BTBU-ECOSF JOINT TRAINING CENTER ON SCIENTIFIC, TECHNOLOGICAL & ECONOMIC COOPERATION UNDER THE BELT AND ROAD INITIATIVE

4TH JOINT TRAINING PROGRAM

SCIENCE, TECHNOLOGY, AND INNOVATION (STI) POLICY AND TOOLS FOR SUSTAINABLE DEVELOPMENT IN THE BELT AND ROAD COUNTRIES

DECEMBER 15TH, 2021

中国科协“一带一路”国际科技组织合作平台建设项目

China Association for Science and Technology (CAST) Program of International Collaboration Platform for Science and Technology Organizations in Belt and Road Countries

北京工商大学——经济合作组织会科学基金会
“一带一路”科技与经济合作联合培训中心

Background

BTBU-ECOSF Joint Training Center with support of China Association for Science and Technology (CAST) organized the 4th joint Training Program on "Science, Technology, and Innovation (STI) Policy and Tools for Sustainable Development in the Belt and Road Countries" on December 15th, 2021. The training was held virtually through Zoom and attracted participation of over 100 participants from 20 countries, particularly from the ECO Member Countries. Engr. Khalil Raza Scientific Officer – ECOSF moderated the training session and generated a meaningful dialogue on the subject. A number of STI experts from China, Iran, and Pakistan participated as resource persons.

The 4th Training Program on STI Policy and Tools was aimed at engaging participants in enhancing their understanding on existing approaches, case studies and national experiences in establishing and managing STI policies with reference to innovation system reforms, STI parks and other essential tools. The objective of the short on-line training session by BTBU-ECOSF Joint Training Center was to build awareness and understanding concerning key aspects of STI policies and instruments, as well as innovation and entrepreneurship processes and how they relate to the SDGs. This report contains brief highlights, and the key messages of the expert trainers as provided in the succeeding sections. The detailed Power Point Presentations (PPTs) of the expert trainers are annexed towards the end of this report.

Training Objectives

The virtual training session provided an opportunity to STI policymakers, researchers, and managers to introduce various theories and practices of STI policy tools in the context of Belt and Road Initiative.

The experts/resource persons delivered their lectures on the following specific objectives:

1. Share knowledge and practices using different methodological approaches to policy-making and implementation of STI policies
2. Recognize the importance of transparent, participatory, inclusive, and evidence-based STI policy-making processes
3. Understand the importance of establishing appropriate and well-balanced policy mix of instruments and means that address the global challenges
4. Appreciate the need to support innovation and entrepreneurship through government support, financing etc.

Role of STI Policy and Tools for Sustainable Development

The resource persons underlined that the STI policy has played a significant role in the economic transformation of many nations. STI policies have enabled structural transformations and the long-term productivity growth needed to sustain economic development. In the Asia-Pacific region, this is particularly true for Japan, the Republic of Korea and Singapore, and recently in China. These four countries have undergone rapid economic transformations in the recent decades. Significant advances as a result of STI policies have placed these countries at the forefront of innovation.

Hence, experts emphasized that many regions and countries need to build capacity in STI policy in order to strengthen their national STI systems and foster STI for addressing the pressing health, economic and social challenges of the pandemic crisis, especially for the Belt and Road countries.

Prof. Dr. Manzoor Hussain Soomro, President ECOSF in his welcome remarks emphasized that Science, Engineering, Technology, and Innovation (SETI) play a critical role in providing policy instruments that are essential to develop strong base of countries. Prof. Soomro underlined that it is important to deliberate on the adequate framework and strategies to develop the STI policies as a powerful governing tool which can reshape and alter the course of direction towards a high economic growth trajectory for the Belt and Road countries.

Prof. Soomro underscored that BRI of China commits to foster the industrial development with strong technical cooperation in many fields, including sustainable energy, infrastructure development, emerging technologies, and smart cities or transport etc. To achieve these massive goals, it requires a robust commitment to support science and engineering, including the capacity building and human resource development, Prof. Soomro remarked.

Dr. Bi Lianliang, Associate Researcher, Institute of International Science and Technology Relations, Chinese Academy of Science and Technology for Development (CASTED) presented her lecture on "The Policy Framework for STI in National High-Tech Zones of China". Dr. Lianliang highlighted that China has effectively utilized the Science Parks and National High-Tech Zones (NHZs) as important carriers and tools of economic growth. Currently, China leads the world in terms of one of the highest numbers of successful science parks and high-tech zones. China first recognized the important role of science parks in 1988, whereby the State Council of China determined to include NHZ in its development agenda through its (China's) "Torch Program". At present, China has over 169 National and 50 Provincial High-Tech Zones.

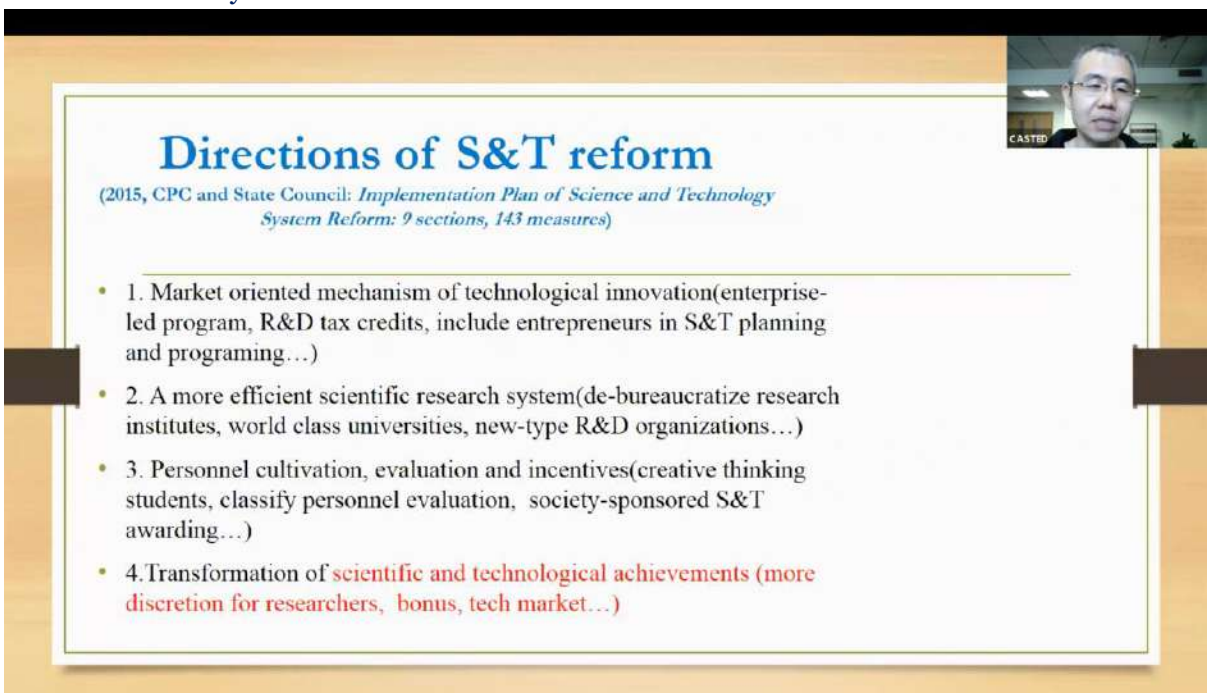
Dr. Bi further underlined that NHZs have contributed immensely as an important pillar to the Chinese national economy. Over the last 30 years, NHZs have contributed upwards of 11% of the China's GDP with cumulative net exports of over 20%.

She also highlighted the key lessons of China's Science Parks; which are grounded on four principles; (a) NHZ are recognized as an important part of national strategy and well protected by laws, master plans and policies, (b) these are financially independent with taxation and fiscal right (c) local governments play a key role in their administration and management with right set of policy incentives and tools to boos innovation and (d) these zones are first piloted at small scales and then they are gradually scaled up and replicated in other parts of china.

Dr. Li Yan, Associate Researcher of Chinese Academy of Science and Technology for Development (CASTED) delivered his presentation on China's S&T System Reforms. Dr. Yan presented the historical background and current administrative framework of the China's S&T system. He highlighted that since its independence, China had a strong political will to drive and uplift the S&T sector. As a result, several institutions and strategic initiatives were built and undertaken to strengthen the S&T system in China. Dr. Yan also presented the Implementation Plan of Science and Technology System Reform which has been adopted by State Council of China in 2015. In this plan, there are 143 measures which aim to provide a foundation for S&T reforms in the following directions:

- Promote market-oriented mechanism of technological innovation and development to insure inclusive participation of key stakeholders in the S&T planning. Historically, S&T planning has been primarily undertaken by the state institutions with negligible feedback from enterprises. Hence, this plan concentrated on encouraging the participation of entrepreneurs and enterprises in the S&T planning and programming.
- De-bureaucratize the research institutes to promote innovative research in the R&D institutions
- Encourage personnel cultivation, and incentivize creativity and critical thinking, and reward scientists and researchers who are making meaningful impact through their research in the society.

- Promote entrepreneurship and bring in adequate financing for commercialization of scientific and technological research and strategize the pathways for process of Laboratory to Market etc.



Prof. Dr. Dr. Arabella Bhutto Co-director of the Mehran University Institute of Science & Technology Development (MUISTD), Pakistan delivered her lecture on the STI Policy Framework in Pakistan. She presented the historical account of Pakistan's STI policies since its independence. Pakistan adopted its first ever National STI policy in 1984, which emphasized on technological development appropriate to the national needs and it served as the foundation for improving S&T research in the country. One of the major outcomes of this policy initiative was establishment of the STI governance structure, which played a primary role in devising the institutional framework to drive S&T development in the country.

Later in 2012, Pakistan introduced another National STI Policy, however, the policy did not produce promising outcomes as result of its weak implementation framework. Prof. Bhutto

underlined the gaps that exist in the implementation of the STI policy framework in Pakistan. Although, Pakistan began with an appropriate agenda setting for STI in its early years of development and in response, various policies were formulated but they were never formally adopted and implemented. Prof. Bhutto highlighted a few major reasons as to why these STI policies in Pakistan have not been able to deliver on their objectives, which include;

- Inconsistency in roadmaps or action plans
- No allocation of adequate funds for implementation of relevant S&T measures
- Lack of institutional capacities at major S&T organizations and
- Misalignment of S&T agenda with national development goals
- Lack of monitoring and evaluation framework

Prof. Bhutto underscored that Pakistan is in the process of developing another STI Policy this year in 2021 and the draft policy document has already been developed in consultation with stakeholders. This draft STI policy 2021 aims to address four key areas of sustainable development, including basic human needs, good governance, economic development and quality of life.

Ms. Mozhgan Yazdianpour, Director of International Cooperation of Isfahan Regional Center for Technology Incubators and Science Park Development (IRIS), delivered her presentation on STI Policy and Science and Technology Parks in Iran. Ms. Yazdianpour highlighted that STI policy has played a very important role in the national economic development of Iran. She highlighted the role of National Innovation System in Iran and its framework which is supported by several important layers and institutions of the Government, including the Vice Presidency on S&T and the Supreme Council of Science, Research and Technology.

Ms. Mozhgan further highlighted the role of Science and Technology Parks in Iran with their prime objective to promote knowledge based economic development by supporting innovative companies, fostering entrepreneurial values and culture, and providing a platform for collaborative work amongst enterprise, universities, market, and the industry. Government of Iran has strategic focus on strengthening and development of S&T Parks in Iran. Currently,

there are over 48 STI parks in Iran which generated 300,000 jobs at an operating revenue of over US$ 6 billion with a total export value of US$ 1 billion in the year 2020. Ms. Mozhghan concluded that STI parks will continue to play an instrumental role in transforming Iran's oil-based economy to a more diverse knowledge-based economy.

