

Outline of the Plan of the
China Association for Science and Technology
Oriented to Build China into
A World Leader in Science and Technology

China Association for Science and Technology

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Outline of the Plan of the China Association for Science and Technology Oriented to Build China into A World Leader in Science and Technology

The 19th CPC National Congress set forth the strategic task of adhering to and developing socialism with Chinese characteristics in the new era, drew the grand blueprint of building China into a great modern socialist country, and embarked on a new journey towards the great rejuvenation of the Chinese nation. In order to thoroughly study and implement Xi Jinping Thought on Socialism with Chinese Characteristics for a New Era, fully implement the CPC Central Committee's decision on the reform of social organizations, translate the spirit of the 19th CPC National Congress into active practice of associations for science and technology in the new era, carry out the strategy of innovation-driven development, and pool the great strengths of science and technology workers to build China into a world leader in science and technology and realize the Chinese

Dream of the great rejuvenation of the Chinese nation, this outline of the development plan is hereby formulated.

I. Embark on a new journey of the development of associations for science and technology in the new era

General Secretary Xi Jinping pointed out that science and technology constitute the primary productive forces while innovation is the primary driving force leading development, and talent is the primary resource. The strategic plan of completing the building a moderately prosperous society in all respects, basically realizing socialist modernization and building China into a great modern socialist country in an all-round way has provided a fundamental guideline and pointed the direction for the innovation and development of associations for science and technology in the new era.

The China Association of Science and Technology (CAST) is a public organization under the leadership of the Party, an important part of the national innovation system, and a public organization of scientific and technological workers in China. Over 60 years since its establishment, CAST has always adhered to taking the Party's leadership as the core and played the role of sci-tech associations in linking the Party and the government to scientific and technological workers. It has upheld the mission of serving scientific and

technological workers, always focused on scientific and technological workers, and given full play to the role of associations for science and technology as a “home” for scientific and technological workers. It has insisted on taking the promotion of academic exchanges as its central task and given full play to its irreplaceable role in leading academic innovation. It has adhered to taking the popularization of science as a basis and given full play to its indispensable role in the improvement of public science literacy. It has taken the scientific and technological decision-making consultation as an important responsibility, and gives full play to the role of a scientific and technological think tank. It insists on taking non-governmental international scientific and technological exchanges and cooperation as an important task, and gives full play to its unique and irreplaceable role. In the course of China’s development from advancing to science to welcoming the rapid development of science, from the strategy of “rejuvenating the country through science and education” and “strengthening the country with talents” to building an innovative country and a world leader in science and technology, CAST has always been active in uniting and leading all scientific and technological workers in their joint struggle, and has constantly made contributions to national development, people’s wellbeing and scientific and technological

innovation.

Since the beginning of the 21st century, the global scientific and technological innovation has become unprecedentedly vibrant. A new round of scientific and technological revolution and industrial transformation is reshaping the global innovation landscape and the global economic structure, and accelerating the development of multi-polarization in the world. Science and technology have never exerted such a profound impact on the future of a country as well as the wellbeing of the people as they do today. To be strong and achieve rejuvenation, China must vigorously develop science and technology and strive to become the world's major scientific center and innovation highland. In recent years, especially since the 18th CPC National Congress, China's scientific and technological undertakings have made intensive efforts and accelerated development, realizing historic, comprehensive and significant achievements. China is now closer to the goal of the great rejuvenation of the Chinese nation than at any time in history, and needs to build a world leader in science and technology more than any time. However, we are also soberly aware that, compared with the world's scientific and technological powers, China still faces prominent problems. Its basic scientific research remains weak, and it still lacks major original and disruptive technological

achievements in scientific and technological innovation. Its efforts to contrive scientific and technological opening and cooperation from a global perspective remain insufficient, and its transformation ability of scientific and technological achievements is not strong. The system and mechanism of talent development are not perfect, the incentive mechanism to stimulate talent innovation and creativity still needs to be improved, and top talents and teams are lacking. The integration of science and technology innovation policy with economic and industrial policies, and the integrated development between science and technology & economy, science and technology & society, science & technology innovation and science popularization are not enough. The scientific evaluation orientation is deviated; the publicity of scientific spirit is insufficient, and the mechanism and environment for the whole society to encourage innovation and tolerate innovation shall be optimized. Meanwhile, in view of their new mission in building China into a world leader in science and technology, associations for science and technology are more like administrative organs, deviating from the demand of scientific and technological workers. Their contact with scientific and technological workers is not close and tight enough, and they fail to properly play their role in political guidance and incorporation and bridging scientific and technological workers. The cohesion is

not strong, the organization is loose, and grassroots associations are not equipped with sufficient authorized personnel, funds, office space and staff. There are also some other outstanding problems, such as insufficient organizational vitality, weak professional service ability, weak innovation leading ability, and insufficient organization “connection” function.

The direction of socialism with Chinese characteristics in the new era has been clearly defined, and the great rejuvenation of the Chinese nation is on the way. The pressing situations, challenges and missions require associations for science and technology to grasp the general trend; seize the opportunities and flourish the science culture; start a new journey of shaping the spirit of scientists and build a new, flexible platform for uniting leading talents in scientific and technological innovation; nurture a new ecology that empower scientific and technological innovators with wisdom; expand a new channel to forge ahead towards the center of the world stage of science and technology, and build CAST into a spiritual home, a home of values, and a home of development that inspire scientific and technological workers to unite together to make contributions to the nation with hard work, and a place for scientists committed to excellence, devotion and innovation to fulfill their dreams and achieve success. We will further create a scientific and cultural

atmosphere of advocating science, respecting knowledge and talents, encouraging creativity and promoting the spirit of self-discipline, devoting to research and being indifferent to fame and fortune, and strive to build China into a world leader in science and technology and a strong, modern socialist country in an all-round way.

II. Guiding principles and development goals

(1) Guiding principles

Hold high the great banner of socialism with Chinese characteristics, follow the guidance of Marxism-Leninism, Mao Zedong Thought, Deng Xiaoping Theory, the important thought of “Three Represents”, the Scientific Outlook on Development and Xi Jinping Thought on Socialism with Chinese Characteristics for a New Era. Unswervingly adhere to the development path of socialism with Chinese characteristics, continuously enhance political integrity, advanced nature and connection to the people, strengthen the “Four Consciousnesses”, and solidify the “Four Confidences”. Always put scientific and technological workers first, establish and improve the work system of associations for science and technology with extensive links and serving the people, and comprehensively enhance the ability of political guidance and incorporation, the ability of leading innovation culture, the ability of uniting innovation talents, the ability of socialized scientific and technological service

and the ability of carrying out scientific, technological and cultural communication and cooperation. Insist on serving scientific and technological workers, serving innovation-driven development, improving the science literacy of the whole nation, serving the scientific decision-making of the Party and the government, so that associations for science and technology will truly become the spiritual home of scientific and technological workers, unite scientific and technological workers around the Party, fully release the power of scientific and technological innovation, and make contributions to realizing the Two Centenary Goals, building China into a world leader in science and technology and a strong, modern socialist country, and achieving the Chinese Dream of the great rejuvenation of the Chinese nation.

(2) Basic principles

— Adhering to the Party's leadership. The leadership of the Party is the fundamental guarantee for the innovation and development of associations for science and technology. The associations must adhere to the correct political direction under the leadership of Party committees at all levels, consciously implement the Party's theory, line, principles and policies in all aspects and the whole process of the work involving associations for science and technology, continuously improve the system of the Party's leadership over

associations for science and technology, deepen the understanding of the laws of innovation and development, science and technology management and talent growth, and provide a strong political guarantee for the development of associations for science and technology.

— Upholding the principle of putting scientific and technological workers first. Serving scientific and technological workers is the bounden duty of all the associations. The associations for science and technology must resolutely implement the Party's mass line, adhere to taking scientific and technological workers' satisfaction as a criterion to measure our service, provide better service and solve difficult problems for scientific and technological workers, safeguard and develop the interests, strengthen political guidance and incorporation, and continuously enhance the associations' attractiveness, influence and ability to inspire and unite.

— Persisting in serving the overall situation. Serve the overall situation of the Party and the state is the value of associations for science and technology. The associations must adhere to formulating work plans and performing their duties around the overall situation, guide the innovation passion of scientific and technological workers to serve the strategic needs of the state, and assume the responsibility of serving the mission to build China into a world

leader in science and technology and a strong, modern socialist country.

— Persisting in reform and innovation. Reform and innovation are the fundamental driving force to promote the development of associations for science and technology in the new era. The associations must stick to the development path of socialism with Chinese characteristics, persist in self-innovation, move forward in the logic of historical progress and develop with the development of the times, hold back deep-seated contradictions and key and difficult problems, constantly promote theoretical innovation, practical innovation and cultural innovation, and always resonate with the great development of the Party and the state.

