

China's new five-year plan

All about technology and the domestic market

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Economics - China

- ◆ Beijing will re-double its efforts to foster innovation to improve technology self-sufficiency
- ◆ Boosting domestic demand, revving up manufacturing, and developing city clusters are also of top priority
- ◆ Green development targets stay steady, while continued opening up will complement domestic growth

This year's National People's Congress (NPC) unveiled more details and specific targets from the 14th Five-Year Plan, as well as guidelines for 2035 goals. As expected, the FYP plan focused on technology development and upgrading the domestic market.

The long-term goals for 2035 reiterated what was seen in the preview with the goal of per capita GDP to reach the level of middle-developed. We estimate this would require a minimum 4.7% CAGR per year based on current nominal GDP levels. As such, fostering new growth drivers such as in innovation, the digital economy, industrial upgrading, middle class consumers, city clusters and the green economy in the coming years are essential to reaching the 2035 goal of achieving a modernised society.

Technology development is on the top of the policy agenda. Although the 7% p.a. bottom line for R&D spending is modest, the plan is full of policy initiatives, ranging from key programmes for fundamental research "breakthroughs" to state laboratories, and tax incentives to boost science and technology development. Specific areas of focus include digitalisation, telecommunications (5G), AI, big data, and quantum computing.

The promotion of domestic demand comes down to a two-pronged approach by improving the quality of domestic supply through industrialisation to be complemented by an increase in demand for quality. More specific focus areas include upgrading the manufacturing sector, increasing household consumption, and increasing urban-rural mobility. Financial reforms will support new developments, while managing existing and emerging challenges.

Green development will make progress towards the long-term goal of carbon neutrality by 2060. China aims to reduce CO₂ emissions, while boosting the non-fossil fuel proportion of energy consumption to 20%. Current targets stay steady and echo past FYPs as Beijing must balance its goal of resource security.

Opening up and continued external engagement will complement domestic demand growth. China will continue opening up to attract more high-quality investment, as well as increase collaboration with the world through trade and investment deals (e.g. Japan and Korea; FTAAP, CPTPP).

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Qu Hongbin

Co-Head Asian Economics Research, Chief China Economist

The Hongkong and Shanghai Banking Corporation Limited

Jing Liu

Senior Economist, Greater China

The Hongkong and Shanghai Banking Corporation Limited

Erin Xin

Economist, Greater China

The Hongkong and Shanghai Banking Corporation Limited

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Table 1. Key Five-Year Plan Targets

