ASIA ECONOMICS ANALYST

China's High-Tech Push: Support for Output, Less for Employment

China in the Long Run
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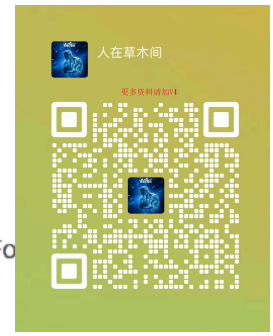


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- Industrial upgrading and technological self-reliance have long been central to China's development strategy. Amid intensifying technology competition with the US, policy has increasingly focused on high-tech and AI-related industries. In this report, we assess whether high-tech sectors can offset the property-sector drag, how far their growth supports employment and household income, and how much data center construction can boost GDP growth in the coming years.
- We define high-tech sectors as high-tech manufacturing (including pharmaceuticals and equipment manufacturing), new energy vehicles, and telecom, IT and software services. These sectors accounted for 38% of industrial production in 2025, up from 33% in 2021, while their share of total fixed asset investment rose from 13% to 18%. In contrast, their employment share increased only marginally, from 10.4% in 2018 to 10.8% in 2023 (latest data available), reflecting the capital-intensive nature of high-tech production.
- High-tech sectors tend to generate less domestic value added, labor income, and employment per yuan of final spending than either property or the broader services sector. Every RMB100 of final spending on high-tech goods and related services generates about RMB73 of domestic value added, compared with RMB90 for property and RMB92 for services sector. Within that, it generates around RMB33 of labor compensation, versus RMB40 for property and RMB46 for services. Job creation is similarly lower in high-tech sectors: each RMB1mn of final spending supports around 3 jobs, versus 4.6 in property and 4.4 across the services sector.
- We estimate that high-tech sectors contributed roughly 1.9pp to annual real GDP growth in 2016–25 and expect a broadly stable contribution of around 2pp annually in 2026–30. By our estimates, high-tech sectors, including upstream spillovers, account for 23% of GDP in 2026, higher than the property sector's 15% share. Although the property downturn is likely to persist, its drag should fade as the sector's GDP share declines. The combined growth impulse from high-tech growth and property contraction should become increasingly positive on net in 2027-30.

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certification and other important disclosures, see the Disclosure Appendix, or go to
www.gs.com/research/hedge.html.



- Data center build-out is a key component of China's AI push and an important part of the "Six Networks" investment initiative (water, power grids, computing, communications, urban underground pipelines, and logistics) outlined in the 15th Five-Year Plan (FYP). We estimate RMB28.4tn "Six Networks" total investment during the 15th FYP, 14% higher than during the 14th FYP. Within computing networks, we estimate data center build-out could add around 40bp to the average *level* of China's real GDP between 2026 and 2030.

China's High-Tech Push: Support for Output, Less for Employment

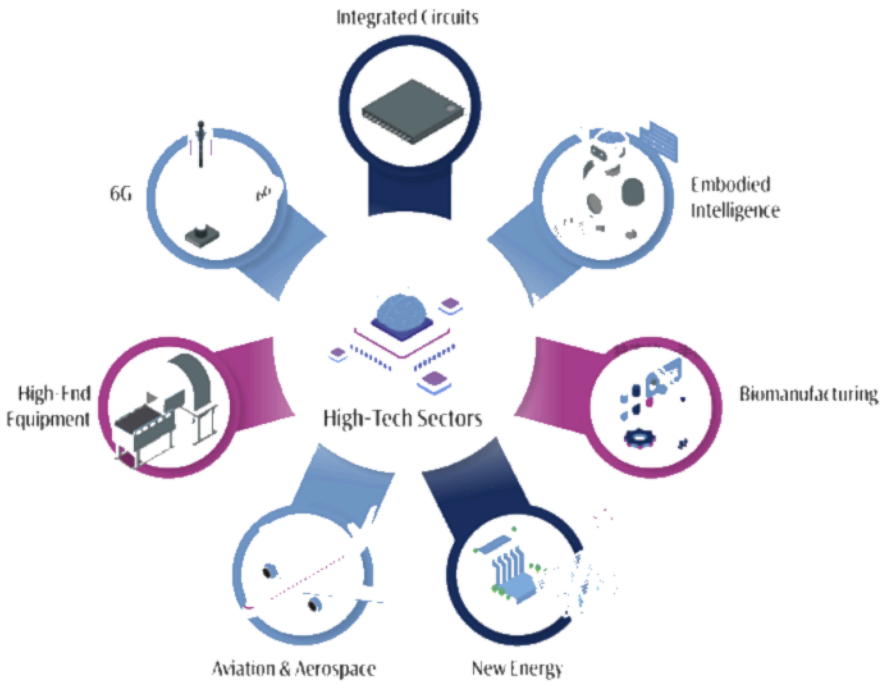
China's policymakers have long prioritized industrial upgrading and technological self-reliance as central to the country's development strategy. From the launch of "Made in China 2025" in 2015 to the emphasis on high-tech industries and AI in the 15th Five-Year Plan (FYP) for 2026–30, policy support has focused on strengthening domestic capabilities and global competitiveness in strategic industries, including semiconductors, advanced robotics, biotechnology, AI and related digital technologies (Exhibit 1).