— Persisting in opening up and integration. Opening up and integration are the fundamental way for the development of associations for science and technology in the new era. The associations must always promote reform and development through opening up, give full play to their unique advantages as open, pivotal and platform organizations, work closely with Party and government departments, public organizations and localities, make good use of both international and domestic resources both government and market mechanisms, and both online and offline channels, and actively integrate into the global scientific and technological

innovation network to form a new horizon for comprehensive opening up and integration.

(3) Development goals

The development goals shall be achieved in three steps as follows:

First, By 2020, firmly upholding China's strategic goal of building a moderately prosperous society in all respects and entering the ranks of innovative countries, associations for science and technology will make breakthrough progress in comprehensively deepening the reform, and achieve remarkable results in expanding effective coverage, transforming and expanding functions, building into an online association, and strengthening the grassroots foundation; reshape the new pattern of development driven by academics, popular science, and think tanks, realize the reengineering of the new process of linkage work of internationalization, informatization, and synergy, restructure the new forces of outward expansion, vertical and horizontal integration, and active network; further promote the formation of an academic atmosphere to advocate dedication to the motherland, hard work, pioneering spirit, innovation, selfless contribution, self-discipline, self-excitation, and being indifferent to fame and wealth; ensure that that the proportion of Chinese citizens with science literacy will exceed 10%; significantly enhance the ability of political guidance and

incorporation, the ability of serving the overall situation around the central task and the ability of connecting with the people; and lay a solid foundation for the leapfrog development of associations for science and technology.

Second, By 2035, closely focusing on China's strategic goal of entering the forefront of innovative countries and basically realizing socialist modernization, we will complete the building of a work system for all the associations to extensively connect with and serve the public, comprehensively enhance the associations' ability of political guidance and incorporation, guiding innovative culture, uniting innovative talents, providing socialized scientific and technological service and carrying out scientific, technological and cultural exchange and cooperation, thus injecting full impetus into the outstanding contribution and development of those associations.

— The ability of political guidance and incorporation will be comprehensively enhanced. We will see that scientific and technological workers have stronger political, ideological, theoretical and emotional commitment to the Party. The Party's leadership and public support in the field of science and technology will be further solidified; the channels for scientific and technological workers' political participation will be further smoothed, and their interests will be fully protected and

developed.

— The ability of leading innovative culture will be comprehensively improved. The scientific and cultural tradition characterized by rational questioning, seeking truth from facts, exploring innovation and tolerating failure will basically take shape. Scientific and technological professions will attract more youngsters. A number of world-class associations and societies, journals and academic conferences will emerge and become an important force in promoting the integration of science and technology with economy and leading the innovation culture. A favorable landscape in which scientific popularization and scientific and technological innovation developed in a coordinated way will be formed. The proportion of Chinese citizens with science literacy will exceed 20%.

— The ability of uniting innovative talents will be comprehensively improved. The effective coverage of associations for science and technology in institutions, new economic organizations and new social organizations where scientific and technological workers are concentrated will be expanded. The international influence and guiding role of association awards will be fully demonstrated. The system of certification and international mutual recognition of engineering capabilities will be established and improved, and a good environment for leading talents in high-end scientific and

technological innovation in which the talents are energized by industry, attracted by capacity and concentrated by morality will be formed. The bridging role of associations for science and technology in the innovation value chain of politics, industry, education, research, talents, finance and utilization will be fully unleashed.

—The socialized service capacity of science and technology will be comprehensively improved. We will establish a flexible science and technology think tank network combining specialized and transdisciplinary studies, which will become an important force in scientific decision-making by the Party and the state, an important hub of the global science and technology think tank network, an authoritative consulting service platform with credibility and reputation, and an independent force deeply involving in the design of science and technology system and evaluation of science and technology innovation.

— The ability for scientific, technological and cultural exchanges and cooperation will be comprehensively improved. The “circle of friends” of the Chinese scientific and technological community will be further expanded. China will become an important initiator of global scientific and technological innovation topics, an important stage for dialogue and exchange, and an important advocate and organizer of global scientific and technological

governance rules, realize the all-round development of scientific, technological and cultural exchanges and cooperation under the “Belt and Road” Initiative, and become an important place gathering the headquarters of international scientific and technological organizations.

Third, by 2050, CAST will be built into an outstanding, empowered, innovative and inclusive spiritual home for scientific and technological workers that accord with China’s status as a world leader in science and technology and a strong, modern socialist country. CAST will become a major and pivotal science and technology organization in the world and work together with all sectors of society to build a highland of scientific and technological innovation culture, a high-end innovation talent center, a science and culture dissemination center, a high-end science and technology think tank center and a headquarters center of the international science and technology organizations in the world, thus providing strong support for China to become a global leading science center and innovation highland.

III. Major tasks

Firmly focusing on the associations’ core task to maintain political integrity, advanced nature, and connection with the people, the requirements of the mission to build China into a world leader in

science and technology and the major challenges faced by the associations in their own reform and development, we will strengthen the deployment of major tasks and key measures.

(1) Enhance the ability of political guidance and incorporation

We will insist on the political attribute of associations for science and technology as public organizations under the leadership of the Party, take political construction as the guide, strengthen the Party's overall leadership, promote Party building throughout the whole process of the reform and development of those associations, and enhance the scientific and technological workers' political, ideological, theoretical and emotional commitment to the Party.

1. Comprehensively publicize and implement the Party's line and principles

We will comprehensively and deeply study, publicize and implement Xi Jinping Thought on Socialism with Chinese Characteristics for a New Era, firmly strengthen the "Four Consciousnesses", solidify the "Four Confidences", enhance confidence, unite the people by providing heart-warming service and reinforce solidarity. We will uphold General Secretary Xi Jinping's position at the core of the CPC Central Committee and the whole Party, firmly safeguard the authority of the CPC Central Committee and its centralized, unified leadership, and closely follow the CPC

Central Committee with Xi Jinping at the core in terms of our thinking, political orientation, and actions. We will study, publicize and implement the “five-sphere integrated plan” and the “four-pronged comprehensive strategy”. We will help win the three tough battles, i.e. preventing and defusing major risks, targeted poverty alleviation and pollution control, in the process of completing the building of a moderately prosperous society in all respects, and further promote the supply-side structural reform. We will vigorously publicize the Party’s line, principles and policies, especially those concerning scientific and technological undertakings, among scientific and technological workers. We will establish and improve a quick feedback mechanism for scientific and technological workers to respond to the Party’s line, principles and policies, and accurately reflect scientific and technological workers’ opinions and suggestions in real time.

2. Strengthen Party building in associations for science and technology

We will explore the law of Party building in socialist associations for science and technology with Chinese characteristics, highlight the leading position of political construction, and establish and improve the organizational guarantee system for the Party to lead the work of associations for science and technology in an all-round way.

We will establish and improve the Party's organization and work system, promote the full coverage of the Party's organization and work in scientific societies, and give full play to Party organizations' role as political core in scientific societies.

3. Support the political participation of scientific and technological workers

We will actively organize scientific and technological workers to participate in the consultation of national scientific and technological strategies, plans, deployments, policies, laws and regulations. We will support scientific and technological workers who are NPC deputies or CPPCC members to actively participate in the deliberation and administration of state affairs. We will further promote the establishment and improvement of a suggestion consultation mechanism for scientific and technological workers to participate in political consultation, administration of state affairs and democratic supervision. We will actively promote the establishment and improvement of an opinion consultation mechanism for major policies concerning associations for science and technology, and encourage the execution of third-party evaluation.

4. Safeguard the legitimate rights and interests of scientific and technological workers

We will innovate and improve the mechanism of surveying scientific and technological workers, and accurately grasp their scale, ideological trends, concerns and demands. We will coordinate and promote solving the most pressing and immediate issues that concern the career development of scientific and technological workers the most. We will help scientific and technological workers claim their interests, rationally express their demands through proper and legal channels, promote social fairness and justice, and consciously safeguard social harmony and stability.

5. Innovate the methods to unite scientific and technological workers

We will study the law of scientific research, the development law of scientific and technological innovation, the growth law scientific and technological talents, and the law of political guidance incorporation by associations for science and technology. We will fully respect the primary position of scientific and technological workers by showing respect to their differences and showing tolerance to their individualities, so that scientific and technological workers can feel recognition by heart and consciously integrate into the overall situation through full trust, equal communication, self-realization and value recognition. We will strengthen professional connection,

ideological communication and emotional exchange with scientific and technological workers, and inspire scientific and technological workers to unite around the Party through heartfelt communication. We will build “intelligent association for science and technology” information platform and give play to its role in broadening the channels for the associations to keep touch with and serve scientific and technological workers and improve the quality of service.

(2) Enhance the ability to lead the innovation culture

We will popularize scientific knowledge, carry forward the scientific spirit, disseminate scientific ideas, advocate scientific method and academic democracy, safeguard the dignity of science, guide the future growth of scientific and technological innovation talents, and nurture a scientific and cultural tradition characterized by rational questioning, seeking truth from facts, exploring innovation and tolerating failure.