| | 14th FYP target | End of 13th FYP 2020 (^: 2019) | 13th FYP target | Completion status |
|--|--|-----------------------------------|-----------------|-------------------|
| Economic and social development | | | | |
| Average GDP growth, % y-o-y (real) | Maintain within reasonable range; each year will depend on the situation | 6.7^, 5.8 | > 6.5 | Completed |
| Urbanisation, residence based (% of population) | 65 | 60.6^ | 60.0 | Completed |
| Labour Productivity (RMB per person) | Growth rate to outpace GDP growth | 115,009^ | >120,000 | Unmet in 2019 |
| Innovation-driven growth | | | | |
| R&D expenditure as a % of GDP | Strive to be higher than during the 13th FYP period | 2.4 | 2.5 | Unmet in 2020 |
| R&D expenditure, % y-o-y** | > 7 | 10.3 | N/A | N/A |
| Contribution rate of science and technology to economic growth (%) | N/A | 59.5^ | 60.0 | Unmet in 2019 |
| Contribution rate of digital economy to economic growth (%)** | 10 | 7.8 | N/A | N/A |
| Number of patents per 10 thousand persons | 12 | 13.3^, 6.3 | 12.0 | Completed |
| Environmental protection | | | | |
| Cultivated land reservation (bn acre) | N/A | 2.023^ | 1.865 | Completed |
| Energy consumption per unit of GDP (% reduced)* | 13.5 | 13.7 | 15.0 | Unmet in 2019 |
| CO ₂ emissions per unit of GDP (% reduced)* | 18 | 18.4 | 18.0 | Completed |
| % days within each year with good air quality | 87.5 | 87 | 80.0 | Completed |
| Non-fossil energy as a % of non-renewable energy | N/A | 15.3^ | 15.0 | Completed |
| Non-fossil energy as a % of total energy consumption** | 20 | N/A | N/A | N/A |
| Reduction in chemical oxygen demand (COD)* | 8 | 11.8^ | 10.0 | Completed |
| Reduction in ammonia nitrogen* | 8 | Not revealed | 15.0 | N/A |
| Forest coverage (%) | 24.1 | 23.2^ | 23.0 | Completed |
| Proportion of surface water >= Class III water** | 83.4 | 85 | N/A | N/A |
| Improve livelihood of citizens | | | | |
| Average disp. income per capita growth, % y-o-y (real) | In line with GDP growth | 6.5^, 5.6 | >6.5 | Completed in 2019 |
| Newly increased urban employment (m)* | N/A | 65.64 | >50 | Completed |
| Years of schooling received by the working-age population | 11.3 | 10.8 | 10.8 | Completed |
| Basic pension coverage (%) | 95 | 91.5 | 90.0 | Completed |
| No. licensed physician assistants per 10,000 people** | 3.2 | 2.9 | N/A | N/A |
| No. nurseries for infants under 3-years old per 10,000 people** | 4.5 | 1.8 | N/A | N/A |
| Life expectancy (years) | 78.3 | 77.3 | 77.34 | Completed |
| Surveyed urban unemployment rate, % | <5.5 | 5.2 | N/A | N/A |
| Food production capacity, million tons** | >650 | N/A | N/A | N/A |
| Energy production capacity, coal equivalent, million tons** | >4600 | N/A | N/A | N/A |

Source: 14th Five Year Plan, 13th Five Year Plan, HSBC
 As 2020 was a unique year, 2019 rates are sometimes given as a reference as well.
 Note: *Total change during the five-year plan period; **Targets only in 14th FYP, not in 13th FYP; N/A – Not applicable/available.

Innovation takes a front seat

The 14th FYP focuses on increasing China's science and technology levels and achieving major breakthroughs in key core technologies. This stems from an increased focus towards self-sufficiency to hedge against uncertainty in the global environment.

China will work to build an innovation ecosystem and encourage more enterprises to increase R&D spending through a step-up in tax deductions for R&D expenditures. China will also redouble its efforts to promote more basic (or fundamental) research and provide more government support such as through building laboratories and increasing infrastructure development, and promote talent development to build a collaborative and innovative ecosystem.

The plan highlights a number of technology industries for China to become a leader in, particularly in cutting-edge fields like artificial intelligence (AI), quantum computing, and telecommunications. China aims to increase its R&D expenditure by at least 7% y-o-y over the next five years, and this should be viewed as a bottom line for technology development. Moreover, given the extensive focus on technology and innovation within the FYP, it is clear that the policy direction is increasingly supportive of technology development rather than one of moderation.

Specific measures to promote technology development include:

- ◆ Encourage development of basic (or fundamental) research. The goal is for **basic research expenditures to account for over 8% of total R&D spending** (6.2% in 2020). Assuming that overall R&D spending grows by 7% per year (the lowest bound set in the FYP), spending on basic research needs to rise 12.8% per year. This is a much needed change from the previous downstream shift to development research. Even at the 8% level, China still lags advanced economies' c15% in 2019 in input to basic research.
- ◆ Increase government support for R&D through building national and state laboratories, setting up funds and providing subsidies, increasing government procurement programmes to incentivise innovative products, and providing more infrastructure to promote collaboration (platforms/demo spaces/special zones).
- ◆ Incentivise private technology development of R&D through tax incentives for innovation (e.g., manufacturing enterprises' R&D activities will enjoy a 100% tax deduction and all other enterprises' R&D activities will receive a 75% deduction in 2021).
- ◆ Encourage more financing channels for innovation such as angel and VC funds, guide innovation investment to be more effective, as well as streamline the IPO process for technology companies and improve technology equity funding markets (e.g., ChiNext, STAR Board).
- ◆ Continue to open up to the world to promote more collaboration through lifting restrictions on investment in more fields and provide a favourable business environment through strengthening intellectual property rights.
- ◆ Cultivate talent through improved training in STEM fields and improved ecosystem for entrepreneurship, as well as incentivise more foreign talent to stay in China for work.

