

Technology Market Scan

ASIA-PACIFIC

CHINA

R&D spending reports steady growth in 2024

China's research and development (R&D) expenditure rose 8.9 percent year-on-year to more than 3.6 trillion yuan (about \$506.41 billion) last year, as per the National Bureau of Statistics. Over the 2021-2024 period, the country's R&D spending rose at an average annual rate of 10.5 percent – one of the fastest paces among major economies – making China the world's second-largest R&D investor, said Zhang Qilong, an NBS senior statistician.

R&D intensity, which looks at expenditure as a share of GDP, edged up 0.11 percentage points to 2.69 percent last year. In 2024, China's spending on basic research, applied research, and experimental development grew by 10.7 percent, 17.6 percent, and 7.6 percent, respectively, compared with the previous year.

Enterprises have accounted for more than 75 percent of the country's total R&D spending for many years running, and their contribution to the overall increase in such spending reached 77.1 percent, cementing their role as the main engine of China's R&D spending expansion.

<https://www.chinadaily.com.cn/>

INDIA

State Mining Readiness Index (SMRI) 2025

The Ministry of Mines on Thursday released the State Mining Readiness Index (SMRI) along with state rankings. The index for tracking how well states are performing in facilitating mining activity and implementing reforms. The move also fulfils an announcement made in the Union Budget 2025-26.

The index assesses states across several indicators, such as auction performance, early mine operationalisation,

exploration focus, and sustainable mining practices for non-coal minerals. These parameters are to measure readiness, efficiency, and the overall progress of states in the mining sector.

Under the SMRI, States have been divided into three categories based on their level of mineral endowment.

- In Category A, which includes mineral-rich states, Madhya Pradesh, Rajasthan, and Gujarat have secured the top three ranks.
- In Category B, Goa, Uttar Pradesh, and Assam are the leading performers.
- In Category C, Punjab, Uttarakhand, and Tripura hold the top positions.

This classification allows comparison among states with similar geological capacities rather than absolute rankings.

The Ministry stated that the index is meant to act as a benchmarking tool to measure performance across states. It aims to encourage competition among them and identify areas needing policy attention. The framework is also expected to help the government assess the impact of mining-related initiatives and reforms at the state level.

The release of the SMRI is part of the Centre's plan to improve governance and bring uniformity in how mining operations are monitored and managed across India. By linking rankings with measurable outcomes, the Ministry hopes to promote a more structured and transparent system for resource development.

The index provides a single reference point for tracking state performance in the mining sector. It is intended to promote accountability and help strengthen the overall framework of mineral governance in India.

<https://www.angelone.in/>

INDONESIA

Waste-to-energy technology

The Government of Indonesia officially launched a new milestone in

national waste management through the issuance of Presidential Regulation (Perpres) Number 109 of 2025 concerning Urban Waste Handling through Waste Processing into Renewable Energy Based on Environmentally Friendly Technology.

This policy marks a major change in the direction of national environmental and energy development towards a modern, efficient, and sustainable waste management system. The regulation is an answer to the national waste emergency, which has been a source of pollution, environmental damage, and public health threats.

Minister of the Environment/Head of the Environmental Control Agency (KLH/BPLH), Hanif Faisol Nurofiq, said that through this Presidential Regulation, the government emphasises that waste is no longer just an environmental burden, but a renewable energy resource that can be processed into electricity, biogas, biofuel, renewable fuel oil, and various other derivative products with environmentally friendly technology.

"Handling waste into renewable energy is a real step towards transforming the national waste management system based on environmentally friendly technology. We want to ensure that waste generation in the regions can be processed in accordance with good environmental rules and the energy produced can be used as part of clean energy, so that what enters the Final Processing Site (TPA) later is only residue," said Hanif.

Hanif said that Presidential Regulation 109/2025 brought a number of important improvements compared to the previous policy, Presidential Regulation Number 35 of 2018.

First, if the previous regulation focused on accelerating the construction of Waste Power Plants (PLTSa) in 12 priority locations, this new regulation expands the target to all regions that meet the criteria according to the regulations.

Second, this Presidential Regulation emphasises the government's role in the development of Waste Processors

into Electric Energy (PSEL), including investment support and the selection of PSEL Development and Management Business Entities (PSEL).