6. Improve the science literacy of the whole Chinese people

Under the leadership of Party committees at all levels and upholding the principles of being driven by the government and participated by the whole society and putting the people first, we will work out a national science literacy plan for 2035-2050, continue innovating the long-term mechanism for enhancing citizens’ science literacy, promote the establishment of an evaluation system for scientific and

technological workers' participation in science popularization, form an institutional arrangement in which science popularization is as important as technological innovation, and establish and improve the evaluation system for Chinese citizens' science literacy in the new era. We will cultivate a group of experts engaged in science popularization, give full play to the role of all scientific and technological workers, establish and improve an emergency response mechanism for science popularization, strengthen the interaction and dialogue between the public and scientists and experts, promote public understanding of science, technology and engineering, and enhance public interest and recognition in science. We will innovate the way to carry forward science popularization in agriculture and rural areas, promote farmers' scientific and cultural literacy, serve the rural vitalization strategy, and promote the industrial structure transformation and upgrading and high-quality economic development. We will promote the creation of science fictions and the development of the popular science industry, establish and improve a ubiquitous, intelligent science popularization information service platform, and create production and distribution centers for science dissemination products. We will promote the integrated development of science and culture, organize international scientific communication, exchange and cooperation

activities, and contribute Chinese wisdom to international scientific communication.

7. Create a healthy scientific and cultural atmosphere

We will promote the improvement of the academic evaluation system of peer reviews, advocate academic democracy that faces problems and questions boldly and academic culture that allows competition and integration of various schools of thought, and inspire scientists to consciously form professional ethics such as being patriotic and devoted, seeking truth, daring to innovate and keeping indifferent to fame and fortune. We will continue to carry out the publicity and education on scientific moralities and academic ethics, guide scientific and technical workers and young students to abide by academic moralities and scientific ethics and become guardians of healthy academic atmosphere, practitioners of rigorous academic research and successors of academic ethics.

8. Vigorously promote the spirit of scientists

We will carry out the campaign to bring the spirit of Chinese scientists into schools, institutes and enterprises, and carry forward Chinese scientists' spirit of patriotisms, innovation, pragmatism, teamwork, and dedication to human development. We will carry forward the craftsmanship spirit of dedication to making works as perfect as possible, so as to create a social atmosphere that respects

labor and creativity. We will widely publicize and commend outstanding scientific and technological talents who have made outstanding contributions to the cause of the Party and the people, erect exemplary models who show selfless dedication and commitment for the scientific and technological community, and vigorously promote patriotic dedication among scientific and technological workers to inspire the ambition to serve the country.

9. Inspire the scientific dream of youngsters.

We will carry out scientific and technological education activities for young people in and beyond schools to stimulate their interest in science and encourage them to embrace scientific dreams. We will promote the cultivation of scientific spirit, innovative thinking, creative ability and social responsibility throughout the whole process of education, cultivate youngsters' scientific thinking habits, and improve their scientific cognition of the surrounding world and their innovative practical ability. We will promote the training of science and technology teachers and counselors, open universities, research institutes, science and technology enterprises and science popularization venues to young people, establish and improve scientific and technological education bases for young people, and expand platforms and channels for young people to experience and participate in scientific and technological innovation.

10. Establish and improve the scientific community's self-discipline function

We will explore the establishment of social evaluation of innovation environment targeting academic institutions (teams) as well as fields (industries) and regions, make full use of modern information technology, carry out follow-up evaluation and release of innovation environment, and promote the improvement of innovation environment. We will give full play to the self-discipline and self-purification function of the academic community, and guide scientific and technological societies at all levels to actively carry out the work of formulating codes of conduct for scientific research activities, conducting integrity education and guidance, investigating and identifying integrity-breaking cases, and researching theories on scientific integrity, so as to realize self-regulation, self-management and self-purification.

11. Carry out high-level academic exchanges

Targeting at the frontiers and interdisciplinary fields of science and technology and focusing on key areas in the development of the science and technology industry, we will set up a series of high-end academic exchange platforms, initiate the agenda on major issues, publish the world's latest progress in the frontier of science and technology, and predict the development trends of science and

technology. We will promote innovation in the methods to carry out academic exchanges, improve the quality of academic exchanges, and support Chinese scientific and technological societies to sponsor or host international high-end academic conferences. We will build a national science and technology dissemination center to organize activities to disseminate and share cutting-edge achievements, scientific and technological information, scientific culture, etc., and develop it into a place for publishing and disseminating major national research achievements and for displaying, exchanging, trading and transforming the latest scientific and technological results at home and abroad.

12. Promote the establishment of a classification and evaluation system for scientific journals

Based on the functional orientations of different types of sci-tech journals concerning basic research, applied research and scientific popularization, we will give full play to the academic advantages of various scientific and technological societies, promote the establishment of classification and evaluation standards for sci-tech journals according to the characteristics of different disciplines, and guide domestic sci-tech journals to operate based on the value-oriented principle. We will explore the publication of a classified catalogue of high-quality academic journals in natural

sciences in different fields, select, identify and apply them worldwide, promote the homogeneity and equivalence of domestic and foreign scientific journals, guide those journals to focus on improving academic standards, and guide outstanding scientific research achievements to be first published in high-quality journals.

(3) Enhance the ability to unite innovative talents

We will make good use of both domestic and international resources, extend our reach to scientific and technological workers, focus on expanding effective coverage, transforming and expanding functions, building online associations, and strengthening grassroots foundations, make scientific and technological societies bigger and stronger, broaden channels for contacting and serving scientific and technological workers, and realize value creation by innovation.

13. Facilitate the growth of scientific and technological innovation talents

We will carry out research on the growth and flow of innovative talents, and push forward cooperation and exchange among innovative leaders. We will promote the establishment of domestic engineering capability certification and evaluation standards as well as relevant certification systems, continuously expand the scope of mutual recognition agreements on engineering education and

engineer qualification, and actively recommend Chinese engineers to the International Engineering Alliance (IEA). In accordance with relevant regulations of the state, we will advance the establishment of awards and prizes with wide public credibility and international influence. We will carry out the action to support young scientific and technological talents and promote the exchange of young scientific and technological talents between China and foreign countries.

14. Promote the gathering and flow of scientific and technological innovation talents

We will promote the establishment and improvement of the training mechanism, evaluation mechanism, flow mechanism and incentive mechanism for scientific and technological talents, stimulate the passion of scientists, and kindle the creative vitality of all kinds of scientific and technological talents. We will encourage and guide the flow of scientific and technological talents to remote and poor areas, border areas inhabited by ethnic minorities, old revolutionary base areas and the grassroots level. We will widely publicize China's talent introduction policy, implement the "HOME" program to serve the country, and strengthen the contact with overseas scientific and technological talents. We will strengthen exchanges and cooperation with international scientific and technological organizations to

attract scientists and young scientific and technological personnel from developing countries to cooperate in innovation and entrepreneurship. We will promote the establishment of a standard system for the classification and evaluation of scientific and technological personnel, establish an information platform for scientific and technological personnel, carry out policy evaluation of scientific and technological personnel, and conduct data exchange, identification, evaluation, promotion and recommendation of scientific and technological personnel.

15. Promote the establishment of empowered and innovative collaborative organizations

With the research, development and industrialization of cutting-edge technologies, disruptive technologies and key common technologies in strategic emerging industries as the focus, we will promote the establishment and improvement of innovative collaborative organizations, such as innovative collaborative alliances, interdisciplinary alliances, cross-industry alliances and cross-society associations. We will promote the formation of a scientific and technological innovation value chain covering politics, industry, education, research, human resources, finance and utilization to pool innovative resources, connect innovative values, align with social capital, and promote the transformation and application of

technological achievements.

(4) Improve the socialized service ability of science and technology

We will serve the scientific decision-making of the Party and the government, respond to social hot issues in real time, take up the social functions and services transferred by the government, serve regional innovation-driven development, carry out scientific and technological socialized services, and promote the modernization of national governance system and capability.

16. Establish a flexible network of scientific and technological think tanks

We will make the China Science and Technology Summit a platform to build a Chinese flagship scientific and technological think tank, mobilize domestic and foreign think tank resources, initiate the agenda to discuss key issues such as UN SDGs, and contribute Chinese wisdom to building a community with a shared future for mankind. We will present high-end scientific and technological think tank services and products. We will give full play to the characteristics and advantages of discipline and professionalism of scientific and technological societies at all levels, promote the construction of professional think tanks, and encourage local associations for science and technology to strengthen the construction of regional think tank bases. We will establish

partnerships with top-ranking scientific research institutions, universities, and scientific and technological organizations and think tanks, and promote the establishment of scientific and technological think tank alliances.

17. Provide consultation on major scientific decisions

Focusing on the strategic needs of international and national development and major strategic issues related to national economy and people's livelihood, we will organize strategic consulting research, analyze major development trends, make proposals based on the overall situation of the Party and the state's work, and provide suggestions for economic and social development. We will carry out third-party evaluation on the implementation of major policies of the Party and the state, and provide references for scientific decision-making. We will carry out in-depth investigation and research on major topics in economic and social development and put forward relevant solutions.

