Recent Developments in US Commercial Space Activities (2023–2026)

Arthur M. Dula

Harbin, PRC
Beijing, PRC

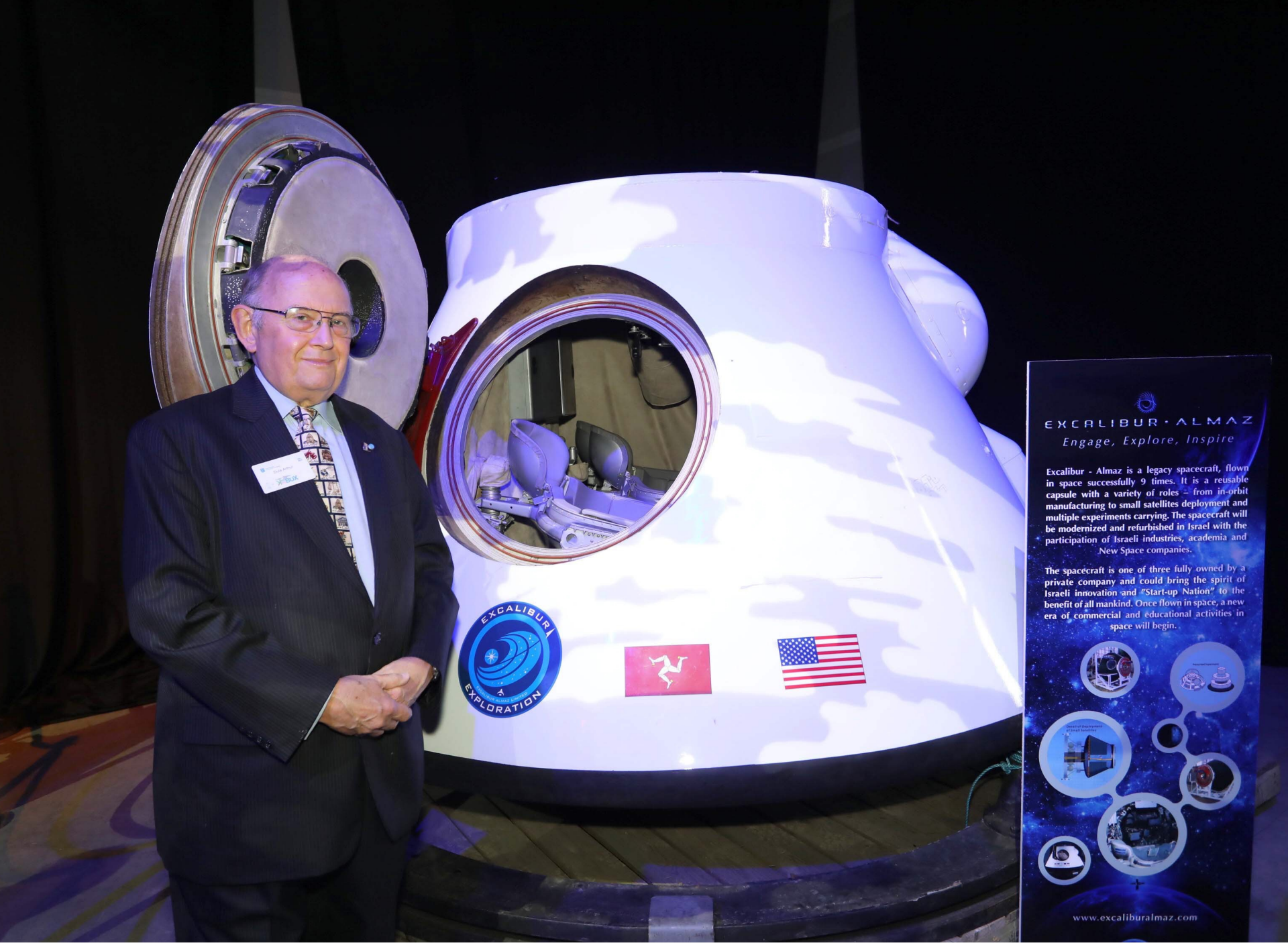
January 2026

SSI

CONESTOGA I

September 9, 1982

First Ever Privately Funded Rocket Launch



oto by Sivan Farag


for the Future
IAC 2015
Buzz Aldrin
USA


HEINLEIN
PRIZE TRUST

Beijing seeks greater cooperation in space

By WANG QIAN
wangqian@chinadaily.com.cn

China is seeking to deepen international cooperation and communication in the outer-space industry, a senior official said at the 64th International Astronautical Congress on Monday.

"We will focus on commercial cooperation in the space industry and training of satellite control personnel for foreign countries in the coming years," said Ma Xingrui, head of the China National Space Administration.

He said China will pursue the peaceful use and exploration of space.

The country's first space station, now under construction, will be open to foreign scientists and astronauts.

Ma received the 2013 Allan D. Emil Award on Monday for his contributions to the remarkable progress of China's space industry. He is the second Chinese to win the honor, after Liu Jiyuan, former chairman of the Chinese Society of Astronautics, won the award in 2003.

China has already established cooperation deals with 26 countries and regions in the space industry.

WANG JINGSHENG / FOR CHINA DAILY

A man tries on the space suit of China's astronauts during an exhibition of the 64th International Astronautical Congress in Beijing on Monday.

As part of the country's effort to enhance international cooperation in space, China Great Wall Industry Corp, the country's only authorized commercial provider of international launch services and satellite in-orbit delivery, plans to sign six to nine satellite construction deals in the next three years, said company President Yin Liming.

Yin also said that eight to 10 international launch services will be operated during the same period. He said that the communication and exhibitions during the congress would strengthen the confidence of international clients in Chinese satellites and launching services.

"It will bring more commercial opportunities for us," Yin said.

China Great Wall Industry Corp, a subsidiary of China Aerospace Science and Technology Corp, has launched 43 satellites and 37 launch services for international clients, from 18 countries and regions, as of September.

"We will further explore the potential market for satellite application and seek more international business opportunities," Yin said.

China Aerospace Science and Technology Corp is using the event to showcase its achievements such as the Long March family of rockets and its meteorological satellites to attract international business.

China hopes to have a 10 percent share of the global satellite market and 15 percent of the international commercial launch market by 2015, China Great Wall said.

It currently has a market share of about 3 percent, with its main clients from Asia, Latin America and Africa.

The country has been providing launch services to international clients since 1990, when a communications satellite was sent into space on a Long March 3 booster.

About 3,600 representatives from around the world are taking part in the congress, according to the organizing committee of the 64th International Astronautical Congress, a five-day event that opened on Monday.

The congress is held every year by the International Astronautical Federation and one of its national societies, and attended by agency heads and senior executives of the world's space agencies. China previously hosted the congress in 1996.

The theme of this year's conference is "prompting space development for the benefit of mankind".

Disclaimer

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A.КАЛЕРИ
A.KALERY

Agenda (1/2)

Overview of US Commercial Space Growth

Dominant Player: SpaceX

Emerging Competitors: Blue Origin and Others

Human Spaceflight: Commercial Crew Program

Lunar Activities: CLPS and Artemis Partnerships

议程（1/2）

美国商业航天发展概览

主导者：SpaceX

新兴竞争者：蓝色起源及其他公司

载人航天：商业载人计划

月球活动：CLPS 与阿尔忒弥斯合作伙伴关系

Agenda (2/2)

Low Earth Orbit: Starlink and Private Stations

Artemis Accords

Launch Cadence and Cost Advantages

Global Context and Cooperation Opportunities

Future Outlook and Implications

Q&A

议程（2/2）

近地轨道：星链与私人空间站

阿尔忒弥斯协定

发射频率与成本

全球背景与合作机遇

未来展望与影响

问答环节

US Commercial Space Sector Overview

Global space economy: $613B in 2024

Commercial ~78% of growth

US leads in private investment and launch cadence

Shift to operational maturity (2025–2026)

