POLICY BRIEF

Lea Thome
April 2026

China as a Space Power

Capabilities, Ambitions, and Implications for Europe

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Executive summary

While in the space race of the 1950s and 1960s the United States and the former Soviet Union were the main contenders, China has stepped up its space exploration and development through dedicated strategies and policies in the 2010s and 2020s, positioning itself to become a leader in scientific advances and diplomacy in space. China's activities in this field can be broadly categorized in terms of four areas, namely space exploration, space infrastructure-building, space commercialization and space diplomacy.

China is decades behind when it comes to putting a Chinese astronaut on the moon, but it plans to do so by 2030, 61 years after the United States (and 69 years after the Soviet Union achieved the first lunar impact). However, China's ambitions go far beyond manned lunar missions, as strategized in documents such as the white paper *China's Space Program: A 2021 Perspective,* released in January 2022.

In addition to the goal of sending a Chinese astronaut to the moon, China recently succeeded in landing and collecting samples on the far side of the moon. Official bodies such as the Chinese Manned Space Agency (CMSA) have also participated in space diplomacy through infrastructure-building, including China's new *Tiangong* station and its joint project with Russia, the *International Lunar Research Station*. Not only is China pursuing these initiatives through government agencies and research organizations, but it relies on a vast ecosystem, including private and commercial businesses, to develop its space economy.

China's rapidly advancing exploration and diplomacy in space offers Germany opportunities to collaborate, for example, in the recently announced €35 billion budget for space defense up until 2030. But this may also pose challenges for both multilateral and bilateral actors, including Germany, in particular China's dual-use approach to its space activities. To cope with these risks, this report makes the following policy recommendations:

1. Continue hosting and initiate new research exchanges on deep-space exploration, such as SMILE or lunar sample research.

2. Create new dialogues on EU-China space governance to coordinate policies and alignments for international initiatives, organizations, and regulations.

3. Invest in new European space infrastructure initiatives in the lead-up to the decommissioning of the International Space Station (ISS) at bilateral and multilateral levels beyond commercial partnerships.

4. Regulate research initiatives affiliated with China's Ministry of Defense and other civil-military fusion organizations and institutions.

To maintain the peaceful and fair exploration of space while also boosting space-related defense projects, Germany now has the chance to take the lead in value- and policy-setting at international fora and to explore dialogue with China.

China's space activities

Over the past three decades, China's space activities, ranging from diplomatic actions on international cooperation to space exploration, have increased exponentially. Broadly speaking, China has been active in four areas: **(1) space exploration**, **(2) space infrastructure-building**, **(3) space commercialization**, and **(4) space diplomacy**.

Who coordinates China's space activities?

In order to conduct activities across these four categories, there is a vast ecosystem of government agencies, military arms, research institutions and non-profit organizations. Both state-owned and private enterprises participate in space activities.

While government agencies such as the National Development and Reform Commission and the State Council offer policy directions and strategies in the form of white papers and five-year plans, the main government agency in charge of China's space activities is the **China National Space Administration** (CNSA). The CNSA, first established in 1993, manages China's civil outer space projects and policies, such as China's robotic lunar missions, with *Chang-e 5* and *6* and Mars rovers *Tianwen 1* and *2*. The CNSA was split off from the Ministry of Aerospace Industry, which ceased to exist in 1988. In addition to the CNSA, the **China Manned Space Agency** (CMSA) is responsible for China's human space missions.

Military space projects and policies are managed by the People's Liberation Army (PLA). Until 2024, the PLA Strategic Support Force (PLASSF) was responsible for managing these programs, but when the PLASSF was phased out in June 2024, the PLA introduced the **People's Liberation Army Aerospace Force** (PLAASF) as its successor. The PLAASF manages military satellites, launches, and systems.

In addition to the official government agencies coordinating China's space program, its vast network of research institutions, universities, and other organizations play a major role in advancing and evaluating policies and progress. The **Chinese Academy of Sciences** (CAS), for example, houses the National Space Center, which is China's "primary space science hub, responsible for the planning, development, management, and operation of China's space science satellite missions, and a key contributor to China's Lunar and Deep Space Exploration Program."[1] Chinese universities, such as Tsinghua University, Beihang University, and the Beijing Institute for Technology, play leading roles in hosting university centers dedicated to space science, but also in educating top Chinese talent.[2]

As the Chinese government increasingly invites the participation of the private sector in outer space, Chinese state-owned and private enterprises are playing a rising role in its space activities. **China Aerospace Technology Corporation** (CASC) and **China Aerospace Science and Industry Corporation** (CASIC), owned by China's State-Owned Assets Supervision and

1 Chinese Academy of Sciences, "Introduction: National Space Science Center, CAS," Nssc.cas.cn, 2018, http://english.nssc.cas.cn/about/introduction/.

2 China Daily, "6 Top Chinese Universities to Offer Undergrad Major in Low-Altitude Space," 2025, https://www.chinadailyhk.com/hk/article/615638.

Administration Commission of the State Council (SASAC), are key state-owned enterprises working with China's military and government to advance the space program.

Table 1

China's participation in international organizations and agreements on space

Membership	China	United States	Russia	Germany	European Space Agency
Outer Space Treaty (1967)	Yes	Yes	Yes	Yes	*Signed by individual member states*
United Nations Office for Outer Space Affairs (1958)	Yes	Yes	Yes	Yes	*Committee on the Peaceful Uses of Outer Space (COPUOS) Observer*
International Space Station (1998)	No	Yes	No	Yes	Yes
International Space Exploration Coordination Group (2007)	Yes	Yes	Yes	Yes	Yes
Artemis Accords (2020)	No	Yes	No	Yes	*Signed by individual member states*
International Lunar Research Station (2021)	Yes	No	Yes	No	No

What activities have taken place over the past decades?

In comparison to other major space programs, such as those of the United States and Russia, China's space activities are relatively recent. China first sent an astronaut to space in 2003, 34 years after the United States managed to put the first astronauts on the moon in 1969. However, over the course of two decades, China's government has pursued a vast number of space activities, ranging from exploration and infrastructure-building to commercialization and diplomacy, playing catch-up while also achieving new firsts in outer space exploration.

1. Space exploration

China's first foray into space exploration dates back to 1964, 15 years after the founding of the People's Republic of China, although research activities and cooperation with the Soviet Union took place as early as the 1950s. In 1964, China successfully launched its first missile into space, the *Dong Feng 2*, following previous unsuccessful or limited attempts (as well as the Sino-Soviet split).