18. Guide social topics to the right track.

As for issues concerning people's livelihood such as ecological environment, health and food safety that are widely concerned by the public, we will organize scientific and technological workers to dispel doubts through interpretation, discussion and dialogue. We

will establish a quick response mechanism for the associations to guide social concerns, and effectively organize scientific and technological workers to initiate and actively participate in discussions on major social concerns.

19. Serve regional innovation and development

We will organize national societies and local associations for science and technology to deeply participate in the innovative development of the Beijing-Tianjin-Hebei region, the Yangtze River Delta, and the Guangdong-Hong Kong-Macao Greater Bay Area, etc., support Beijing and Shanghai to build themselves into scientific and technological innovation centers, serve the implementation of China's regional coordinated development strategy and innovation-driven development strategy, deeply participate in the guidance of scientific and technological innovation, the integration of technology and economy, and the provision of social and public services, stimulate scientific and technological workers' passion for innovation and entrepreneurship, and enhance the ability of associations for science and technology to serve economic and social development. CAST will carry out high-level, all-round and institutionalized strategic cooperation with local Party committees and governments to introduce innovative resources for regional development and enhance the endogenous vitality and balance of

regional development.

20. Provide professional and socialized services

We will promote scientific and technological societies to become specialized and professional providers of social and public services in science and technology, and carry out scientific and technological assessment, professional qualification identification in engineering and technical fields, technical standard development, and national science and technology award recommendation. We will give full play to the advantages of associations and societies such as extensive links, high degree of specialization and good social reputation, provide scientific and technological intermediary services that are deeply integrated into the whole chain for universities, scientific research institutes and enterprises, and create a favorable eco-system for scientific and technological innovation.

(5) Improve scientific and people-to-people exchanges and cooperation

We will carry out international non-governmental scientific and technological exchanges and cooperation, develop a global partnership, integrate into the global network, participate deeply in global governance, contribute Chinese wisdom and serve the building of a community with a shared future for humanity.

21. Participate deeply in global governance of science and technology

We will expand the channels of international non-governmental scientific, technological and people-to-people exchanges and cooperation, make full use of international innovative resources, coordinate domestic and international situations, and build a win-win global partnership network with the main aim to facilitate national rejuvenation and promote human progress. We will participate deeply in the formulation of rules, agenda setting, publicity and overall coordination in global scientific issues, and actively participate in and lead the reform of the global system for science and technology governance. We will strengthen the selection and training of reserve candidates for positions in international organizations.

22. Support the launching of international science programs

We will encourage and support Chinese scientists to take the initiative to set up, actively participate in and lead major international scientific projects and programs to jointly address common challenges facing mankind such as future development, food security, energy security, human health, climate change, etc.

23. Carry out scientific and people-to-people exchanges within the framework of the Belt and Road Initiative

We will establish and improve the high-level dialogue mechanism for scientists in major countries and regions along the Belt and Road, broaden cooperation channels in the field of science, technology and humanities, and establish multilateral and bilateral cooperation mechanisms. We will carry out such actions as co-construction of joint laboratories, cooperation in science and technology parks, technology transfer and so on, so as to enhance the technical quality in implementing the Belt and Road Initiative. We will carry out in-depth docking with our major international counterparts, promote relevant partnerships to go deeper, and achieve full coverage for docking with our key counterparts in different countries.

24. Promote the construction of the headquarters center of international scientific and technological organizations

We will vigorously support and promote the establishment of international scientific and technological organizations in China, focus on frontier emerging interdisciplinary fields, and use international rules to attract international counterparts to build international exchange platforms. We will actively guide new international scientific and technological organizations to register and set up headquarters in China, actively push international

scientific and technological organizations or their branches to set up headquarters or secretariats in China, and create new opportunities and conditions for the development of international scientific and technological organizations.

IV. Supporting measures

This outline of the development plan is the basic guideline for the innovative development of associations for science and technology in the new era. All the associations for science and technology in China must build consensus and form a joint force to implement this outline for effective outcomes.

(1) Strengthen the organizational leadership

We will set up a CAST leading group to promote the formulation and implementation of the outline of the development plan for the associations at all levels, study and make decisions and coordinate the resolution of major issues, and guide and supervise the implementation of the outline of the development plan for the associations at all levels. CAST will decompose and divide the objectives and tasks of this outline of the development plan into its work performance assessment system.

(2) Formulate the development plan of scientific and technological societies

Under the guidance of the outline of the development plan, all

national scientific and technological societies should strengthen their organization and leadership, discuss and formulate their medium and long-term development plans based on the unique conditions of their respective discipline, industry and field, promote their respective innovative development in the new era in an orderly manner, and take the reform of their governance structure and methods as a breakthrough to comprehensively promote the reform and innovation of their organizations and improve their service ability.

(3) Formulate the development plan of local associations for science and technology

Under the strong leadership of Party committees and governments, associations at all levels should discuss and formulate their respective development plans based on national and regional development strategies and their actual conditions, smoothly align them with the development plans of relevant regions and industries, strengthen coordination and cooperation with relevant departments, and actively incorporate the key tasks specified in the outline of the development plan into the work plans of local Party committees and governments and implement them in an overall and coordinated manner.

(4) Strengthen the construction of grassroots associations for science and technology

We will strengthen the infrastructure construction of grassroots associations for science and technology, solve the problem of the “Four Lacks” plaguing the associations at the grassroots level, i.e. lack of authorized strength, lack of funds, lack of office space and lack of staff, and promote the construction and improvement of online associations for science and technology. We will promote the construction of associations for science and technology in universities, research institutes, enterprises (industrial parks) and townships (sub-districts). We will promote the establishment of associations for science and technology in new economic organizations, new social organizations and new R&D institutions. We will promote the transformation and upgrading of the services of rural specialized technical associations to cover the whole industrial chain and realize targeted coordination and modern informatization.

(5) Strengthen staff training and management

We will formulate the education and training plan for staff members employed by the associations for science and technology, organize training and education programs, and improve the professional, vocational and international level of officials worked for the associations for science and technology. We will promote the

materialization of scientific and technological societies' secretariats and professionalization of their secretaries-general, and promote the improvement of the working conditions and treatments for employees in those societies.

(6) Strengthen the guarantee of conditions.

We will organically align the implementation of the outline of the development plan with the plan, annual work and budget of CAST, actively seek support from Party committees and governments, promote the formulation and improvement of laws, regulations, policies and measures to support the development of scientific and technological societies, encourage and support behaviors to take up social and public service functions transferred by the government, encourage and support the establishment of social welfare undertakings, strengthen the supervision and service of scientific and technological societies, and strengthen standardization and self-discipline. We will promote the formulation and improvement of supporting policies for the construction of science popularization facilities and public services, enable investment in science popularization to enjoy preferential policies for investment in scientific and technological research, ensure the equal importance of science popularization and scientific and technological innovation, and promote the gradual increase of investment in science

popularization funds in accordance with the financial situation and the actual needs of citizens' science literacy development. We will promote the establishment of a mechanism to provide steady support for scientific journals. We will establish and improve a performance-oriented budget management system that centers around socialized public services and products in science and technology. We will actively explore the establishment of a multi-supply support model, make full use of both international and domestic resources and both government and market mechanisms, innovate the supporting methods and mechanisms of associations for science and technology, and enhance their development vitality and supporting capacity.

(7) Strengthen the continuity and conjunction of the implementation
As a strategic deployment and arrangement for the super-long-term development of associations for science and technology, this outline of the development plan must maintain the continuity and conjunction of its implementation. The *Three-Year Action Plan for the Development of China Association for Science and Technology (2018-2020)* (see the Appendix) formulated in conjunction with this outline is the implementation plan for the first three years of the outline, as well as a follow-up action plan for the *13th Five-Year Plan for the Development of China Association for Science and*

Technology (2016-2020). In the future, it will be synchronized with the national economic and social development plan, and it will be necessary to formulate a phased implementation plan every five years. In the meantime, it is necessary to strengthen the monitoring and evaluation of the implementation of the outline of the development plan, and carry out relevant evaluation twice every five years.

Appendix

Three-Year Action Plan for the Development of the China Association for Science and Technology (2018-2020)

Appendix

Three-Year Action Plan for the Development of the China Association for Science and Technology (2018-2020)

The 19th CPC National Congress put forward three strategic goals for achieving socialist modernization in China, and proposed the development goal of building a moderately prosperous society with a stronger economy, greater democracy, more advanced science and education, thriving culture, greater social harmony and a better quality of life by the time the Party celebrate its centenary in 2020. In order to thoroughly study and implement Xi Jinping Thought on Socialism with Chinese Characteristics for a New Era, fully implement the CPC Central Committee's decision on social organization reform, translate the spirit of 19th CPC National Congress into vivid practice of associations for science and technology at various levels in the new era, this action plan was formulated on the basis of the mid-term evaluation of the implementation of the 13th Five-Year Plan of the China Association for Science and Technology, which will serve as an implementation plan for the first three years of the *Outline of the Plan of China Association for Science and Technology Oriented to Build China into a World Leader in Science and Technology* and a follow-up action plan for the *13th Five-Year Plan for the Development of the China Association for Science and Technology* (2016-2020).