美国商业航天领域概览

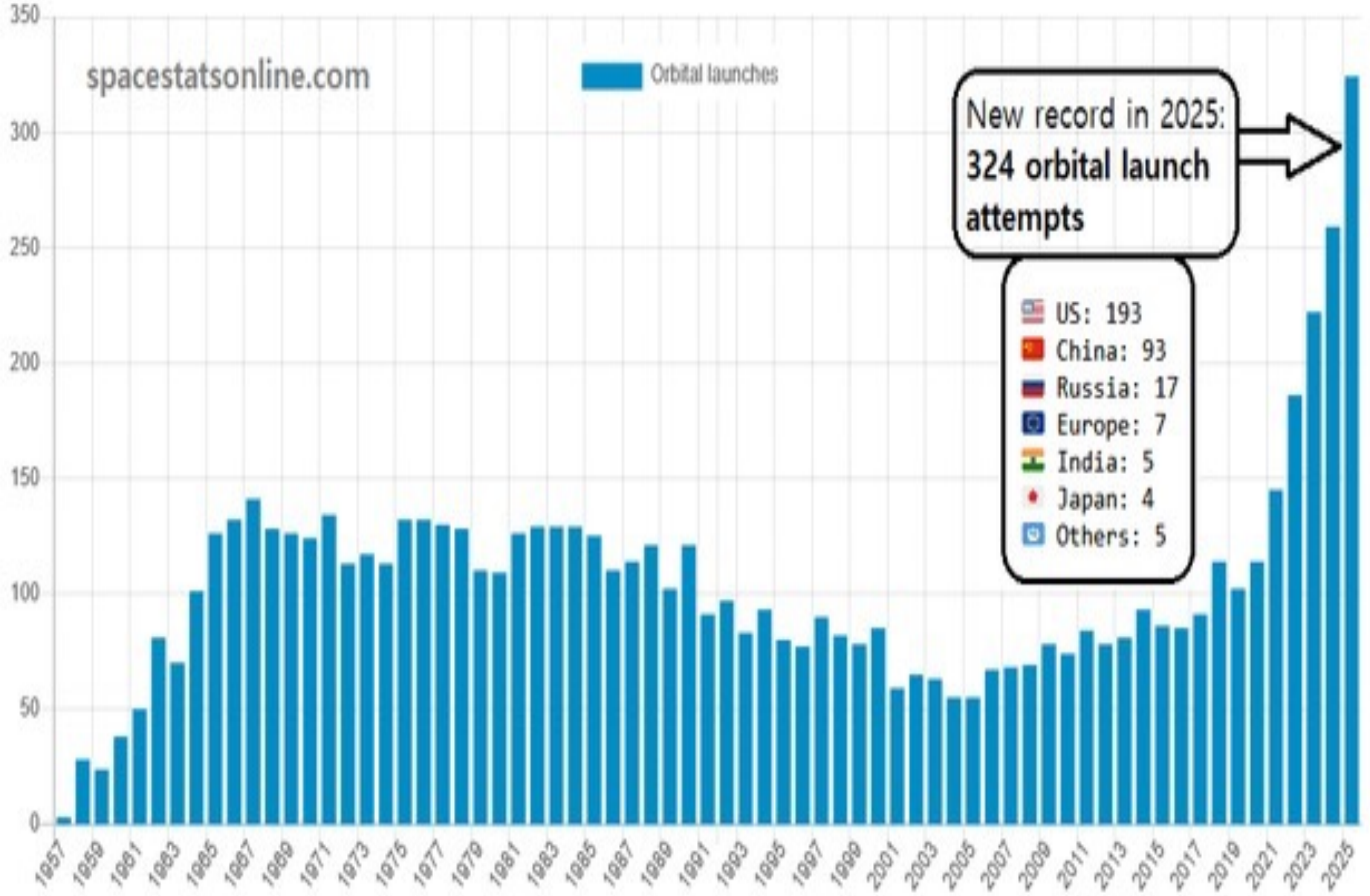
2024年全球航天经济规模约6130亿美元

商业活动贡献约78%的增长

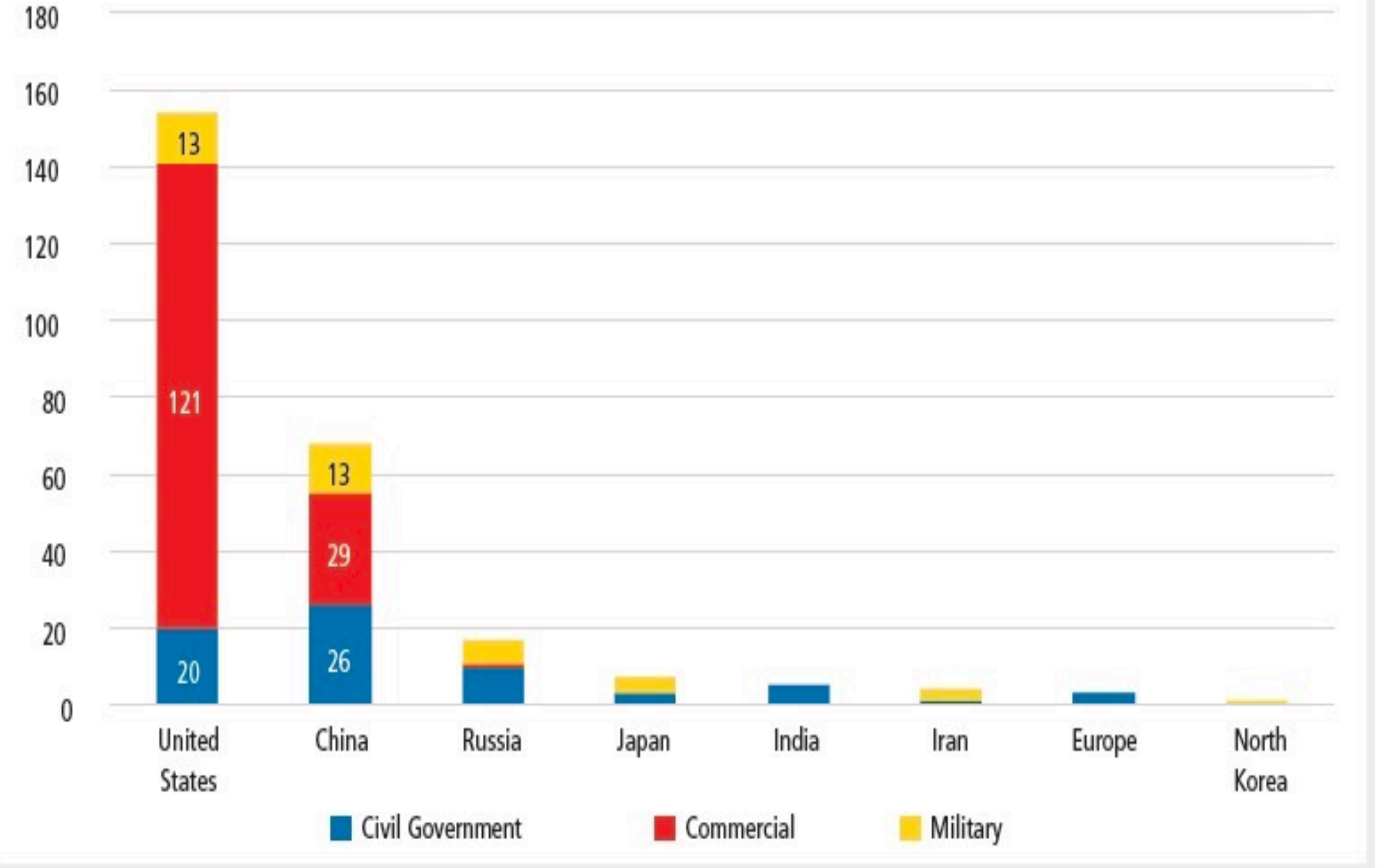
美国在私人投资和发射频率方面领先

2025–2026年转向运营成熟期

Orbital launches by year 1957-2025



rbital launch attempts, 2024

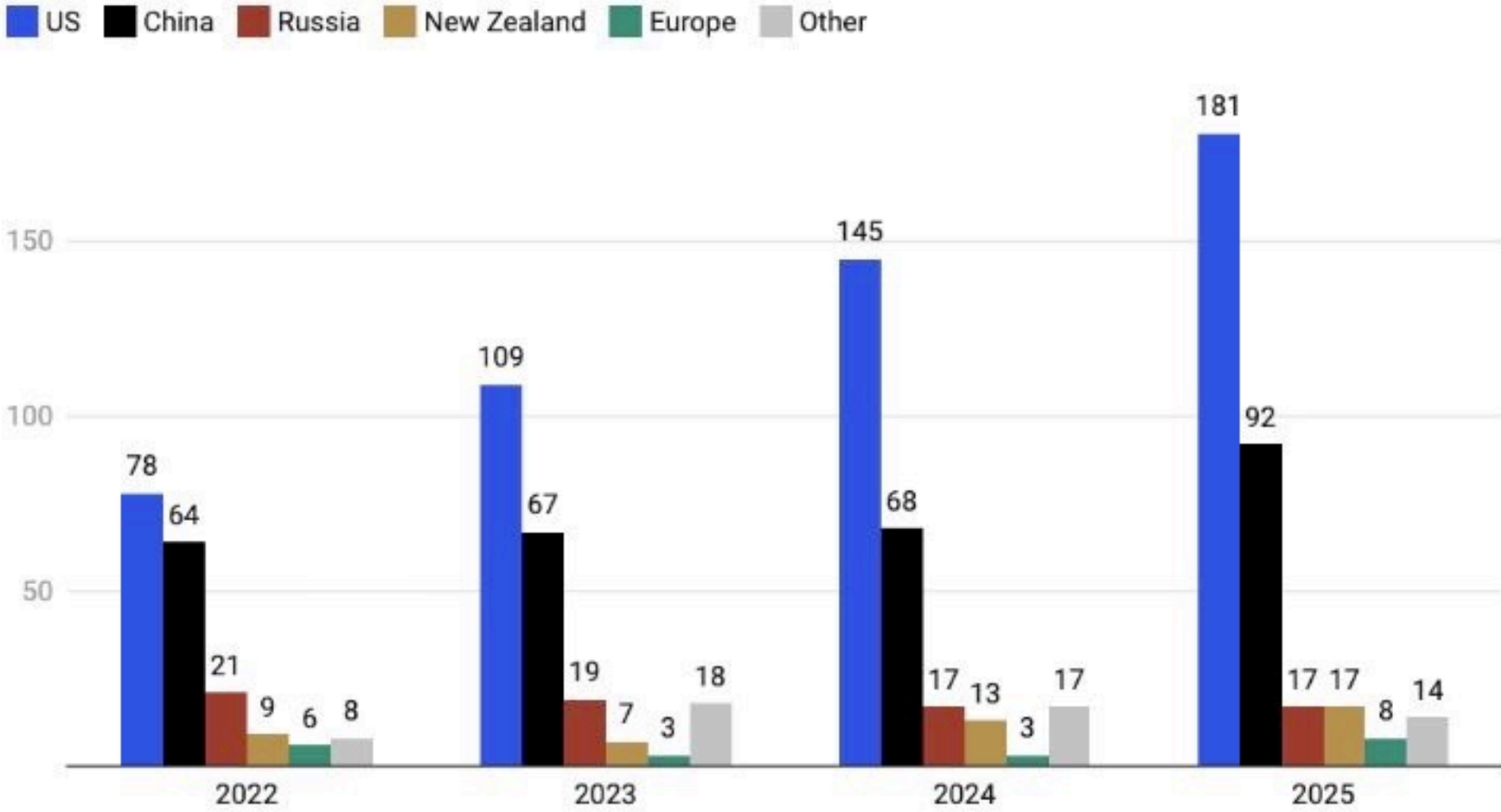


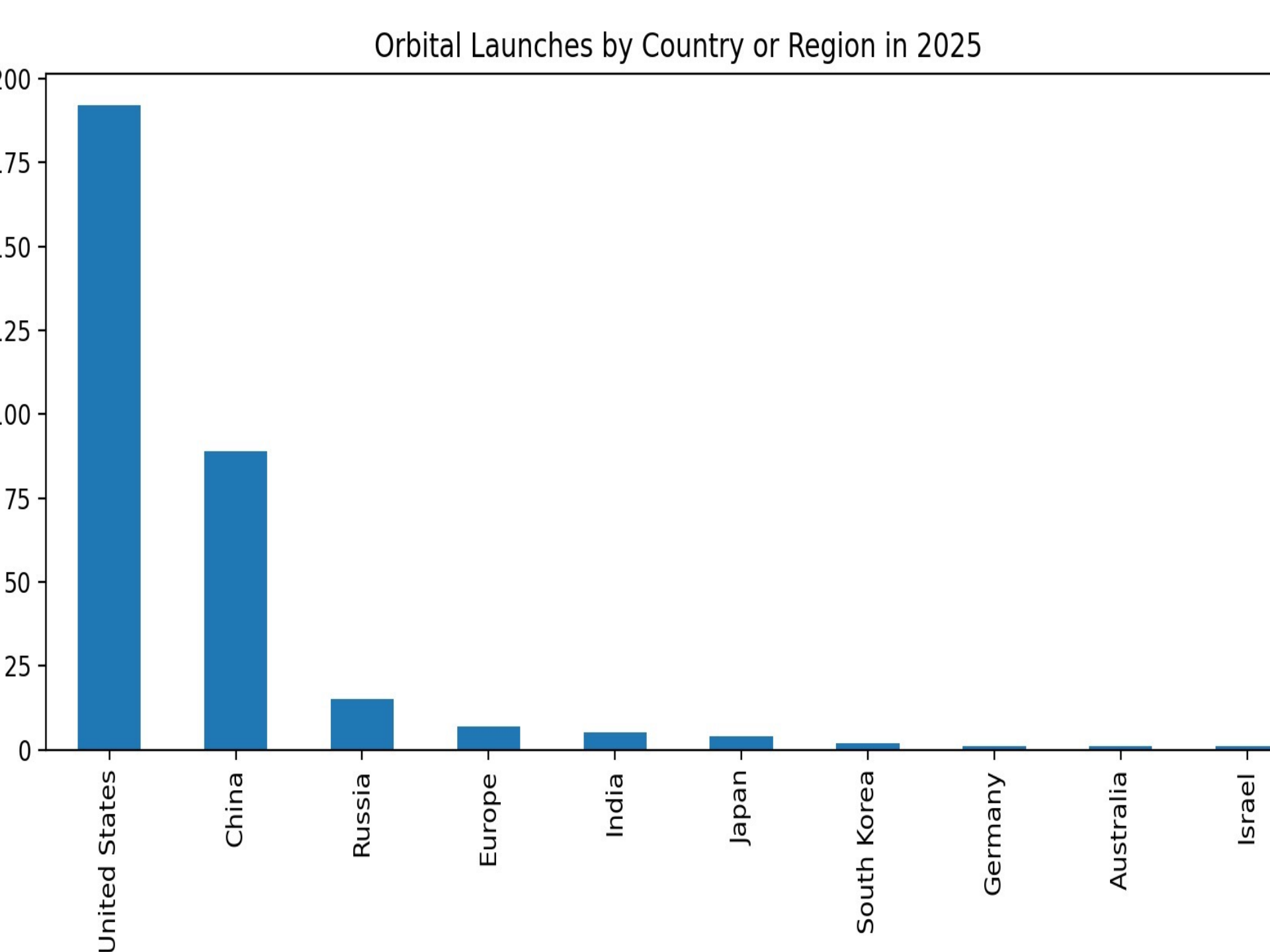
urce: Space Foundation database

Global Launch Reaches Record Heights in 2025

2025 Orbital Launch Attempts by Country

329 orbital launches were attempted last year. 321 reached orbit/near orbit.