This agenda has become more urgent amid intensifying technological competition with the US. Recent policy signals on advancing the integration of technological and industrial innovation underscores policymakers' intention to accelerate the commercial application of innovation and AI adoption. Meanwhile, the government has placed renewed emphasis on the broader "Six Networks" initiative – covering water networks, new-type power grids, computing-power networks, next-generation communications networks, urban underground pipeline networks, and logistics networks – as a means of supporting near-term investment while addressing longer-term infrastructure, resilience, and innovation needs.

For investors, the key questions are whether high-tech sectors can generate sufficient growth to offset the continuing drag from the property downturn, how far this expansion translates into employment and household income, and how large a near-term boost the "Six Networks" initiative, especially data center construction, could provide to investment and growth.

In this report, we build on our previous analysis of high-tech manufacturing by broadening the scope to include new energy vehicles (NEVs) manufacturing and telecom, IT and software services sectors. This expanded scope captures key parts of the AI supply chain, from semiconductors and computing equipment production to cloud computing and software services. Using an updated input-output framework, we estimate these sectors' contribution to real GDP growth and assess their implications for the labor market. We also size investment across the "Six Networks" during the 15th FYPs and gauge the growth impact from China's data center construction.

Exhibit 1: Policymakers' Unwavering Support for AI and Technology Sectors



Source: Goldman Sachs Global Investment Research

Stylized Facts on China's High-tech Sectors

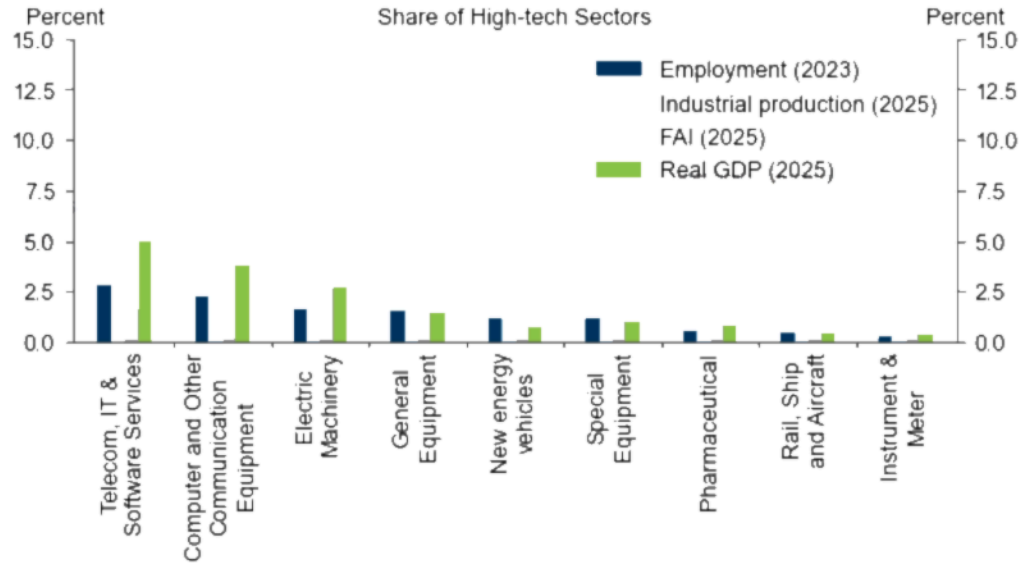
China's high-tech sectors have expanded rapidly over the past decade. Our expanded definition covers high-tech manufacturing—including computers, communications and electronics; electrical machinery, general and special equipment, pharmaceuticals and medical products, instruments and meters, and rail, ship and aircraft manufacturing—as well as new energy vehicle manufacturing and telecom, IT and software services. This scope broadly aligns with the NBS definition of high-tech sectors.