I. Development background and trend

Since the beginning of the 13th Five-Year Plan period (2016-2020), associations for science and technology all over the nation have thoroughly studied and implemented the spirit of General Secretary Xi Jinping's series of important speeches, adhered to the principle of promoting political integrity, progressive nature and mass participation, firmly implemented the spirit of the Central Work Conference on Party Groups, as well as the spirit of the National Science and Technology Innovation Conference, the Conference of Academicians of the Chinese Academy of Sciences and the Chinese Academy of Engineering, and the Ninth National Congress of the China Association for Science and Technology, insisted on the in-depth reform of the science and technology association system as the driving force, earnestly performed its duty of serving scientific and technological workers, promoting innovation-driven development, improving the science literacy of the whole Chinese people and serving the scientific decision-making of the Party and the government, and realized new achievements in various fields. First, the role of political leading and absorption has been further strengthened. The science and technology association system has actively organized innovation competitions, strengthened ideological and political guidance for scientific and technological workers, united and led the majority of scientific and technological personnel to follow the instructions and guidance of the Party, and continuously strengthened the Four Consciousnesses, always kept consistent with the CPC Central Committee with Xi Jinping at the core and safeguarded the authority of the CPC Central Committee. Second, initial results have been achieved during the full

implementation of the *Implementation Plan for Deepening the Reform of the Science and Technology Association System* through highlighting a problem-oriented approach, and remarkable progress has been made in expanding effective coverage, transforming and expanding functions, building an online association for science and technology, strengthening the grassroots foundation, and enhancing organizational vitality. Third, the leading power of academic innovation services has been significantly strengthened, academic exchanges have moved towards high-end branding, new progress has been made in the internationalization of scientific journals, and initial results have been achieved in promoting the development of subject clusters, in-depth integration of industry, university and research, collaborative innovation, and accurate matching of innovative resources. Fourth, the supporting role of popular science services for the public has been further strengthened, a modern science museum system with Chinese characteristics has been initially completed, and the influence of activities such as youth science and technology innovation contests and university science camps has been further enhanced. Fifth, the influence of international non-governmental scientific and people-to-people exchanges has significantly increased. China Association of Science and Technology (CAST) has successfully become a full member of the Washington Accord, an international certification system for engineering education. Moreover, a group of Chinese scientists have held important leading positions in international scientific and technological organizations, and new achievements have been made in scientific and people-to-people exchanges among Belt and Road countries and “HOME” program.

The 19th CPC National Congress set out a new journey to build China into a world leader in science and technology and a modern socialist country. Facing the new mission, new tasks and new requirements for the development of associations for science and technology in the new era, as well as the goals and tasks set forth in the *Outline of the Plan of China Association for Science and Technology Oriented to Build China into a World Leader in Science and Technology*, associations for science and technology in the country still suffer pressing problems such as insufficient capacity for motivating public participation, insufficient capacity for innovation, insufficient leadership, and unbalanced and insufficient development. At a new historic starting point and in the historic intersection of the “Two Centenary Goals” of building a moderately prosperous society in all respects and building a socialist country in all aspects, we must formulate a new strategy for the development of associations for science and technology in the new era, make new achievements and form a new pattern for the development of associations for science and technology.

II. Guiding principles and development goals

(1) Guiding principles: Fully implement the spirit of 19th CPC National Congress and the First, Second and Third Plenary Sessions of the 19th CPC Central Committee, hold high the banner of socialism with Chinese characteristics, deepen the reform of the science and technology association system under the guidance of Marxism-Leninism, Mao Zedong Thought, Deng Xiaoping Theory, the important thought of Three Represents, the Scientific

Outlook on Development and Xi Jinping Thought on Socialism with Chinese Characteristics for a New Era, focus on the need of scientific and technological workers, strive to expand effective coverage, transform and expand functions and build online public organizations, strengthen the grassroots foundation, insist on serving scientific and technological workers and supporting innovation-driven development, improvement of science literacy of the whole Chinese people and scientific decision-making of the Party and the government; Reshape the new pattern of development driven by the Three Wheels of academics, popular science and think tanks, re-engineer the new process of internationalization, informatization and synergy, restructure the new forces of the Three-Dimensional Collective Organization with outward expansion, vertical and horizontal integration and active network, lay a solid foundation for the leapfrog development of associations for science and technology, and make contributions to the realization of the first of the “Two Centenary Goals,” to the building a moderately prosperous society in all aspects and to pushing China into the ranks of innovative countries.

(2) Development goals: Focusing on the strategic goal of building a moderately prosperous society in all aspects and pushing China into the ranks of innovative countries, the science and technology association system will make breakthroughs and progress in deepening the reform in all aspects, with an eye on reshaping development pattern, re-engineering workflow and restructuring organization, further promote the formation of an academic atmosphere inspiring scientific and technological workers to love their motherland, work hard, seek innovation, make selfless contributions, seek self-discipline and self-encouragement, and show indifference to fame and fortune, and comprehensively improve the political guidance and absorption capacity, the ability to serve the overall situation around the center and the ability to keep in touch with and serve the people.

—Significantly increase the ability of political guidance and absorption. The effective coverage and organizational vitality of Party organizations in associations for science and technology has improved significantly; the spirit of scientists has been deeply rooted in the hearts of the people; the guiding role and influence of incentives from associations for science and technology have improved significantly; the academic atmosphere of respecting innovation, encouraging exploration, tolerating failure and diversity and promoting inclusiveness has become greater, and the role of associations for science and technology as a bridge has been further strengthened.

—Significantly expand the effective coverage of associations for science and technology. Significant progress will be made in deepening the reform of the national society and local associations for science and technology. New achievements will be made in modernizing the governance system and capacity of associations for science and technology, and the advantages of open, pivotal and platform-based organizations will be further developed.

—Significantly enhance the ability to serve academic exchanges. The international

influence of academic exchange activities will be further enhanced; 5-10 international conference brands will be formed, the international influence of Chinese scientific journals will be further enhanced; the serving ability of science and technology societies will be further improved, and a number of enabling and innovative collaborative organizations will be set up; new results will be achieved in promoting scientific and technological workers' innovation and entrepreneurship, and in promoting the deep integration of technology and economy.

—Preliminarily establish a network of flexible science and technology think tanks. The role of China Science and Technology Summit will be fully played, and the ability to serve the Party and the government decision-making will be significantly enhanced. A response mechanism will take shape to quickly respond to social concerns about science and technology issues, the ability to serve the public in making scientific decisions in production and life will be significantly improved, and benign interaction and partnership with high-level global science and technology think tanks will take shape.

—Further form a great popular science pattern featuring social participation and joint cooperation. We will promote the full and in-depth implementation of the national science literacy action plan, create a favorable atmosphere for scientific workers to actively participate in science popularization, promote the initial progress of structural reform on the supply side of science popularization, significantly improve the capacity to precisely supply public services and goods in the field of popular science, further narrow the gap of citizens' science literacy between different areas and groups, and push the proportion of Chinese citizens with science literacy to exceed 10%.

—Further form a new pattern of international non-governmental scientific and technological exchanges. The associations for science and technology will further strengthen their influence in international scientific, technological and cultural exchange activities, further strengthen their ability to set the agenda and participate in dialogues and communications concerning global scientific and technological innovation issues, share Chinese experience on public science literacy, engineering education and engineering capability certification, and achieve initial results in promoting the establishment of the headquarters of international scientific and technological organizations in China.

—Basically establish the service system of the smart association for science and technology. We will achieve rapid iteration of popular science in China to make sure science popularization services are more comprehensive, accurate and intelligent. We will establish and improve the academic information service system of science and technology societies, online social networking of scientific and technological workers and other platforms, preliminarily build the Central Kitchen of the smart association for science and technology, and basically realize information exchange and data sharing and opening.

III. Implement the project to unite people and pool strengths

We will strengthen the construction of Party organizations in the science and technology association system, enhance our organization and mobilization ability, carry forward the scientific spirit, stimulate the patriotic passion of scientific and technological workers to serve the country and build up a strong nation, and create a spiritual home for scientific and technological workers.

1. Promote the “Smart Party Building” action. We will urge the science and technology association system to practice the principle of full and rigorous governance over the Party and give priority to political construction. Based on the “Smart Party Building” platform, we will continue to promote the deep integration of Internet + Party Building. We will improve Party organizations of the councils, branches and offices of academic societies, steadily improve the professionalism of science and technology societies’ Party building workforce, continue to implement the Party Building and Society Improvement Plan and give full play to the political leading role of Party organizations of science and technology societies.