Which are the key technology areas of focus?

The FYP highlights artificial Intelligence (AI), quantum computing, semiconductor, neuroscience, biotechnology, medicine, earth and space exploration, network communications (5G and beyond), and modern energy resources. Digitalisation as an application for existing industries is also a focus with the **contribution from the digital economy targeted to reach 10% of GDP by 2025**. Within digitalisation, development focuses on cloud computing, big data, Internet of Things (IoT), industrial internet/intelligent manufacturing, blockchain, AI, and virtual reality.

Table 2. Highlighted frontier science and technology fields

| Technology field | Key development goals |
|-----------------------------|---|
| Artificial intelligence | Make breakthroughs in fundamental research, develop dedicated AI chips, construct open-source algorithm platforms such as deep learning frameworks, reasoning and decision making, image voice and video recognitions, and natural language processing |
| Quantum computing | R&D of urban/intercity/free space quantum communication technology, develop general purpose quantum computing prototypes, develop sub-simulator, and make breakthroughs in quantum precision measurement technology |
| Semiconductors | R&D of key materials including design tools, equipment, and high purity supplies, develop advanced integrated circuit technology (IGBT and MEMS), upgrade advanced storage technology and develop a wide-bandgap semiconductors such as silicon carbide and gallium nitride |
| Neuroscience | Increase analysis of principles of brain cognitions, neural brain wave mapping, research on major neural diseases and brain development of children and adolescents, R&D of neural-computing and neural computing fusion technology |
| Biotechnology | Increase genomic research, genetic breeding and synthetic biology, biological medicine, R&D for innovative vaccines, in-vitro diagnostics, antibody drugs, products for crops/livestock/aquatic development, and research of key biosafety technologies |
| Medicine | Increase research of cancer, cardiovascular, respiratory and metabolic illnesses, increase R&D for health technologies, regenerative medicine, new treatments and develop new technologies for the prevention and treatment of widespread and chronic non-communicable diseases |
| Earth and space exploration | Increase basic research on the origin and evolution of the universe, aerospace developments including orbiting Mars, improving detection of asteroids and other interstellar objects, develop the next generation of space shuttles, increase development of deep earth exploration equipment, develop deep sea maintenance and equipment, launch the fourth phase of the Moon Project, the second phase of the Jiaolong Exploration, and the second phase of the Xuelong Exploration |

 Source: 14th Five Year Plan, HSBC

Table 3. Highlighted focus areas for digitalisation

| Application | Key development goals |
|-------------------------|--|
| Cloud computing | Accelerate the upgrading of cloud operating systems, promote ultra-large-scale distributed storage, elastic computing, and data virtualisation, improve the level of cloud security, develop applications for cloud computing to cultivate industry solutions, and improve cloud services such as system integration, operation and maintenance management |
| Big data | Promote technological innovations such as big data collection, cleaning, storage, mining, analysis, and visualization algorithms, and cultivate data collection, labelling, storage, transmission, management, application and other full-life cycle industrial systems to improve data standard system |
| Internet of Things | Promote technological innovations such as sensors, network slicing, high-precision positioning, and coordinate the development of cloud services and cutting edge computing services, fostering the Internet of Vehicles, Medical Internet of Things, and Home Internet of Things industries |
| Industrial Internet | Create an independent and controllable identification analysis system, standard system, and safety management system, and strengthen industrial software research, develop applications, cultivate and form an industrial internet platform with international influence, and promote the "Industrial Internet + intelligent manufacturing" industrial ecological construction |
| Block chain | Promote technological innovations such as smart contracts, multiple consensus algorithms, asymmetric encryption algorithms, and distributed fault tolerance mechanisms, develop blockchain service platforms and application for financial technology, supply chain management, and government services, use for solutions in business, and improve regulations in the space |
| Artificial intelligence | Construct artificial intelligence data sets for key industries, develop algorithmic reasoning training scenarios, and promote intelligent medical equipment, design and manufacture intelligent products such as intelligent delivery vehicles and intelligent identification systems to promote generalisation and industry, develop an artificial intelligence open platform |
| Virtual reality | Promote technological innovations such as 3D graphics generation, dynamic environment modelling, real-time motion capture, and fast rendering processing, develop virtual reality machines, perceptual interaction, content collection and production and development tool software and application for industry solutions |