The manufacturing industries in this group accounted for around 38% of industrial production in 2025, up from 33% in 2021 (Exhibit 2). Over this period, their real output grew by an average of 8.3% per year, compared with 5.7% for headline industrial production. Investment in our expanded high-tech sectors, including both manufacturing and services, also grew faster than investment in the broader economy. FAI in these sectors increased by an average of 8.4% per year, compared with 4.7% for total FAI, raising their share of total investment from 13% in 2021 to 18.4% in 2025. Together, these high-tech sectors directly accounted for 16.4% of GDP in value-added terms in 2025, around 6pp more than a decade earlier.

However, these sectors have a much smaller employment footprint, accounting for only 10.8% of total employment in 2023, the latest year available, compared with 10.4% in 2018. Their composition also varies substantially across industries. Computer and communications equipment manufacturing accounts for the largest share of production and investment within the grouping but only 2.5% of employment, while telecom, IT and software services account for the largest share of employment (2.7%). These differences suggest that a larger contribution to production does not necessarily translate into a proportionate increase in employment. The implications for household income also

depend on how the gains from high-tech growth are distributed. We examine these links below.

Exhibit 2: High-Tech Sectors Account for 38% of Industrial Production and 18% of Investment, But Only 11% of Employment



Source: Haver Analytics, CEIC, Goldman Sachs Global Investment Research

High-tech Sector's Transmission to Growth and the Labor Market

Relative to the property sector, high-tech sectors' growing economic importance brings greater exposure to foreign demand and does not by itself necessitate a shift toward consumption-led growth.

China's latest input-output table shows that high-tech sectors rely primarily on domestic investment and external demand[1]. Only around 20% of spending on high-tech products and services comes from consumption by households and government, compared with roughly 70% for the overall services sector (Exhibit 3, left). Instead, nearly half of demand comes from purchases for investment, such as equipment and software, while foreign demand (i.e., exports) accounts for the remaining third. In this respect, the relatively small consumption share resembles that of the property sector, where demand is also dominated by investment, including households' purchases of new properties.

The main difference is high-tech's much greater exposure to foreign demand, particularly within high-tech manufacturing industries, where exports account for nearly half of final demand. A shift in activity from property toward high-tech therefore gives exports a greater role in China's growth outlook, even though high-tech sectors' own export dependence declined somewhat[2].