Over the next three decades, China's space program made slow progress. While the United States and the Soviet Union raced to make a first landing on the moon, China's space program launched its first satellite, *Dong Fang Hong 1*, in 1970, becoming only the fifth country to do so. In 1999, CMSA conducted its first unmanned spacecraft flight of the *Shenzhou 1*, becoming the "first flight experiment of China's crewed space programme, marking a major breakthrough for China in crewed spaceflight technology."[3]

In 2003, China's space program reached another major milestone: Yang Liwei became the first Chinese astronaut to reach space aboard the *Shenzhou 5*, ushering in two decades of continued space exploration and progress.

Following this successful crewed spaceflight, China has concentrated on moon and other planetary exploration. In 2007, CNSA launched its first lunar space orbiter, the *Chang-e 1*. Just six years later, *Chang-e 3* succeeded in making a "soft-landing" on the moon (the landing of a manned or unmanned spacecraft on the moon), the first since 1976, when the Soviet *Luna-22* orbiter landed. Just six years later, China's *Chang-e 4* became the first lunar orbiter to touch down on the far side of the moon.

The 2020s marked a new peak for China's space program: following the successful mission of *Chang-e 4, Chang-e 5* was launched a year later in 2020 to bring back lunar samples; the 2024 *Chang-e 6* mission brought back lunar samples from the far side of the moon for the first time. In addition to its successful lunar orbiter program, CNSA also launched its Mars rover program *Tianwen-1*, and the *Zhurong* rover successfully landed on Mars in 2021. Finally, in 2022, following earlier launches of space laboratories like the *Tiangong-1* and *Tiangong-2,* CMSA completed its first long-term *Tiangong* space station.[4]

Looking ahead, CMSA "aims to achieve manned lunar landing by 2030."[5] In order to make this feat achievable, CMSA is conducting multiple research activities and undergoing preparations, with CNSA continuing programs such as *Chang-e* and *Tianwen.*

3 Our China Story, "China's Shenzhou-1 Spacecraft Launched," November 19, 2025, https://www.ourchinastory.com/en/16072/China.

4 China National Space Agency, "More Details of China's Space Station Unveiled," CNSA, 2020, https://www.cnsa.gov.cn/english/n6465652/n6465653/c6809605/content.html.

5 State Council of the People's Republic of China, "China Unveils Further Details of Future Manned Lunar Mission," www.gov.cn, 2024, https://english.www.gov.cn/news/202411/21/content_WS673f331fc6d0868f4e8ed4aa.html.

Fig. 1

Timeline of Chinese space activities between 1964 and 2030

1964

First space launch

On July 19, 1964, China participated in its first space activity: launching a biological rocket into space.

1970

First satellite launch

On April 24, 1970, China launched its first satellite, Dang Fang Hong 1, becoming only the 5th country to do so.

1999

First unmanned spacecraft

On November 19, 1999, CMSA conducted its first uncrewed test flight of the Shenzhou 1.

2003

First astronaut

On October 15, 2003, Yang Liwei became the first Chinese astronaut in space on the Shenzhou 5.

2007

First lunar orbiter

On November 5, 2007, China launched its first lunar Orbiter, Chang-e 1, as part of its Chang-e program.

2013

„Soft-landing“ on moon

On December 1, 2013, China launched its Chang-e 3 mission, achieving the first soft-landing on the moon since 1976.

2019

Far-side of the moon

On January 3, 2019, Chang-e 4 became the first lunar Orbiter to touch down on the far side of the moon.

2020

Sample of lunar material

On November 24, 2020, China launched its Chang-e 5 mission to collect lunar material and samples.

2021

Mars rover

On May 14, 2021, China's Zhurong rover part of the Tianwen-1 mission landed on Mars.

2022

Permanent space station

On July 24, 2022, China launched the first part, Wentian, of its new space station Tiangong, following two temporary space Lab launches.

2030

First manned landing on moon

By 2030, CMSA plans to land its first crewed mission on the moon.

Sources: Reuters (2020), CNSA (2025)

2. Space infrastructure-building

The launch of the **Tiangong** space station, completed across three modules in 2021 and 2022, marked a major milestone for China's construction of space infrastructure. China's space station is only the second other than the **International Space Station** (ISS), which has been in orbit since 1998 and of which the "U.S., Russia, Canada, Japan, and the participating countries of the European Space Agency" are members.[6]

China's motivation to build the *Tiangong* is a direct result of its exclusion from the ISS. As China's space program was ramping up its activities in the 2000s, the US Congress passed the Wolf Amendment (2011) instructing NASA and other government entities not to "develop, design, plan, promulgate, implement, or execute a bilateral policy, program, order, or contract of any kind to participate, collaborate, or coordinate bilaterally in any way with the People's Republic of China or any Chinese-owned company."[7]

As the ISS was originally intended to operate only until 2015, subsequently extended to 2030, China's *Tiangong* may at some point be the only government space station in space. In 2024, NASA announced that it would be "enabling private industry development of commercially owned and operated space stations, which are planned prior to the deorbit of the *ISS* to prevent a gap in services" as part of its ISS transition plan.[8]

Tiangong is operated by China's space program, but it is also moving to enhance international cooperation: ahead of the launch of the *Shenzhou 21* mission in October 2025, CMSA declared that "two selected Pakistani astronauts will participate in training together with Chinese astronauts," with "one of them [...] scheduled to carry out a short-duration flight mission as a payload expert."[9]

Recently, China launched another ambitious space infrastructure project, jointly coordinated with Russia's Roscosmos space program, namely the **International Lunar Research Station** (ILRS). Taking the form of "complex experimental research facilities to be constructed with a possible attraction of partners on the surface and/or in the orbit of the Moon designed for multi-discipline and multi-purpose scientific research activities, including exploration and use of the moon, moon-based observation, fundamental research experiments and technology verification [*sic*.]," the two space programs are aiming to finish construction and utilize the IRLS by 2035.[10]

By April 2024, at least 17 countries, in addition to other research organizations, had signed up to join the IRLS.[11] Such membership and cooperation may be particularly attractive to countries in the Global South that are just getting started with their space programs. Countries that have signed up so far include Belarus, Kazakhstan and Senegal. In addition to international cooperation, another major aspect will be energy supply; China and Russia have reportedly reached agreement to build a nuclear-powered power plant on the ILRS.[12]

China's infrastructure-building in space thus has two objectives: first, to advance domestic space exploration, and second, to boost inter-

6 In total, five space agencies and 15 countries are members of the ISS; NASA, "International Space Station Cooperation," NASA, September 27, 2023, https://www.nasa.gov/international-space-station/space-station-international-cooperation/.