Third, the government introduced a breakthrough in accelerating licensing and funding mechanisms so that projects run more efficiently and sustainably.

Fourth, this Presidential Regulation also provides a guarantee of investment certainty through the determination of a fixed electricity tariff of USD 0.20 per kWh for 30 years, as well as the obligation of PT PLN to buy electricity from processed waste. The scheme is expected to attract investors, strengthen the sustainability of the project, and position PSEL as an important part of the national clean energy transition.

Fifth, local governments are obliged to prepare land and ensure that the supply and transportation of waste to PSEL facilities run sustainably.

Through cross-ministerial collaboration, green investment support, and active participation of local governments, we are setting a new direction towards a clean, healthy, and sustainable Indonesia

The government targets the implementation of this Presidential Regulation to be focused on metropolitan cities and big cities with daily waste generation above 1,000 tons, as well as landfills that have exceeded capacity or are limited in land.

The technology used is expected to be able to significantly reduce the volume of waste while producing clean energy to support national energy needs and the Net Zero Emission 2060 target.

<https://wartaekonomi.co.id/>

JAPAN

First national AI strategy

Japan is preparing its first national AI basic plan to boost AI adoption in public institutions and beyond. The draft sets out four core policies to balance innovation with risk management, with final Cabinet approval expected later this year. The plan targets low AI usage rates in the country, around 20% for individuals and 50% for corporations. Policies include

accelerating AI adoption, strengthening development capacity, leading in AI governance, and fostering continuous social transformation toward an AI-integrated society. Government bodies and municipalities are expected to lead by example, improving efficiency and enhancing defence capabilities.

High-quality data, a key factor in AI accuracy, is a national strength. The plan stresses the importance of human-AI collaboration, calls for robust copyright and liability frameworks, and identifies risks such as errors, disinformation, and threats to national security. Authorities plan thorough investigations of rights infringements and aim to help shape international AI rules.

The draft will be presented at the AI strategy headquarters meeting, chaired by Prime Minister Shigeru Ishiba, before being refined by an expert panel and finalised within the year.

<https://dig.watch/>

MALAYSIA

Measures to support high value sectors

Malaysia has announced several measures under its Budget 2026 to support high value sectors, including investing MYR 550 million (\$130 million) in the semiconductor ecosystem. Under the National Semiconductor Strategy (NSS), Bank Pembangunan Malaysia Berhad (BPMB) will provide MYR 500 million in soft loans to support high-value-added activities such as research and development (R&D), especially by local companies that support the electrical and electronics (E&E) ecosystem.

Meanwhile, a total of MYR 200 million (\$47.35 million) under the Strategic CoInvestment Fund (CoSIF) will provide matching grants to small and medium-sized enterprises (SMEs) and mid-tier companies that strengthen the supply chains of key sectors, through Equity Crowdfunding (ECF) and Peer-to-Peer (P2P) financing platforms.

An allocation of MYR 180 million (\$42.61 million) under the NIMP Industry Development Fund (NIDF) to finance industry development programs

in high-impact sectors such as pharmaceutical, semiconductor, artificial intelligence (AI), digital and sustainability. It was also highlighted that government-linked investment companies (GLICs) will continue to catalyse domestic investment.

Under GEAR-uP, GLICs will increase their domestic investment to MYR 30 billion (\$7.1 billion), up from MYR 25 billion (\$5.92 billion) this year. KWAP will provide MYR 1.2 billion (\$280 million) under Dana Pemacu to undertake co-investments with private fund managers (co-GP) to finance emerging companies or markets in sectors, such as energy transition, food security and the digital economy.

Under Khazanah's Mid-Tier Company Program, MYR 250 million (\$59.19 million) is provided to strengthen the capacity of mid-tier companies. It is noted that start-ups have contributed MYR 1 billion (\$240 million) to gross domestic product (GDP) and generated 82 thousand job opportunities.

It is noted that in line with the aspirations of the Malaysia Venture Capital Roadmap, KWAPs' Dana Perintis and Khazanah's Jelawang Capital have increased their investments to MYR 750 million (\$178 million) from MYR 550 million (\$130 million).