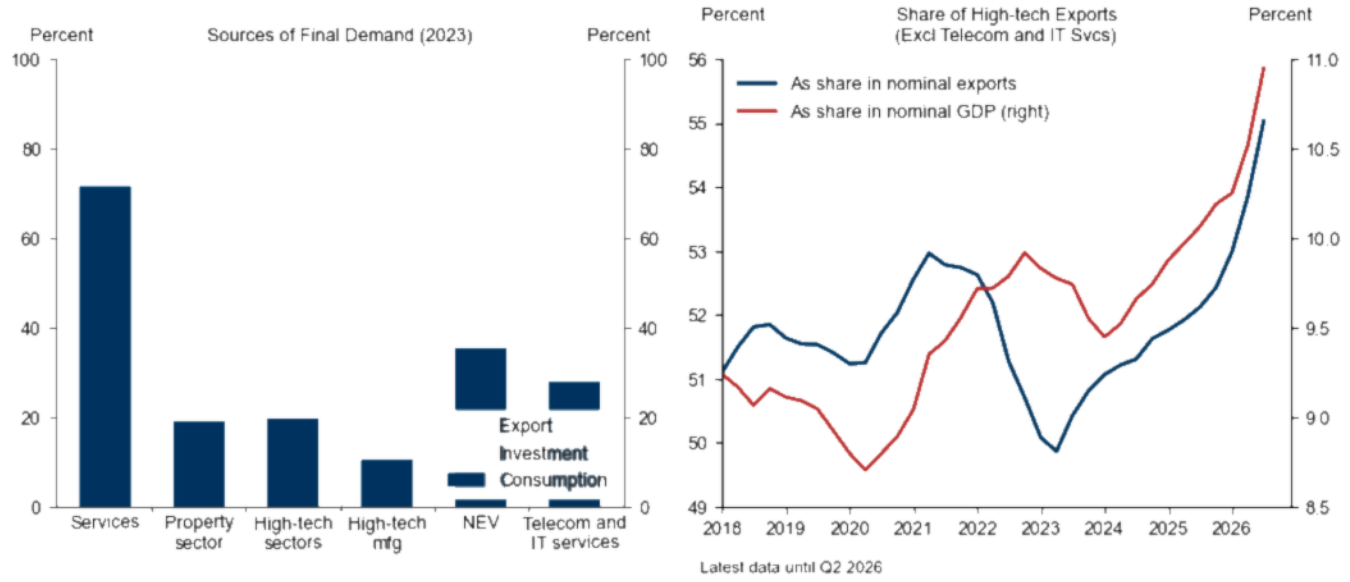
[1] These shares reflect the structure of expenditure in the 2023 input-output table (latest available). They cover purchases for consumption, investment and export, excluding goods and services used as intermediate inputs by domestic producers.

[2] Between 2017 and 2023, their export share of final spending fell by 3.8pp, while the consumption share rose by the same amount. However, this was driven by China's exit from its "zero Covid" policy in 2023 which led to a strong rebound in domestic demand.

High-tech manufacturing has also become a more important contributor to China's export performance. These industries' share within nominal goods exports increased by around 4pp between 2018 and 2025, while their gross exports rose by approximately 2pp of GDP over the same period (Exhibit 3, right). The shares have risen further in 2026, although that is mainly driven by higher prices from AI-related inflation in those high-tech sectors than in the rest of the economy.

Taken together, exports will be an important factor in sustaining high-tech production growth, alongside continued domestic investment. This reliance may partly explain policymakers' lackluster policy support for boosting household consumption.

Exhibit 3: High-tech Sector's Final Demand Is Investment- and Export-Led, with Greater Export Exposure than the Property Sector



Source: Goldman Sachs Global Investment Research, NBS, Trademap, Haver Analytics

Beyond their reliance on domestic investment and exports, high-tech sectors generate less domestic value added and support fewer jobs per yuan of final spending than either the property sector or the overall service sector. We estimate that every RMB100 of final spending on high-tech products and related services generates around RMB73 of domestic value added, including the value created by these industries and their domestic suppliers throughout the supply chain, with the rest leaking abroad through imported inputs. This compares with roughly RMB90 for the property sector – including construction and real estate services - and RMB92 for the overall services sector (Exhibit 4, left). The shortfall reflects high-tech sectors' greater reliance on imported inputs, meaning a larger portion of spending leaks into production abroad. Reducing import reliance is likely one of the reasons behind policymakers' intensified efforts to invest in home-grown high-tech development. Going forward, rising self-sufficiency in areas such as semiconductors will lift the domestic value-added share over time.