7 U.S. Congress, "Frank Wolf Space Security Act," congress.gov, 2025, https://www.congress.gov/bill/119th-congress/house-bill/4360/text.

8 NASA, "The International Space Station Transition Plan," NASA, July 18, 2024, https://www.nasa.gov/faqs-the-international-space-station-transition-plan/.

9 Andrew Jones, "Astronaut from Pakistan Will Be 1st International Visitor to China's Tiangong Space Station," Space, November 3, 2025, https://www.space.com/space-exploration/human-spaceflight/astronaut-from-pakistan-will-be-1st-international-visitor-to-chinas-tiangong-space-station.

10 China National Space Administration, "International Lunar Research Station (ILRS) Guide for Partnership," www.cnsa.gov.cn, June 16, 2021, https://www.cnsa.gov.cn/english/n6465652/n6465653/c6812150/content.html.

11 China National Space Administration, "International Lunar Research Station Attracts More Partners: CNSA," www.gov.cn, 2025, https://english.www.gov.cn/news/202504/24/content_WS680976d7c6d0868f4e8f2045.html.

12 Victoria Bela, "China and Russia Sign Nuclear Reactor Deal to Fuel Lunar Research Station," South China Morning Post, May 14, 2025, https://www.scmp.com/news/china/science/article/3310315/china-and-russia-sign-nuclear-reactor-deal-fuel-lunar-research-station.

national cooperation both on earth and in space. These initiatives are well-timed, as other international space infrastructure is set to be de-orbited, with no clear replacement initiatives.

3. Space commercialization

Besides relying on government agencies and research institutions, the Chinese government is also actively encouraging space commercialization by explicitly inviting private companies to participate, especially in low-earth orbit (LEO) activities, such as satellite launches.

While Chinese state-owned enterprises such as CASIC and CASC were already being contracted to work with China's space program prior to 2014, in that year the Chinese government issued the *Guiding Opinions on Innovating Investment and Financing Mechanisms in Key Areas and Encouraging Social Investment, No. 60*. In this strategic document, the government explicitly declared:

"To encourage [...] private capital's participation in China's construction of civilian space infrastructure. Efforts shall be made to improve policies on [...] civilian remote sensing satellite data, strengthen the government's procurement services, encourage [...] private capital to be used to develop, launch and operate commercial remote sensing satellites and provide market-oriented and professional services, and guide private capital's participation in the construction of [a] satellite navigation ground application system."[13]

In response to this announcement and call for action, new companies dedicated to civilian space infrastructure sprang up in the mid- to late-2010s. In 2019, Chinese company **iSpace** launched two satellites into orbit, marking "the first successful orbital launch by a private Chinese firm."[14] Other companies have also contributed to this civilian space commercialization. Carmaker Geely launched a space business, **Geespace**, and aimed to have 72 satellites in orbit by the end of 2025 for its GEESATCOM project, which envisions "comprehensive global satellite IoT [Internet of Things] coverage excluding only the polar regions."[15]

In November 2025, CNSA unveiled a new action plan titled *Action Plan of the China National Space Administration for Promoting the High-Quality and Safe Development of Commercial Space (2025–2027)*, following up on its 2014 guiding directive and laying out a two-year plan to continue space commercialization. By 2027, CNSA plans that "the commercial aerospace industry will be ecologically coordinated efficiently, scientific research and production will be safe and orderly, the industrial scale will grow significantly, the vitality of innovation and creation will be significantly enhanced, the resource capacity will be coordinated and efficient, [...] industry governance capacity will be significantly improved, and the high-quality development of commercial aerospace will be basically realized" through 22 measures and action points.[16]

In pursuit of this strategy of inviting private companies to participate in space commercialization China has become the country with the second most objects launched into space, according to the United Nations Office for Outer Space (2025). ↗ Figure 2 on p. 10

In 2014, the year Document No. 60 was published, China had launched 25 objects into space; by 2024, that number had risen to 266, a more than tenfold increase in just a decade. However, China continues to trail behind the

13 National Development and Reform Commission, "Guiding Opinions of the State Council on Innovating the Investment and Financing Mechanisms in Key Areas and Encouraging Social Investment," UNESCAP, 2014, https://ppp.unescap.org/sites/default/files/447592457249624064-Guiding%20Opinions%20of%20the%20State%20Council%20on%20Innovating%20the%20Investment%20and%20Financing%20Mechanisms%20in%20Key%20Areas%20and%20Encouraging%20Social%20Investment.pdf.

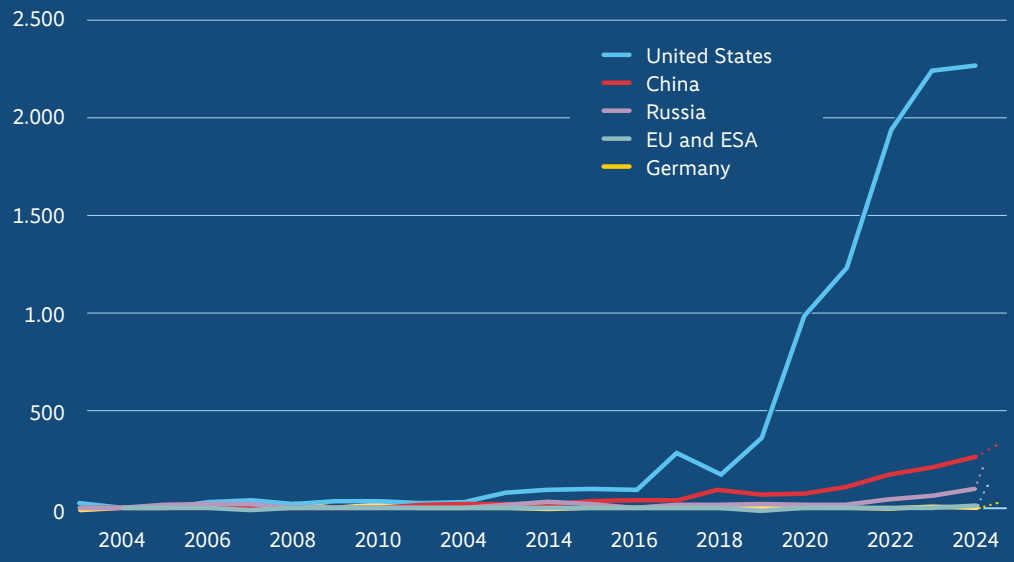
14 Xinhua, "Chinese Private Rocket Firm Makes Successful Orbital Launch," xinhuanet.com, 2019, http://www.xinhuanet.com/english/2019-07/25/c_138257464.htm.