The government also proposes to improve the existing Venture Capital Tax Incentive through special tax rates and dividend tax rates for ten years. Since its introduction, MyCIF has attracted over MYR 6 billion (\$1.42 billion) in ECF and P2P capital into micro, small, and medium-sized Enterprises (MSMEs), nurturing local companies to expand their footprint globally.

For agri-entrepreneurs, he said Agrobank will provide MYR 1.1 billion (\$260 million) in financing for entrepreneurs to grow their businesses and support automation and mechanisation in agricultural projects. KPKM NextGen Agropreneur Program will also provide start-up grants and agricultural project development grants with a fund of MYR 20 million (\$4.73 million), he added.

To encourage automation for higher crop productivity, the government also proposes the Agricultural Sector Automation Incentive for crops,

livestock, apiculture, aquaculture and deep-sea fishing to include selected livestock through closed-house farming.

<https://technode.global/>

MONGOLIA

Critical minerals policy and strategic development

The draft law to support critical mineral projects introduces the principle that the Government will approve the list of critical minerals. Professional institutions will conduct studies to determine which minerals in Mongolia are in global demand yet undersupplied, and how to attract investment into those deposits. The draft also outlines how Mongolian citizens will benefit once such deposits are developed, investments are made, and extraction begins.

Currently, Mongolia's legal framework does not define the "benefits" of the mining sector. We tend to view benefits only in economic terms — for example, by focusing on the percentage of royalties and their distribution. Yet, beyond that, there is the concept of social benefit in its classical sense. The number of professionals trained and employed through a project affects not only the employees themselves but also their families and the local economy. Building schools, kindergartens, and infrastructure in mining communities should likewise be considered social benefits.

If the benefits of resource use are clearly defined, it would enable broader discussions with investors and project implementers. Hence, the draft law attempts to clarify what constitutes the "benefit" of a mining project — and many proposals have already been submitted. In short, laws should be clear, intelligent, and adaptable — but always under the guiding principle of sound reasoning.

Another key issue is defining the "impact area". Project implementers often compensate households affected by mining operations. However, current laws provide no clear definition of what an impact zone is or who qualifies as an impacted resident. This draft seeks to establish such a definition. If agreed upon through thorough consultation, this would make future negotiations

more effective and transparent. The draft also aligns with other laws to prevent legal conflicts. The new draft addresses this by introducing coordinated amendments to the Law on Land.

Another conceptual area concerns "resource taxation". In mining, projects typically recover their initial investment before generating profit — a process that can take years. For example, Mongolia has not yet received profit from Oyu Tolgoi, and may not until 2039. Despite this, the government committed to holding a 34% stake, which also requires additional investment as the project expands. Instead of maintaining such obligations, it would be more efficient to collect a fixed tax from sales revenue, directing it straight to the National Wealth Fund.

<https://en.mininginsight.mn/>

NEW ZEALAND

Crown Minerals Amendment Act 2025

The Crown Minerals Amendment Act 2025 was enacted on 5 August 2025. The Act removes the ban on new oil and gas exploration beyond onshore Taranaki and signals the Government's intent to reinvigorate investment in petroleum exploration.

The Act amends the decommissioning regime to provide an appropriate balance between minimising risk to the Crown and the need to increase investment confidence, by introducing Ministerial discretion to assign liability to former permit holders or those who held an interest in a permit.

The Act also makes other changes to the Crown Minerals Act 1991, including:

- Changing the purpose of the Act from 'manage' to 'promote' prospecting for, exploration for, and mining of Crown-owned minerals for the benefit of New Zealand.
- Introducing the ability for the Minister for Resources to issue a Government Policy Statement on petroleum and minerals.
- Allowing for new methods to allocate petroleum permits.

- Providing greater flexibility under the existing exemption and deferral powers for decommissioning to consider exemptions for either the whole or parts of particular items of infrastructure.
- Providing greater flexibility and clarity around what types of financial securities may be accepted.
- Extending the confidentiality period for speculative prospectors who were impacted by the ban.
- Introducing a new Tier 3 permit category for small-scale, non-commercial gold mining.