2. Carry out the action to enhance the capacity to motivate public participation. We will hold events to celebrate the National Science and Technology Workers’ Day and erect a number of science and technology role models. We will implement the “3+1” pilot project to improve the organizational strength of grassroots associations, and attract hospital presidents, principals of primary and secondary schools and heads of agricultural technology stations to join county- and township-level associations for science and technology at part-time and temporary posts. We will implement the comprehensive capacity assessment of national science and technology societies and guide those societies to improve the working mechanism for optimizing service innovation and development. We will promote the construction of associations for science and technology in universities, enterprises (industrial parks), research institutes and townships (sub-districts), and accelerate the establishment of associations for science and technology in new economic and social organizations. CAST will cooperate with provincial governments, relevant departments of the central government, universities and other provincial, ministerial and institutional societies, and establish a closely coordinated cooperation mechanism with provincial Party committees and governments and relevant departments aiming at the national key strategies and tasks such as the Belt and Road Initiative, Guangdong-Hong Kong-Macao Greater Bay Area, Beijing-Tianjin-Hebei Coordinated Development, Yangtze River Economic Belt, etc.

3. Carry out the incentive and promotion program of associations for science and technology. We will strengthen the research on the developmental law of strategic scientific and technological talents, scientific and technological pioneers, young scientific and technological talents and high-level innovation teams. We will launch and issue the National Award for Outstanding Engineers, and cooperate with the Ministry of Science and Technology, the Ministry of Human Resources and Social Security and the State-owned Assets Supervision and Administration Commission to jointly launch the National Award

for Innovation Competition. We will adjust the orientation and content of the China Youth Science and Technology Awards, and focus on training young science and technology pioneers with international standards. We will issue the Young Chinese Women Scientists Award, recommend outstanding female scientists to participate in the selection of The L'Oréal-UNESCO For Women in Science Awards and recommend nominees of the Future Women Scientists plan to compete for the title of the UNESCO-L'Oréal International Rising Talents. We will carry out the project of supporting young talents and select young scientific and technological workers under the age of 32 for stable funding and training. We will expand the implementation of short-term exchanges of outstanding Chinese and foreign young scientific and technological talents and hold exchanges of young scientific and technological talents.

4. Carry out activities to promote scientific spirit. We will promulgate and implement the *Opinions on Further Promoting Scientist Spirit in the New Era*, take the inheritance and promotion of scientist spirit as the carrier to launch an all-round upsurge of activities in the scientific and technological circles to promote patriotic and hardworking spirit and make contributions to the new era, and guide the majority of scientific and technological workers to practice patriotic and hardworking spirit. We will publish *Learning of Patriotic and Hardworking Spirit* to tell the stories of leaders caring for intellectuals as well as the stories of intellectuals' patriotic and hardworking practices, with the purpose of inspiring more intellectuals to firmly establish the Four Consciousnesses and enhance the Four Confidences. We will establish the Academy of Science and Culture together with Peking University to promote the trans-sectoral integration of science, technology and culture. We will expand the combined functions of the Information Collection Project of Senior Scientists' Academic Growth for "leading, storing, displaying, researching and publicizing", create a number of masterpieces to publicize outstanding scientific and technological figures, and accelerate the construction of the National Museum for Chinese Scientists. We will deeply implement the Backbone of the Republic—the publicity project of scientific masters in famous schools, explore and carry out the Dream Chasers—the publicity project of innovative pioneers in the new era, create a new name card for ideological and political education in colleges and universities, and push the spirit of scientists into campuses, classrooms and textbooks. We will sing praise for the most outstanding scientific and technological figures in the new era, and strengthen the publicity timing, intensity and effectiveness in a tender and subtle manner. We will build up a publicity database of scientific and technological figures and the Central Kitchen of publicity products and open up the history exhibition of CAST to the public.

5. Carry out the action to promote the publicity and education of scientific ethics and academic discipline. We will make overall planning and guidance on building a national system of the publicity and education of scientific ethics and academic discipline, hold national symposiums on the publicity and education of scientific ethics and academic discipline, forums on the building of scientific ethics, seminars on the publicity and education of scientific ethics and academic discipline, training programs on the publication

and education of scientific ethics and academic discipline for postgraduate tutors, etc. We will also organize seminars for newly elected academicians. We will compile a series of textbooks and animation products on scientific ethics and academic discipline, provide teaching materials for introducing relevant publicity and education into the student training system and the vocational training system for teachers and scientific and technological workers. We will strengthen international exchange and cooperation in promoting research integrity, showcase China's achievements in strengthening research integrity, and actively participate in the research and formulation of international norms on behaviors and moralities in scientific research.

IV. Implement the academic leading project

We will deepen the reform of science and technology societies, carry out academic exchanges, activate academic ideas, advocate academic democracy, promote innovation and coordination, push forward economic and technological integration, and lead scientific and technological innovation and discipline development.

6. Create high-end academic products and brands. We will launch or jointly hold a series of global academic conferences in fields like life science, robotics, and transportation, and form a demonstration brand in the frontier of interdisciplinary integration and key technical areas related to national strategic development. We will further build the annual meeting of CAST into a high-end international platform for “giving voices, pooling strengths and releasing news”. We will launch a hundred demonstration academic conferences with distinctive characteristics, establish a quality evaluation system for academic conferences of CAST, and expand the core competitiveness of the academic conference brand of CAST. We will organize the annual summary of the hot spots in the frontier of science and technology, release the progress of academic research, and continuously publicize “frontier scientific issues leading world science and engineering and technical problems in building a world leader in science and technology,” with an eye on realizing the goal of building China into a world leader in science and technology by 2050.

7. Promote the construction of world-class STM journals. We will implement the China STEM Journal Excellence Action Plan, promote the improvement of the support system for the development of Chinese STM journals, build outstanding STM journals in stages, and focus on supporting outstanding journals with great potential to enter the ranks of the world's top journals in the same field and form a matrix of international first-class journals. We will publish a high-quality catalogue of STM journals in different fields and promote the construction of a basic data integration platform for STM journals.

8. Promote the construction of world-class scientific and technological societies. We will deepen the reform of the national societies and strengthen the construction of service capacity. We will implement the comprehensive capacity assessment of the national societies of science and technology, build an international academic exchange platform, cultivate the world's top scientific journals, create an academic award brand with

international influence, formulate international technical standards, carry out in-depth international exchange and cooperation, innovate the service model of industry, university and research, provide high-quality socialized public service products, etc.

9. Promote the construction of enabling and innovative collaborative organizations. Aiming at the research, development and industrialization of cutting-edge technologies, disruptive technologies and key generic technologies in strategic emerging industries, we will promote the establishment and improvement of a number of innovative collaborative organizations, such as innovative collaborative alliances, interdisciplinary consortia, cross-industry consortia and cross-academic consortia. And, aiming at the transformation of technological achievements, we will build innovation chain, link up capital chains, carry out demonstration applications and guidance, build up a space for public innovation, participate in international cooperation, go global together, and promote the establishment and improvement of a technical innovation guarantee system. Expand the scale of exchanges with young people from China's Hong Kong, Macao and Taiwan, set up a platform for innovation, entrepreneurship and academic exchanges and cooperation with young people from China's Hong Kong Macao and Taiwan, and promote collaborative innovation with new industries in China's Hong Kong, Macao and Taiwan.

10. Promote the deep integration of technology and economy. We will give full play to the role of academician & experts' workstations in promoting innovation, cultivate the first-line talents that enterprises need urgently, forge the innovative ecology of enterprises, and help enterprises shift to high end of their respective industries. We will promote the innovation and entrepreneurship of science and technology workers, continue to host the National Mass Innovation and Entrepreneurship Week and the Innovation and Entrepreneurship Exhibition in China, select Top 100 Disruptive Innovations and hold events to celebrate the World Creativity and Innovation Day and the Overseas Innovation and Entrepreneurship Week.

V. Implement the project of pooling wisdom in China

We will build a flexible network of science and technology think tanks, set up a decision-making consultation platform, serve the scientific decision-making of the Party and the government, respond to social concerns in a timely manner, participate in international science and technology governance, and promote the modernization of the national governance system and capacity.

11. Strengthen the construction of a flexible network of science and technology think tanks. We will build a number of professional science and technology think tanks based on science and technology societies as well as a number of regional research bases for science and technology think tanks based on regional associations for science and technology, carry out third-party evaluation, and establish and improve a survey system for science and technology workers. We will establish a long-term exchange and cooperation mechanism for mutual benefit and win-win results, conduct joint research with the world's top

scientific research institutions, organizations, and think tanks, and support Chinese scientists to demonstrate themselves and have exchanges on the global arena.

12. Hold a series of activities for the China Science and Technology Summit. We will hold a series of thematic summits on science and technology, science and economy, science and culture, youth, etc., organize global forums of science and technology think tanks, international forums on innovation strategy and science and technology policy, etc., set the agenda for discussions on major scientific and technological topics, and put forward relevant policy proposals promoting scientific and technological innovation, coping with major challenges of economic and social development, and accelerating sustainable social development. We will hold a series of activities, invite well-known science and technology strategic experts to set up hot issues for discussion, and build a strategic thinking platform dedicated to the construction of a community with a shared future for mankind.