Prof. Dr. Tassaduq Hussain, Dean Faculty of Computing and IT at the University of Sialkot delivered his lecture on unlocking Sialkot's potential as industrial cluster for accelerated economic and industrial growth in Pakistan. Prof. Tassaduq demonstrated the strengths of Sialkot as a model important economic and industrial hub city of the country. Through exports, Sialkot-based small and medium industries are earning foreign exchange amounting to more than $2.5 billion annually to strengthen the national exchequer. He presented a framework, whereby Sialkot could further boost its exports through STI Parks.

Prof. Dr. Dandan Xu Vice President, Beijing Technological and Business University (BTBU) gave her closing remarks towards the end of training workshop. Prof. Xu concluded that transformative powers of Science, Technology and Innovation will be at the heart of sustainable economic growth in the Belt and Road region. Prof. Xu paid her gratitude to the expert trainers from Iran, Pakistan, and China for delivering important and resourceful training for the audience. She assured robust cooperation and collaboration will continue by the Joint Training Center to achieve the intended goals and promote STI in the belt and road region.

About the BTBU-ECOSF Joint Training Center

The Belt and Road Initiative (BRI) is a massive global initiative aimed at connecting international trading partners in the east and the west. The BRI offers a tremendous potential to spur a new era of trade, economic and industrial growth for the countries in the Asia and beyond. In order to maximize the benefits of BRI, the participating countries require to develop adequate technological workforce and engage in an alliance for promotion of cross-border cooperation in the Science, Technology, and Innovation (STI) sectors.

Appreciating this need for skill development and capacity building in key economic sectors, the Beijing Technological and Business University (BTBU) and the Economic Cooperation Organization Science Foundation (ECOSF) collaborated and launched the BTBU-ECOSF Joint Training Center on Scientific, Technological and Economic Cooperation under Belt and Road Initiative in September 2020. The Center has won the financial support of China Association for Science and Technology (CAST) Program of International Collaboration Platform for Science and Technology Organizations in Belt and Road Countries.

BTBU is renowned as a one of the leading high-level research universities in Beijing. Having long been committed to promoting substantive exchanges and exchanges with overseas first-class universities and academic institutions, BTBU has achieved meaningful results in international exchanges and cooperation, personnel training, academic research, etc.

ECOSF is the specialized agency of the Economic Cooperation Organization (ECO), an intergovernmental organization for scientific and technological cooperation, with its 10-member states (Afghanistan, Azerbaijan, Iran, Kazakhstan, Kyrgyzstan, Pakistan, Tajikistan, Turkey, Turkmenistan, Uzbekistan). ECOSF has an extensive exchange and cooperation network with international scientific and technological organizations in Asia-Pacific, Africa, Europe, and other regions, as well as other international organizations.

BTBU-ECOSF Joint Training Center aims to promote the sustainable economic and social development of BRI countries through training in the fields of technology application, industrial economics, S&T standards, and science communication.

CASTED

UNESCO
United Nations
Educational, Scientific and
Cultural Organization
联合国教育，科学及文化组织

International Research and Training Center
for Science and Technology Strategy
under the Auspices of UNESCO
国际科学和技术战略研究与培训中心

Policy Framework for STI in National High-Tech Zones of China

December 15, Beijing

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Science Parks Date Back to the Stanford Research Park

The First One: Stanford Research Park

Foundation (1939-1951)

- 1939, Hewlett-Packard company was founded, supported by Prof. Frederick Emmons Terman of Stanford University
- 1951, Prof. Terman initiated the Stanford Research Park

Growth (1955~至今)

- The Silicon Valley emerged from Stanford Research Park and became the world's leading science park

Escalation in the Developed World

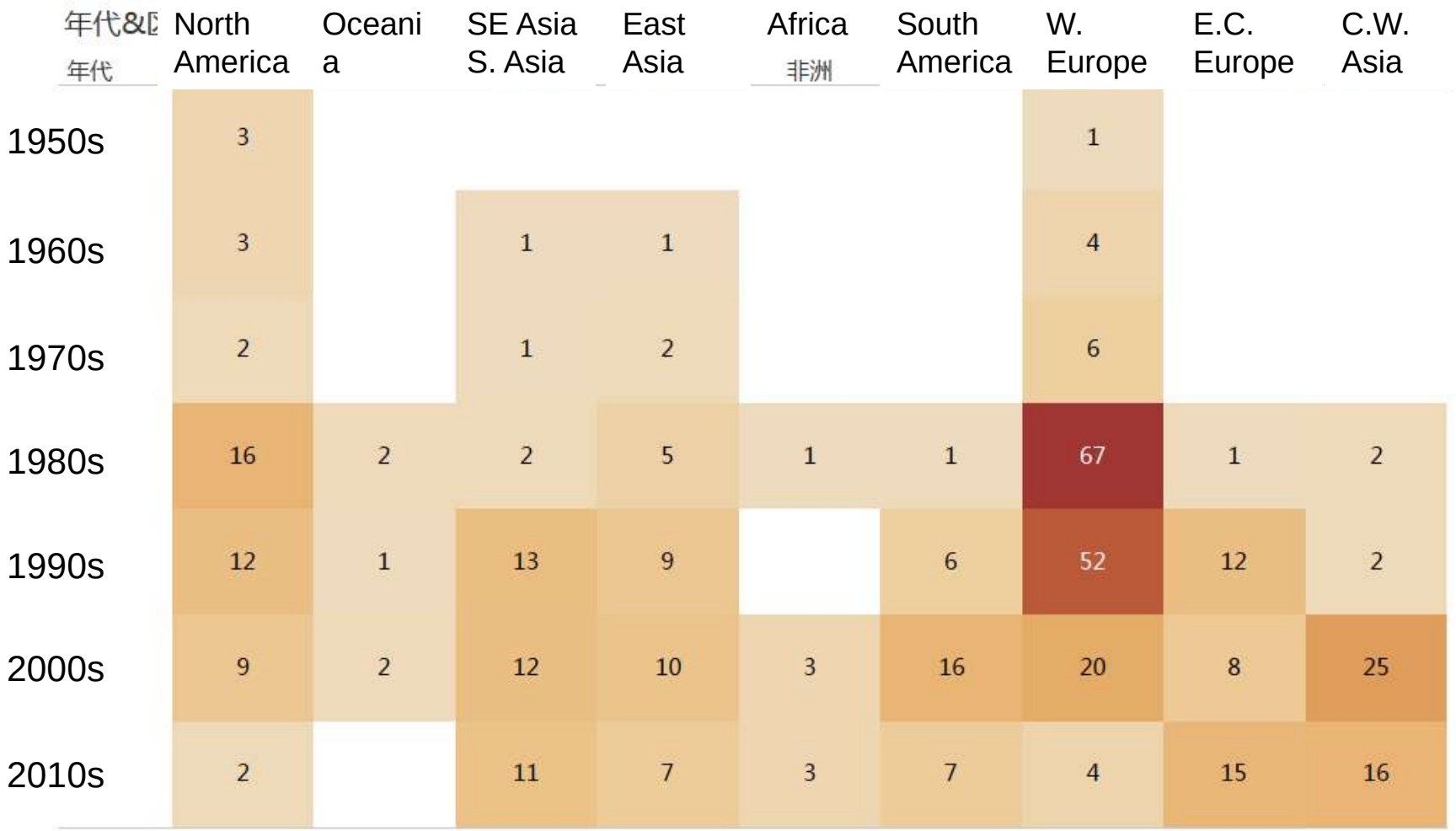
1956-1960	1956: U.S. - Research Triangle Park 1957: USSR - Science city of Novosibirsk 1959: U.S. – Boston Route 128
1961-1970	1964: Japan - Scientific Town of Tsukuba 1969: France - Sophia-Antipolis 1970: UK – Cambridge Science Park
1971-1980	1972: Belgium – University of New Leuven Science Park 1978: S. Korea – Daedeok Science Park 1979: Singapore - Singapore Science Park

Expansion into Developing / Emerging Market Countries

In the 1980s, following the international trend and guided by the government‘s development strategy, developing countries built science and technology parks one after another, but the results were uneven. There were some successful examples and some unsatisfactory cases.

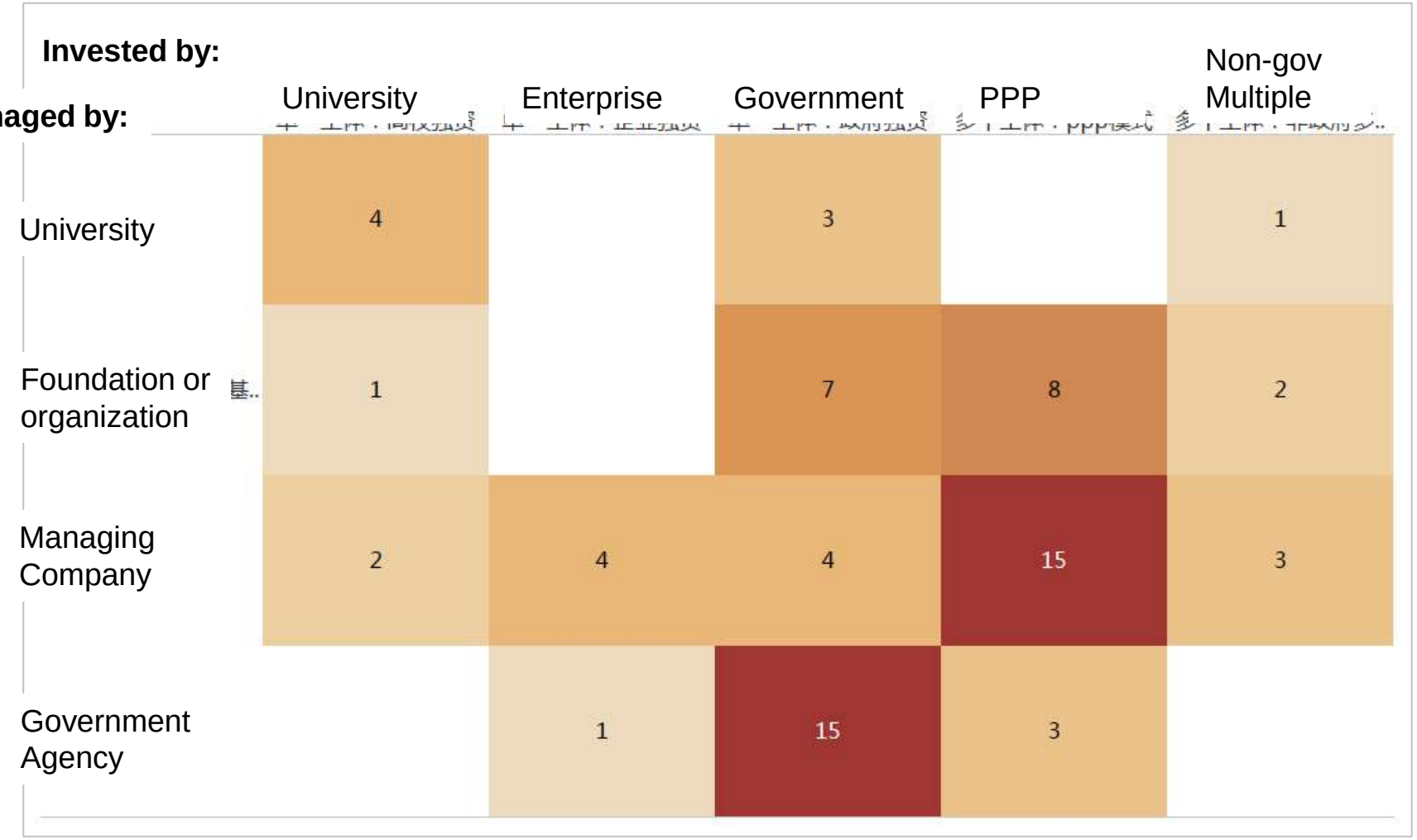
1970s - 1980s	1976: Indonesia - Puspiptek Serpong 1986: Brazil – CELTA Science Park 1988: China-Beijing Zhong Guancun STP 1989: Egypt - Science & Technology Park for Electronics Research & Industry
1990s	1992: India – Bangalore Science Park 1995: Poland – Poznan Science & Technology Park 1998: Lithuania – Kaunas Science & Technology Park
2000s - 2010s	2000: Iran – Isfahan Science City 2002: Thailand – Bangkok Science Park 2003: Oman – Muscat 2015: Indonesia – Cibinong Science Park