<https://www.mbie.govt.nz/>

REPUBLIC OF KOREA

AI infrastructure development

The Republic of Korea is accelerating its AI development through a major partnership with NVIDIA, deploying over 260,000 GPUs across government, cloud providers, and industrial leaders. The Ministry of Science and ICT is investing in sovereign AI infrastructure, while companies, including Samsung, SK Group, Hyundai, and NAVER Cloud, are building AI factories and expanding GPU capacity to support physical and enterprise AI workloads. The initiative seeks to boost innovation in manufacturing, automotive, and telecoms, supporting large-scale AI model training, validation, and deployment.

The Republic of Korea's organisations are developing sovereign large language models through public-private partnerships with LG AI Research, SK Telecom, NC AI, Upstage, and NVIDIA. The infrastructure will allow start-ups, researchers, and enterprises to access high-performance computing for AI applications and industrial digital twins.

The Republic of Korea is also advancing AI-enabled quantum computing and scientific research. The Korea Institute of Science and Technology Information (KISTI) is creating a Centre of Excellence using NVIDIA supercomputers, NVQLink for quantum processors, and PhysicsNeMo for physics-based AI models.

The goal is to strengthen research collaboration, AI innovation, and economic growth. Start-ups gain support through NVIDIA Inception and N-Up AI programs, accessing computing infrastructure, AI tools, and investment guidance to speed growth and industrial AI adoption.

<https://dig.watch/>

SINGAPORE

Water technology research

The Government has allocated \$220 million under the Research, Innovation and Enterprise 2025 (RIE2025) Urban Solutions & Sustainability (USS) domain to drive new initiatives in water technologies and resource circularity. This draws from the National Research Fund, under the five-year RIE2025 tranche. These initiatives will help the country achieve the Singapore Green Plan 2030 targets while optimising limited resources.

Of this, the National Environment Agency (NEA) will administer a new \$80 million Closing the Resource Loop (CTRL) Funding Initiative that supports the Green Plan and the Zero Waste Masterplan. The funding will support research and development (R&D) on sustainable resource recovery solutions for key waste streams such as e-waste, plastics and food, and finding useful and safe applications for treated waste residues.

The new \$80 million CTRL Funding Initiative will build upon the R&D work carried out under the earlier Waste-to-Energy (WtE) programme and the Closing the Waste Loop (CTWL) Funding Initiative. CTRL will contribute to the country's efforts to pursue a circular economy approach under the Zero Waste Masterplan to achieve a sustainable, resource-efficient, and climate-resilient Singapore.

Another \$87 million has been allocated to support R&D efforts in three water technology focus areas: (i) Desalination and Water Reuse; ii) Used Water Treatment; and iii) Waste Reduction and Resource Recovery under the RIE2025. The funding will go towards supporting the Nanyang Environment and Water Research Institute (NEWRI) and Separation Technologies Applied

Research and Translation (START) under the Centre of Excellence (CoE) Programme. These Centres of Excellence have amassed considerable capabilities in R&D, attracting talent and investments from all over the world, and enriching Singapore's water industry.

The investments in these Centres of Excellence will go towards developing high-impact solutions for Singapore's national water needs. It will also be an economic multiplier and will spur private sector R&D spending, job creation and technology spin-offs in the water industry and adjacent sectors.

In RIE2025, PUB will require START to build on its existing achievements and deepen its expertise in separate technologies for desalination through the design and operation of a Desalination Integrated Validation Plant (IVP). The IVP will integrate the most promising technologies, configure and optimise them at the system level to validate if lower energy consumption and superior performance can be achieved. If successful, the IVP will reduce the system-level energy consumption of desalination to < 2kWh/m³, taking PUB one step closer to attaining net-zero carbon emissions by mid-century.

<https://gwf-wasser.de/>

SRI LANKA

Green Energy Acceleration Plan 2025-2030

The launch of the five-year renewable energy development plan, "Green Energy Acceleration Plan 2025-2030", was presented by the Ministry of Energy, under the patronage of Prime Minister Dr Harini Amarasuriya. The plan outlines key strategies for identifying and implementing renewable energy methods and digital innovations, ensuring their efficient and environmentally sustainable use. It also highlights the economic benefits of renewable energy and its potential to strengthen the country's financial stability.