13. Carry out the research plan on technology foresight. Aiming at the frontier of science and technology and relying on various society consortiums and individual science and technology societies, we will carry out technology foresight research programs, regularly realize future-oriented and industry-oriented achievements of think tanks, submit the latest information on the frontier of science and technology, analyze the evolution trend and hot spots of technological development in typical fields, predict the growth points of new disciplines, analyze their growth mechanisms and put forward measures and suggestions.

14. Promote the development and application of research achievements of scientific and technological think tanks. We will promote research on key research topics of CAST, and form major decision-making consultation results in a timely manner. According to the characteristics and quality of those major decision-making consultation results, we will improve and enrich relevant reporting, publicizing and publishing methods. We will improve the quality of think tank outcomes such as *Science and Technology Situation* and *Suggestions of Science and Technology Workers* and enhance the efficiency of submission. We will establish and improve new result reporting channels.

VI. Implement the science popularization brand project

We will carry forward the scientific spirit, disseminate scientific ideas and methods, stimulate teenagers' scientific dreams, form a joint cooperation pattern for science popularization, promote the coordinated development of scientific innovation and popularization, and improve the science literacy of the whole Chinese people.

15. Further promote the national science literacy action. We will improve the citizens' science literacy co-construction mechanism, urge governments at all levels to implement their primary responsibilities, promote the integration of national science literacy work into the performance appraisal of Party committees and governments at all levels, strengthen the

connection between national science literacy work and national overall planning and related work, promote the signing of strategic cooperation agreements with relevant departments and localities, and strengthen relevant support in terms of policies, funds and talents. We will accelerate the research on popular science theory, establish and improve the evaluation system of Chinese citizens' science literacy in the new era, and study and compile the medium- and long-term plan for the construction of citizens' science literacy by 2035. We will organize the National Science Day and other relevant theme activities and respond to hot scientific topics that the public care in a timely manner. We will promote the training of science popularization professionals, strengthen the continued education of science popularization personnel, and strengthen the training and guidance services of science popularization volunteers. We will promote research, development and innovation of popular science products, support outstanding original works of popular science, science fiction creation and exchange activities, and promote research and development of popular science products and product trading.

16. Carry out the innovation of modern science and technology museum system. We will further establish and improve the modern science museum system based on traditional science museums, expanded by mobile science museums, popular science caravans, rural middle-school science museums and digital science museums, and radiating to grassroots science facilities. We will promote the construction of traditional science and technology museums, strengthen support for new science and technology museums, promote the construction of science and technology museums in central and western regions and cities, and promote the construction and development of a number of special science and technology museums and industrial science and technology museums with local and industrial characteristics. We will strengthen the research and development of popular science exhibits, the service level of exhibition and teaching activities and the creative ability of popular science films and TV programs in science and technology museums around the nation, and promote the alignment and cooperation between traditional science and technology museums and mobile science and technology museums, popular science caravans and digital science and technology museums. We will build smart science and technology museums, comprehensively improve the informatization of exhibitions, educational activities, audience services and management and operation, and realize intelligent venue management and personalized services for the public. We will remodel the Digital Science and Technology Museum of China and strive to build it into a hub for the operation and management of science and technology museum system and resource sharing, as well as an exemplary interactive learning experience center. We will build and improve mobile science popularization facilities, increase the distribution and service scope of mobile science popularization facilities, and improve the development and service level of thematic and specialized exhibition and teaching resources for mobile science popularization facilities. By 2020, the number of mobile science museums in China will hit 300, and the number of popular science caravans will reach 1,500, basically covering all villages and towns in areas where science and technology museums are not available. We

will build 1,000 science and technology museums at middle schools in rural areas. We will improve the national standards system for science and technology museum construction and other industries as well as relevant standards and norms, carry out rating and grading evaluation for science and technology museums, and strengthen the assessment of free public opening of science and technology museums.

17. Carry out the action to promote science and technology reserve personnel training. We will expand and enhance the coverage and influence of science and technology education activities for youths such as the China Adolescents Science and Technology Innovation Contest, National Youth Science Camp, Yingcai Program (the Middle-School Student Talent Program), and National Middle-School Student Five-Subject Competition, and accelerate the establishment of a mechanism for the discovery, training and tracking of science and technology reserve talents. We will mobilize institutions such as universities, research institutes and technology-based enterprises to open their laboratories and other teaching and research facilities to youngsters, penetrate activities organized by associations for science and technology through all stages of innovative talent training and education, and consolidate the status of science as the main subject in the basic education stage. We will hold science and technology exchange activities for youths from China's Hong Kong, Macao and Taiwan, serve students participating in university science camps, organize and coordinate the participation of students in innovation competitions, robotics competitions and so on. We will strengthen research on the training system, policies, methods and contents of science and technology education for young people, establish a number of training bases of national science teachers and science and technology instructors, promote the construction of training curriculum resources, and improve the national, provincial and grassroots training systems.

18. Carry out scientific popularization of academic resources. We will promote the latest progress in the field of science to be disseminated to the public in a timely manner, organize and guide scientific and technological workers to better fulfill their social responsibilities, organize and support outstanding scientists and engineers to carry out science popularization activities at the grassroots level. Strengthen the construction of scientific communication expert teams, and hold scientific communication authoritative release activities. By 2020 more than 80% of all national science and technology societies will have scientific communication expert teams, employing more than 10,000 scientific communication experts. We will accelerate the establishment of a benign interaction mechanism between scientific and technological innovation and popularization of science, organize the evaluation of scientific achievements and scientific services of innovation subjects, promote the evaluation of scientific achievements of national scientific and technological projects and major engineering projects, promote the goal of integrating scientific achievements into all levels of scientific and technological projects and major engineering projects, and promote the integration of scientific achievements as indicators for professional title evaluation and promotion of scientific and technological personnel and appraisal of scientific achievements.

19. Promote science popularization to serve the rural vitalization plan. We will deeply implement the plan to facilitate rural vitalization and improve farmers' science literacy, and optimize policy supply and improve farmers' science literacy in all aspects by strengthening the training of rural key groups in science literacy, the informatization of farmers' science literacy network, and the provision of science resources for agriculture, rural areas and farmers. We will strengthen the cultivation of science popularization staff, build and improve new grassroots science popularization positions, such as China Science Communication (CSC) e-Stations, and accurately disseminate high-quality popular science information. We will implement the grassroots science popularization action plan, push science popularization resources to prioritized areas and villages where science popularization services are weak, and continue to promote science popularization to support poverty alleviation, aid Tibet and Xinjiang through science popularization, and carry out Wise Mothers and Wise Blue Collar actions. We will promote cooperation between agricultural production and management entities and technical service entities, and accelerate the transformation and upgrading of rural professional and technical associations from technology demonstration and extension to full industry chain service, from closed and extensive service to collaborative and accurate service, from traditional service to modern information service. We will create a full industry chain operation mode, urge those associations to establish a modern "agricultural technology association + enterprise" development mode through scientific and technological innovation and agricultural technology extension, and lead the integrated development of local agricultural industries. We will establish and improve the training, certification and support system of rural professional technical associations, and comprehensively improve the management ability and professional skills of those associations' leaders and technical backbones.

VII. Implement the project to support science and technology diplomacy

We will carry out international non-governmental scientific and technological exchanges and cooperation, integrate into the global scientific and technological innovation network, participate deeply in global scientific and technological governance, contribute Chinese wisdom to the world, and promote the formation of a new pattern of international non-governmental scientific and technological exchanges featuring deep integration and mutually beneficial cooperation.

20. Carry out people-to-people science and technology exchange projects. We will explore and promote overseas cooperation to set up non-physical science centers and carry out cooperative research on scientific and technological innovation projects. We will support Chinese scientists to take leadership positions in key international organizations and promote wider and higher-level participation in decision-making and management of international organizations. We will encourage the initiation of international organizations in China, attract the headquarters and secretariats of international organizations to set up in China, and explore global projects of international organizations alliances. We will support and serve China's Belt and Road Initiative, and carry out practical project cooperation in

engineering capability, science and technology industry, science popularization collaboration, personnel training, and think tank construction. We will build a global partnership cooperation platform for international non-governmental scientific and technological exchanges, conduct high-level mutual visits, hold bilateral events, sign cooperation agreements, launch bilateral projects, etc. We will establish and improve the dialogue mechanism, carry out bilateral high-level dialogue among scientists, innovate the forms of activities and drive the implementation of relevant projects. We will implement the HOME program and establish offshore innovation and entrepreneurship bases for overseas talents in mature cities through the development and establishment of overseas talent bases. Implement the flexible recruitment of talents and create an important platform for gathering high-level overseas talents and promoting overseas talents to innovate and start businesses.