Emergence of Science Parks According to Region and Time

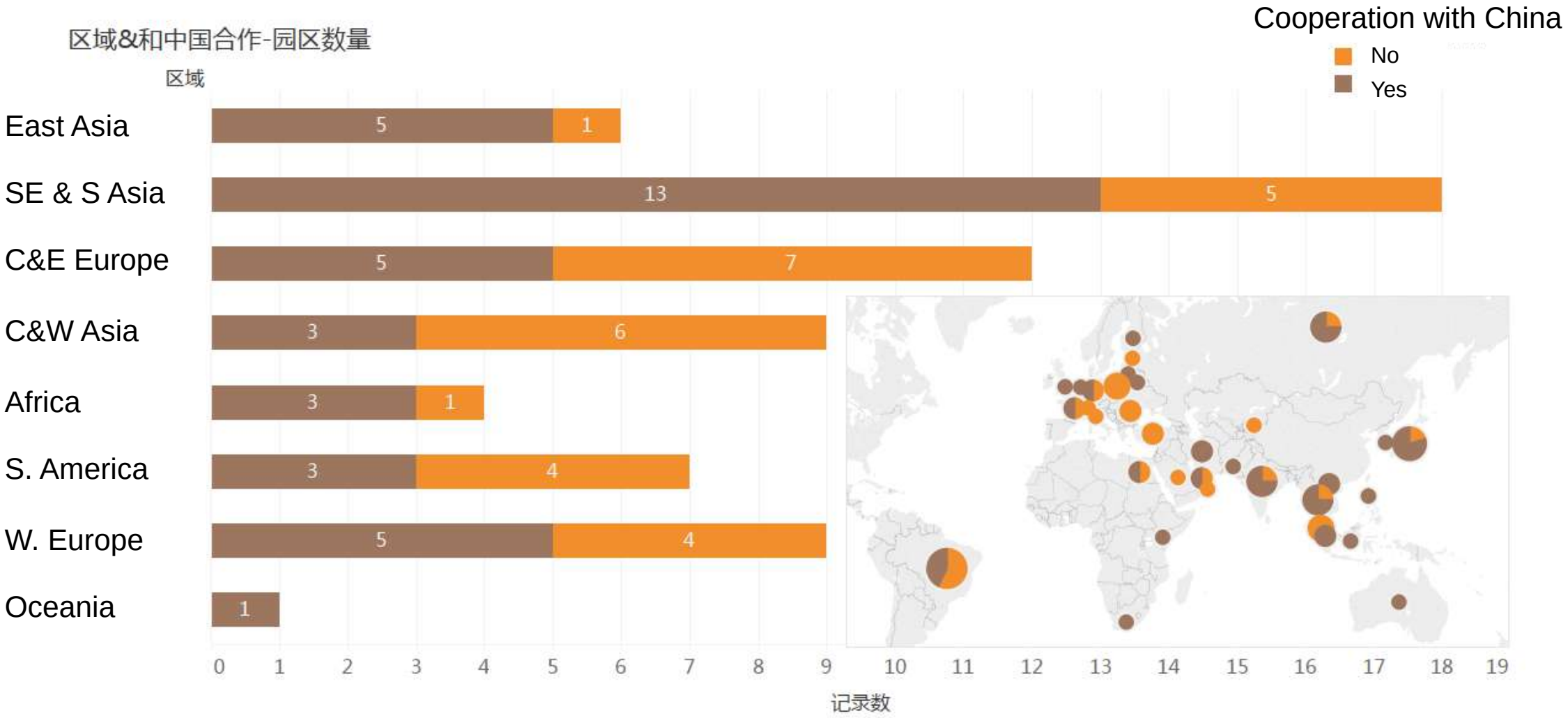


年代&区 / 年代	North America	Oceania	SE Asia S. Asia	East Asia	Africa 非洲	South America	W. Europe	E.C. Europe	C.W. Asia
1950s	3						1		
1960s	3		1	1			4		
1970s	2		1	2			6		
1980s	16	2	2	5	1	1	67	1	2
1990s	12	1	13	9		6	52	12	2
2000s	9	2	12	10	3	16	20	8	25
2010s	2		11	7	3	7	4	15	16

Government is the No.1 Driving Force for Science Parks



East and Southeast Asian SPs Cooperate More with China



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- Global Science Parks
- **China’s Science Parks — Development History, Achievement, Lessons**
- International Cooperation
- Suggestions for the Belt and Road Countries

Development of National High-tech Zones (NHZs) in China

In 1988, the Chinese State Council determined that the development of National High-tech Zones (NHZs) is an important part of China's Torch Program. At present, China has 169 NHZs and around 50 provincial ones.

1988

The first NHZ was established

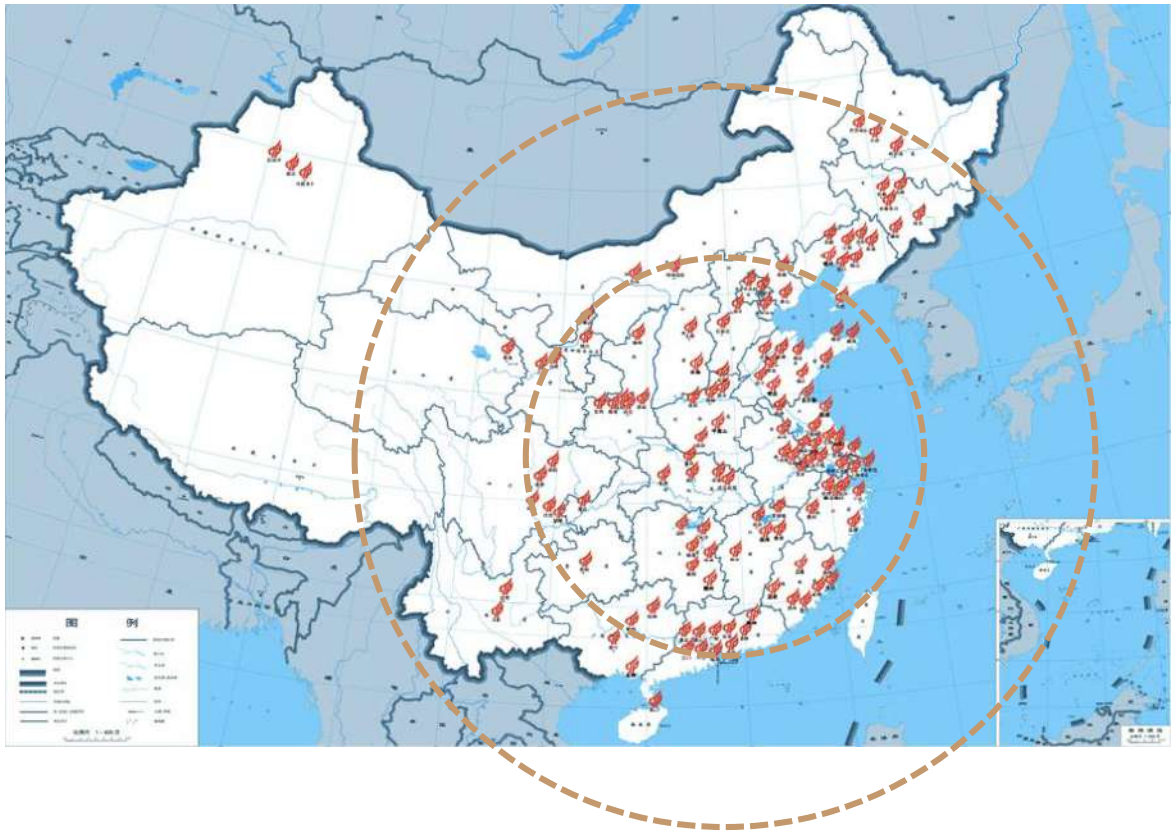
1991-1992

The State Council approved 51 NHZs

2018

The total number of NHZs reached 169

——NHZs Concentrate in the Eastern Part of the Country



Percentage

East China：67 NHZs — 42.9%

Central China：37 NHZs — 23.7%

West China：36 NHZs — 23.1%

Northeast China：16 NHZs — 10.3%

数据来源：《火炬统计年鉴2018》

——NHZs Gather Innovation & Entrepreneurship Resources

- 52.3% 全国占比 — **2125** Business Incubators
- 43.8% 全国占比 — **2514** Co-working Spaces
- 47.8% 全国占比 — **55** University SPs
- 71.0% 全国占比 — **341** National Labs
- 83.3% 全国占比 — **110** National Engineering Centers
- 68.5% 全国占比 — **237** National Tech Centers
- 67.9% 全国占比 — **143** National Engineering Labs

2514
Co-working Spaces

55
University SPs

2125
Tech Business Incubator

数据来源：科技部火炬中心《国家高新区30年》专栏

——NHZs Cultivate High-growth Companies

In 2017, NHZs had **386000** newly registered companies, an annual growth of **34.4%**.

Gazelle Company

2857

Unicorn Company

125

76.2% of national total

Top 100 Internet Companies

81

In NHZs

Top 100 Biomedicine Companies

53

In NHZs

Listed Companies

1268

Tech Board Listed Companies

4285

High-tech Companies

52300

Achievement ——NHZs Contribute to Chinese Economy Significantly

Over 30 years, NHZs have become an important pillar of Chinese economy

		Percentage
GDP	9.52 Trillion	11.5%
Net Export	3.64 Trillion	20.5%
Tax	1.73 Trillion	12.0%
Employee	19.41 Million	2.5%
R&D	0.75 Trillion	50%

Achievement ——NHZs Contribute to Chinese Economy Significantly

1.集聚科技资源 / Gathering Scientific and technological resources

•国家高新区企业2018年R&D经费支出7455.7亿元，占全国企业研发经费的50%左右。

Corporate R&D spending in NHZs was 745.57 billion RMB in 2018, accounting for 50% of the national corporate R&D .

•2018年R&D投入强度(R&D占GDP比重）6.7%，是全国的3倍。

In 2018, R&D input`s intensity (R&D/GDP) was 6.7%, 3 times of national average.

•国家高新区2091万名从业人员中，大学专科以上占比57.7%。

20.91 Million Employees in National Hi-tech Zones in total, College Degree Employee in Hi-tech Zones accounted for 57.7%.

Achievement ——NHZs Contribute to Chinese Economy Significantly

2.促进企业发展 / Development of enterprises

- 新注册企业19万家
- 孵化器1031家，在孵企业数万家
- 高新区在国内外上市企业1170家
- 营业收入超千亿元企业10家
- 超过百亿元企业362家
- 超过亿元企业20633家

- 190 thousand newly registered enterprises in 2015
- 1031 incubator,tens of thousands of incubated enterprises
- 1170 listed companies
- In 2015, the income of 10 companies more than 100 billion RMB, the income of 362 companies more than 10 billion RMB, the income of 20633 companies more than 100 million RMB.