Orbital Launches by Country or Region in 2025
200
175
150
125
100
75
50
25
0
United States
China
Russia
Europe
India
Japan
South Korea
Germany
Australia
Israel

Q1 & Q2 2025 Mass-to-Orbit

84.0% reported **SpaceX / 1,122,608.0kg**

ULA / 30,844.0kg 100% reported

CASC / 8,640.0kg 6.9% reported

MHI / 7,500.0kg 100% reported

Roscosmos / 7,280.0kg 50% reported

Arianespace / 4,786.0kg 100% reported

ISRO / 2,250.0kg 100% reported

Rocket Lab / 685.3kg 60% reported

VKS RF / 675.0kg 20% reported

Isar Aerospace / 0.0kg 100% reported

Chinarocket / 0.0kg 0% reported

GalacticEnergy / 0.0kg 0% reported

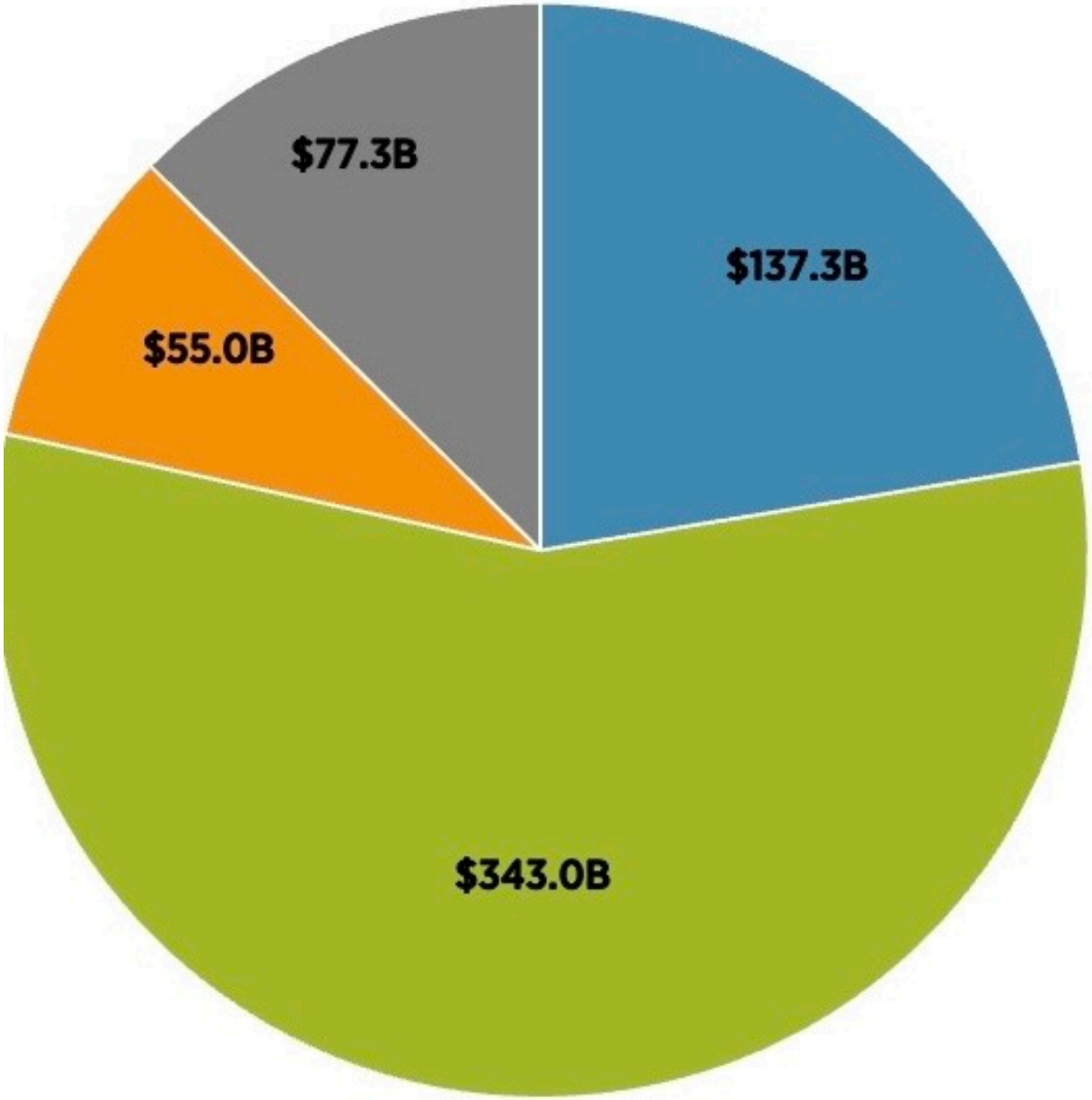
Northrop Grumman / 0.0kg 0% reported

LandSpace / 0.0kg 0% reported

CAS Space / 0.0kg 0% reported

Ryan Caton / NSF

Global Space Economy, 2024

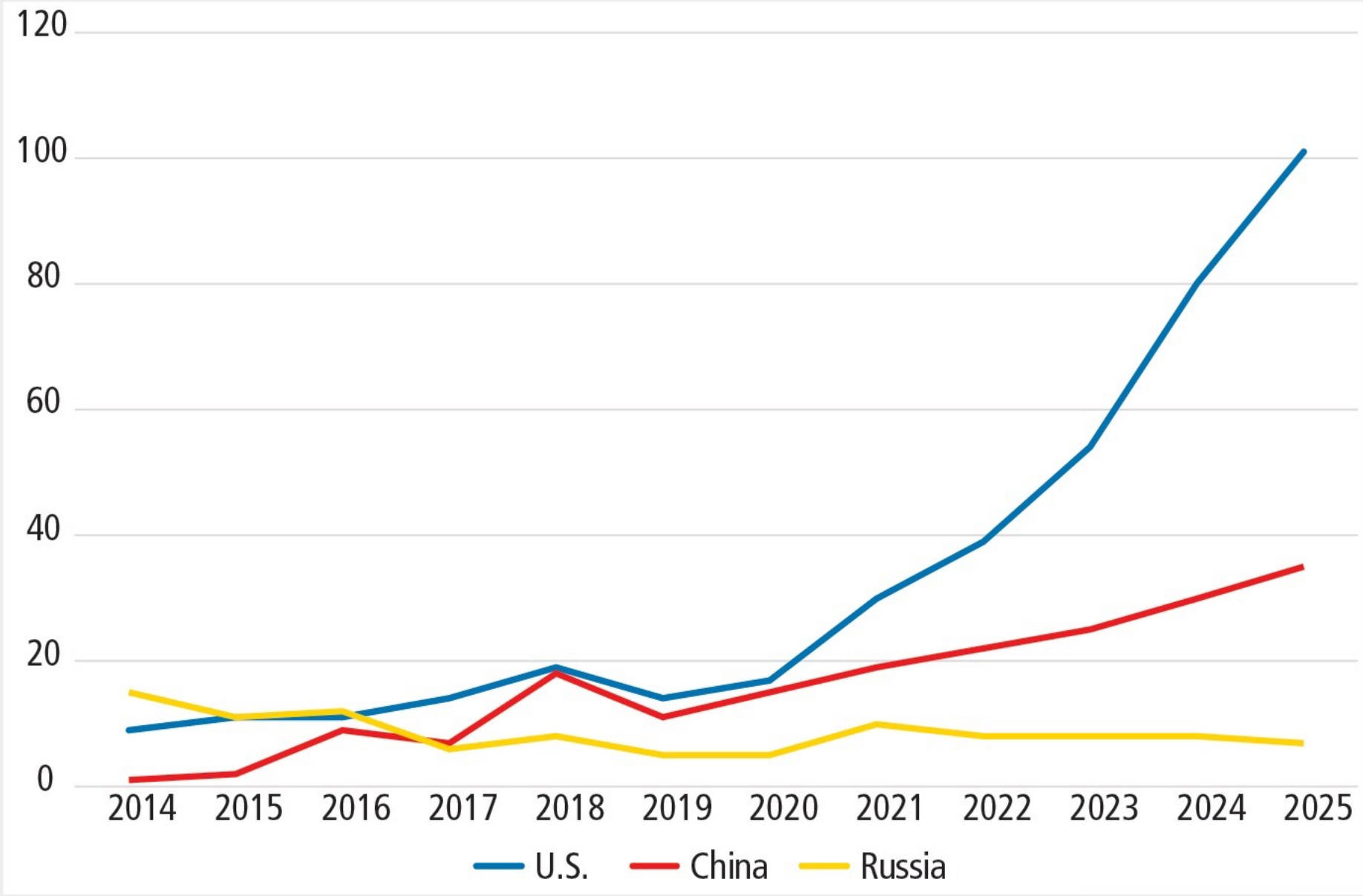


$613 billion
+7.8% YoY

- Commercial Infrastructure and Support Industries
- Commercial Space Products and Services
- Non-U.S. Government Space Budgets
- U.S. Government Space Budgets

Source: Space Foundationn

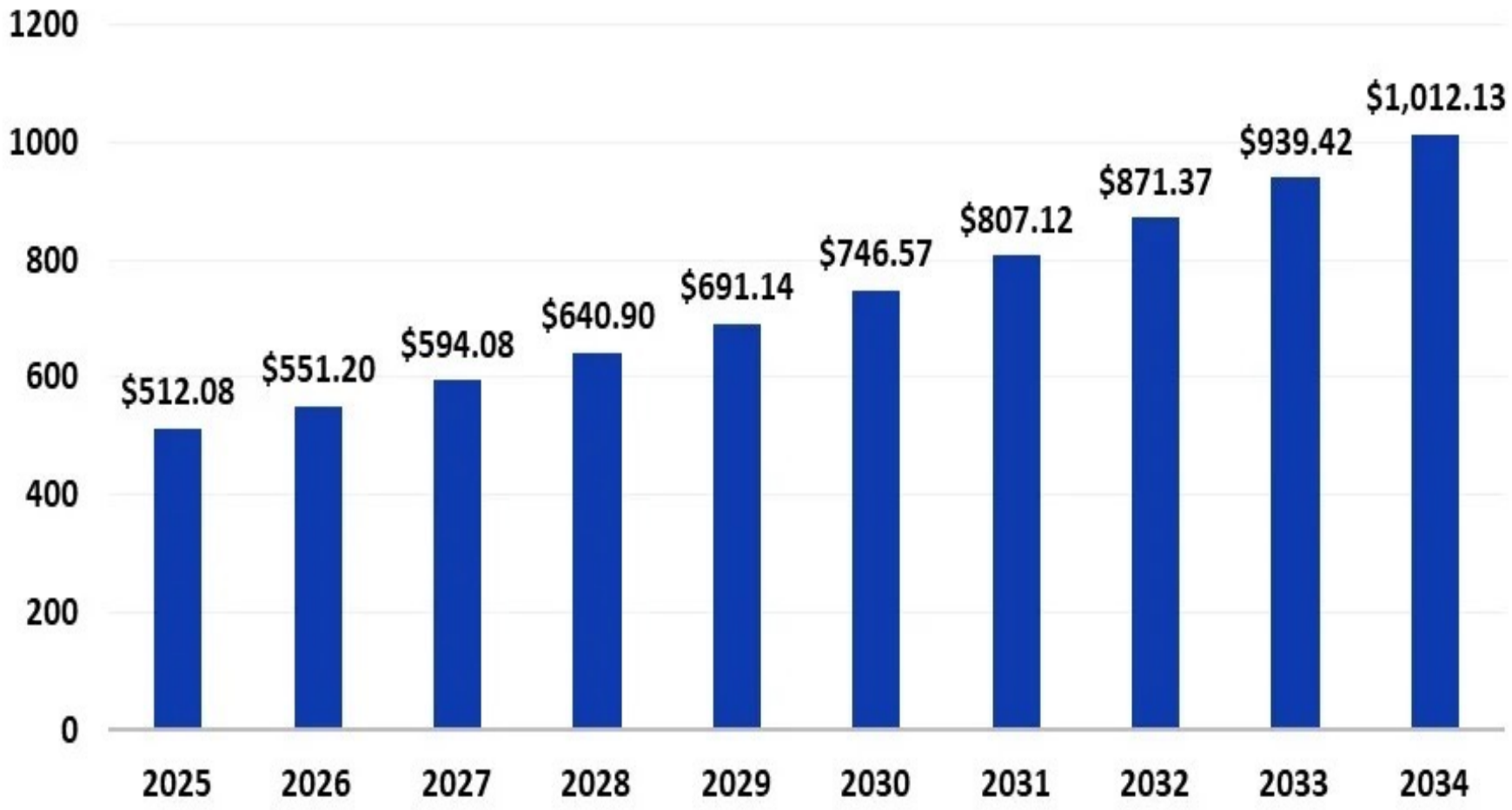
Midyear launch trends by top 3 launch nations, 2014-2025