Prime Minister Dr Harini Amarasuriya stated, "The Ceylon Electricity Board and the Sri Lanka Sustainable Energy Authority have taken the lead in steering Sri Lanka towards sustainable energy solutions."

The Ministry of Energy has introduced a valuable five-year action plan, the Green Energy Acceleration Plan 2025-2030. This initiative will promote sustainable energy consumption, identify renewable energy sources, and provide a comprehensive understanding of energy conservation and storage methods.

The primary objective of this plan is to reduce electricity demand and lower the initial cost of electricity in Sri Lanka by identifying and promoting the use of renewable energy sources. The goal is to expand renewable energy production over the next five years and provide affordable electricity to all Sri Lankans.

The aim to reform energy acts in three key areas: Ensure the provision of affordable and reliable energy through renewable sources such as solar, wind, and hydropower while minimising carbon emissions; Educating the public on the significance of renewable energy and digital technologies and their role in accessing modern and reliable energy; and introducing advanced energy conversion methods to modernise the energy sector, aligning Sri Lanka with global advancements in the field.

It encompasses various aspects, including the identification and development of energy sources, public awareness initiatives, implementation timelines, allocated funding, and necessary legal frameworks. To ensure the success of this project, it is essential to leverage both local and international partnerships.

<https://www.news.lk/>

THAILAND

First climate change act approved

Thailand's first Climate Change Act sets up national oversight, carbon pricing, an ETS, carbon tax, climate fund, and strict reporting rules to drive the country toward Net Zero. Thailand has taken a historic step by introducing its first-ever Climate Change Act, a landmark law set to transform the country's economic and environmental systems.

The Cabinet approved the principles of the Climate Change Act on December

2, 2025, making it Thailand's first master law on climate governance. It establishes a national framework for managing greenhouse gas emissions, fulfilling commitments under the United Nations Framework Convention on Climate Change (UNFCCC) and driving Thailand toward the goals of carbon neutrality (Net Zero) and net-zero emissions.

1) Four national-level governance bodies established

The legislation mandates the creation of four major committees:

1. National Climate Change Policy Committee,
2. Climate Fund Committee,
3. Climate Fund Evaluation Committee, and
4. Greenhouse Gas Management Organisation

The Climate fund will collect revenue from carbon-related mechanisms — such as carbon taxes, fees, and carbon credit trading — and allocate it to clean energy investment, community adaptation projects, and greenhouse gas reduction programmes. Public and private sectors will be required to collect and report emissions, carbon sinks, and net reductions. A national greenhouse gas registry will be established to ensure transparency.

The Act requires a national master plan and action plans to ensure unified climate targets across all ministries and agencies, with short-, medium-, and long-term emission reduction pathways. The law lays the foundation for a Thai ETS, enabling businesses to buy, sell, transfer, and hold allowances for greenhouse gas emissions. A national registry and allocation rules will govern the system.

The Act accommodates CBAM measures, meaning imported goods may face carbon charges based on emissions from their countries of origin — aligning Thailand with emerging international standards. The draft law introduces a carbon tax for products or activities with significant emissions — a key instrument enforcing the polluter pays principle. Certified domestic carbon credits will be recognised as legal property. They can be bought, sold, transferred, or used to offset

emissions, with mandatory registration under the Greenhouse Gas Management Organisation.

Beyond mitigation, the Act requires national, provincial, and local adaptation plans to address climate risks, such as floods, droughts, and extreme weather, which will be supported by government resources.

<https://www.nationthailand.com/>

UZBEKISTAN

Tax-free zone for AI and data centre projects

Uzbekistan offers tax breaks, cheap electricity, and renewable-energy support, with most sites planned in Karakalpakstan to help build the country's AI ecosystem by 2030. Uzbekistan has announced a major package of incentives to attract more than €85 million in foreign investment into artificial intelligence (AI) and data infrastructure.

The programme, introduced by presidential decree, aims to position the far-western Karakalpakstan region as a site for large data centres and high-tech projects, backed by generous tax incentives and government-supported infrastructure development.

Investors will receive significant tax breaks and access to low-cost electricity, while companies will be required to invest their own capital and adopt energy-efficient solutions, including renewable power and battery storage.