Achievement ——NHZs Contribute to Chinese Economy Significantly

3.深化改革 / Deepening reform

- 全方位的改革探索
- 市场化、社会化、专业化的科技服务机构和园区运营机构
- 建设服务型政府
- 加大简政放权力度，简化创业企业注册手续

- Comprehensive reform
- Marketization, socialization, and specialization service institute and operation agency
- Building Service-oriented government
- Simplify the enterprise registration procedures

Characteristics of China's Science Parks (NHZs)

- ✓ **Innovation:** Focus on high-end innovative resources, nurturing endogenous development momentum. Break through the core technology, improve the ability of independent innovation, encourage innovation and entrepreneurship
- ✓ **Industry:** Gathering high - end industrial resources, formation of high-tech industry layout, vigorously develop strategic emerging industries, and actively cultivate modern service industry; Cultivating new formats, developing high - end industries.
- ✓ **Inhabitation:** Rational distribution of industrial, commercial, residential, research and development areas; Establishing hospitals, schools, gymnasium and other related urban service elements; Science and technology park should be a new space for urban development

Lessons from China’s Science Parks (NHZs)

NHZs as Important Part of National Strategy

- Laws, Master Plans, Policies
- Approved by State Council
- A National Initiative

Financially Self-dependent

- Free allocation of land
- Taxation and fiscal right

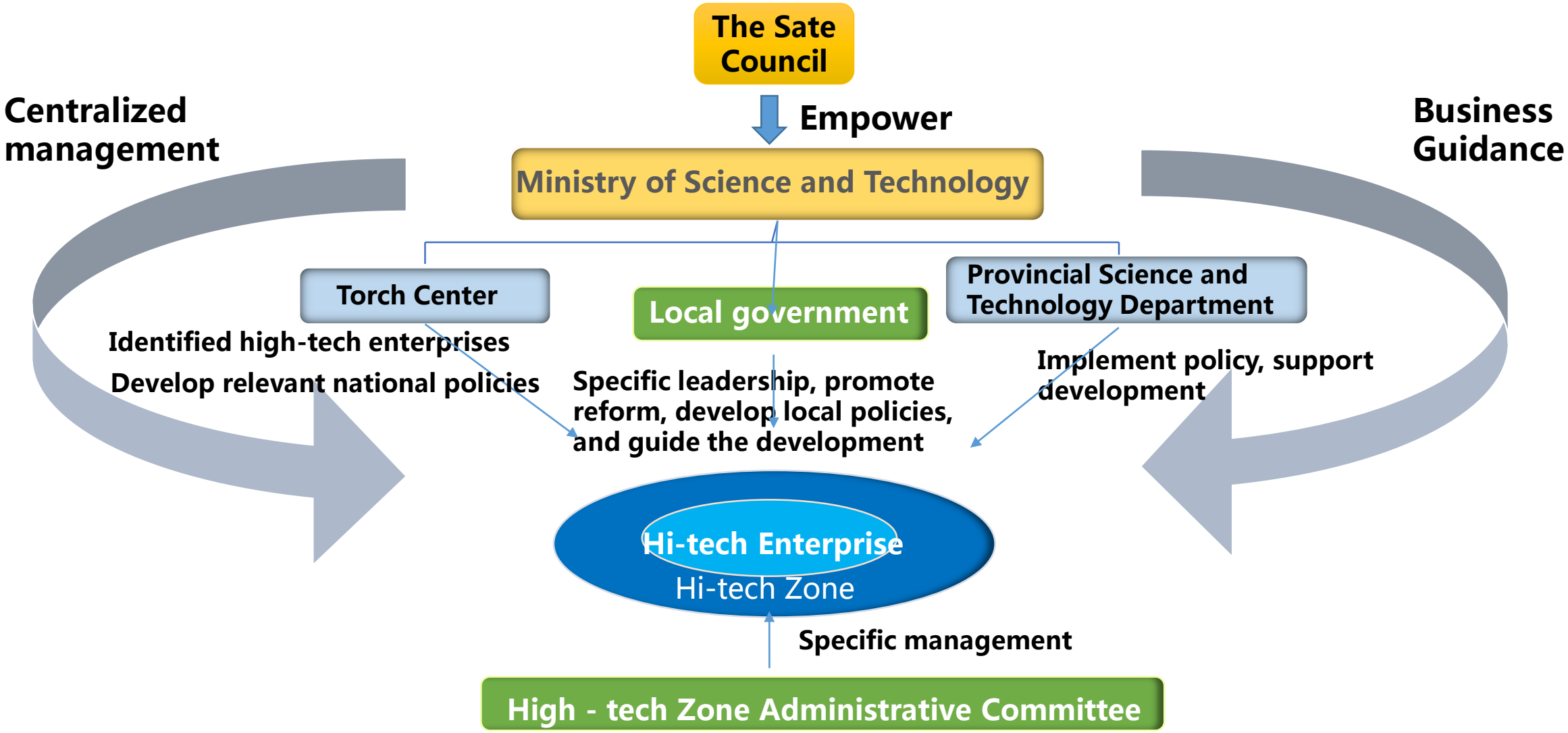
Test Before Scaling Up

- Early NHZs as Pilot Projects
- Test new policies
- Gradually scaling up to other regions

Local Government as Management Bodies

- Management Committee as Agency of the Local Municipal Authority, responsible for administrative affairs
- Policy incentives to boost development

国家高新区管理体制
Operational Mechanism of NHZ (National High-tech Zone)



Policy Evolution of NHZ (National High-tech Zone)

Stage 1: Initial Stage (1988-2000)	Stage 2: Secondary Period of Development (2001-2010)	Stage 3: Strategy Upgrading Stage (2011 until now)
• Advancing the development of Hi-tech Zone systematically • Attracting investments and enterprises through land development and preferential tax policies	• starting endogenous development guided by "Five Changes" • Exploring Classification guidance and characteristic development path through launching "Three types of parks", building National Innovation Model Area and upgrading provincial parks to national ones	• Innovation-driven Strategy of hi-tech zones becomes a national strategy • Proceeding institutional mechanism re form • Forming innovation and entrepreneurship ecosystem • Entering into a phase of overall internationalization

Key Experience

1.建立有效的管理机构
To establish an Effective Administration Scheme

中国国家高新区普遍建立了管理委员会。管委会作为“地方政府派出机构”，享有规划、建设、土地、财政、工商、税务、项目审批等经济管理权限和部分行政职能。

China NHZs have set up Management Committees that play the role of "a dispatched office of the local government". Management Committees have economic management authorities and part of administrative functions.

Key Experience

2. 制定地方产业支持政策
To establish Local Industry Support Policy

1. 优惠的土地租赁价格
2. 地方财政奖励政策
3. 建立专职招商机构
4. 设立政府引导基金

- Preferential land lease price
- Local financial award policy
- Full-time investment attraction institution
- Government guidance fund

Key Experience

3. 制订国家财税扶持政策
To Formulate Fiscal and Taxation Supporting Policy

•园区内高新技术企业享受15%的所得税率。

•企业出口产品的产值达到当年总产值70%以上的，减按10%的税率征收所得税。

•外商投资企业可享受自取得第一笔生产经营收入所属纳税年度起2年免征、3年减半征收企业所得税的待遇。

•银行可给高新技术产业开发区安排发行一定额度的长期债券。

- From 1991, if an enterprise in the High-tech Zone is identified as a High-tech Enterprise, its income tax rate will be reduced to 15%.
- If Export Products Output Value reached more than 70% of the Total Output Value, the income tax will be reduced to 10%.
- Newly established High-tech Enterprises and foreign invested enterprises are exempted from income tax in 2 years since its first revenue, and thereafter a half income tax rate applies to it for another 3 years .
- Banks can issue long-term bonds for High-tech Zones.

Key Experience

4. 完善研发和创新服务体系
To Improve Research and Innovation Service System

Institutions (2015)		Number
科技企业孵化器	Technology Business Incubators	1354
国家大学科技园	National University Science Parks	44
技术转移机构	Technology Transfer Agency	788
产品检验检测机构	Product Inspection Testing Institutions	814
国家重点实验室	State Key Laboratory	411
研究院所	Research Institutes	2415
产业技术研究院	Industrial Technology Research Institute	577
博士后工作站	Postdoctoral Workstation	995
各类大学	Universities	753
国家工程研究中心	National Engineering Research Center	293

Key Experience

5. 大力吸引和集聚优秀人才
To Attract and Gather Talents

2018年，国家高新区2091万名从业人员中：
Among the total 20.91 Million Employees in NHZs in 2018:

——从事科技活动的人员占总数的18.1%；
18.1% Personnel engaged in scientific and technological activities;

——留学归国人员16.3万人；
Returned overseas students amounted to 109 thousand;

——引进外籍专家1.3万人，外籍常驻人员5.5万人；
Foreign employees numbered 55000, among which 13000 are experts.

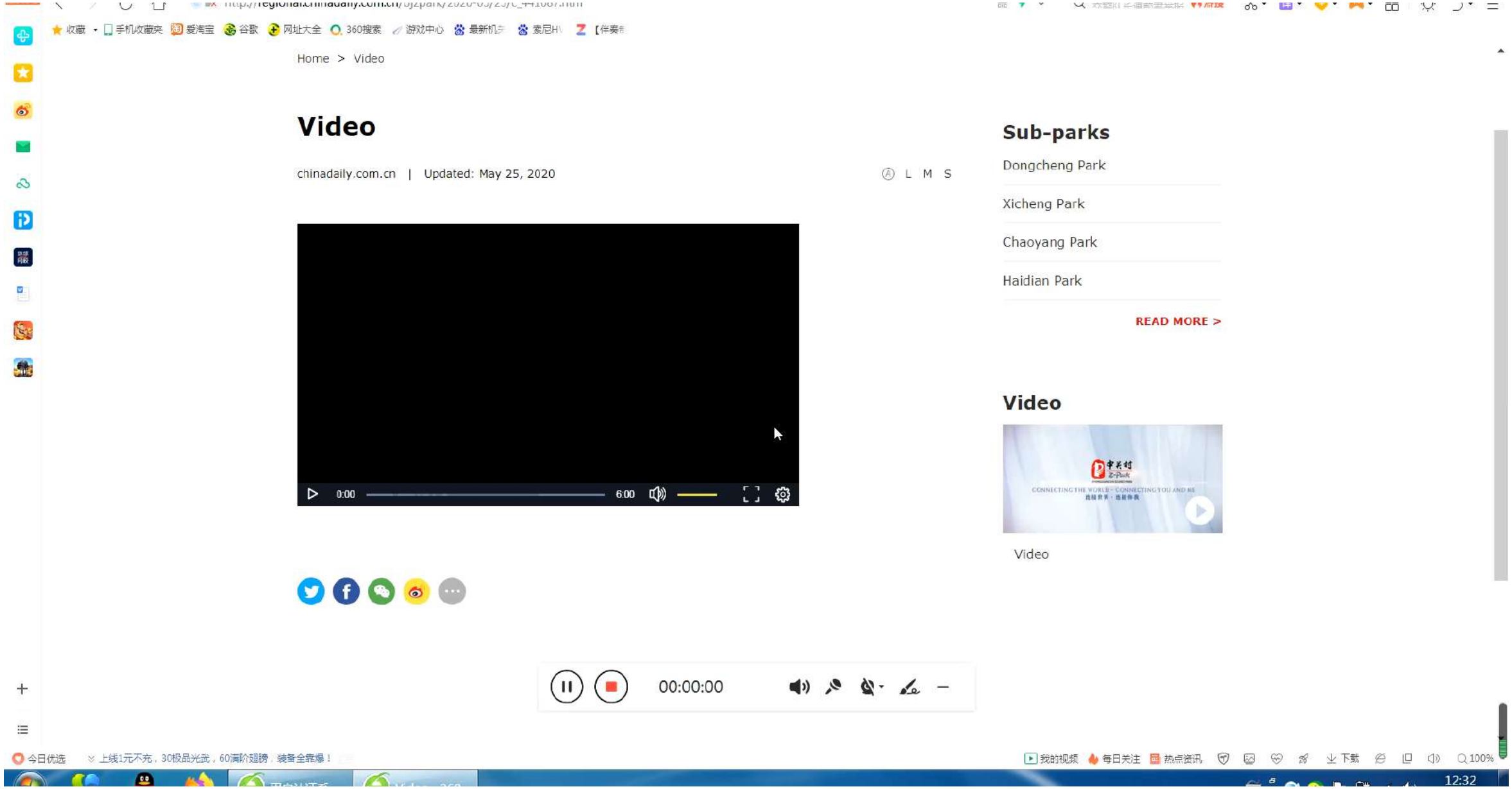
RECRUITMENT
PROGRAM OF GLOBAL EXPERTS

Case: Zhongguancun S&T park (Z-Park)

Zhongguancun Science Park is the most intensive scientific, education and talent resource base in China.