Source: Space Foundation database

Precedence RESEARCH

Space Technology Market Size 2025 to 2034 (USD Billion)

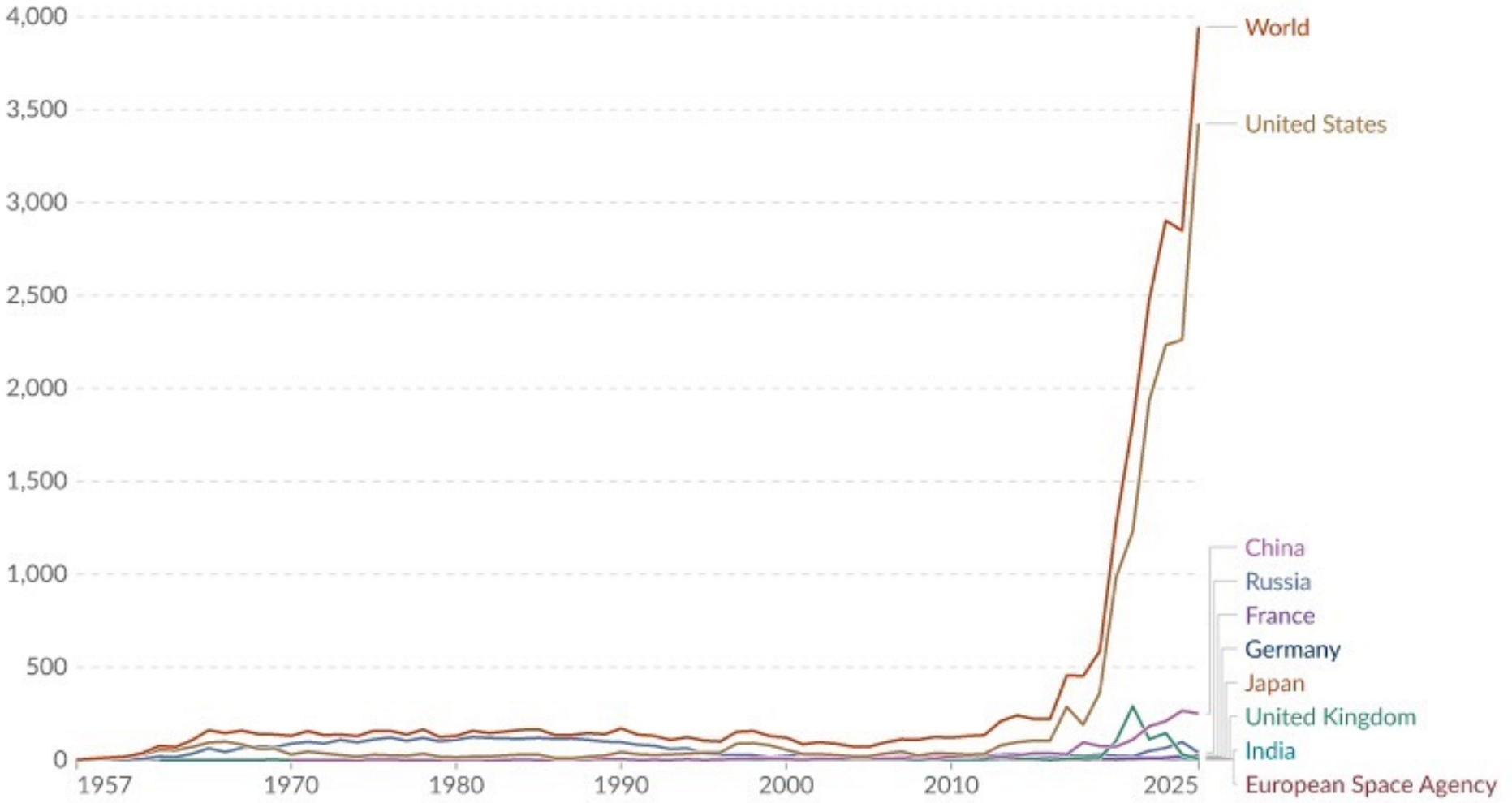


Source: https://www.precedenceresearch.com/space-technology-market

Annual number of objects launched into space

Our World in Data

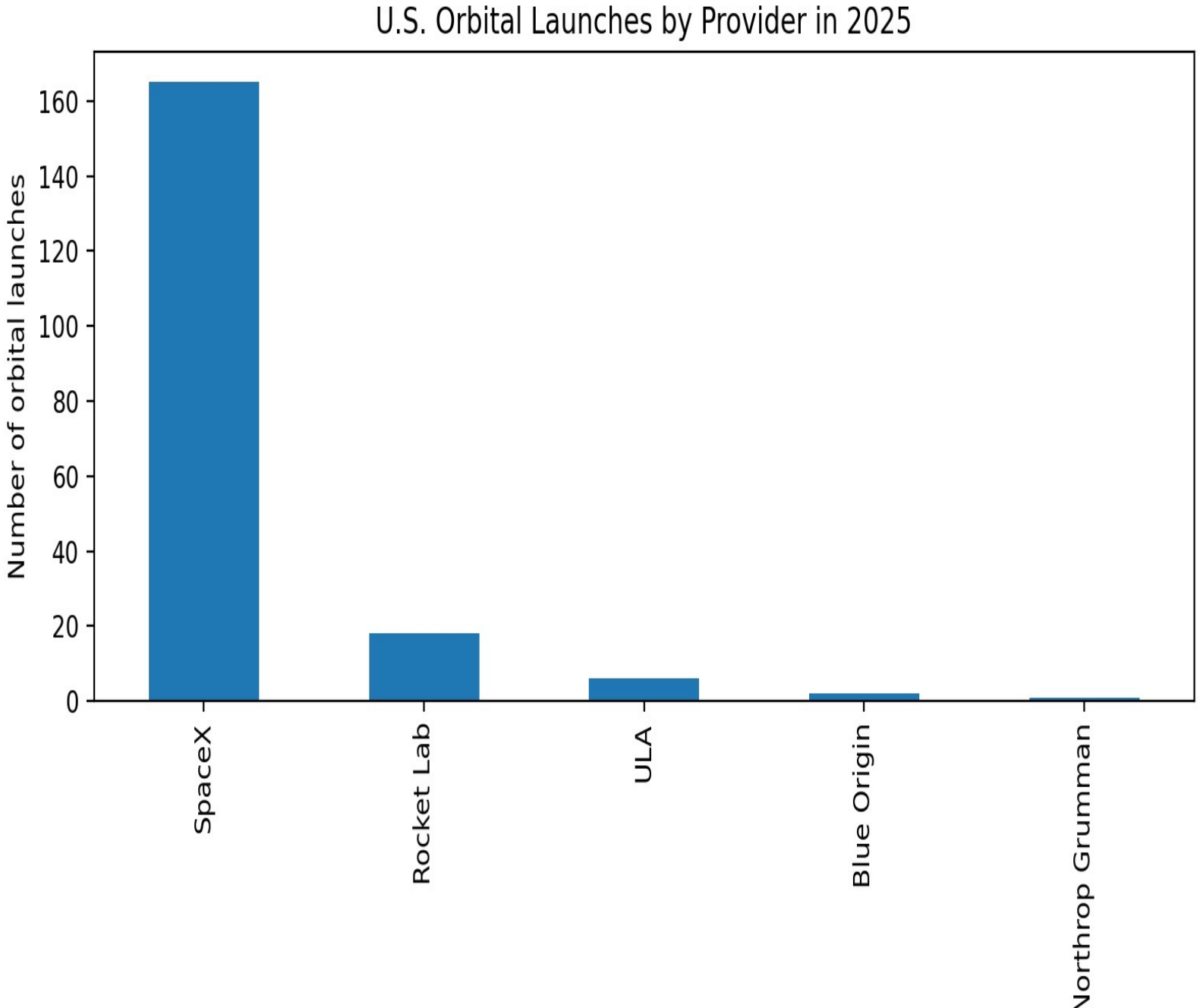
This includes satellites, probes, landers, crewed spacecrafts, and space station flight elements launched into Earth orbit or beyond.

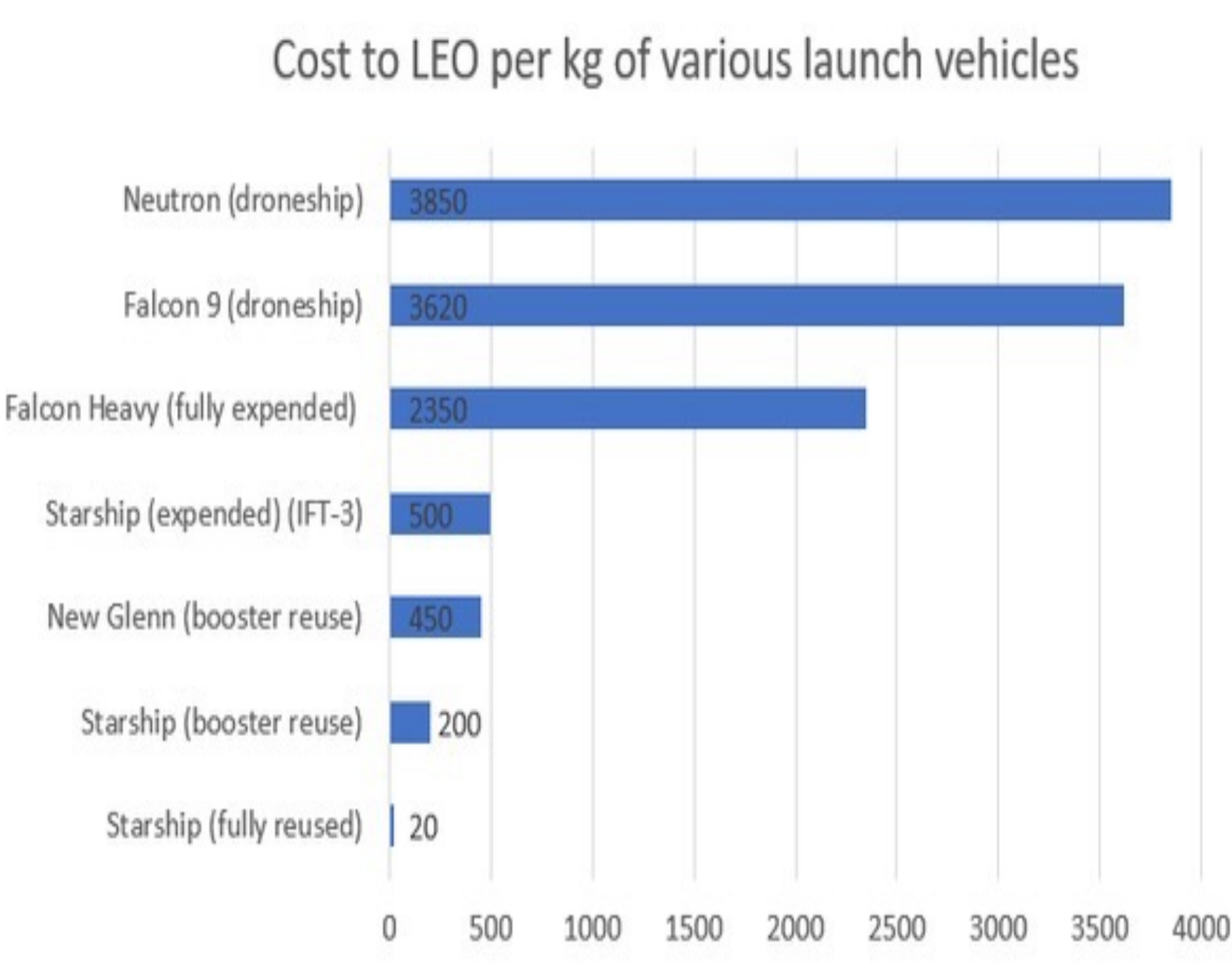


Data source: United Nations Office for Outer Space Affairs (2025)

OurWorldinData.org/space-exploration-satellites | CC BY

Note: Where they differ, launch attributions are based on the commissioning country, not the country conducting the operations.