15 Geely Australia, "Geely Advancing Integrated Space-Earth Mobility Ecosystem," Geely Australia, August 10, 2025, https://www.geely.com.au/news/geely-launches-11-satellites-for-4th-orbital-plane.

16 China National Space Administration, "Regarding the Issuance of the Action Plan of China National Space Administration for Promoting High-Quality and Safe Development of Commercial Spaceflight (2025-2027)," cnsa.gov.cn, 2025, https://www.cnsa.gov.cn/n6758823/n6758839/c10719382/content.html.

Fig. 2

Annual objects launched into space



Note: The annual objects launched into space were combined for the European Union (EU) and the European Space Agency (ESA).
Source: UNOOSA (2025).

United States, which launched 2263 objects into space in 2024, as the US also relies on commercial companies such as SpaceX and Blue Origin to contribute to space activities. Meanwhile, European actors such as the EU and the ESA, in addition to Germany individually, have launched far fewer objects into space.

4. Space diplomacy

To enhance its space exploration, infrastructure-building, and commercialization, the Chinese government is also undertaking active space diplomacy on earth to partner with other countries and organizations.

A large part of China's diplomacy is involved in its **Space Silk Road**, a sub-component of its Belt and Road Initiative (BRI), launched in 2013. First announced in 2016, this initiative was labeled the *Space Information Corridor* and China's National Development and Reform Commission set out seven primary goals: "(1) improve the spatial information coverage capacity of the 'Belt and Road', (2) support Chinese enterprises to 'go out', (3) provide public service products, (4) drive the export of space information equipment and services, (5) strengthen regional spatial information industry cooperation, (6) significantly improve the level of marketization and internationalization, and (7) promote cooperation and exchange in space information technology."[17]

A major aspect of China's Space Silk Road is the country's own satellite system, **BeiDou**, administered by CNSA, which provides an alternative to the American GPS and European Gali-

17 National Development and Reform Commission, "Guidance of the National Defense Science and Technology Bureau and the Development and Reform Commission on Accelerating the Construction and Application of the 'Belt and Road' Spatial Information Corridor," ndrc.gov.cn, 2016, https://www.ndrc.gov.cn/fzggw/jgsj/kfs/sjdt/201611/t20161123_1086163_ext.html.

leo systems. BeiDou's installation was carried out in three phases: domestic use within China with the first satellites launched in 2000 (*BDS-1*), coverage of the Asia-Pacific region by 2012 (*BDS-2*), and worldwide coverage by 2020 (*BDS-3*).[18] The BeiDou system allows China to operate independently of other satellite navigation systems, which is especially important for military purposes, while also offering a public good to other partners and countries.

In advance of *BDS-3's* completion and consequent to it, China has partnered with countries across the globe to offer BeiDou services and cooperate on satellite services. In 2020, media reports announced that Pakistan's military was set to start using BeiDou to enhance interoperability[19], and in 2022 Russia's GLONASS and BeiDou agreed to coordinate their satellite systems.[20] In 2021, China hosted the first China-Africa BDS Cooperation forum in Beijing, becoming the "third multilateral cooperation mechanism platform for BDS under the framework of FOCAC, following the China-Arab States Cooperation Forum and the China-Central Asia BDS Cooperation Forum."[21] ↗ Figure 3 on p. 12

In addition to its multilateral diplomacy on BeiDou, China has also sought out other means of cooperation on space activities and exploration with other bilateral and multilateral partners, especially countries in the Global South.

Through its space diplomacy in the Global South, China has been able to gain additional participants and partners in its global space initiatives, such as BeiDou, as well as in its larger strategic projects, such as the Belt and Road Initiative. It also makes its projects, again such as BeiDou, viable alternatives to competing systems, such as the aforementioned European Galileo and US GPS. In certain cases, collaboration and cooperation on scientific innovation and data-sharing also allows China to deepen its own space program.

In December 2025, China and Brazil[22] announced plans to start a joint space laboratory, while a few months prior to that Indonesia[23] announced that it would establish a remote sensing center to partner with China on environmental monitoring.

To incentivize participation and make space partnership possible, Chinese agencies and enterprises often use development finance, such as grants and loans, to make donations happen, finance large-scale infrastructure projects, and strengthen relationships with other countries under the BRI and in the Global South. For example, China provided a government concessional loan worth $275 million to the Government of Pakistan and its Pakistan Space and Upper Atmosphere Research Commission (SUPARCO) for the *Paksat-1R* satellite system in 2009, while in 2018, China's Ministry of Commerce provided a grant worth $45 million to Namibia to set up a satellite data receiving ground station.[24]

Similarly, in 2018 and 2019 China's Ministry of Commerce directed two grants to the Egyptian Ministry of Commerce for its *EgyptSat2*

18 State Council Information Office of the People's Republic of China, "China's BeiDou Navigation Satellite System," 2016, http://en.beidou.gov.cn/SYSTEMS/Officialdocument/201806/P020180608525769123446.pdf.

19 Indo-Asian News Service, "Pakistan Military to Use Chinese Navigation System BeiDou to Improve Interoperability," The Economic Times, August 21, 2020, https://economictimes.indiatimes.com/news/defence/pakistan-military-to-use-chinese-navigation-system-beidou-to-improve-interoperability/articleshow/77675471.cms?from=mdr.

20 Liu Zhen, "China's BeiDou and Russian GLONASS Sign New Deal to Rival America's GPS Satellite Navigation," South China Morning Post, February 5, 2022, https://www.scmp.com/news/china/diplomacy/article/3165924/chinas-beidou-and-russian-glonass-sign-new-deal-rival-americas.

21 BeiDou Navigation Satellite System, "The First China-Africa BDS Cooperation Forum Held in Beijing," beidou.gov.cn, 2021, http://en.beidou.gov.cn/WHATSNEWS/202111/t20211108_23350.html.