 Source: 14th Five Year Plan, HSBC

Upgrading the domestic market

The path to a modern society takes a two-pronged approach, an improvement in the quality of the supply side, as well as a corresponding increase in demand for quality goods and services. Fitting with the idea of increased circulation, supply-side reforms with a focus on industrialisation are needed for China to reach more long-term sustainable growth. Meanwhile, there will be an upgrading of household consumption to be supported through continued income growth, expansion of the middle class, increases in urban-rural mobility, and development of city clusters. The complementary upgrading in both supply and demand creates a feedback loop to encourage more long-term sustainable growth.

Industrial upgrading

The 14th FYP pivots back to emphasising the manufacturing sector as a source of economic growth after previously FYPs focused on expanding the services sector. The 14th FYP aims to **keep the manufacturing share of the economy basically stable**. Currently, the manufacturing sector accounts for 26.2% of GDP and 16% of total employment. We have long argued that premature de-industrialisation is more of a risk for long-term growth, and China still has the capacity to further industrialise. Additionally, upgrading of the industrial sector complements and overlaps with, at times, the technology development goals.

The 14th FYP lays out the following key focal points for industrialisation:

- ◆ Focus on high tech industrialisation such as increased application of digitalisation, use of advanced machinery (e.g., robotics), green manufacturing, and promote upgrading of the manufacturing supply chain.
- ◆ Support higher quality supply chain development and ensure supply chain security by keeping key links of the industrial chain in China and building supply reserves for key products (e.g., energy, food, and technology components).
- ◆ Speed up both new and traditional infrastructure development. **Target to reach 56% consumer penetration rate for 5G by 2025**, as well as advancement in new technologies (6G, Internet of Things, 'smart' development, and national integrated datacentre system).
- ◆ Reduce the cost burden of manufacturing investment through tax cuts and fee reductions and improve cost standardisation in the logistics area.
- ◆ Facilitate access to credit by promoting more equity investment and bond financing to tilt towards manufacturing, expansion of medium- and long-term loans, and technology innovation loans, and increase financing guarantees for key core industries.

Boost consumption via multiple ways

China's domestic market is one of the largest in the world. With the goal to maintain people's income growth in line with the pace of GDP growth, China will also aim to increase the quality of consumption and expand the size of the middle class.

Without specifying a numerical target, China pledges to expand the middle income class, specifically targeting college graduates, skilled workers, and migrant workers. It also emphasises increasing employment matching and labour participation rates for new graduates. The groups mentioned above have all faced significant pressure on the labour market during pandemic.

The FYP also lists the development of well-regulated consumer finance business as a measure to boost consumption. This again shows Beijing's balanced approach to growth. 2020 marked a year of a crackdown on unregulated consumer finance. In contrast to overall faster credit growth, short-term consumer loans witnessed a 3% drop y-o-y. Various online micro-lending platforms were brought under strict regulation. While closing the door to disorderly expansion (e.g., the number of P2P platforms fell from a peak of about 5000 to zero), Beijing is speeding up approval of licensed consumer finance companies and standardising regulations in the hope to develop a healthy consumer finance market.