21. Carry out the plan to share Chinese solutions. We will establish and improve the evaluation standard and certification system for domestic engineering capability certification, and explore ways to solve the problems of overseas qualification of Chinese engineering technicians and the bottlenecks of international mobility of engineers. We will give full play to China's role as a full member of Washington Accord, recommend Chinese engineers to the International Engineering Alliance, and broaden the channels of contact with other engineering education and mutual recognition agreements. We will implement bilateral mutual recognition pilot projects and multilateral mutual recognition negotiations, so as to promote substantial equivalence between China's engineering capability evaluation standards and major international standards, and gradually realize international mutual recognition of engineer qualifications. Having been granted special consultative status with the United Nations Economic and Social Council (ECOSOC), CAST will bring scientists together in the consultative committee to conduct activities in the United Nations as a non-governmental organization and take the initiative to host sub-forums or exhibitions in relevant key areas.

22. Carry out the international plan of science and technology education for young people. We will create an international forum for youth science and technology education, hold the Belt and Road Teenager Maker Camp and Teacher Workshop, and establish the Belt and Road youth science and technology and humanities education exchange mechanism. We will promote the internationalization of major competition activities, such as China Adolescents Science and Technology Innovation Contest and the World Adolescent Robot Contest, enrich the contents and forms of competition activities, improve the rules, expand the scale of participating countries and regions, and make those competitions carnivals for global youth science and technology lovers and educators. We will standardize the supervision and management of the five-subject competitions of middle-school students nationwide, hold the selection, training and team participation of international Olympic disciplines competitions, and hold key international youth science and technology exchange activities, such as the International Science and Engineering Fair (ISEF) and Sakura Science Plan.

23. Carry out a series of activities to promote science literacy worldwide. We will hold the World Conference on Science literacy, work with the international community to deal with global common problems concerning science, technology and social development, promote the formation of a long-term cooperative mechanism for world public science literacy improvement, issue the “Beijing Declaration for Promoting Public Science Literacy Across the World”, share China’s effective model and experience in the promotion of public science literacy, call on the world to attach great importance to the important role of public science literacy in building a community with a shared future for mankind, and plan and launch a world science literacy promotion organization. We will promote the establishment of a global comprehensive and high-level exchange and cooperation mechanism in the field of scientific communication, a global platform for scientific and cultural communication, and a global digital network for scientific communication, hold an international competition for popular science works, establish a league of popular science facilities along the Belt and Road routes, and launch popular science caravans, etc.

VIII. Implement the project to build smart associations for science and technology

To respond to the development trend of digitalization, networking and intellectualization, we will build an intelligent online association for science and technology, extend the coverage and increase the “nodes” for serving scientific and technological workers, and enhance the ability of intelligent service.

24. Implement the action to promote science popularization informatization. We will deeply implement the special project of science popularization informatization and promote the production, gathering and dissemination of high-quality science popularization contents. We will innovate the expression methods of popular science contents via TV, science games and other media, and speak out for major scientific events and emergencies by means of news introduction, scientific interpretation, etc. We will establish the China Science Communication Alliance, pool the strengths of science popularization, production, research institutions (organizations), link the nodes and data of all members of the alliance, establish China’s science popularization certification and evaluation mechanism, explore the establishment of high-level science popularization awards in China, and promote policy planning and implementation in the science popularization industry.

25. Build an academic information service system of science and technology societies. We will set up a new open and shared academic resource service platform, and build a Chinese academic knowledge system gathering academic resources of various societies and integrating conferences, journals, books, education, etc. We will build a social networking platform for scientific workers and a national academic exchange system for scientific research, academic growth and participation in social governance. We will build a sharing platform for innovative and entrepreneurial resources, provide services such as sharing of instruments and equipment, sharing of innovative ideas, industrialization of scientific and technological achievements and appointment with technical experts, and set up a green and

open-source sharing platform with resource sharing as its core. We will build an integrated collaborative work platform for the science and technology association system, integrate the data-centered management processes, set up an integrated work pattern for intelligent associations for science and technology and intelligent science and technology societies, establish a large academic, digital and intelligent academic exchange system for intelligent associations for science and technology, and achieve the goal of enabling academic resources to be findable, available, intelligent and accurate.

26. Build the “Central Kitchen” of smart associations for science and technology. We will research, formulate and improve the standards and norms for the construction of smart associations for science and technology, bridge the platforms of popular science informatization, academic informatization, the office system and Party building informatization of associations for science and technology, build and improve the intelligent science and technology association system with integrated resources and big data according to the unified standards. We will basically build up a smart association data center characterized by resource aggregation, integration and sharing, safety and reliability, and strengthen data analysis on talent growth, discipline development, and think tank construction, achieve effective aggregation and tailored service in terms of data resources. We will basically establish a cooperative work platform with a complete system, remarkable safety and stability, and intelligent services, and realize a smooth network for information communication within the scientific and technological association system.

27. Innovate the product and service model of smart associations for science and technology. We will establish and improve the system and mechanism of construction and operation driven by dual engines of intelligent associations for science and technology, promote the concept that information is the basis for science and technology association governance and development, realize the transition from small data to big data, from big data to systematic resources, start from small programs, turn them into applications directly, and eventually set up relevant platforms. Through efforts to promote informatization, we will enhance the soft power of academic and popular science work, enhance the efficiency of knowledge exchange and create new values, and tap into the advantages of science and technology association system through cross-border integration. By means of centralized deployment and hierarchical application, the “customized application + application store” eco-service model will be adopted to improve the integration of “small programs” and large platforms and realize plug-and-play, joint development and sharing of “small programs” at the business application level. We will insist on the organic combination of public welfare and marketization in the construction and operation of smart associations for science and technology, and establish a model in which business management departments play the lead role and put forward demands, technical service units provide technical support, formulate standards, carry out safe operation and maintenance, data mining and service, and enterprises implement commercial operation and maintenance. We will give full play to the role of market mechanism and internet mobilization mechanism, actively guide social forces to participate in the construction of online science and technology association, and

explore the market operation mode for the sustainable development of intelligent associations for science and technology.

IX. Supporting measures

(1) Strengthen the organizational leadership. The national science and technology association system should attach great importance to strengthening the organization and leadership, adjusting and improving relevant plans, programs and work arrangements in a timely manner based on the objectives and tasks assigned in this action plan and according to the actual situations of respective associations and societies, and ensure that the CPC Central Committee's deployment requirements for associations for science and technology are put in place properly. CAST will split the objectives and tasks of this action plan into departments and units directly under its jurisdiction, clarify the responsible departments (units) and schedule arrangements, and formulate annual and staged implementation plans.

(2) Deepen the reform of the science and technology association system. Associations and societies for science and technology at all levels should follow and implement the requirements of the *Implementation Plan for Deepening the Reform of the Science and Technology Association System* issued by the General Office of the CPC Central Committee, carry out various reforms in a solid manner, effectively solve problems such as prioritizing business activities over political and ideological guidance, strengthen Party building in associations for science and technology and enhance the political leading and absorption capacity. We should effectively solve the problems of insufficient and loose contact with scientific and technological workers, expand the effective coverage of organizations and enhance the ability of contact and service. We should effectively cope with the "four lacks", i.e. lack of authorized strength, funds, office space and staff, actively seek the support of Party committees and all related parties, stick to looking down at the grassroots level and tilt the strength and service resources to the grassroots, and effectively solve the problems of insufficient cohesion, weak vitality and loose organization of science and technology societies. We should take the modernization of those societies' governance structure and method as a breakthrough to promote innovation of organizational methods and effectively enhance the ability to organize and serve scientific and technological workers.

(3) Strengthen staff training and management. We should optimize the structure of staff members of associations and societies for science and technology at all levels, intensify the exchange of staff members, improve the assessment and evaluation mechanism for officials, improve the working style, and create a favorable atmosphere for work and entrepreneurship. We should establish and improve the official education and training system, strengthen the education and training of officials, and improve the task-executing capacity of officials of science and technology association and societies at all levels. We should push forward reforms such as substantiation of society secretariats and professionalization of secretary-generals, and international vision of the officials working for the associations and societies.

(4) Strengthen condition improvement and evaluation. Associations for science and technology at all levels shall actively seek the support of Party committees and governments, make full use of both international and domestic resources as well as both government and market mechanisms, and actively explore the establishment of diversified support and guarantee mechanisms. We should promote the formulation and improvement of laws, regulations, policies and measures to support the development of science and technology societies, encourage and support receiving social and public service functions transferred from the government, encourage and support the establishment of social welfare undertakings, reinforce the supervision and service of science and technology societies, and strengthen standardization and self-discipline. We will enable science popularization investment to enjoy preferential policies for scientific research and development investment, promote the gradual increase of investment in science popularization funds in accordance with the financial situation and the actual needs of citizens' science literacy development. We will decompose and divide the objectives and tasks of this action plan, carry out the annual evaluation and the final evaluation on its implementation at the end of the third year, and include the evaluation results as an indicator for the evaluation and assessment of relevant officials' job performance.