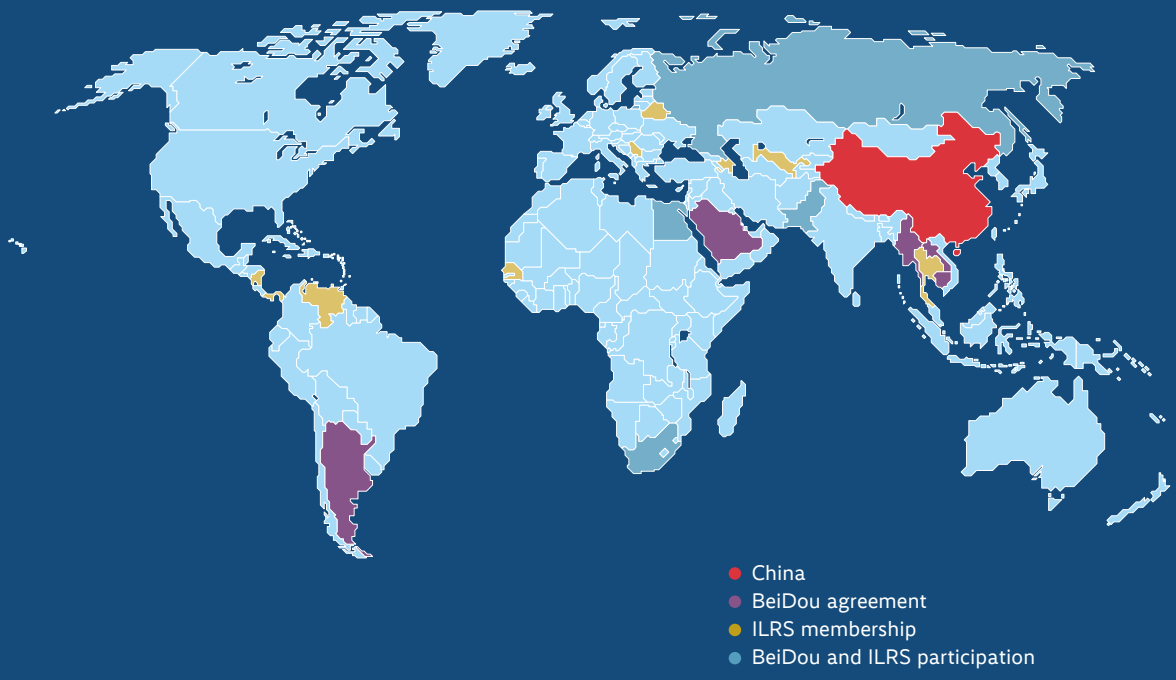
22 Eduardo Baptista, "China and Brazil Create Joint Space Laboratory, despite US Pressure," Reuters, December 10, 2025, https://www.reuters.com/business/aerospace-defense/china-brazil-create-joint-space-laboratory-despite-us-pressure-2025-12-10/.

23 Fan Chen, "China and Indonesia to Set up Remote Sensing Centre to Boost Environmental Monitoring," South China Morning Post, October 23, 2025, https://www.scmp.com/news/china/diplomacy/article/3330066/china-and-indonesia-set-remote-sensing-centre-boost-environmental-monitoring.

24 AidData, "China Eximbank Provides RMB 1.35 Billion Government Concessional Loan (GCL) for the Paksat-1R Satellite System Project," 2023, https://china.aiddata.org/projects/43298.

Fig. 3

Type of space partnership with China



Source: based on the author's own calculation (2025).

project, which built a "small remote sensing satellite" in addition to a ground control station, carried out by China Aerospace Science and Technology Corporation.[25]

These examples illustrate that China uses initiatives such as the BRI, and especially its Space Silk Road, to advance diplomacy, but they also demonstrate how China is lowering the boundaries between space exploration, infrastructure-building, commercialization, and diplomacy to advance its space program.

25 AidData, "Chinese Government provides RMB 300 million grant for EgyptSat 2 Project (Linked to Record ID#65872 and ID#65874)," 2025, https://china.aiddata.org/projects/65871.

China's strategic vision for space

With its rapidly advancing space program, China has formulated its strategic aspirations and goals in outer space multiple times over the past decades through the publication of numerous white papers on space.

How has China's space vision changed over time?

Since 2000, China has regularly published white papers and other governmental documents that give further insights into its goals in space and how they have changed over time. Its 2000 white paper *China's Space Activities* revisits China's successes since 1956—such as the launch of the *Dong Fang Hong 1*—and offers both short- and long-term goals for China's space program. While its short-term goals focused on satellite systems, space exploration, and manned flight, CNSA's long-term plans prioritized the industrialization of space technology, as well as the construction of space infrastructure.[26]

Subsequent papers, published in 2006, 2011, and 2016, followed up on these goals, aiming to improve China's space exploration and technologies needed to carry out this research. The CNSA's white papers also consistently outline a development strategy for China's space program to invest in innovation and talent, devise long-term strategies and regulations, build infrastructure, strengthen its scientific research and management, secure funding for its space activities, and industrialize space by encouraging participation in the space industry.[27]

Some of China's white papers also emphasize international cooperation. For the first time in 2016, following the establishment of the BRI, the CNSA also proposed in its white paper to seek out space cooperation beyond the Asia-Pacific and to establish the BRI Space Information Corridor.[28]

China's white papers on space over the span of two decades reveal the country's strategic goals in pursuing space exploration, which focus especially on satellites and manned spaceflight, with new goals such as lunar orbiters and deep space activities emerging in later years, as China's space program rapidly advanced.

What are China's current aspirations in space?

In its most recent white paper on space (2021), China clearly outlined its mission to "explore outer space to expand humanity's understanding of the earth and the cosmos; to facilitate global consensus on our shared responsibility in utilizing outer space for peaceful purposes and safeguarding its security for the benefit of all humanity; to meet the demands of economic, scientific and technological development, national security and social progress; and to raise the scientific and cultural levels of the Chi-

26 China National Space Administration, "White Paper on China's Space Activities," 2025, https://www.cnsa.gov.cn/n6758824/n6758845/c6772480/content.html.

27 China National Space Administration, "China's Space Activities in 2006," 2025, https://www.chinadaily.com.cn/china/2006-10/12/content_6202603_4.htm.

28 State Council of the People's Republic of China, "White Paper on China's Space Activities Published," December 28, 2016, https://english.www.gov.cn/archive/white_paper/2016/12/28/content_281475527159496.htm.

nese people, protect China's national rights and interests, and build up its overall strength."[29]

Similar to previous white papers, CNSA also outlines the principles of innovation-driven development, coordination and efficiency, peaceful purposes, and cooperation and sharing. While there was no major shift in policy from 2016 to 2021, China's 2021 white paper more strongly opposes "any attempt to turn outer space into a weapon or battlefield or launch an arms race in outer space," actively addressing rising geopolitical tensions and potential for future escalation.