	1980s	1990s	2000s	2010s
Development process				
Bold policy reforms	Provisional Regulations of Beijing New Technology Industry Development Experimental Area	Regulations of Zhongguancun Science Park	1+6 Policies of Zhongguancun	Regulations of Zhongguancun NIIZ
Phase characteristics	Researchers began to start up business	Multinational enterprises established R&D center	Overseas students started up business	Set up an internationalized innovation ecosystem
Representative enterprises	lenovo 联想 四通集团	Microsoft IBM SIEMENS	搜狐 SOHU.com 網易 NETEASE www.163.com	PLUGANDPLAY Silicon Valley in a Box® 安创空间 ARM Ecosystem Accelerator

Video of Zhong Guancun



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Motives for International Cooperation of Science Parks

International division of labor and cooperation of industry

Formation of global industrial chain

Internationalization of Companies and Organizations

Multinational Businesses

Trans-border Flow of Productive Elements

Talents, technologies, capital

Open and Collaborative Innovation

International cooperation for innovation

International Organizations of Science Parks

Global Organizations

- E.g. International Association of Science Parks

Regional Organizations

- E.g. Asian Science Park Association

Other Organizations

- E.g. Alliance of World First-Class Science Parks

Park to Park Cooperation

Dual Parks

- **China-Malaysia “Dual Parks”**

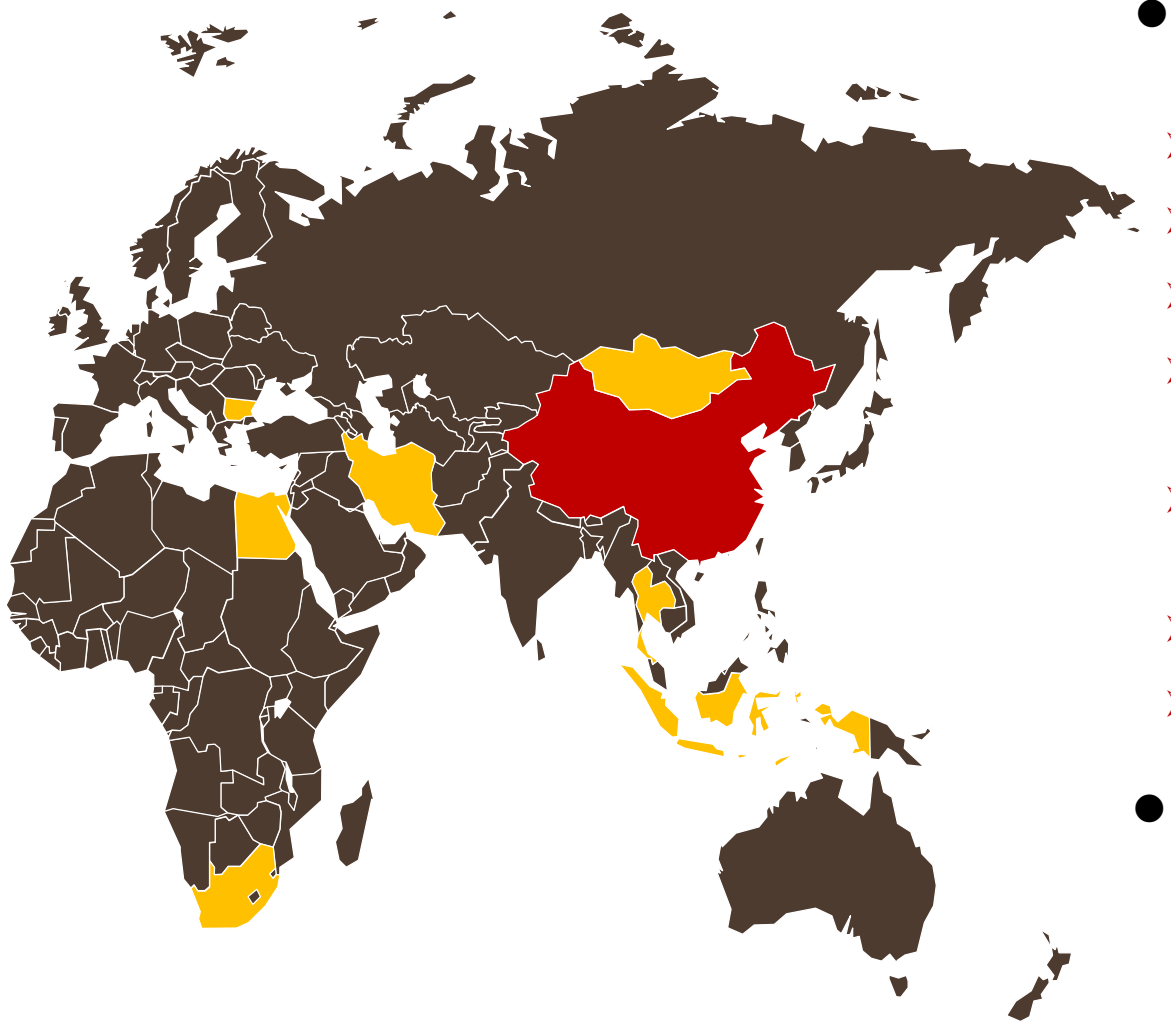
In 2013, Malaysia Kuantan Industrial Park was opened together with China Qinzhou Industrial Park in Guangxi Province , establishing a special partnership of “Dual Parks”.

Sister Parks

- **Chengdu-Sophia Partnership**

In 2016, China’s Chengdu High-tech Zone and France’s Sophia Antipolis became officially “sisiter parks”, with representative offices set up in each other to facilitate corporate and industrial exchanges.

Intergovernmental Cooperation on SPs Have Not Been Fruitful



- **Some Countries Have Proposed to Jointly Develop SPs with China**
  - **Thailand** has requested assistance in making plans
  - **South Africa** has signed MOU with China on SPs
  - **Iran** has also signed MOU with China on SPs
  - **Indonesia** has an ambitious vision for SPs, but lacks talents, technologies, and experience
  - **Mongolia** has made a plan for a National Science Park with Chinese assistance
  - **Bulgaria** also wishes to cooperate with China
  - **Egypt** makes similar requests too
- **However, intergovernmental cooperation on SPs has proved to be inefficient on all stages except for exchanges and planning**

Reaching a Consensus is the First Challenge to Confront

Understanding & Conception	Cooperation Mode	Cooperation Content
Connotation	S&T Aid	Development Plan
Vision & Goal	Co-development	Policy Research
Positioning	Assistance	Resource Linkage .....

And an Entire Process to Go throughout Different Stages

Development Stages

Planning → **Construction** → **Operation**

Ways of Cooperation

- Planning
  - Work team
  - Strategic Planning
  - Policy Study
  - Construction Planning
- Construction
  - Financing
  - Development by corporations
  - Single Projects
- Operation
  - Management
  - Resource linking
  - Representative
  - people exchange

Contents

Learning from China's Achievement of "Torch Program"

01 National Hi-tech Zone (NHZ)

- Up to 2018, there are 168 national hi-tech zones altogether in China.
- In 2017, the operating revenue of 156 national hi-tech zones achieved 30.7 trillion Yuan.

02 Technology Business Incubator

- By 2016, there were **3,255 incubators with 107,33 0,000square meters incubation area, and 133,286 incubated enterprises and 2120 thousand employees and 63,918 graduate enterprises.**
- By the end of 2016, there were more than 7, 000 incubators, with more than 400, 000 startups, created more than 2 million jobs

03 Technology Transfor

- By 2017, there are **453 National Technology Transfer Centers supported by Torch.**
- In 2017, national technology contract transaction amount increased by 15.97% year on year. This is the first time, **the volume exceeded the 1 trillion Yuan, reaching 1140.7 billion yuan.**

04 Hi-tech Enterprises

- By 2017, more than 133,000 Hi-tech Enterprises in China. Total industrial output value exceeded 10 trillion RMB
- Now China has **164 unicorn companies. The total value is $628.4 billion,** an average value is $3.83 billion. There are **10 super unicorns valued at more than $10 billion,** accounting for 53.4% of the total value of the Chinese unicorn.
- Now**,** the number of gazelle enterprises in national high-tech zone **has reached 2,084,** and the "gazelle rate" exceeds the silicon valley in the United States.

Suggestions for Science Park

01 Establish the national specialized agency which is responsible for the development planning, business guidance, policy support and implementation of the S&T Park.

02 Each technology park should establish special administrative organization (such as administrative committee) or management company to be responsible for the service and operation of the park.

03 S&T Park should not only focus on the function of innovation, but also pay attention to the function of incubation and industrial development.

04 Make strategic planning and industrial planning for the parks' development, and make planning periodically (or give dynamic adjustment to the planning) according to different development stages.

Suggestions for

Technology Business Incubator

01 Build incubation carriers, provide preferential treatments for business incubators.

02 Encourage the establishment of professional incubators (e.g., public technology service platforms) to provide targeted services for startups in key areas

03 In addition to low-cost space, incubators should also provide startups with high-level entrepreneurial services (such as financial and investment services, strategy guidance, market recommendations, etc).

04 The government should provide fiscal support to providing angel investment, or guiding social capital to provide angel investment in startups to fill in the gap in the financial market.

Suggestions for Technology Market

01 Establishing a national technology trading market.

02 Providing tax incentive or exemption policies to enterprises engaged in technology development, transfer, consulting and services

03 Continuing to optimize the relevant policies and regulations for the scientific and technological achievements which are supported by public funds and transferred to enterprises and social service

Suggestions for High-Tech Enterprises

01 Give special **preferential policies** to hi-tech enterprises (especially domestic technology enterprises), such as tax incentives and loan with subsidized loan.

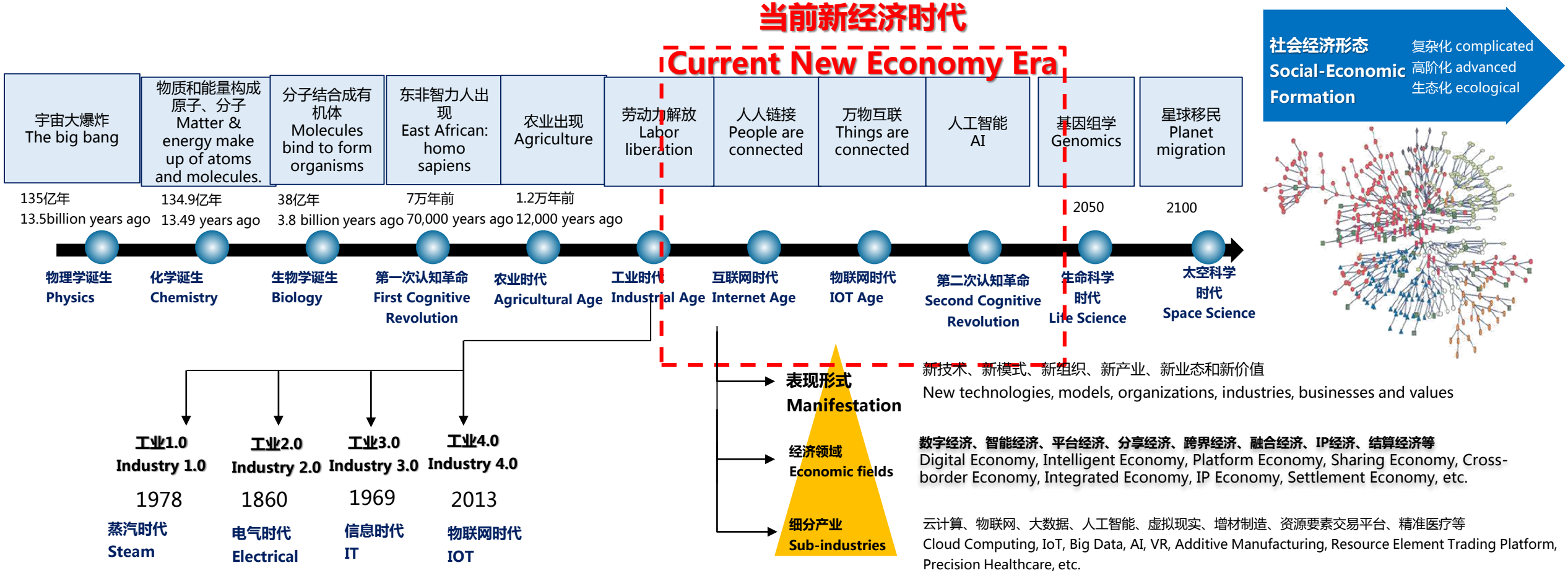
02 Set up **special funds** to support the development of hi-tech enterprises.