In addition, specific measures to build household demand include the following:

- ◆ *Hukou* (household registration) reform is set to continue with a complete relaxation for cities with populations of up to 3m people, further relaxation in cities with populations of 3-5m people, as well as improve coverage of social welfare programmes
- ◆ Further development of city clusters to optimise the development of infrastructure and sharing of resources through network effects and promote increase urban mobility
- ◆ Increase urban renewal programme to develop more modernised and 'smart' cities
- ◆ Encourage more high-quality employment through development of human capital with skills training and support for social welfare and labour rights protections
- ◆ Ensure more balanced income distribution by improving the tax system and ensuring fair distribution of social welfare. Meanwhile, reasonably regulate excessively high incomes, ban illegal income, and reduce unfair competition income
- ◆ Promote consumption upgrading towards new types of consumption, including higher quality services, digital consumption, and green consumption

Financial reforms balance opportunities and challenges

Encourage Fintech development under prudential regulations

After the "debut" in the Government Work Report, Fintech also entered the FYP for the first time. The wording of "steady development" implies that Beijing aims to rein in the reckless expansion of Fintech firms, but at the same time values the industry as a whole. The development of the Fintech industry will be under scrutiny by both financial regulators and antitrust authorities.

Punish malicious debt evasion

The FYP also sets a harsh tone against malicious debt evasion, after Vice Premier Liu He vowed zero tolerance for the misconduct last November. Rising SOE bond defaults and suspicious debt evasion behind some of these defaults have triggered concerns among investors. The plan sets a clear tone, aiming to boost investor confidence at the juncture of attracting foreign investment in China's onshore market.

Green development will strive towards goal of carbon neutrality

The 14th FYP reiterated the goal of striving towards carbon neutrality by 2060, and as a midpoint goal, aims to reach peak carbon emissions by 2030. Despite market concerns of a shift towards more aggressive policies to curb emissions, the FYP remains in line with previous targets, keeping an appropriate pace to reach its long-term goals. In terms of carbon emissions reduction, the goal is the same as in the 13th FYP with a target of an **18% reduction in CO₂ emissions per unit of GDP**. This previous goal was achieved at 18.4%.

Reaching carbon neutrality will focus on reducing carbon emissions by replacing fossil fuels with clean energy and improving energy conservation. The target is for **non-fossil fuels to account for 20% of total energy consumption by 2025**.

Meanwhile, China is also concerned about supply chain security. As such, Beijing must balance its goals of ensuring there is enough domestic industrial capacity for key resources (including oil, coal, and gas), while also moving towards long-term green development goals. This is likely to keep green development policies from being overly heavy handed.

Better utilisation of resources such as focusing on water conservation, reduction of waste and pollutants, as well as improvement in the recycling system are measures, which will support green development. Also, the application of 'green' development to various industries will also be a continued theme for China's long-term growth.

Opening up to complement domestic demand

While promoting higher quality domestic demand is arguably the focus of the 14th FYP, this will continue to be complemented by external engagement. Attracting higher quality investment into China by improving the business environment, and levelling the playing field through further opening up and reform will complement domestic growth. Strengthened trade and investment ties will also be in focus with an added emphasis on diversification of import sources.

Specific measures for opening up and reform include:

- ◆ Continue to open up and attract foreign capital into China, with further relaxation of restrictions in more fields (e.g., telecommunications, internet, education, and medicine), improve cross-border flows, and encourage reinvestment of profits of foreign-funded enterprises
- ◆ Reduce import tariffs and costs to attract more high-quality consumer products, equipment, and increase the diversification of import sources
- ◆ Encourage more international collaboration through engagement in international development (e.g., Belt and Road Initiative), multilateral organisations, and speed up negotiations for trade agreements (e.g., with Japan and Korea; Free Trade Area of the Asia-Pacific (FTAAP); consider joining the Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP))
- ◆ Continue to implement structural reforms to level the playing field to encourage fair competition, and enhance IPR protections

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Issuer of report

The Hongkong and Shanghai Banking Corporation Limited

Level 19, 1 Queen's Road Central
Hong Kong SAR
Telephone: +852 2843 9111
Fax: +852 2801 4138
Website: www.research.hsbc.com

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