Different from previous iterations, CNSA only briefly outlines future goals for the next five years, focused on "smart self-management of spacecraft; [a] space mission extension vehicle; innovative space propulsion; in-orbit service and maintenance of spacecraft; and space-debris cleaning."[30]

This most recent white paper also contains a section dedicated specifically to space governance, stating that "under the framework of the United Nations, China will actively participate in formulating international rules regarding outer space, and will work together with other countries to address the challenges in ensuring long-term sustainability of outer space activities." Such explicit framing not only highlights China's goal of exploring space, but focuses on its regulation, both domestically and internationally.

China's 2021 white paper offers an ambitious plan to "build China into a space power," stepping up from participation to international leadership, domestically, bilaterally, and multilaterally. China's new white paper on space, expected to be released in 2026, will offer further insights into how China's vision to become a space power may have shifted with further technological advancements.

China's next white paper on space is likely to continue building on its scientific achievements over recent years, and offer concrete plans on how the CMSA and CNSA may send a Chinese astronaut to the moon by 2030. In China's 15th five-year plan (2026-2030), the government already outlined plans to prioritize space as part of both emerging technologies and national security efforts.[31] Especially as emerging technologies continue to play a large role in innovation, the Chinese government may officially strategize how to incorporate them in its space ecosystem, especially among its commercial companies and stakeholders.

How does China's space strategy fall into China's broader vision for the world?

Over the past decade, the Chinese government has issued multiple strategies that reenvision China's role in the world. China's BRI is its flagship initiative facilitating partnership and development overseas through infrastructure and investments, especially in the Global South.

This comes at a time of increasing geopolitical upheaval, as the US-China relationship has been plagued by tariffs and trade, and the EU-China partnership has been also facing increasing tensions due to increasing economic and political misalignment. China thus faces two challenges in its broader vision for the world: navigating this geopolitical pressure, while engaging and building new partnerships on space. For countries such as EU member states or the US, China's ambitions in space are increasingly seen as a means of projecting power.

Since 2020, the Chinese government has released four further initiatives that build upon the success of the BRI and outline China's broader strategy for its role in the world: the **Global Security Initiative** (GSI), the **Global Development Initiative** (GDI), the **Global Civilization Initiative** (GCI), and the **Global Governance Initiative** (GGI).

29 State Council of the People's Republic of China, "China's Space Program: A 2021 Perspective," January 28, 2022, https://english.www.gov.cn/archive/whitepaper/202201/28/content_WS61f35b3dc6d09c94e48a467a.html.

30 Ibid.

31 Xinhua, "Proposals of the Central Committee of the Communist Party of China on the Formulation of the 15th Five-Year Plan for National Economic and Social Development," October 28, 2025, https://www.gov.cn/zhengce/202510/content_7046050.htm.

First announced in 2021 by Chinese leader Xi Jinping at the UN General Assembly, the GDI centers on global sustainable development amid new challenges emerging in the 2020s, such as the COVID-19 pandemic. The initiative centers on advancing eight key themes in development; namely, poverty alleviation, food security, COVID-19, development financing, green development, industrialization, digital economy, and connectivity.[32] In contrast to the BRI, the GDI takes a broader approach to development, not only as infrastructure-centered and emphasizes coordination through pre-existing international fora, such as the UN.

The GSI was announced just a few months after the GDI, when Chinese leader Xi Jinping gave a speech at the Boao Forum in Hainan in 2022, an annual gathering for leaders of Asian countries. As part of this proposed initiative, Xi proposed multiple principles, such as "staying committed to the vision of common, comprehensive, cooperative and sustainable security, and work[ing] together to maintain world peace and security," as well as "stay[ing] committed to respecting the sovereignty and territorial integrity of all countries, uphold[ing] non-interference in internal affairs, and respect[ing] the independent choices of development paths and social systems made by people in different countries." Also included was "stay[ing] committed to abiding by the purposes and principles of the UN Charter, reject[ing] the Cold War mentality, oppos[ing] unilateralism, and say[ing] no to group politics and bloc confrontation."[33]

In 2023, China's GCI announced that it "aims to promote inclusiveness and mutual learning among different civilizations, and advocates respect for the diversity of world civilizations", while China's GGI, the most recently announced (in 2025) initiative, is "aiming to work with all countries to build a more just and equitable global governance system and strive for a community with a shared future for humanity."[34]

While these initiatives do not offer specific insights into China's goals and motivations to become a space power, they do set forth the principles and ideas by which China seeks to govern itself and would like to see the world governed.

For example, China's strategic development of satellite systems allows it to remain sovereign and independent of other countries' services, such as GPS and Galileo, especially as it is facing increasing restrictions in other advanced technologies. As space remains an underexplored, and yet to be fully understood domain of exploration, China is also focusing on space to ensure strategic participation, leadership, and governance in an area that will become increasingly important in the future, whether for scientific, technological, or security purposes.

Furthermore, these initiatives—the GDI, GSI, GCI, and GGI—not only offer principles and values, but also new fora through which the Chinese government and relevant agencies and institutions can pursue their space diplomacy. For example, China's concept paper on the GGI expressly notes that gaps in governance exist with regard to emerging challenges and technologies, including outer space and artificial intelligence. Beijing may utilize these stated initiatives, such as the GGI, to propose resolutions, working groups, and actions related to outer space at the UN in the future not only with regard to space exploration, but also increasingly its regulation.

While all these strategies focus on China's engagement with the world, other strategies offer more insights into China's domestic economic and technological priorities. In addition to including the development of space in its 15th

32 Ministry of Foreign Affairs, "Global Development Initiative — Building on 2030 SDGs for Stronger, Greener and Healthier Global Development (Concept Paper)," n.d., https://www.mfa.gov.cn/eng/zy/jj/GDI_140002/wj/202406/P020240606606193448267.pdf.

33 Ministry of Foreign Affairs, "Xi Jinping Delivers a Keynote Speech at the Opening Ceremony of the Boao Forum for Asia Annual Conference 2022," 2022, https://www.mfa.gov.cn/eng/zy/jj/2020zt/kjgzbdfyyq/202204/t20220421_10671083.html.

