

AI for Good Needs Governance, Int'l Cooperation

Dialogue

By BI Weizi & LONG Yun

Dr. Salvatore Aricò, an Italian biologist, ecologist, oceanographer and marine policy expert, has worked at the science-policy interface for nearly 30 years, contributing to initiatives such as the Pilot Analysis of Global Ecosystems, the Millennium Ecosystem Assessment, as well as the Global Environment Outlook and Global Biodiversity Outlook.

He spoke with *Science and Technology Daily* at the recent 2025 World Science and Technology Development Forum in Beijing, to share his views on how AI accelerates scientific and technological development, how to better govern AI development and application, and the necessity of international collaboration in the AI era.

AI accelerates sci-tech development

It is widely acknowledged within the scientific community that the use of AI could accelerate scientific discovery, redefine the boundaries of scientific research, and make knowledge more accessible.

Aricò said that, in the AI era, large language models and AI are the two most promising areas that could lead to new discoveries and progress in scientific and technological development, especially with regard to environmental sustainability.

Advancements in sensing and measurement technologies have led to an explosion of data in the physical and biological sciences. AI is essential for efficiently analyzing and interpreting data



Dr Salvatore Aricò speaks at the 2025 World Science and Technology Development Forum in Beijing, October 27, 2025. (PHOTO: VCG)

on this scale, which is critical for areas such as environmental health, advanced materials and energy systems, he said.

In manufacturing, AI is already transforming the early stages of discovery, reducing the time needed to progress from experimentation to scalable solutions. "Today the findings of scientific research, observations, the analyses of ensuing data, models, projections and forecast — all these efforts driven by science and technology, cannot remain in an ivory tower, in a scientific bubble," Aricò said, adding that AI is a powerful tool to accelerate sci-tech development and bring real benefits to all people.

AI governance is necessary

According to Palo Alto Networks, IBM and Domino Data Lab, AI governance

comprises the policies, principles and practices that guide the responsible and ethical development, deployment and use of AI systems. The aim is to ensure that AI innovation is aligned with organizational goals, while mitigating risks such as bias, privacy violations, security threats and a lack of accountability.

To make the most of AI's power and unlock its full potential, Aricò said AI governance is necessary to manage risks, ensure ethical use and maintain accountability for AI systems, which are increasingly influencing critical decisions in areas such as hiring and finance.

People are now divided by the threats and opportunities that AI poses. "You need to assess the positive and negative impacts of AI, then decide how

much this new technology should be regulated," Aricò said, adding that a balance must be struck between allowing science and technology to unfold independently and managing their development and application within a framework.

International cooperation is essential

The world in which we live is characterized by multiple crises and increased polarization. However, it is also a world rich in opportunities, in which science and technology can contribute to actionable solutions, Aricò noted.

"Making sure the knowledge generated through science is actionable is not an easy endeavour. It requires international cooperation," he said. In addition, he believes that scientists from around the world should collaborate with each other, and policymakers from all countries should fully understand the importance of science and technology cooperation.

"These efforts also entail the need to educate the next generation of scientists — scientists who can understand complex problems through interdisciplinary and transdisciplinary methods, and provide meaningful, timely and non-prescriptive advice to policymakers," he said.

Last year, the International Science Council (ISC) announced a partnership with the China Association for Science and Technology, relating to early- and mid-career scientists. This partnership will nurture early- and mid-career scientists from China through dedicated efforts. "In the future, we'll have more and more collaboration projects with ISC members," Aricò said.

Letter to the Editor

Five-Year Plans: A Roadmap to Chinese Modernization

By Marcelo Muñoz

I have had the privilege of living through and studying, since 1978, the entire process of China's reform and opening-up. For more than four decades, I have witnessed how each Five-Year Plan has served not only as an economic guide but also as a political, social and philosophical compass marking the country's path. The 14th Five-Year Plan (2021 — 2025) is yet another example of the coherence and predictability of Chinese planning, which has made China both a reliable partner and a key actor in the global governance of the 21st century.