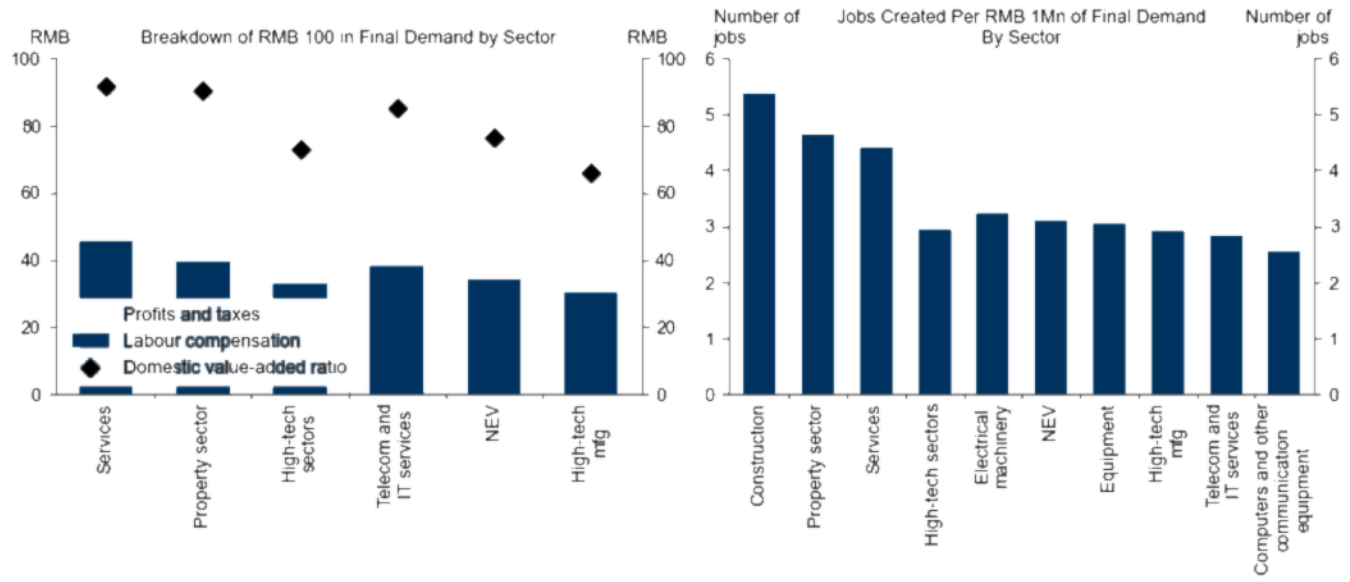
The smaller domestic value-added share also limits how much spending translates into labor income. Each RMB100 of final spending on high-tech output generates around RMB33 of labor compensation across these industries and their domestic suppliers, compared with RMB40 for property and RMB46 for the services sector. Relative to property, the gap mainly stems from greater import leakage, as workers in both sectors receive a similar share of domestic value added at around 45%. By contrast, the services

sector directs roughly 50% of domestic value added to workers, highlighting a much stronger pass-through from final spending to labor income.

Spending on high-tech sectors also supports fewer jobs, suggesting a limited boost to household consumption through employment. Each RMB1mn of final spending on high-tech sectors supports around 3 jobs across these industries and their domestic suppliers, compared with around 4.6 for property and 4.4 for services overall (Exhibit 4, right). This pattern extends beyond high-tech manufacturing sector, as telecom, IT and software services sector also support fewer jobs per yuan of spending than the broader services sector on average.

Taken together, these estimates suggest that an equivalent increase in final spending on high-tech output provides a smaller boost to domestic employment and labor income than spending on property-sector output or the services sector. High-tech expansion can therefore support GDP growth without delivering a proportionate improvement in household income and consumption.

Exhibit 4: Each Yuan Spent on High-tech Industries Supports Less Domestic Value Added, Labour Compensation, and Employment Than Property or Services Sector



Source: NBS, Goldman Sachs Global Investment Research

Sizing High-tech's Growth Contributions

We next assess the contribution of high-tech sectors to real GDP growth and contrast it with that of the property sector.[3]

Following our previous approach, we combine our estimates of domestic value-added ratio with sectoral production data to capture the domestic value added generated by high-tech industries. This includes both these sectors' direct contribution and the value-added created by domestic suppliers along their production chains.