34 Xinhua, "Xi's Article on Promoting Implementation of Global Initiatives to Be Published," 2025, https://english.www.gov.cn/news/202510/15/content_WS68ef601cc6d00ca5f9a06d2e.htm; Ministry of Foreign Affairs, "Concept Paper on the Global Governance Initiative," 2025, https://www.fmprc.gov.cn/eng/xw/wjbxw/202509/t20250901_11699912.html.

five-year plan, China's 14th five-year plan (2021-2025) specifically focused on developing further commercial space launch activities and sites, as well as deep space exploration:

"We will perform basic scientific research on the origin and evolution of the universe and perspectives on the earth (透视地球)*, carry out interstellar exploration such as Mars orbiting and asteroid inspection, develop a new generation of heavy-lift launch vehicles and reusable space transportation systems, deep earth exploration equipment, deep sea operations and maintenance (O&M) and equipment test ships, three-dimensional polar monitoring platforms, and heavy icebreakers, and complete construction of Phase IV of the lunar exploration project, Phase II of Jiaolong Sea Exploration* (蛟龙探海)*, and Phase II of Xuelong Polar Exploration* (雪龙探极)*."*[35]

China's space innovation and exploration is also aligned with the country's previous technology strategies, chief among which is the *Made in China 2025* (MIC2025) initiative. In its MIC2025 plan, the Chinese government strategized to strengthen its manufacturing capabilities domestically within key industries for technology and innovation, including boosting domestic production of key products from 40% in 2020 to 70% in 2025.

As part of this larger initiative, the Chinese government also included aviation and aerospace equipment among the 10 industries outlined in MIC2025, alongside biotechnology, high-tech ships, and new energy vehicles. For aerospace, the plan explicitly stated the goals of developing advanced rockets, civilian space infrastructure, and space-information services, while also deepening space exploration, including manned spaceflight. Many of these goals had been met by 2025.[36]

China's bid to implement a successful space program, in addition to its large-scale diplomacy and outreach, has important implications for other space stakeholders, ranging from organizations such as UNOOSA to individual space agencies such as NASA and ESA. Many initiatives, such as BeiDou and the IRLS, offer alternatives to existing infrastructure and systems. With China's increasing leadership in outer space, the Chinese space program is beginning to set new norms and visions for space, for example, its proposal to construct a nuclear-powered moon base with Russia, which will impact all space actors.

35 China's 14th Five-Year Plan (2021-2025), Research in Cutting-Edge S&T fields. Center for Security and Emerging Technologies (CSET), "Translation: Outline of the People's Republic of China 14th Five-Year Plan for National Economic and Social Development and Long-Range Objectives for 2035," May 13, 2021, https://cset.georgetown.edu/publication/china-14th-five-year-plan/.

36 CSET, "Translation: Notice of the State Council on the Publication of 'Made in China 2025'," March 10, 2022, https://cset.georgetown.edu/publication/notice-of-the-state-council-on-the-publication-of-made-in-china-2025/.

China's space activities: opportunities or challenges for Germany?

As space is increasingly becoming both a challenge and an opportunity for states and as humanity's understanding of space is rapidly advancing, Germany is ramping up its commitments and involvement in space-related activities both through the German Aerospace Center (Deutsches Zentrum für Luft- und Raumfahrt, DLR) and the European Space Agency (ESA).

Germany's new space strategy, published in 2025 by the Federal Ministry for Economic Affairs and Energy, outlines nine key areas of focus for the country's space program and activities: European and international cooperation, space as a growth market, climate change and resource protection, digitalization and data activities, security and global stability, sustainable and safe use of space, space research, international space exploration, and space activities for attracting talent.[37]

In September 2025, Germany announced a new €35 billion budget for space-related defense capabilities to be spent by 2030. The country thus faces multiple challenges and opportunities in its space diplomacy vis-à-vis China.

Policy recommendations for Germany on space activities vis-à-vis China

As China is actively seeking out cooperation on space activities and exploration, Germany has two major opportunities to advance its own space program through (1) collaborating with China on global governance, as well as (2) conducting research exchanges.

Opportunities for Germany to engage with Chinese space stakeholders

Hitherto, space cooperation between China and Germany has been limited mainly to scientific cooperation, with a few more activities taking place at the European level. For example, German company OHB Bremen AG and China's Institute of Remote Sensing Applications signed an MoU in 2010 to track greenhouse gases from space to advance understanding of climate change.[38] Similarly, individual German researchers and research centers have worked jointly with Chinese institutions to study space phenomena, such as space radiation, through China's lunar orbiters.[39]

Both China's and Germany's space strategies actively outline global governance and regulation as priority areas. Space governance is restricted to a few international organizations, working groups, and agreements, many of which

37 Federal Ministry for Economic Affairs and Climate Action, "The German Federal Government's Space Strategy," 2025, https://www.bundeswirtschaftsministerium.de/Redaktion/EN/Publikationen/Technologie/the-german-federal-governments-space-strategy.pdf?__blob=publicationFile&v=1.

38 Chinese Academy of Social Sciences, "Germany, China to Track Greenhouse Gases from Space," September 9, 2010, https://english.cas.cn/newsroom/archive/news_archive/nu2010/201502/t20150215_139909.shtml.

39 European Space Sciences Committee, "Germany-China collaboration paves the road for future space exploration missions," October 8, 2021, https://www.essc.esf.org/2021/10/07/germany-china-collaboration-paves-the-road-for-future-space-exploration-missions/.

were first discussed in the very first years of the Cold War. As space capabilities are advancing rapidly, including planetary exploration of the moon, Mars and other planets, new, mutually accepted agreements are needed.

China and Germany can collaborate on new space agreements and governance regulations fit for the twenty-first century. In particular because more and more countries are relying on private companies for satellite and spacecraft launches, a working group or MoU dedicated to space commercialization might be an area of priority for such cooperation.

Second, as China is one of the first countries to reach the far side of the moon and send rovers to Mars, scientific and research exchanges with a view to understanding new developments and agreements on priorities present opportunities for Germany. For example, in 2023 China called on foreign scientists to obtain access to lunar samples returned by *Chang-e 5*.[40]

Workshops, conferences, and China–Germany working groups on peaceful and scientific space exploration can serve as a mutually beneficial tool for researchers across both countries to study new and existing space phenomena.

As new challenges arise, rather than abating discussion and exchange at these existing fora, such organizations and dialogues should increasingly be used to coordinate on important space matters, such as civil-military fusion in space or new space infrastructure.

Addressing challenges: infrastructure cooperation and dual-use technologies

Because of its membership in the ESA, Germany's space program benefits from the ISS. However, as the ISS is expected to be retired and deorbited by 2030, Germany, as well as the broader European community, may soon lose access to critical space infrastructure that allows it to participate in vital space experiments and exploration.

While collaboration with China is emerging as an opportunity to cope with this lack of international space infrastructure, it presents a challenge to Germany and Europe. As things stand, China is set to allow the first foreign access to its *Tiangong* station to Pakistani astronauts. While China's ILRS project is expected to be constructed and put to use just a few years after the ISS' decommissioning, Germany's participation in this project seems unlikely at this time, as it is a joint project with Russia, a country currently sanctioned by European member states as a result of its war on Ukraine.