U.S. Orbital Launches by Provider in 2025
Number of orbital launches
0
20
40
60
80
100
120
140
160
SpaceX
Rocket Lab
ULA
Blue Origin
Northrop Grumman


Cost to LEO per kg of various launch vehicles
Neutron (droneship)
3850
Falcon 9 (droneship)
3620
Falcon Heavy (fully expended)
2350
Starship (expended) (IFT-3)
500
New Glenn (booster reuse)
450
Starship (booster reuse)
200
Starship (fully reused)
20
0
500
1000
1500
2000
2500
3000
3500
4000

SpaceX Overview

Founded in 2002

600+ Falcon launches by 2026

Pioneer of reusable boosters

2025 record cadence (~170 launches)

SpaceX 概览

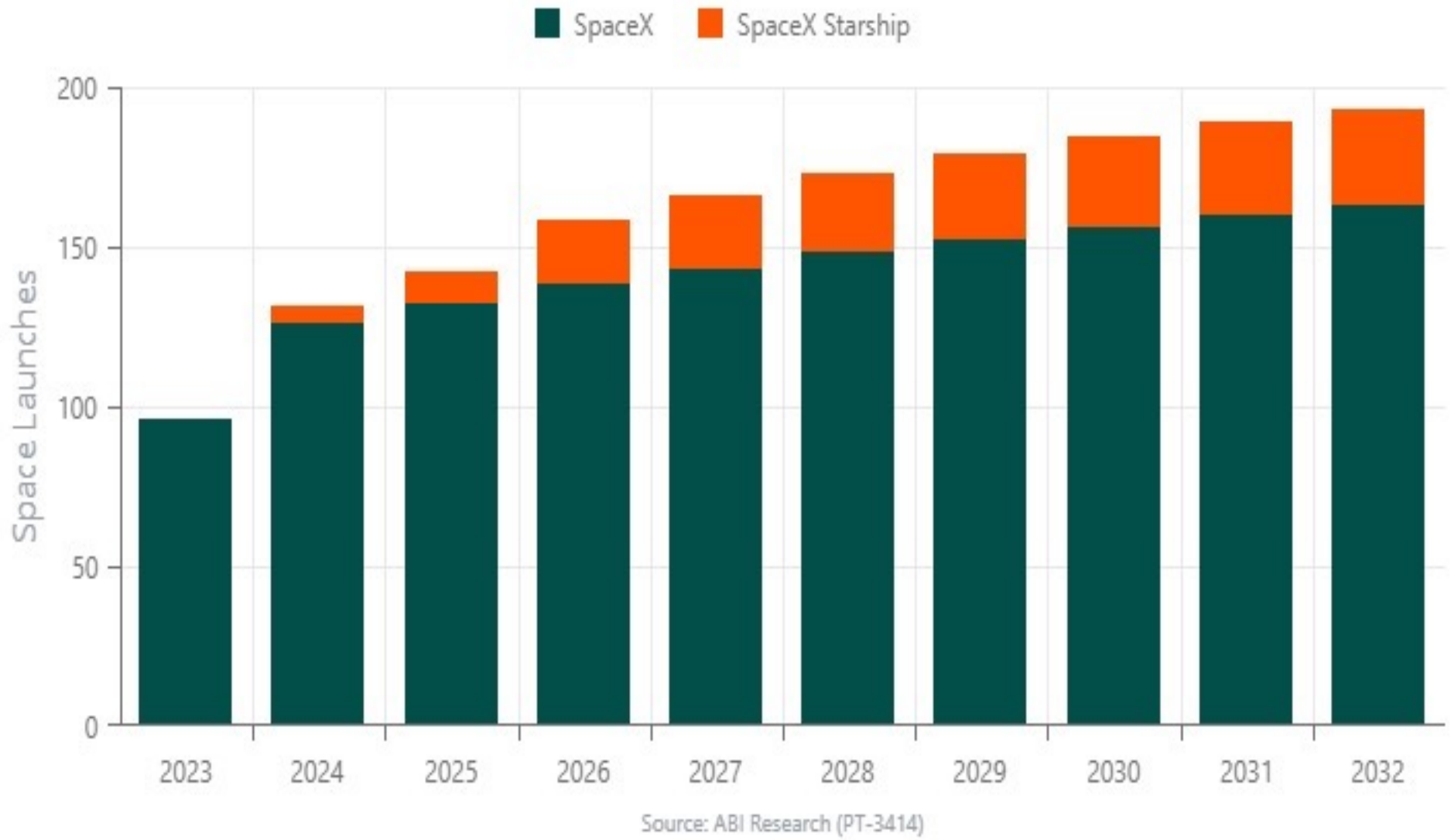
成立于2002

截至2026年猎鹰系列火箭发射超600次

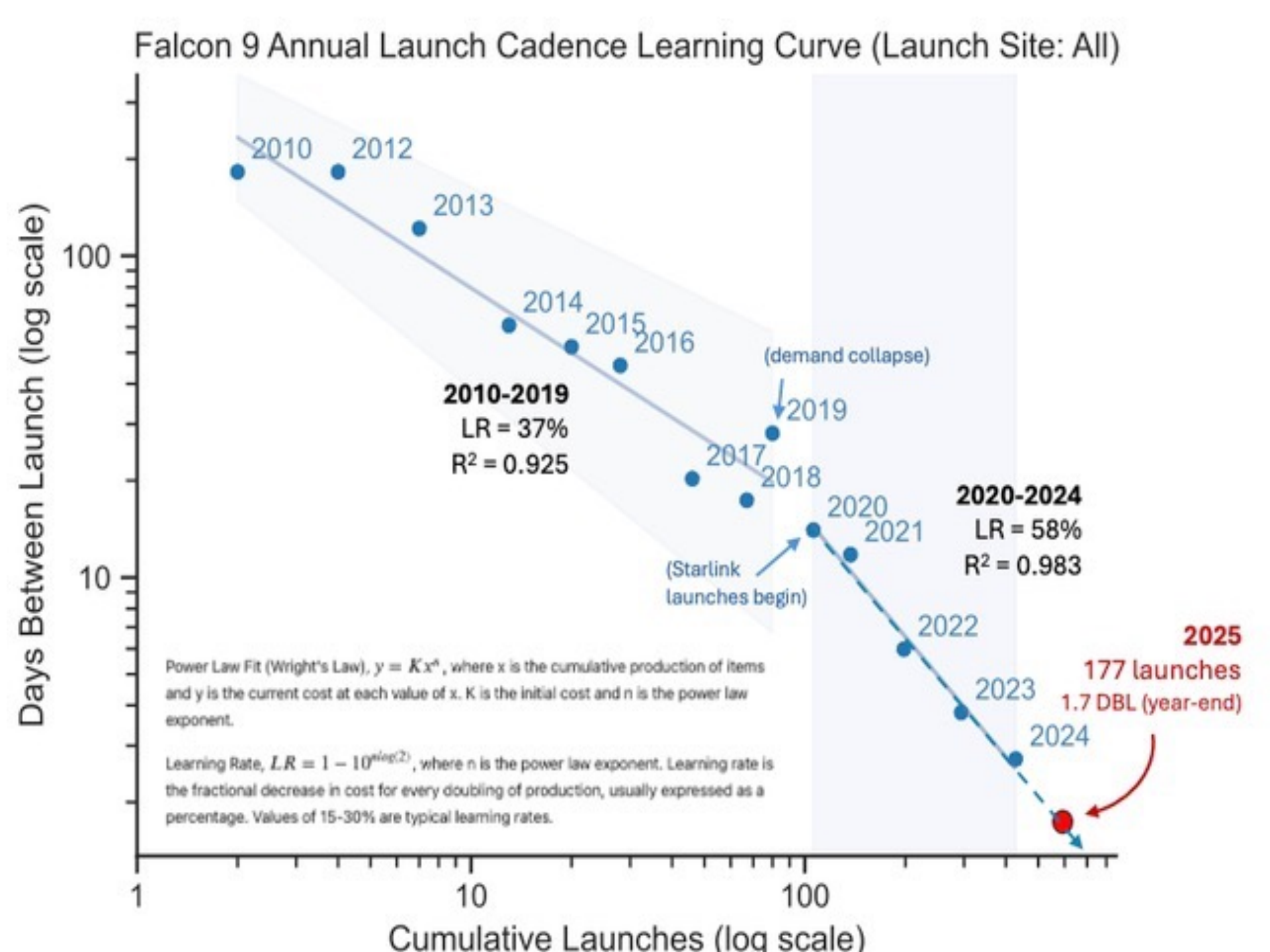
可重复使用助推器的先驱

2025年创纪录发射频率（约170次）

Number of SpaceX Orbital Space Launches



Source: ABI Research (PT-3414)


Falcon 9 Annual Launch Cadence Learning Curve (Launch Site: All)
Days Between Launch (log scale)
100
10
1
10
100
Cumulative Launches (log scale)
2010
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022
2023
2024
(demand collapse)
(Starlink launches begin)
2010-2019
LR = 37%
R² = 0.925
2020-2024
LR = 58%
R² = 0.983
2025
177 launches
1.7 DBL (year-end)
Power Law Fit (Wright's Law), $y = Kx^n$, where x is the cumulative production of items and y is the current cost at each value of x. K is the initial cost and n is the power law exponent.
Learning Rate, $LR = 1 - 10^{n\log(2)}$, where n is the power law exponent. Learning rate is the fractional decrease in cost for every doubling of production, usually expressed as a percentage. Values of 15-30% are typical learning rates.