China's Five-Year Plans are far more than economic planning documents. They are the outcome of a collective process that mobilizes thousands of experts, academics, officials and representatives from all levels of the Communist Party of China (CPC), from the most remote provinces to the central organs of power in Beijing. Their formulation involves millions of people through consultations, sectoral studies and strategic debates. This participatory and scientific approach ensures that the plan is not an imposed decree, but a shared roadmap embraced by society as a whole.

The 14th Five-Year Plan has focused on three main goals: consolidating modernization, reinforcing technological self-sufficiency, and promoting high-quality development. Over these years, China has taken firm steps toward an economy driven by what it calls "new quality productive forces" — innovation, digitalization, AI, clean energy and biotechnology — laying the foundations for a model that goes beyond traditional industrial capitalism. It is a system that integrates science, technology and social well-being under the guidance of the state.

The results are indisputable. China has become the world's leading country in the number of patents filed, proving that creativity and innovation are not the exclusive domain of the West. Its leadership in electric vehicles, renewable energy, telecommunications, and quantum technology demonstrates a development model that looks confidently toward the future. At the same time, the country has maintained social stability and national cohesion — elements that appear increasingly fragile in the Western world.

Another milestone achieved through this 14th Five-Year Plan is the eradication of extreme poverty in 2021. More than 800 million people have been lifted out of poverty over four decades — an unprecedented achievement in human history. Beyond the numbers, this reflects a profoundly Confucian philosophy: The well-being of the people is the measure of good governance.

In China, development is not an end in itself, but a means to achieve social harmony and balance. This vision extends outward through China's cooperation with developing countries, under the principle of "winning together or no one wins." China does not seek to dominate or impose its model but to offer sustainable alternatives that allow other nations to follow their own path to prosperity.

The leadership of the Chinese President Xi Jinping has been decisive in this process. His vision of "Chinese



Marcelo Muñoz. (COURTESY PHOTO)

modernization" integrates tradition and innovation, patriotism and openness, stability and reform. Under his direction, the CPC has strengthened the country's governance, reaffirming its role as the guarantor of historical continuity and strategic direction. In contrast with the Atlanticist models, now mired in legitimacy crises and exclusionary hegemonies, China offers a path grounded in long-term planning, international cooperation, and mutual trust.

Europe — and especially Spain — should take note of this experience. The old model of blocs, confrontation and mistrust has failed. The European Union needs a new governance framework that promotes stability, positive interdependence, and dialogue with China. The goal is not to imitate China's system but to understand it and find avenues of collaboration that benefit both sides. The predictability offered by China's Five-Year Plans is a strategic asset for any country seeking long-term relations with the world's second-largest economy.

Looking ahead, the 15th Five-Year Plan (2026 — 2030) — to be approved at the upcoming "Two Sessions" — the annual plenary sessions of lawmakers and advisers — will mark a line that is both continuous and forward-looking. Continuous, because it will uphold the principles that have made China a stable, modern and people-centered country; forward-looking, because it will emphasize the development of new productive forces, self-reliance in science and technology, and a deeper opening to the world.

Those of us who have had the privilege of studying the Five-Year Plans know that China delivers on its objectives. That is its greatest credential as an international partner. Its planning is not propaganda — it is commitment. And that commitment has made it possible for a once-impoverished and war-torn country to become a pillar of global stability within just half a century.

For those who truly wish to work with China, understanding its Five-Year Plans means understanding the soul of its development. They are living proof that coherence, perseverance, and rational planning remain the best tools to build the future.

Marcelo Muñoz is the president of the Cátedra China Foundation, ambassador of Friendship with the Chinese People, and the dean of Spanish Entrepreneurs in China.

Ding Ware's Lustrous, Snow White Legacy

Traditional Eastern Wisdom

By BI Weizi

Celebrated as one of the "Five Great Kilns" that produced porcelain in ancient China, the Ding kilns in the Song dynasty were located in what is now Quyang county, Hebei province. At the time, the area was under the administration of Dingzhou, hence the name "Ding kilns."

Ding ware is a type of high-fired, white porcelain, characterized by its white glaze, copper-bound rim and exquisite decoration, which is engraved, etched or imprinted. Popular motifs in-

clude waves, fish, animals, birds, flowers and children at play. Engraved floral decoration was the primary form of ornamentation in early Song porcelain. Once this technique became popular, it was combined with comb-etched images to create a secondary form of decoration. For example, the center of a flared dish might feature a carved flower surrounded by etched leaf outlines, creating parallel lines that represent the leaves' veins.

