Policy Recommendations

1. A cross-sector, high-level decision-making mechanism and expert consulting system for national S&T strategy

A consultative committee on national S&T strategy comprising S&T experts, entrepreneurs and government officials should be established. Independent of government departments, organizations or institutions, it would address major strategic issues facing national S&T development, hold regular discussions on international S&T trends as well as China's strategic choices and deployment, innovation synergy and dynamic adjustments, and offer suggestions or solutions to top decision-makers to help form S&T policies.

2. New models for addressing key generic technologies and shaping industrial competitiveness

China's shift from a rapidly growing economy to an innovation-driven economy necessitates adjustments in the positioning and functions of the government and the market. Under the guidance of the government, a strategic synergy among government, industry and academia should be established with enterprises as the main player so as to jointly achieve breakthroughs in core and key technologies sustaining the development of industries. The merger of the knowledge, technology and regional innovation systems should be accelerated, and new innovation models such as regional innovation clusters should be formed to effectively mobilize and integrate innovation resources and promote the efficiency of innovation.

3. An organizing agency for pre-research of priority technologies

To ensure that "science and technology leads the future", an organizing agency should be established to help identify and maintain China's leading edges in S&T, perceive potential technological needs, and build strategic reserves in high technologies to enhance mid to long-term national security and competitiveness. Outstanding project managers with strategic insight and innovative ideas will be recruited nationwide or globally and given the right to select and decide on research projects within their five-year tenure. By supporting new ideas and concepts for leading technologies of strategic significance to China's national security and competitiveness, the agency would be responsible for collecting, selecting, organizing and implementing related pre-research projects that might be considered risky but potentially of high value and high return, and supporting ambitious technological explorations and breakthroughs. It should also study the possible application of high-value and high-risk new technologies to be at the forefront of these advances.

4. Public innovation platforms for a new paradigm of scientific research

It is advisable to set up new types of national public innovation platforms to adapt to the changes in research activity paradigms. One priority is to set up basic data repositories at state level. A national S&T resources system crossing different fields, such as biological databanks, population and clinic sample databases and electronic health record databases, should be set up to promote the interdisciplinary development of science and technology. Another priority is to develop "integrative" research platforms, covering all research from basic to applied research to accelerate technology transfers. For instance, for translational medicine, qualified teaching hospitals and research hospitals should be encouraged to get involved in the platform for clinically-guided research and discovery.

5. World-class centers of excellence for innovative research

Centers of excellence for innovative research should be set up to achieve major breakthroughs and leapfrog development at scientific frontiers and strategically important domains. First, by comprehensively planning its various support systems for R&D organizations, the government should back outstanding S&T forces of high-level national research institutions, research universities and innovative enterprises to set up major task-oriented centers of excellence and to advance them into the top international rankings. Second, centers for international cooperation should be founded with major S&T tasks as a linkage. Third, in important fields where China is still weak, centers of excellence should be formed with defined objectives to quickly catch up with world leaders through major scientific breakthroughs by adopting an international strategy and with the help of the best international talent.

6. A sustaining mechanism for S&T strategy research and assessment

A national system for the monitoring, early identification and assessment of the strategies should be set up by encouraging diverse research forces to study S&T strategies. As a national think-thank in science and technology, it would support policy-makers and executives of major S&T projects of strategic importance by tracing the development and implementation effects of major scientific tasks, comparatively analyzing international development trends in the field, assessing the strategies' performances and impacts, and proposing measures for corresponding adjustments and reform.