Starship Progress

Fully reusable super-heavy vehicle

~11 test flights by early 2026

Booster catch and orbital refueling demos

2026 goal: 10–25+ flights

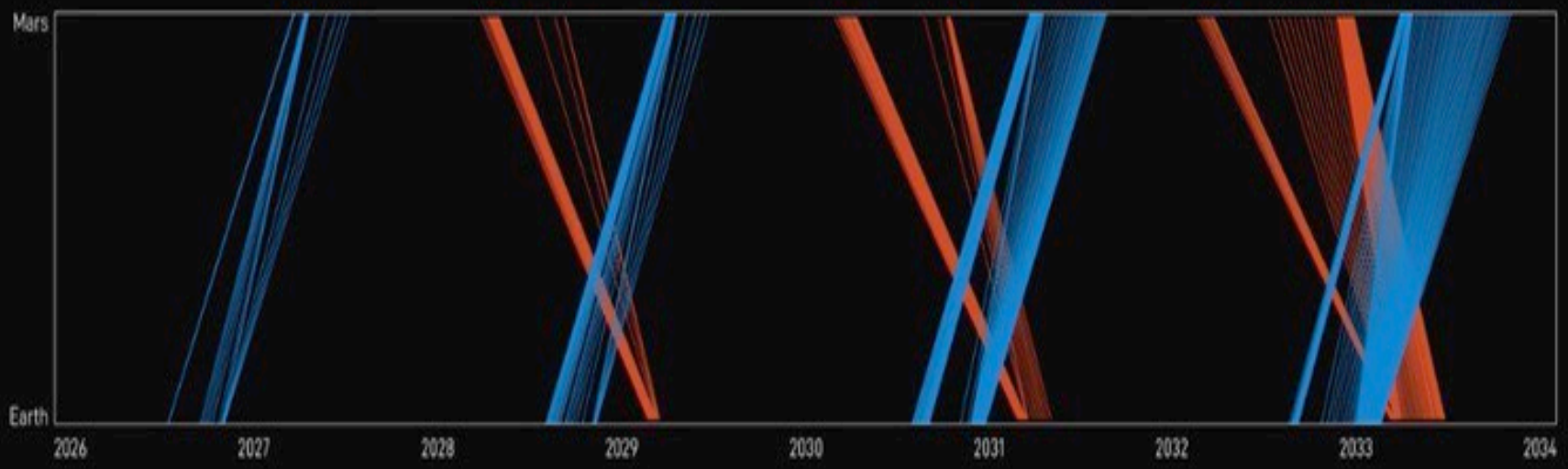
星舰进展

完全可重复使用的超重型运载器

截至2026年初约11次试飞

完成助推器捕获与在轨加注演示

2026年目标：10–25次以上飞行



2026

LANDERS	5
PAYLOAD PER SHIP (t)	10

GOALS

- Prove we can get to Mars
- Send min viable vehicles with goal of maximize learning
- Demonstrate key technologies needed for Mars transit and landing

2028-29

LANDERS	20
PAYLOAD PER SHIP (t)	75

GOALS

- Land initial infrastructure
- Confirm resource availability
- Prep landing areas
- Deliver equipment for people

2030-31

LANDERS	100
PAYLOAD PER SHIP (t)	150

GOALS

- Resource mining & propellant generation
- Build roads & pads
- Habitat construction
- Increase power generation & storage

2033

LANDERS	500
PAYLOAD PER SHIP (t)	300

GOALS

- Increase independence from Earth
- Mine & process Mars resources
- Global mobility
- Global communications

Starlink Constellation

~9,400 operational satellites (Jan 2026)

Global broadband capacity growth

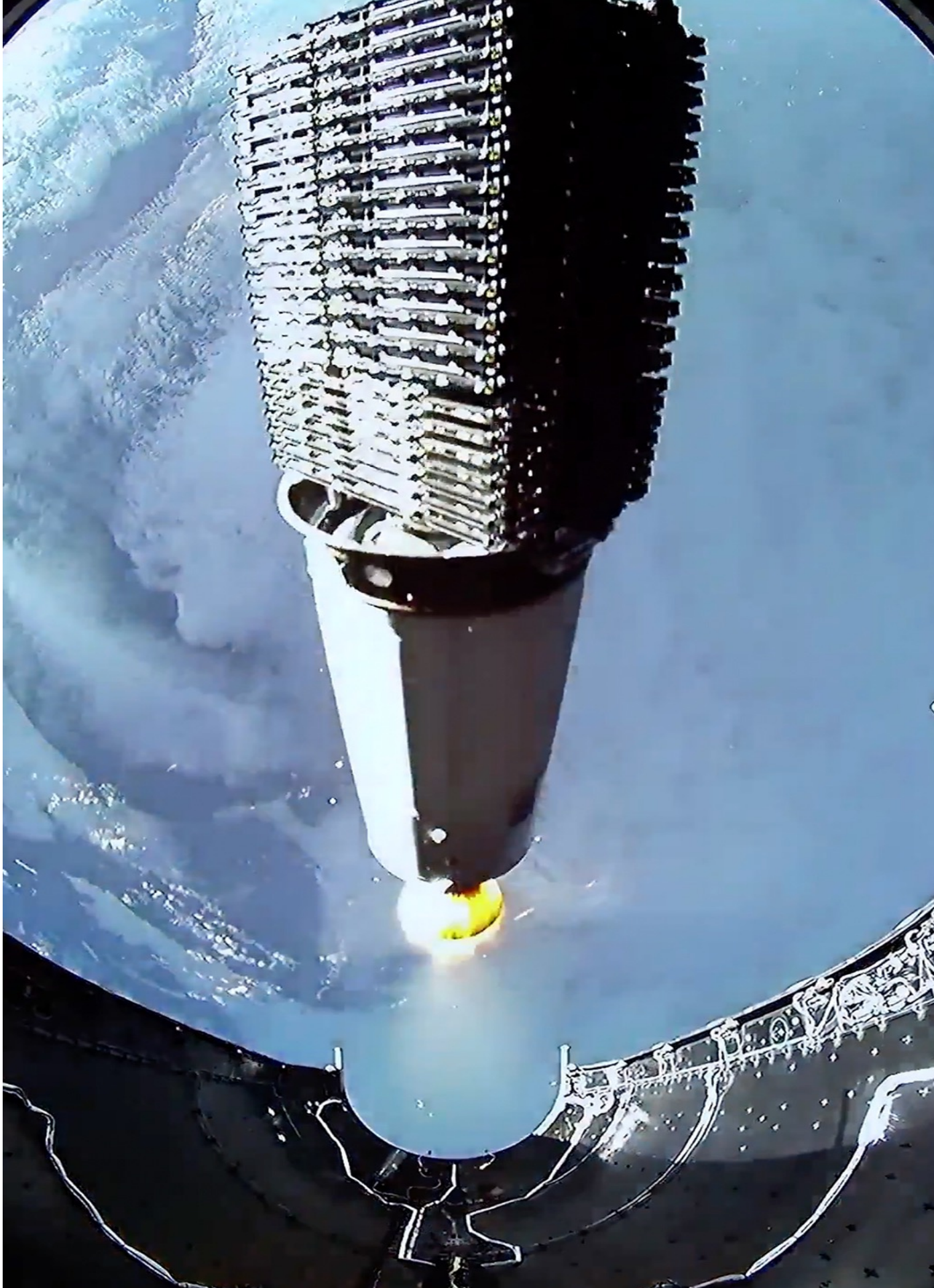
Orbit reconfiguration for sustainability

星链星座

约9400颗在轨卫星（2026年1月）

全球宽带容量快速增长

为可持续性进行轨道重构



Mack Cra
NA
SPACEFLIG

NEWS | JAN 21, 2026

Blue Origin Introduces TeraWave, a 6 Tbps Space-Based Network for Global Connectivity