High-tech sectors have made a sizeable contribution to China's real GDP growth (Exhibit

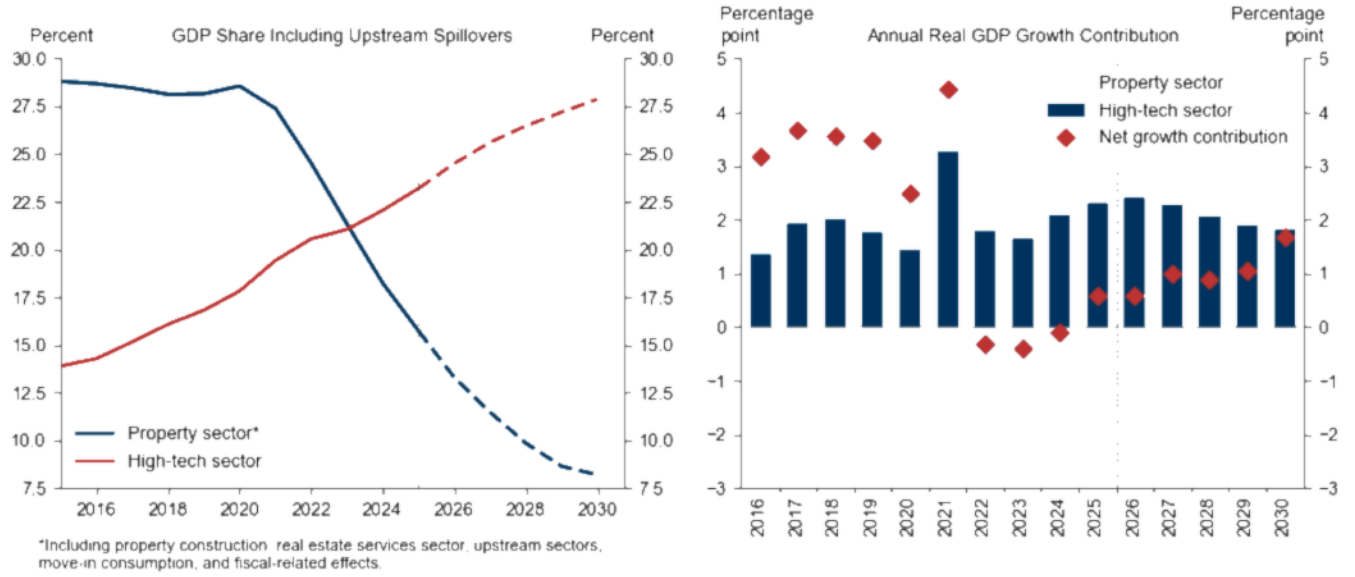
[3] In this analysis, the property sector includes both residential property and non-residential property. Property sector's contribution to GDP includes five channels: construction, real estate services, upstream industries, move-in-related consumption and land sales related fiscal effects.

5). In 2016, high-tech sectors accounted for less than 15% of China's real GDP[4], much less than the 25-30% share of the property sector. We estimate that they contributed an average of 1.9pp to annual real GDP growth over 2016–2025. By 2025, high-tech sectors' GDP share has climbed to 23% whereas the property sector's GDP share has fallen to around 15% after five years of sharp contraction.

Looking ahead, our baseline projects a sustained contribution of around 2pp annually from high-tech sectors over 2026-30. Our key assumption remains that these industries will grow faster than the broader economy, particularly telecom, IT and software services. Our relatively constructive outlook for real exports supports continued growth in high-tech manufacturing sectors, while continued demand for AI compute and digitalization should continue to help IT, telecom and software services sector. Under these assumptions, high-tech sectors' direct share of GDP could rise to around 28% by 2030, while we expect the property sector's share of GDP should stabilize at close to 8% from 2030 onward.

Taken together, while the property downturn is likely to persist in the coming years, its drag on growth should gradually diminish as the sector's share of the economy has fallen meaningfully. The combined contribution of property and high-tech sectors should therefore become more positive over time.