One of the most significant contributions of Ding potters was the invention of the inverted firing method. The challenge of warping that occurred when firing thin Ding bowls and plates in an upright position, prompted the potters to devise a novel solution. They

devised a method of firing the vessels upside down. In order to do this, the glaze on the rim had to be scraped away so that the vessels would not stick to the saggar, a box made of fireclay in which delicate ceramic pieces are fired. This method spreads the weight of the vessels over a wider area, solving the

warping issues.

Among the "Five Great Kilns" of the Song Dynasty, the Ding kilns are the only ones to produce white porcelain, for which they were famous in their time.

In 2008, the "Ding porcelain firing technique" was inscribed on the list of national intangible cultural heritage.



A piece of Ding ware is on display in Henan Museum. (PHOTO: VCG)

Eligibility for Joining Space Mission

Science Outreach

By FU Yifei and BI Weizi

On the morning of October 30, the Shenzhou-21 spacecraft launched from the Jiuquan Satellite Launch Center in northwest China on a six-month space mission, carrying a three-member crew.

The crew consists of Zhang Lu, the commander of the mission with a previous space trip under his belt, and debuting taikonauts Zhang Hongzhang, a payload specialist, and Wu Fei, a flight engineer.

People often wonder what kind of scientists can go to space. Pang Zhihao, chief science communication expert for national space exploration technology, explained the criteria to *Science and Technology Daily*: To be selected for

space missions, the taikonauts must be well-rounded professionals with both scientific research capabilities and spaceflight adaptability.

What do scientists do in space?

Pang said scientists generally work as payload specialists. They must be able to operate experimental equipment independently, process space experimental data, and complete complex and important scientific research projects that can be carried out only in the unique environment of space.

They must also possess strong professional research capabilities and outstanding research achievements in a specific scientific field.

Zhang Hongzhang, for example, is a researcher in high-energy-density battery technology. He designed a power supply experiment project onboard on the Shenzhou-21 mission, aimed at solving key technical problems in space power supply.

This research is closely related to his professional background and repre-

sents an important area of research in aerospace. The PhD holder has also conducted several other scientific experiments, including space science experiments on rodents.

Not all scientists meet the requirements for spaceflight, and payload specialist selection is usually linked to specific space missions. For example, scientists specializing in biology and medicine are given priority for space life science experiments, while experts in astronomy and physics are preferred for space astronomical observation missions.

Are the physical requirements high?

Pang said in terms of physical condition, tolerance of the space environment and adaptability to it, and psychological qualities, astronauts need to have the highest level in both, followed by flight engineers and then payload specialists.

Although the work primarily involves scientific research, payload

specialists must also meet "aerospace" standards in terms of physical fitness. The challenges that the human body faces in space far exceed those on Earth, so payload specialists need to have strong physical endurance.

For example, during the launch of the spacecraft, the body must be able to withstand gravitational forces three to four times its own weight, while for re-entries, it is two to three times. Besides, the respiratory system must adapt to the confined cabin environment and tolerate low pressure and low oxygen.

During training, the taikonauts must pass a "vestibular function test" (involving a swivel chair or swing) to see if they can withstand severe space motion sickness (similar to motion sickness on Earth) in a weightless environment.

Pang said in order to join the astronaut corps, payload specialists undergo two-and-a-half years of training when they learn about spacecraft structure, the space environment and emergency survival skills. Only after completing all these training courses can they become taikonauts.

Chad's Farming Prowess Grows with Chinese Expertise

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The Chinese varieties produce yields surpassing the local ones by over 35 percent, adding 1.2 million tonnes of food — enough to feed three million people for a year.

Technologies adapted to local conditions, combined with Chad's farming practices, have benefited both sides,

He said.

China values its agricultural cooperation with Chad, the Central African country with vast land and hardworking people, he added. The partnership is based on equality and mutual benefit, with China seeking not just to provide assistance but to share knowledge, build capacity, and train local talent.