Purpose-built to serve enterprise-grade customers

Crew Dragon

Reliable ISS transport since 2020

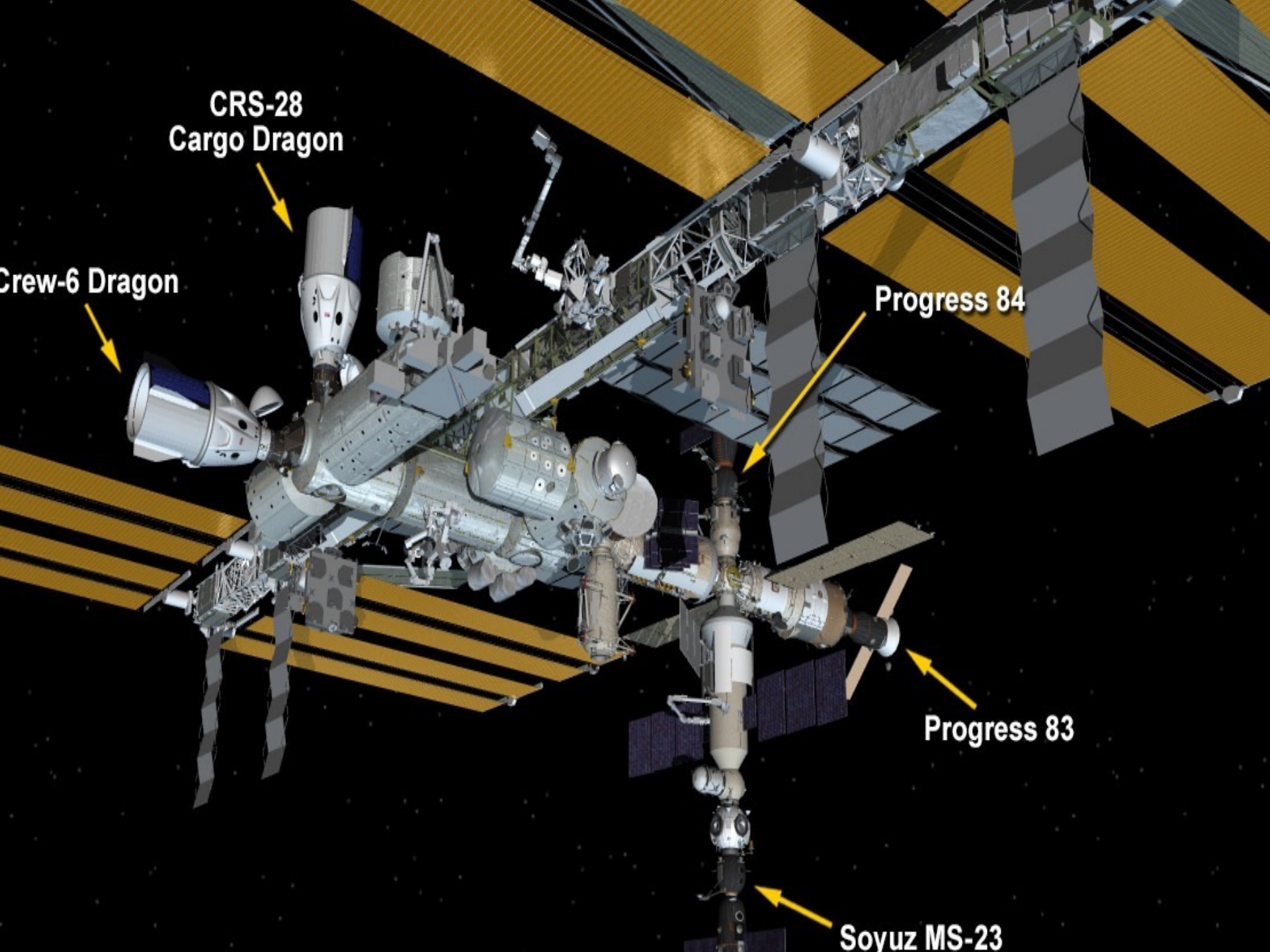
Multiple crew missions in 2025–2026

载人龙飞船

自2020年起提供可靠的国际空间站运输服务

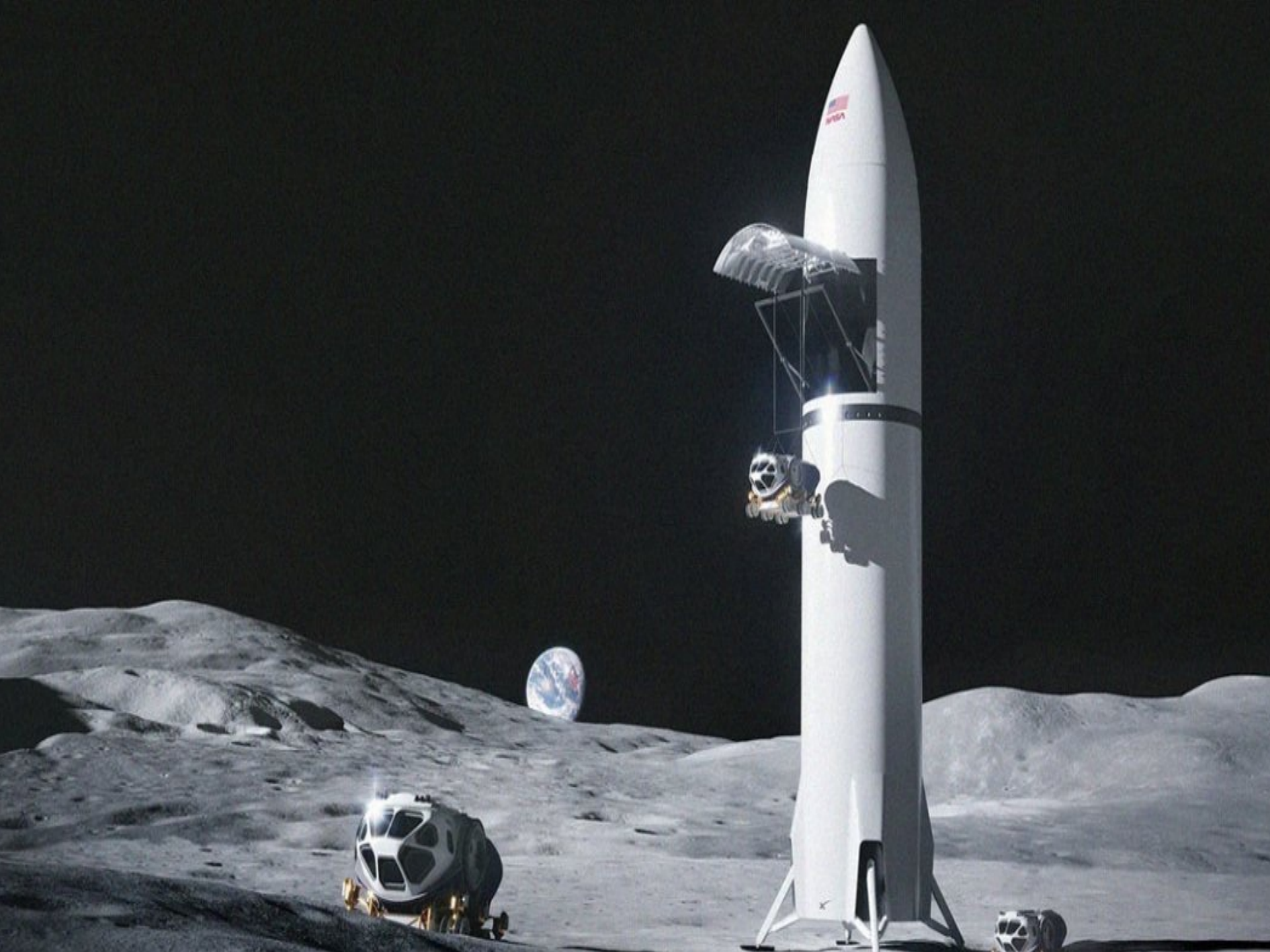
2025–2026年多次载人任务


BUMP CAPS
REQUIRED
UNDER
THIS AREA


CRS-28
Cargo Dragon
Crew-6 Dragon
Progress 84
Progress 83
Soyuz MS-23

Starship HLS for Artemis

Selected for Artemis III lunar landing
Dedicated crew landing variant

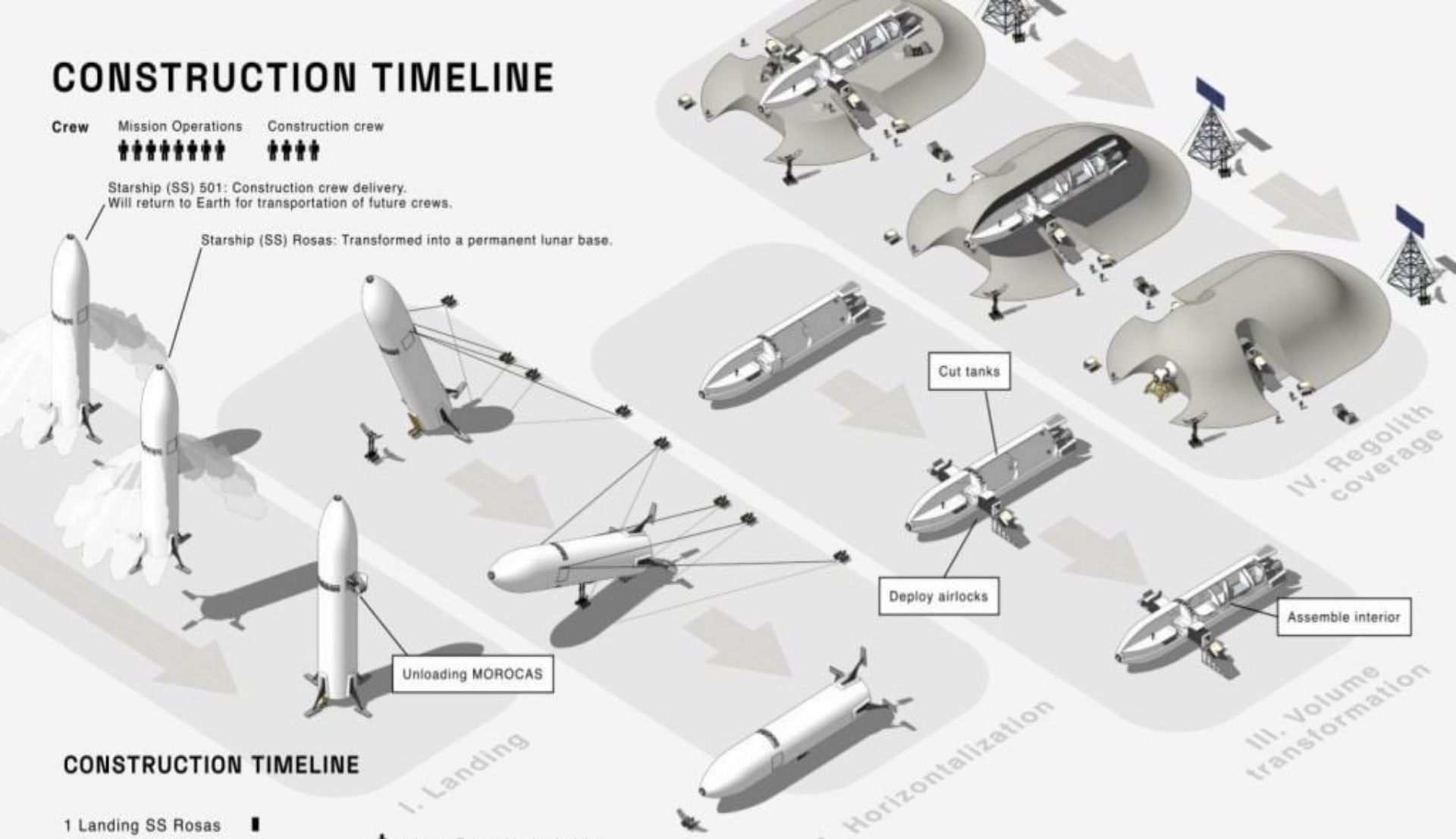


CONSTRUCTION TIMELINE

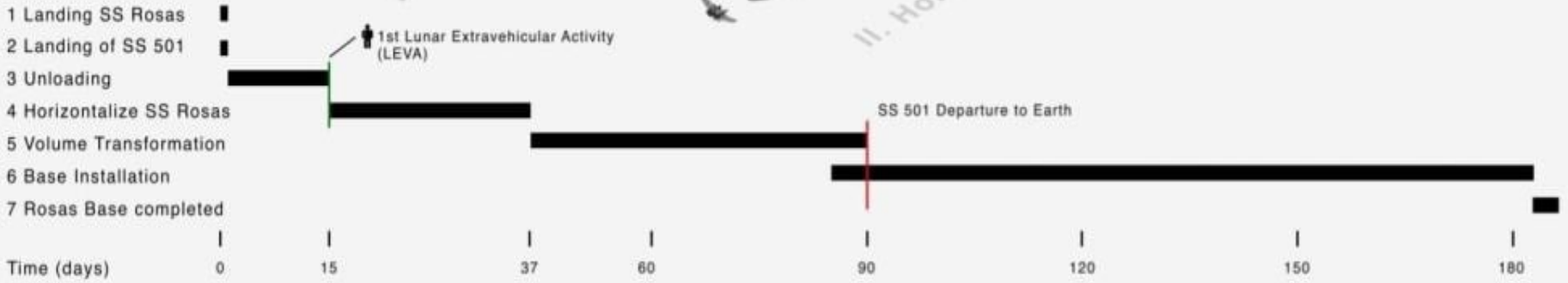
Crew Mission Operations Construction crew

Starship (SS) 501: Construction crew delivery.
Will return to Earth for transportation of future crews.

Starship (SS) Rosas: Transformed into a permanent lunar base.