Exhibit 5: High-tech Sectors Sustain a Sizable Growth Contribution As the Property Drag Gradually Diminishes



*Including property construction, real estate services sector, upstream sectors, move-in consumption, and fiscal-related effects.

Source: Haver Analytics, NBS, Goldman Sachs Global Investment Research

Six Networks and Data Center Construction: Quantifying the Investment and Growth Uplift

Data center construction is a key component of China's AI push and an important part of the "Six Networks" investment initiative outlined in the 15th FYP. The initiative spans six areas: water, new-type power grids, computing power, next-generation communications, urban underground pipelines and logistics networks.

The initiative has received renewed policy emphasis, with the July Politburo meeting

[4] Includes the high-tech sector's direct GDP share and the GDP share of its upstream suppliers.

calling for progress on the "Six Networks" and the late-September State Council meeting urging an accelerated start to major projects. In this section, we estimate investment across the "Six Networks" during 15th FYP to assess the increase in spending implied by official policy guidance and its potential implications for FAI growth. In particular, we estimate the growth contribution of data center construction, a key pillar of the computing network, over the next few years.

Overall, we estimate that total investment in the "Six Networks" will increase from RMB24.9tn during the 14th FYP (2020-25) to RMB28.4tn during the 15th FYP (2026-30), a 14% increase, equivalent to 2.7% annualized growth, using the following methodology[5] (Exhibit 6).

- **Power grids**: We aggregate State Grid and China Southern Power Grid investment during 2021–2025 and use their 2026-30 investment plans and recent growth trends to project spending through 2030, cross-checking against the NDRC's projection of more than RMB5tn in new-type grid investment.
- **Water networks**: We use water conservancy construction investment as a proxy, extrapolating the average annual increase in investment over recent years and cross-checking against the official estimate of more than RMB6tn in national water network investment needs.
- **Urban underground pipelines**: We derive an implied unit cost from the NDRC's projected RMB5tn investment and 770,000km of planned construction and renovation, then apply that cost (in nominal terms) to the 840,000km of underground pipelines renovated during the 14th Five-Year Plan to estimate historical investment.
- **Communication networks**: We aggregate historical capex and 2026 budgets of China's three major telecom operators (China Mobile, China Telecom, and China Unicom), and project 2027–2030 spending based on recent investment trends.
- **Logistics networks**: We use FAI in cargo handling and warehousing as a proxy and extrapolate its historical trend.
- **Computing power networks**: We use the estimated RMB4tn in additional direct investment during the 15th FYP, based on an institutional estimate cited by the NDRC, and our equity analysts' forecasts for data center capacity growth to infer investment during the preceding five-year period. We explain these calculations in more detail in the next two paragraphs and Exhibit 7.

[5] Where comparable official figures are unavailable, we construct estimates using historical investment data, corporate capex, sector-level FAI, and project construction metrics.

Exhibit 6: We Estimate an Increase of RMB 3.5tn Investment on "Six Network" Projects From 2021-25 to 2026-30

Estimated total investment (RMB tn)	Example Projects	14th FYP (2021-25)	15th FYP (2026-30)
Logistics Network	Logistics hubs	5.5	6.9
Water Network	Water diversion, reserviors	5.7	6.4
Power Grid	UHV transmission	3.3	5.0
Underground Pipeline	Water, sewage, gas pipelines	5.5	5.0
Computing Power	Data center	3.2	4.0
Communication Network	5G/6G network	1.6	1.1
SUM		**24.9**	**28.4**