03 Pay close attention **to gazelle and unicorn enterprises**, and work out special policies to support these high-growth enterprises.

以数字经济、智能经济为引领的新经济时代到来了

The New Economy Era is Coming---Digital Economy & Intelligent Economy

- 在不同的历史时期，新经济有不同的内涵。新一轮科技革命和产业变革影响下，新经济表现为新技术、新模式、新组织、新产业、新业态、新价值
- New economy has different connotations in different eras. Under the background of a new round of S&T and industrial transformation, new economy means new technologies, models, organizations, industries, businesses and values.



数字经济是以数据驱动为核心的新经济形态包括数字产业化和产业数字化
Digital Economy: a New Economic Form with Data as its Core, including Digital Industrialization & Industrial Digitalization

本 质 Nature

数字经济，以**数字化的知识和信息**为关键生产要素，以**数字技术创新**为核心驱动力，以**现代信息网络**为重要载体，通过**数字技术与实体经济深度融合**，不断提高传统产业数字化、智能化水平，加速重构经济发展与政府治理模式的**新型经济形态**

Digital economy, with **digital knowledge and information** as key factors of production, **digital technology innovation** as the core driving force, **modern information network** as the important carrier, is a new economic form aiming to digitalize and intellectualize traditional industries, speed up and reconstruct economic development and government governance model through **deep integration of digital technology and real economy.**

两大产业路径 Two Industrial Paths

数字产业化 Digital Industrialization

产业数字化 Industrial Digitalization

具体产业方向 Specific Industries

数字经济基础（信息产业） Digital Economy Base (Information Industry)	**电子信息制造业 Electronic Information Manufacturing Industry**	
	软件和信息服务业 **Software and Information Services**	信息技术咨询、信息技术系统集成、软硬件开发、信息技术外包和业务流程外包 IT consulting, IT system integration, software and hardware development, IT outsourcing and business process outsourcing
	信息通信业 Information and Communication Industry	
	新一代信息技术产业 **New Generation of Information Technology Industry**	大数据、云计算、物联网、人工智能、区块链等 Big Data, Cloud Computing, Internet of Things, Artificial Intelligence, Block Chain, etc.

数字经济融合（数字技术与其他产业融合应用） Integration of Digital Economy (Integrated with Other Industries)	**制造业数字化 Digitalization of Manufacturing Industry**	**汽车、无人机、机器人等数字化转型部分** Digital transformation of automobiles, UAVs and robots
	服务业数字化 **Service Digitalization**	医疗服务、金融、娱乐、餐饮住宿、交通物流、零售、旅游商业服务、生活服务等数字化转型部分 Digital transformation of medical services, finance, entertainment, catering and accommodation, transportation and logistics, retail, tourism and business services, life services, etc.
	融合新业态新模式 Integrate with new businesses and new models	共享经济、平台经济等 Sharing Economy, Platform Economy, etc.

三大关键要素 Three Key Elements

- **数据成为驱动经济增长的核心生产要素：**数据成为重要的战略资产
- **Data becomes the core production element:** data becomes an important strategic asset

- **数字技术成为创新源泉：**数字技术自身创新以及与传统技术融合，不断拓展人类认知和增长空间
- **Digital technology becomes the source of innovation**: digital innovation and the integration with traditional technologies constantly expand human cognition and progress

- **数字基础设施成为新基础设施：**数字经济发展，信息基础设施和物理设施数字化成为必要的新基础设施
- **Digital infrastructure becomes the new infrastructure:** digital economy, IT infrastructure and physical infrastructure digitization become the necessary new infrastructure

概念来源：中国信通院《中国数字经济发展白皮书》
Source: *White Paper on the Development of Digital Economy in China*, CAICT

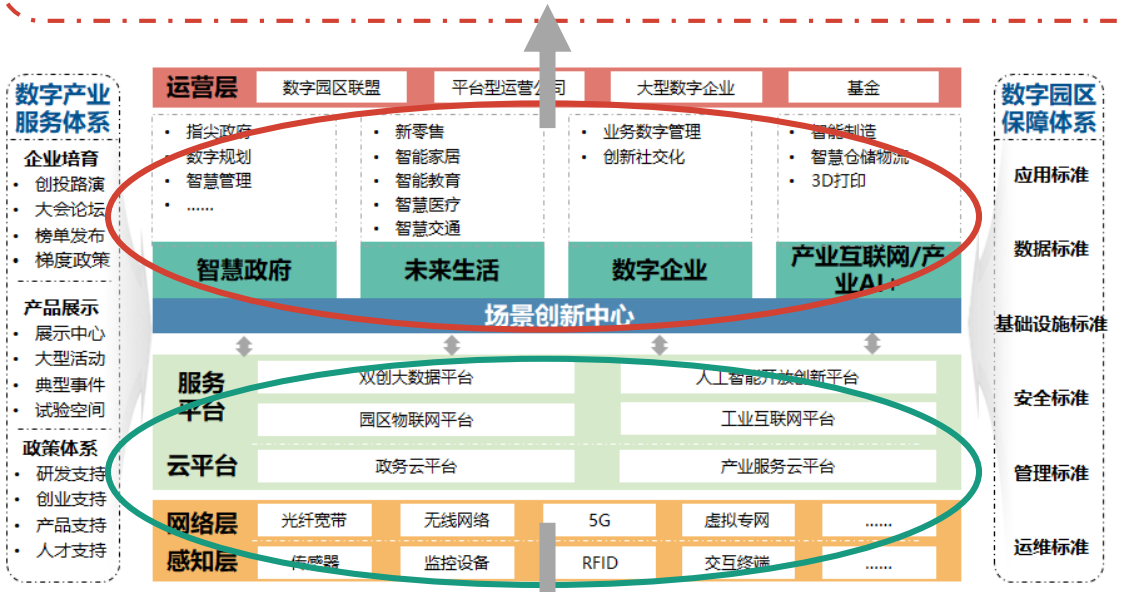
数字园区建设为数字经济发展提供新动力
Construction of Digital Park Drives Digital Economy

1.提供新技术/产品创新的实验空间

1. Provide the space for new technology/product innovation

2.提供智慧园区场景产品的应用市场

2. Provide the market for intelligent park related products



3.提供新型数字基础设施项目机会

3. Provide new digital infrastructure project opportunities

4.提供创新创业技术服务新型基础设施

4. Provide new infrastructure for innovation and entrepreneurship

机会

Opportunity

资源

Resource

场景

Scenario

市场

Market

创业培育
Cultivate Entrepreneurship

外部招商
External Investment

数字经济
Digital Economy

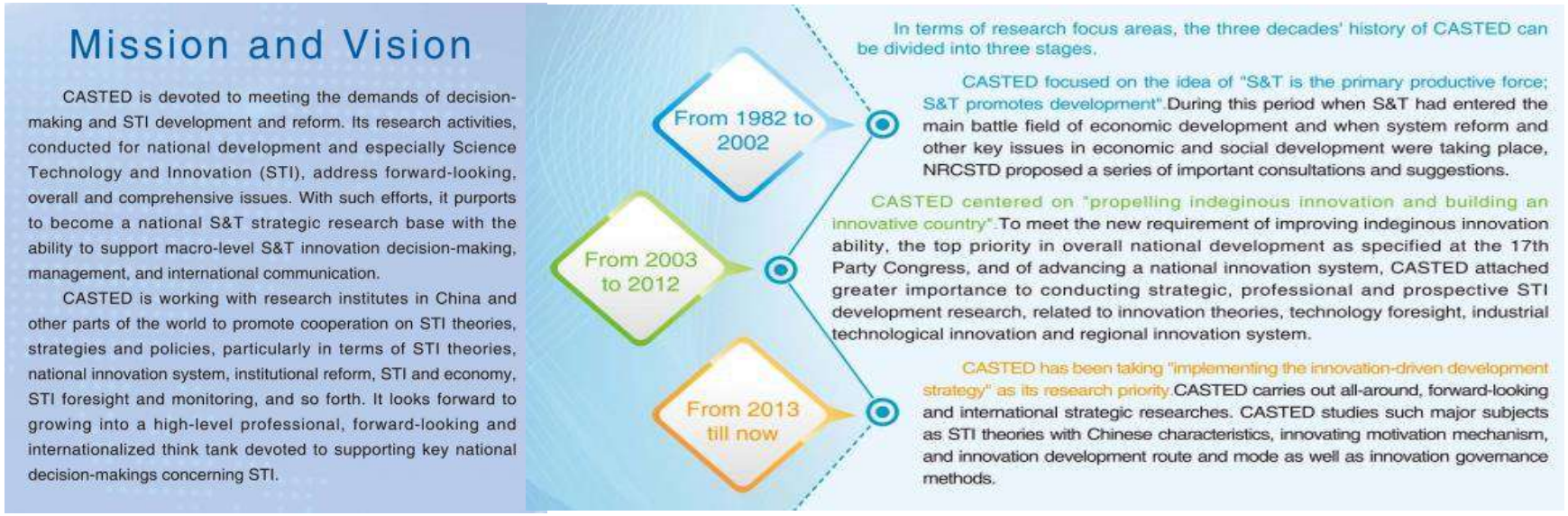
Introduction of Us:

- CASTED

- GEI

Chinese Academy of Science and Technology for Development

http://en.casted.org.cn/



In March 2020, CASTED was listed as one of the China Top Think 9 institutes, including

- Institute of General Research
- Institute of Science and Technology Innovation Theory
- Institute of Innovation and Development
- Institute of Regional Science and Technology Development
- Institute of Frontier Science and Emerging Technology
- Institute of Science and Technology Governance and Talent
- Institute of Science and Technology Foresight and Statistics
- Institute of International Scientific and Technological Relations
- Institute of Intelligent Science and Technology Innovation Policy

UNESCO- CISTRAT

International Research and Training Center for Science and Technology Strategy (CISTRAT) was established in 2012 as the seventh UNESCO Category II Centre in China and the first UNESCO Category II Centre to focus on Science and Technology Policy.

The most important annual event of CISTRAT is its international training workshop, which is offered for free to STI policy makers, researchers, teachers, etc., in developing countries. The workshop, enrolling around 15 international trainees at a time, lasts for three weeks during which the trainees could learn about China's experience through lectures and field studies.

Achievements

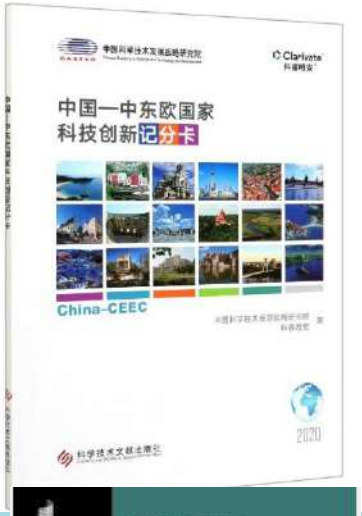
- *National Innovation Index Report 2020*
- *Annual Report on the Eco-System of Science and Technology Finance in China, 2020*
- *China Regional STI Evaluation Report* and *Report on the Development of AI in the New Era*.