A second challenge Germany faces is the use of space for military and defense applications. While the *Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies* (Outer Space Treaty) limits space activities to those with peaceful purposes, space technologies, especially satellites, often have dual-use intent and applications.

This civil-military fusion in space, conducted by Chinese official and private actors, poses not only major challenges to other countries currently conducting large-scale space programs, but also increases the risk of misperception of space activities, lack of accountability for space incidents or confrontations, and lessening governmental oversight. With space designated as international space, and Chinese government agencies cooperate closely with private space companies and non-governmental organizations, Chinese government agencies may also be able to access private or sensitive information, for example, through its satellite services.

As a report for the US-China Economic and Security Commission stated in 2020, "China's approach to modernizing its space presence includes an emphasis on military-civil fusion (MCF) and the development of dual-use technology that buoys both military and economic growth" and "should China's capabilities surpass those of the United States, the erosion of the U.S. military's ability to contest the PLA in a potential future conflict will be at risk."

40 Xinhua, "Scientists from Multiple Countries Granted Access to China's Chang'e-5 Lunar Samples for Research," 2025, https://english.www.gov.cn/news/202504/24/content_WS6809cf71c6d0868f4e8f208d.html.

Such a challenge is also outlined in Germany's 2023 **Strategy on China**, which outlines that "Germany is analysing these capabilities and China's behaviour" in the domains of cybersecurity and outer space" and that "it will coordinate with its partners regarding the respective impacts on its own security interest," in addition to championing international law on these two critical topics.[41] Similarly, a recent report by the Mercator Institute for China Studies also cautioned that "given China's strategic and geopolitical ambitions, any collaboration should be vetted thoroughly, provide clear benefits to European stakeholders, and include safeguards to ensure that no technology or know-how is compromised in ways that could jeopardize economic or national security" in the face of recent joint ventures attempts between European and Chinese companies.[42]

Thus, cooperation with Chinese official agencies and research institutions may facilitate a rise in China's military capabilities and certain Chinese projects, such as the BeiDou satellite system, may offer restricted uses for German researchers.

Policy recommendations for European space actors and stakeholders

Space diplomacy is not restricted to bilateral cooperation; both China and European stakeholders, either through the EU or the ESA, have engaged in it over the past decade. In addition to reforming policy action at national government level, European policy action on space is crucial, especially as technologies rapidly advance and the space capabilities of countries—including China—are increasing.

At the European level, when China launched its *Chang-e 3* lunar orbiter mission, the European Space Agency provided tracking and command support throughout the launch and *Chang-e*'s eventual landing on the moon in November 2013.[43] In 2015, the ESA and CAS announced a joint mission titled the Solar-wind Magnetosphere Ionosphere Link Explorer (SMILE) to study the solar system. The mission and its spacecraft are currently expected to launch in early 2026, following almost a decade of research and construction.[44] Currently, the European Union is supporting a project on unmanned aerial vehicles for non-earth communications using 6G through its Horizon Europe funding scheme, involving three Chinese partner universities (Tsinghua University, Southeast University, and Xidian University), until 2027.[45]

However, in recent months the European Union has also moved to restrict the participation and funding Chinese organizations can receive on space-related research. In December 2025, the European Union updated its *Horizon Europe Work Programme (2026-2027),* limiting legally-established organizations from China from participating in sensitive funding schemes related to the cluster on digital, industry, and space—and explicitly bans the participation of

41 Federal Government of Germany, "Strategy on China," p. 56, March 2023, https://www.auswaertiges-amt.de/resource/blob/2608580/49d50fecc479304c3da2e2079c55e106/china-strategie-en-data.pdf.

42 Junosova, Altynay, Arcesati, Rebecca, and Hmaidi, Antonia, "Orbital geopolitics: China's dual-use space internet," *MERICS,* February 11, 2026, https://merics.org/en/report/orbital-geopolitics-chinas-dual-use-space-internet.

43 European Space Agency, "Helping China to the Moon," November 29, 2013, https://www.esa.int/Enabling_Support/Operations/Helping_China_to_the_Moon.

44 European Space Agency, "Smile factsheet," 2026, https://www.esa.int/Science_Exploration/Space_Science/Smile/Smile_factsheet2.

45 Horizon Europe, "Unmanned Aerial Vehicles for Non-Terrestrial Communications and Sensing," n.d., https://cordis.europa.eu/project/id/101129618.

universities under China's Ministry of Industry and Information Technology.[46]

Coordinating and working groups between Chinese space actors and German, as well as European space organizations, can be particularly helpful in advancing the peaceful use of outer space and new regulations as space exploration continues. In the early 2010s, a EU-ESA-China Dialogue on Space Technology Cooperation was established, followed up by a 2018 Roadmap for EU-China Cooperation, which explicitly stated the goal of furthering civilian research and innovation between the two stakeholders.[47] While most dialogues are currently restricted to policy coordination, scientific cooperation and exchange can be meaningful not only for Germany's space program, but also for European space advancement either through the ESA, the EU, or via member-by-member participation.

In addition to these policy recommendations, European countries such as Germany have the unique advantage of having an existing transnational space network through the EU and the ESA. But European countries are less active than the US, China, or Russia in, for example, launching objects into space. Beyond boosting domestic investment and innovation in individual member states, cross-border collaboration schemes and mechanisms, such as incentivizing true European space enterprises, can aid European countries in stepping up as space leaders and active participants.

Looking to the future: China as a space power

This report has explored China's vast space ecosystem, its past and present activities, and how space fits into China's larger vision for global governance and the world. In the future, China is likely to continue its space exploration with new strategies and priorities in place.

Over the past decade, China has achieved many firsts in space and has caught up with space programs in the US and Russia. It has become a leader in this field. As space still remains only dimly understood, space governance will become an area of increasing focus for China, its partners, and other countries.

Germany, as a country stepping up its commitments with regard to space, faces unique challenges and opportunities in engaging with China on space, but proactive policymaking and strategic decision-making will allow Germany to work with China on global governance and scientific research.

46 European Commission, "Horizon Europe Work programme (2026-2027) - General annexes," December 11, 2025, https://research-and-innovation.ec.europa.eu/funding/funding-opportunities/funding-programmes-and-open-calls/horizon-europe/horizon-europe-work-programmes_en.

47 European Commission, "Roadmap for EU-China S&T cooperation," October 2018, https://research-and-innovation.ec.europa.eu/system/files/2021-12/cn_roadmap_2018.pdf.

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