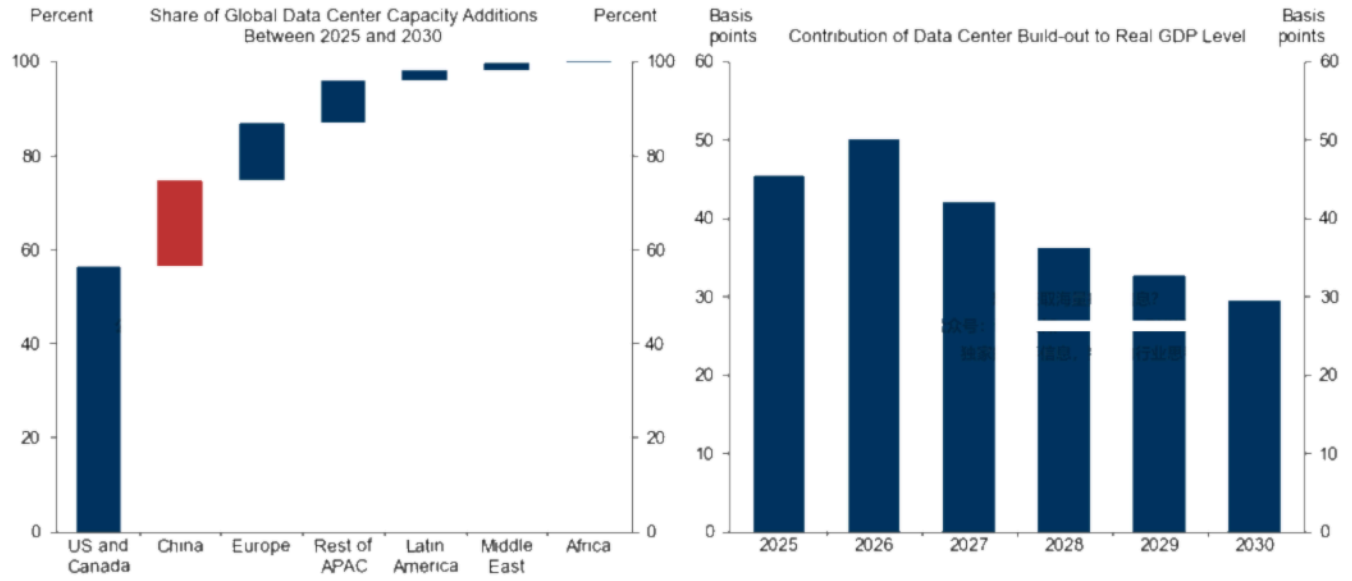
Source: Goldman Sachs Global Investment Research, Government website

A key component of computing network investment is the build-out of data centers. Under the "East Data, West Computing" strategy and the broader coordination of computing resources and power, energy-rich hubs in Western China are becoming increasingly important for capacity expansion. Ulanqab, in particular, is emerging as one of the Asia-Pacific region's largest and fastest-growing AI-computing clusters. Our equity analysts estimate that China will account for nearly 20% of global data-center capacity additions between 2025 and 2030 (Exhibit 7, left).

To estimate the growth impact of this build-out, we use our equity analysts' projections for additions to China's live data-center capacity. Investment is broadly divided between physical infrastructure—including buildings, power-supply systems, and cooling equipment—and computing hardware, notably servers and AI chips. As a growing share of new capacity is designed for AI inference workloads, computing hardware has become a much larger component of total data-center investment, compared with traditional cloud data centers, where physical infrastructure accounted for the bulk of spending. Unlike many other economies, where a meaningful share of electronic components is imported, China's policy focus on technological self-sufficiency likely means that a larger share of chips used in domestic data centers will be sourced locally especially for state-funded data centers[6]. This should limit import leakage and raise the domestic growth multiplier associated with the investment cycle. Overall, our estimates suggest that data center build-out could add around 40bp to the average *level* of China's GDP between 2026 and 2030.

[6] For instance, Bloomberg reported that China requires at least 80% of the infrastructure and AI chips in its nationwide network of AI data centers to be sourced from domestic suppliers.

Exhibit 7: Data Center Build-out Could Add Around 40bp to Annual Real GDP Level Over 2026–30



Source: Goldman Sachs Global Investment Research, MIIT

Taken together, we estimate that RMB28.4tn in cumulative investment across the "Six Networks" could add around 4% to the average *level* of China's GDP between 2026 and 2030, including around 40bp from data center investment. Yet high-tech sectors account for 23% of GDP, including upstream spillovers, underscoring that China's high-tech development extends well beyond data centers or the "Six Networks".

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