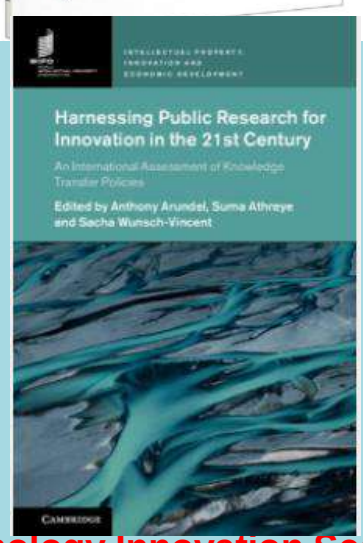
Forum on Science and Technology in China

Reference for Strategic Research Views and Updates

China SciTechnology Business

Research Reports

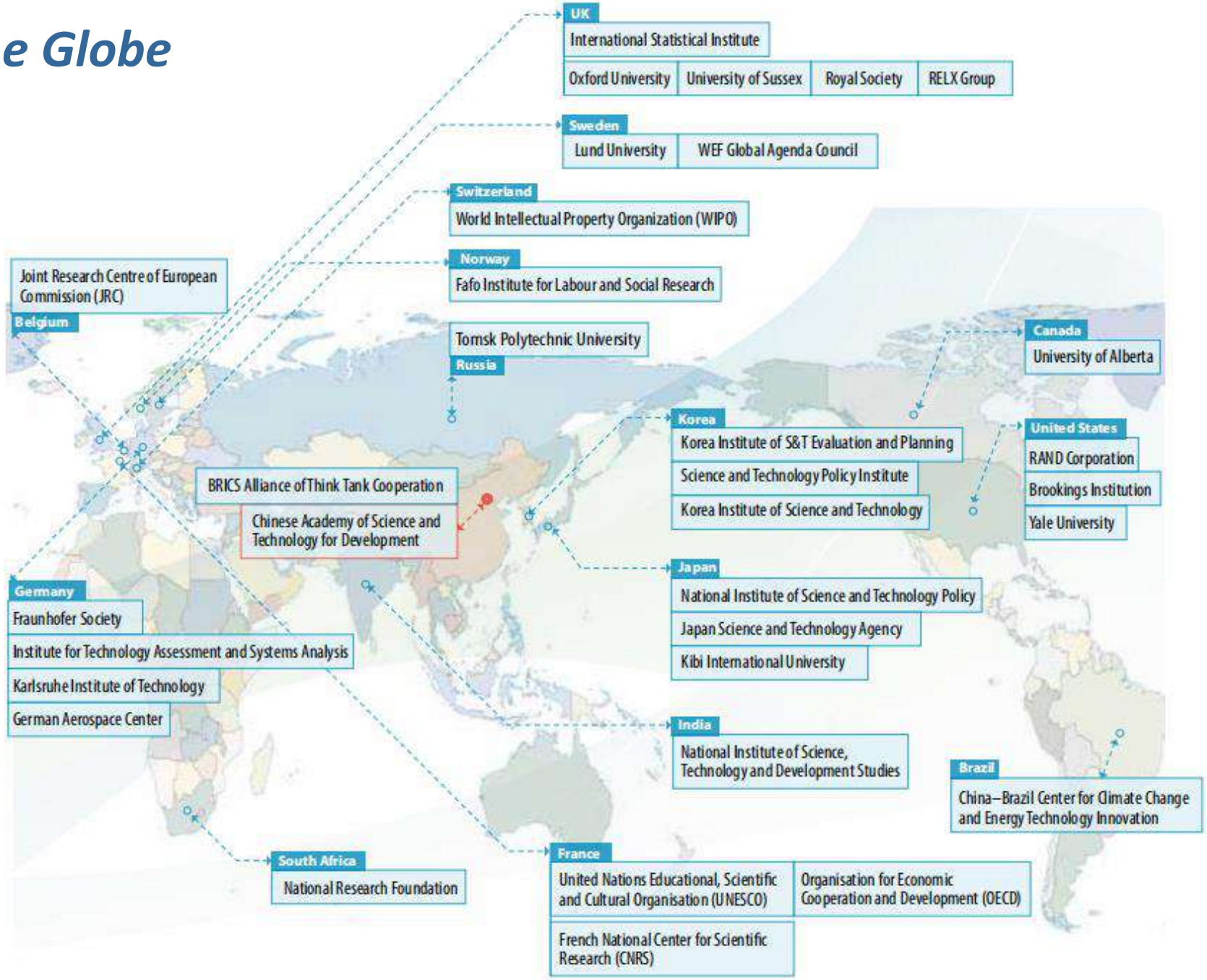




China – CEEC Science and Technology Innovation Scorecard 2020 with Clarivate Analytics
"Harnessing Public Research for Innovation in the 21st Century – An International Assessment of Knowledge Transfer Policies".

Cooperation around the Globe

CASTED has 8 international cooperation platforms, including Liaison Office of China OECD STI Cooperation, China-EU Dialogue on Innovation Cooperation, Sino-German Innovation Policy Platform, China-US Non-Governmental Dialogue on STI, China-ASEAN STI Policy Research Center, etc.



Cooperation around the Globe

MEMORANDUM OF UNDERSTANDING

between

"The Belt and Road Science and Technology Innovation (STI) Think Tank Cooperation Network" Member Institutes

The Belt and Road Science and Technology Innovation (STI) Think Tank Cooperation Network serves as an open and inclusive platform for exchange, cooperation and sharing. It aims to bring together the innovative ideas and wisdom of well-known technology innovation think tanks, to promote sharing of scientific and technological innovation resources, information, and achievement and exchange of personnel, and to strengthen collaborative research on science and technology innovation strategies, policies and governance of the Belt and Road countries, in an effort to provide services for mutual benefits and win-win cooperation in science and technology among the "Belt and Road" countries.

The network proposes the following:

(1) Cooperation within the network is based on the principle of joint deliberation, construction and sharing, guided by the spirit of peaceful cooperation, openness and inclusiveness, mutual learning and mutual benefits.

(2) Participating institutes share the duty of exploring the establishment of a cooperation mode of equality, mutual trust, and multilateral consultation among the "Belt and Road" S&T innovation think tanks, promoting collaborative innovation among countries of "Belt and Road", and jointly supporting the development of "Belt and Road" innovation.

(3) Participating institutes have in-depth exchanges on innovation strategy and policy research and collaboratively explore new growth momentum and development paths.

(4) Participating members strengthen cooperative ties with government, industry and social organizations, promoting the co-construction of S&T parks and laboratories, technology transfer and personnel exchanges.

(5) The principle of openness welcomes willing institutes at any time. They will jointly take on the mission of promoting the innovation development of the "Belt and Road and enhancing human welfare.

The following institutes (listed in alphabetical order) agree to become the first group of members of the Belt and Road Science and Technology Innovation (STI) Think Tank Cooperation Network.

Agreed and signed on October , 2020 (in alphabetical order):

Academy of Scientific Research and Technology, Egypt

Belt and Road Institute, University of Novi Sad, Sebria

Office of National Higher Education, Science, Research and Innovation Policy Council, Thailand

China-ASEAN Studies, Thailand

Chinese Academy of Science and Technology for Development, China

Economic Cooperation Organization Science Foundation, Pakistan

Faculty of Health and Business Studies, Singidunum University, Serbia

Institute of International Politics and Economics, Serbia

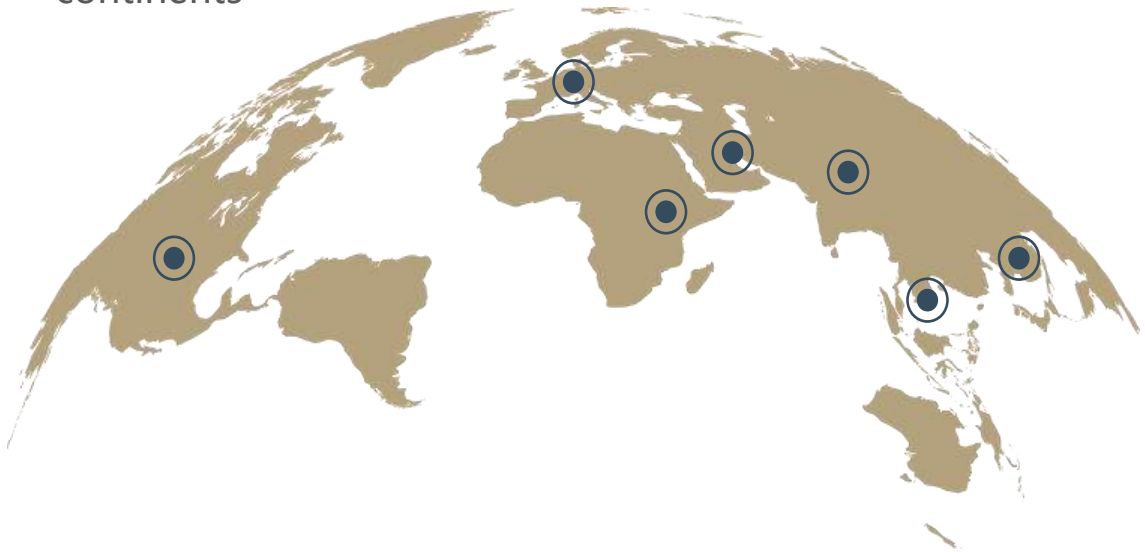
Established the "Belt and Road STI Think Tank Network"

Partners

GEI 长城战略咨询
GREATWALL STRATEGY CONSULTANTS

http://global.gei.com.cn/

By now GEI has received support from over 20 science parks and relevant organizations from different continents



中关村科技园
Zhongguancun Science Park

美国硅谷网联
Joint Venture Silicon Valley

印尼芝比农科技园
Cibinong Science and Technology Park (CSTP) LIPI

巴西约恩维利区域技术创新园
INOVAPARQ - Joinville Regional Park for Technology Innovation

巴基斯坦国立科技大学科技园
University Science Park of Natinal University of Science and Technology Pakistan

埃及科学和技术研究院科技园
Academy of Scientific Research and Technology, Egypt

印度-印中技术转移中心
INDIA CHINA TECHNOLOGY TRANSFER CENTRE (ICTC)

Thank you for your attention!