Ongoing upgrades to the country's fibre-optic networks and telecom infrastructure are gradually improving the country's digital capacity, according to assessments by Uzbekistan's Ministry of Digital Technologies and a UNDP study on Uzbekistan's digital economy. These developments, combined with relatively low operating costs and Uzbekistan's position between larger Eurasian markets, make the country a potential practical location for data-centre and compute operations for firms looking to broaden their geographic footprint.

Karakalpakstan is an autonomous region in Uzbekistan's northwest and one of the areas most affected by the Aral

Sea crisis. The Aral Sea, once among the world's largest inland lakes, began shrinking in the 1960s after large-scale irrigation projects diverted the rivers that fed it. The government's decision to anchor high-tech and AI-related projects in the region is seen as an attempt to offset these long-term challenges by fostering new industries, attracting investment, and creating a more resilient economic base.

According to Kamola Sobirova, Advisor to the Minister of Digital Technologies, the region offers a rare combination of energy availability, climate conditions, and land resources needed for large-scale data and AI infrastructure. Cooling systems can account for up to 70 per cent of a data centre's power consumption, she noted, and the region's position within the north-western part of the national power grid — where electricity production exceeds consumption by roughly 10–15 per cent — ensures a more stable supply environment.

Although traditional data centres often rely on large volumes of water for cooling, projects planned in Karakalpakstan are expected to adopt low-water or water-free cooling solutions, given the region's well-documented water scarcity and the emphasis on energy-efficient technologies in recent investment announcements. The area's relatively cool climate, with an average annual temperature of 12 to 14°C, also enables the use of natural "free cooling," reducing dependence on water-based systems.

The initiative is also expected to drive socio-economic development by creating skilled jobs, attracting investment into IT and digital services, and stimulating the growth of supporting industries, such as logistics, cooling systems, and equipment maintenance.

<https://www.euronews.com/>

VIET NAM

New law strengthens technology transfer

The National Assembly passed the amended Law on Technology Transfer, marking an effort to refine the legal framework, encourage innovation, enhance enterprises' capacity to absorb

new technologies, and create further advancements for technology transfer, in line with the Party's guidelines and state policies.

One of the key highlights of the law is the addition of clear definitions of green technology and contactless technology transfer, a form of transfer through electronic or digital environments, reflecting the strong development of digital transformation and online technology cooperation models.

The law introduces many new priority policies: particularly encouraging the transfer of high technology, strategic technology, advanced technology, green technology, and clean technology from abroad to Vietnam; promoting the diffusion of technology from foreign-invested enterprises (FIEs) to domestic enterprises; and strongly supporting technology transfer activities in disadvantaged areas, mountainous regions, islands, and in the agricultural and rural sectors.

The law emphasises investment, tax, land, and credit incentives for FIEs' projects that involve technology transfer,

human resource training, or the development of research, design, and manufacturing capabilities in Vietnam.

To create flexibility and reduce risks when businesses adopt new technologies, the amended Law on Technology Transfer introduces three mechanisms for the first time: temporary technology transfer, allowing testing within a defined scope and timeframe to assess suitability before widespread investment; results-based technology transfer: the value and obligations between parties are established based on the ability to meet technical, economic, and environmental criteria; and controlled testing in technology transfer activities, consistent with the sandbox model currently applied in many innovation fields.

To improve management efficiency, the law adds regulations such as tightening the technology assessment process in investment projects, especially for technologies with restricted transfer or those posing a risk of adverse environmental impact; clearly defining the responsibilities of provincial

People's Committees in receiving, assessing, and licensing technology transfer; strengthening inspection, supervision, and evaluation of the effectiveness of technology transfer using state budget funds; and encouraging the public disclosure of technology transfer information on the national digital platform for science, technology, and innovation management.

Regarding support for businesses and promoting the commercialisation of research results, the law has many support policies such as supporting businesses in technological innovation through the National Technology Innovation Fund and the system of science and technology funds; the state investing in the development of a network of innovation centres, start-up support centres, and intermediary organisations of the sci-tech market; and allowing the state to purchase and disseminate technology for national defence, security, or public purposes.

The law will take effect from April 1, 2026.

<https://vir.com.vn/>