CONSTRUCTION TIMELINE



Blue Origin Overview

New Glenn orbital launches in 2025
Reusable booster landings achieved

蓝色起源概览

新格伦火箭于2025年实现轨道发射
成功实现可重复使用助推器着陆

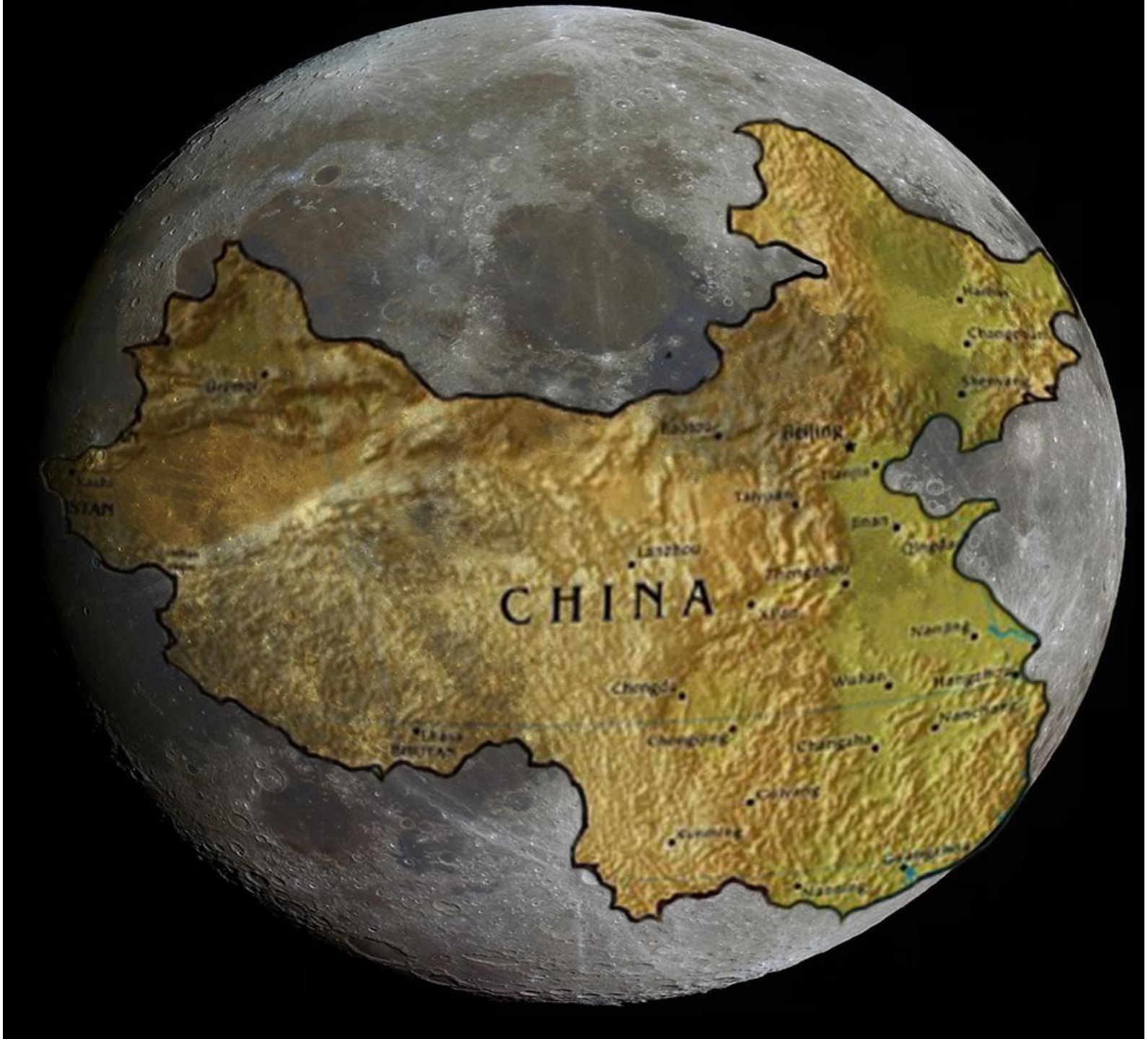
Blue Moon Lander

Developed for sustained Artemis presence
National Team partnership

蓝月着陆器

用于支持阿尔忒弥斯长期月球驻留国家团队合作项目


NASA
UNITED STATES


CHINA
Beijing
Lanzhou
Chengdu
Wuhan
Changsha
Nanjing
Hangzhou
Nanchang
Kunming
Guangzhou

Orbital Reef Station

Commercial station with Sierra Space & Boeing
Planned post-ISS operations

轨道礁空间站

由塞拉太空公司与波音公司合作
计划在国际空间站退役后运行


VAST

Commercial Crew Achievements

Reduced reliance on foreign transport
Enabled private astronaut missions

商业载人计划成就

减少对外国运输工具的依赖
促成私人宇航员任务

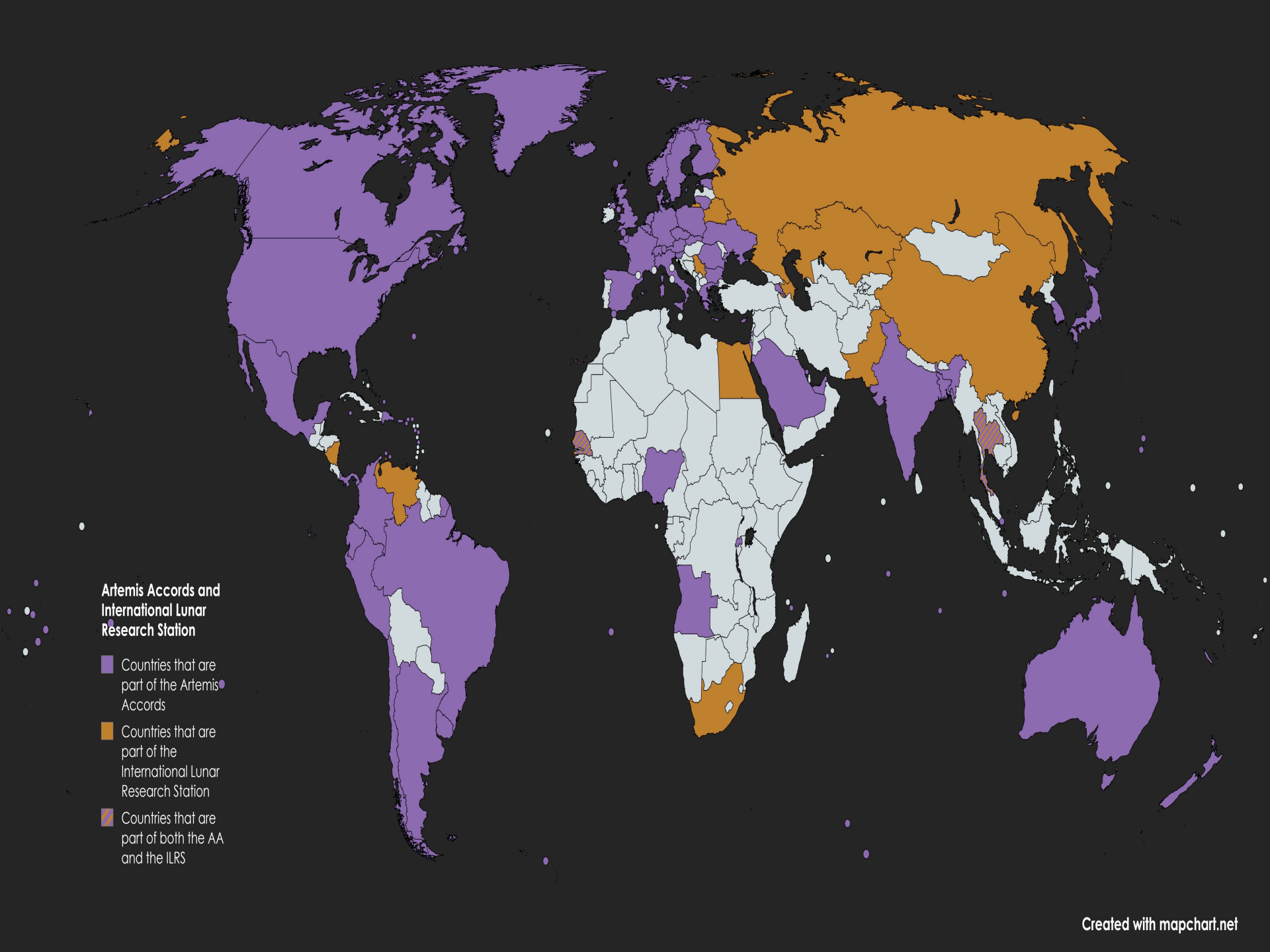
Commercial Lunar Payload Services (CLPS)

Multiple private lunar landings in 2025
Firefly Blue Ghost success

商业月球载荷服务（CLPS）

2025年实现多次私人月球着陆
萤火虫公司“蓝幽灵”任务成功


ARTEMIS
ARTEMIS ACCORDS
Australia
France
Mexico
Romania
Ukraine
Bahrain
Israel
New Zealand
Rwanda
United Arab Emirates
Brazil
Italy
Nigeria
Saudi Arabia
United Kingdom
Canada
Japan
Poland
Singapore
The United States of America
Colombia
Luxembourg
Republic of Korea
United for Peaceful Exploration of Deep Space


Artemis Accords and International Lunar Research Station
Countries that are part of the Artemis Accords
Countries that are part of the International Lunar Research Station
Countries that are part of both the AA and the ILRS
Created with mapchart.net

Artemis Accords – Core Principles (1/2)

Peaceful purposes

Transparency

Interoperability

Emergency assistance

Registration

阿尔忒弥斯协定核心原则（上）

和平目的

透明度

互操作性

紧急援助

登记

Artemis Accords – Core Principles (2/2)

Scientific data release

Preserving heritage

Space resources

Deconfliction (safety zones)

Orbital debris mitigation

阿尔忒弥斯协定核心原则（下）

科学数据发布

保护人类遗产

空间资源

解除冲突（安全区）

轨道碎片减缓

The future

New technologies: no one sees them coming

Global Context and Cooperation Opportunities

Future Outlook and Implications

Conclusion

US commercial space leads through innovation

2026 is pivotal for operations and exploration

Thank you – questions welcome

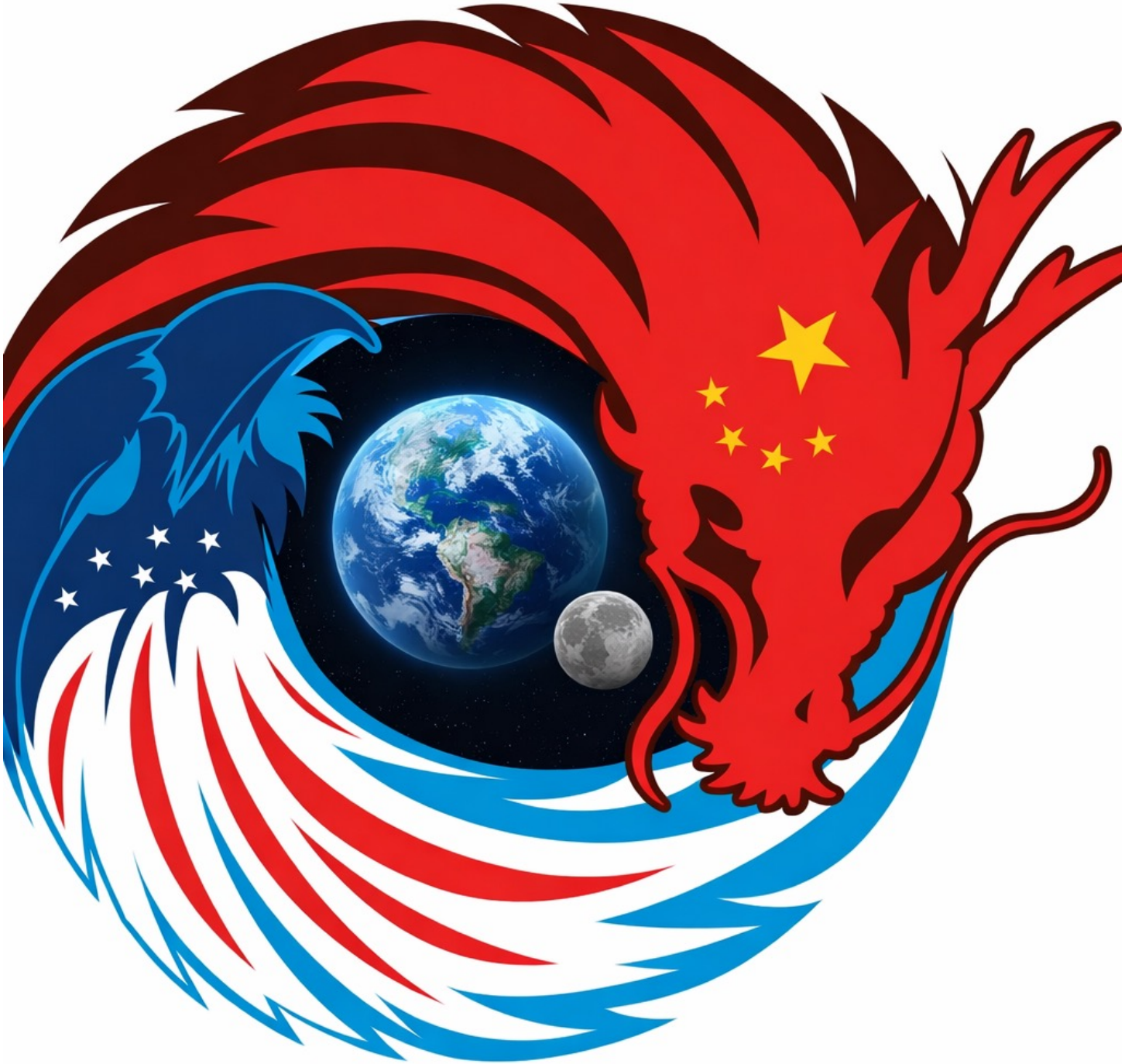
美国商业航天通过创新引领全球

2026年是运营与探索的关键节点

谢谢，欢迎提问

Q&A

Questions?



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