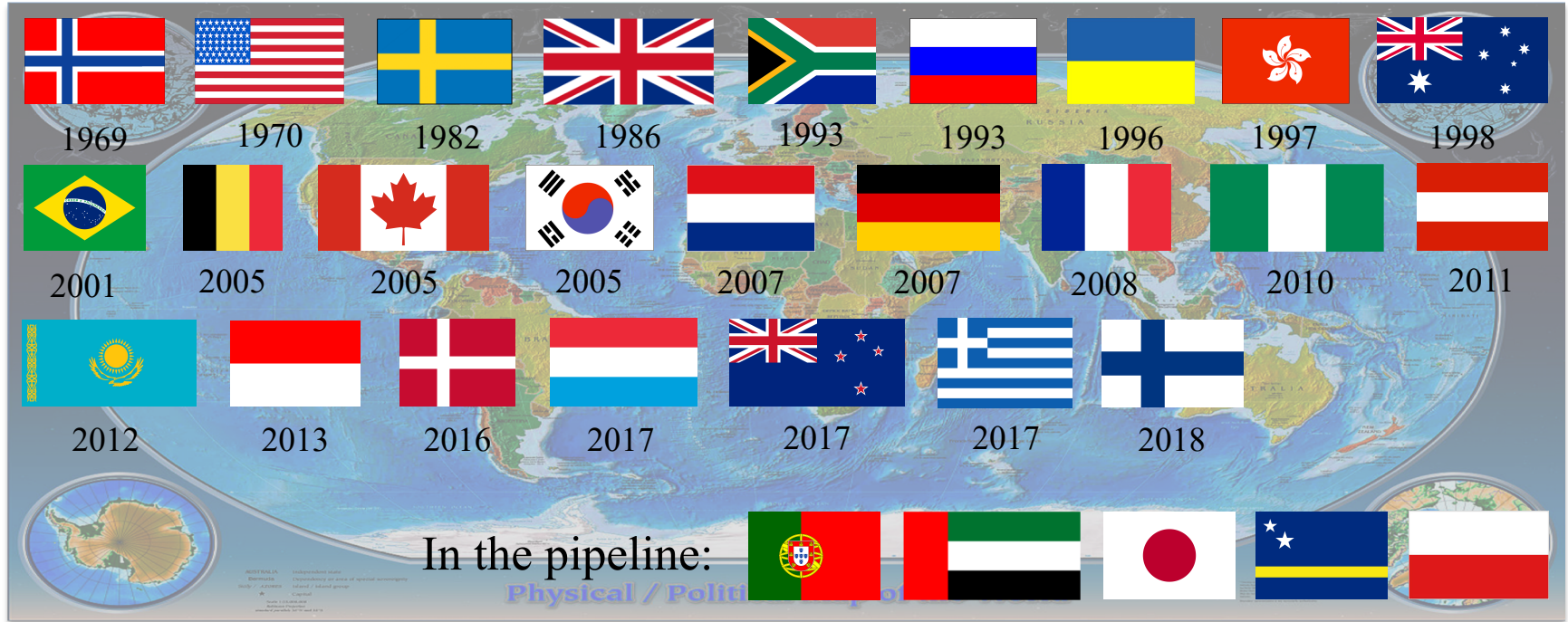
Liability: Article VII

- ◆ *“Each State (...) that **launches or procures the launching** of an object into outer space, (...) and each State (...) from whose **territory or facility** an object is launched, is internationally liable for damage to another State Party to the Treaty or to its natural or juridical persons by such object or its component parts (...).”*

In other words...

- ◆ National space laws with licensing systems!
 - To ensure compliance with international space law
 - To provide for safety- and security-requirements
 - To provide for reimbursement obligations
 - To provide for insurance obligations
 - To create authorization & supervision authority

National space laws



Jurisdiction: Article VIII

- ◆ States can (continue to) exercise legal control over space objects registered by them while in outer space...
... as well as over “*personnel thereof*”

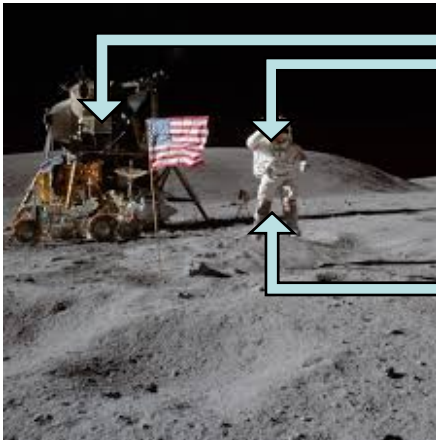
In other words...



=



=



Quasi-territorial jurisdiction

= legal control over 'quasi-territory'

& Jurisdiction over nationals

= legal control over national citizens

In short...

- ◆ The current status of the law falls woefully short of arranging any relevant details of human colonization of celestial bodies
- ◆ We need our imagination to envisage various baseline scenarios and how to address them
- ◆ *But we do need law, one way or another*

Towards the future – #1

The simple scenario:



&



Irrelevant whether operated
by State or private operator

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Sooner or later...



&



&



→



→

Two options:



OR



→



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Towards the future – #2

The less-simple scenario:



&



Any mix of public &
private initiatives

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This time...

- ◆ Settlers different States remain, in addition to original legal control registration State over space object, subject to different laws based on nationality

...a variety of options & scenarios

- ◆ Some may denounce nationality settlers & stop exercising control
- ◆ Some may allow settlers to denounce their nationality (with the same result)
- ◆ Some may insist on continuing to control
- ◆ Registration state most likely to try and do so

Towards the future – #3

The complex scenario:



&



Many potential different
outcomes, peaceful or not

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Concluding remark

*There is enough space out there
for space lawyers...*



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