BI Liangliang

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China's S&T System Reform: The Latest

Yan Li

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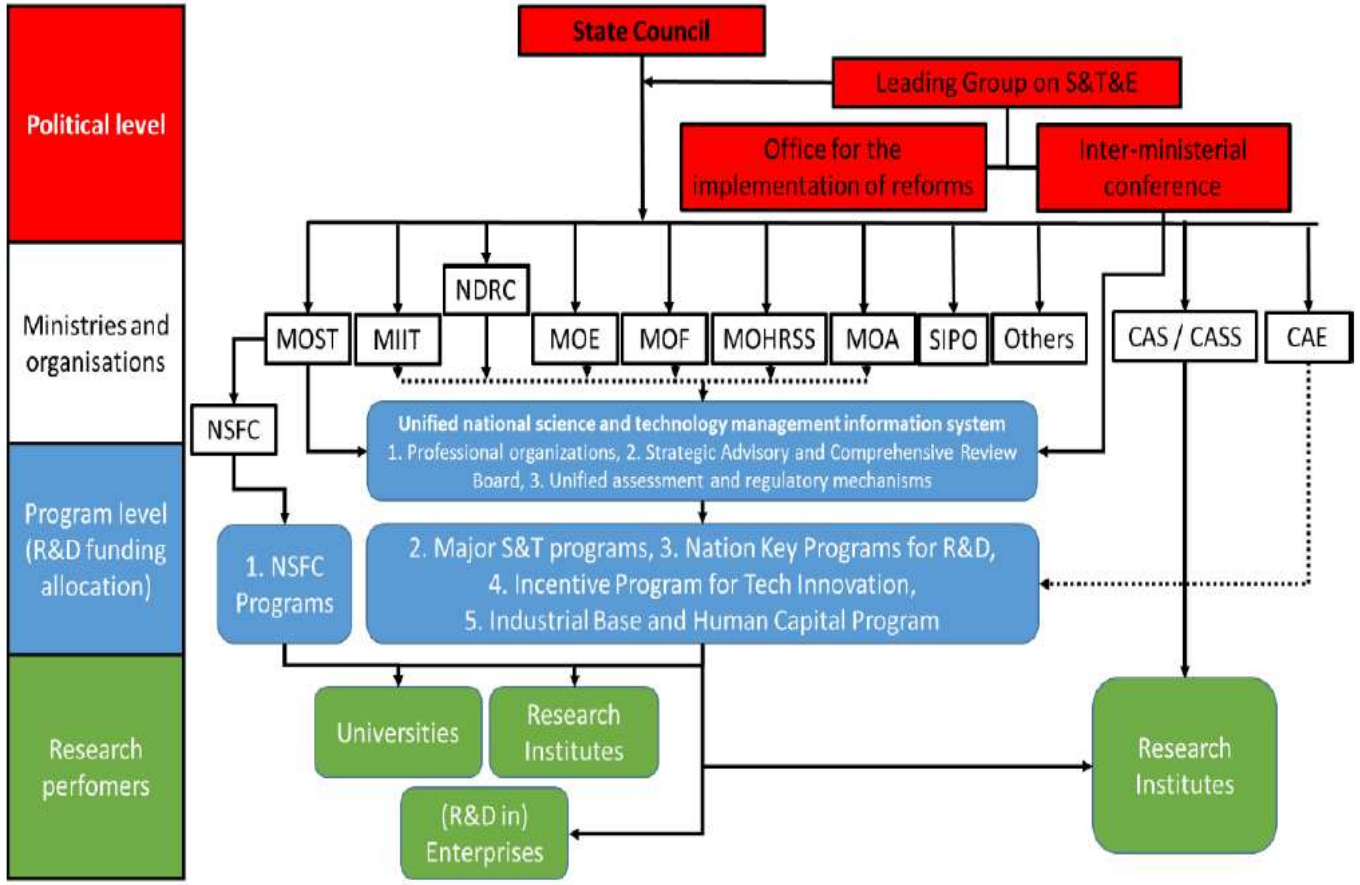
Institute of International S&T Relations, CASTED

S&T System Reform in Chinese Context

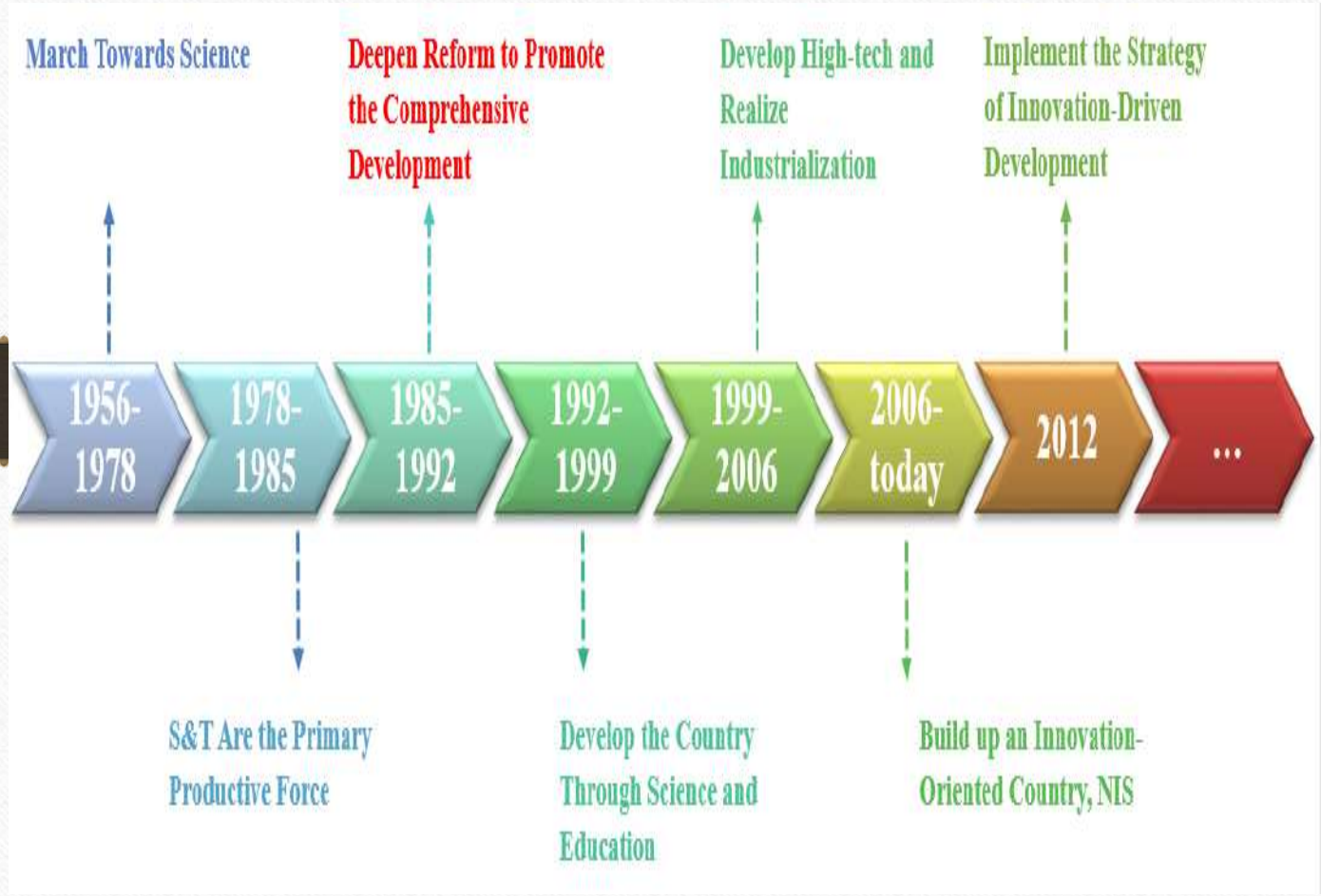
- "Reform" is an overarching and umbrella term
- Economic system, educational system, cultural system, social system, political system……
- S&T system reform is just ONE of the many fields of China's reforms
- Issues: S&T plans & programs, S&T enterprise, S&T funding, S&T personnel, S&T evaluation, S&T international cooperation……

Bodies in China's S&T System



Source: own representation based on: OECD (2008: 429); Huang (2016: 23-24); Schüler-Zhou and Schüller (2016); Mu (2014); McCuaig-Johnston and Zhang (2015)

Timeline of China's S&T Reform



Directions of S&T reform

(2015, CPC and State Council: *Implementation Plan of Science and Technology System Reform: 9 sections, 143 measures*)

- 1. Market oriented mechanism of technological innovation(enterprise-led program, R&D tax credits, include entrepreneurs in S&T planning and programing…)
- 2. A more efficient scientific research system(de-bureaucratize research institutes, world class universities, new-type R&D organizations…)
- 3. Personnel cultivation, evaluation and incentives(creative thinking students, classify personnel evaluation, society-sponsored S&T awarding…)
- 4.Transformation of scientific and technological achievements (more discretion for researchers, bonus, tech market…)

Directions of S&T reform

(2015, *Implementation Plan of Science and Technology System Reform: 9 sections, 143 measures*)

- 5.Combination of technology and Finance (enlarge VC market size, GEM registration reform…)
- 6.Innovation governance(better coordination among ministries, central-budgetary program integration…)
- 7.Open innovation(Open S&T programs to foreign experts, technical immigration…)
- 8.Innovation ecology (IPR law enforcement, break monopoly, maker space policy…)
- 9. Regional innovation reform (all-around innovation reform experimental zone…)

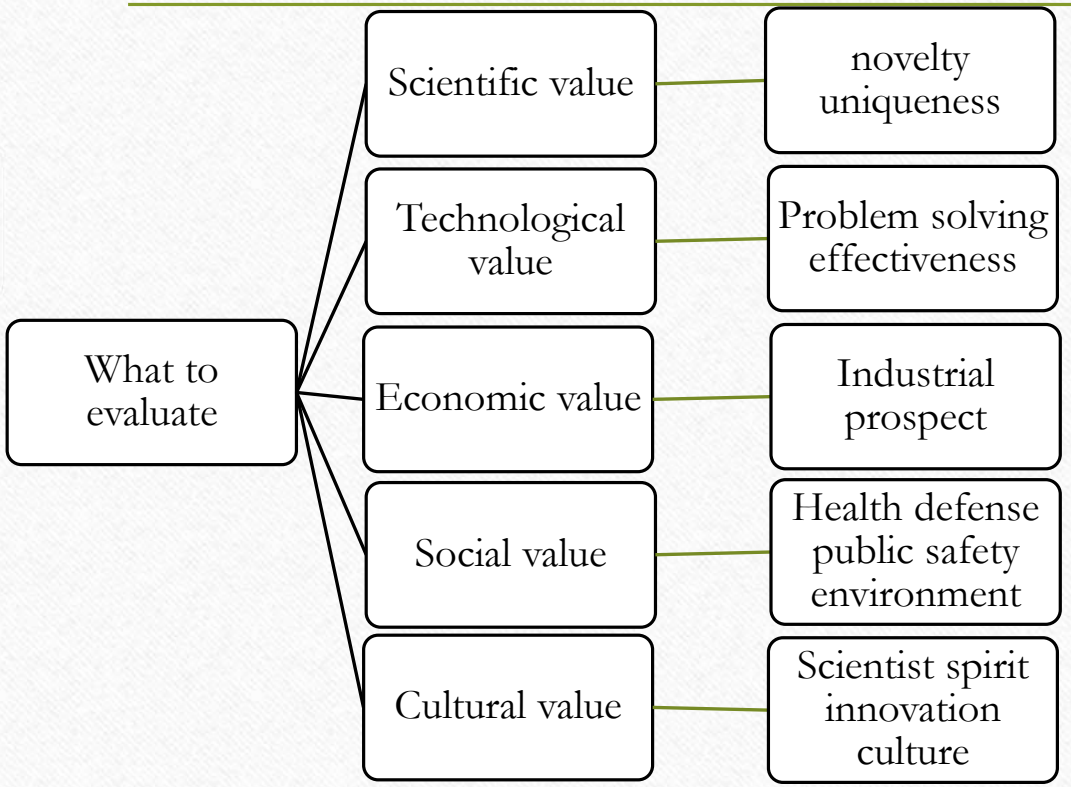
The Latest: Two guidelines

- State Council: Guidelines to improve scientific, technological achievements **evaluation** system (Aug 2, 2021)
- http://www.gov.cn/zhengce/content/2021-08/02/content_5628987.htm
- State Council: Guidelines to reform and better manage central budgetary research **funding** (Aug 13, 2021)
- http://www.gov.cn/zhengce/content/2021-08/13/content_5631102.htm

Guidelines to improve scientific, technological achievements **evaluation** system (Aug 2, 2021)

- S&T achievements evaluation is "conductor's baton"
- "Publish or perish"
- Homogenous indicators, over-quatification, utilitarianism
- S&T achievements transformation are marginalized
- Policies addressing the problem HAVE BEEN published
- Problems remained
- Tackle: what to evaluate, who to evaluate, how to evaluate, how to use
- A response to front-line researchers: what to evaluate, who to evaluate, how to evaluate, how to use

Guidelines to improve scientific, technological achievements **evaluation** system (Aug 2, 2021)



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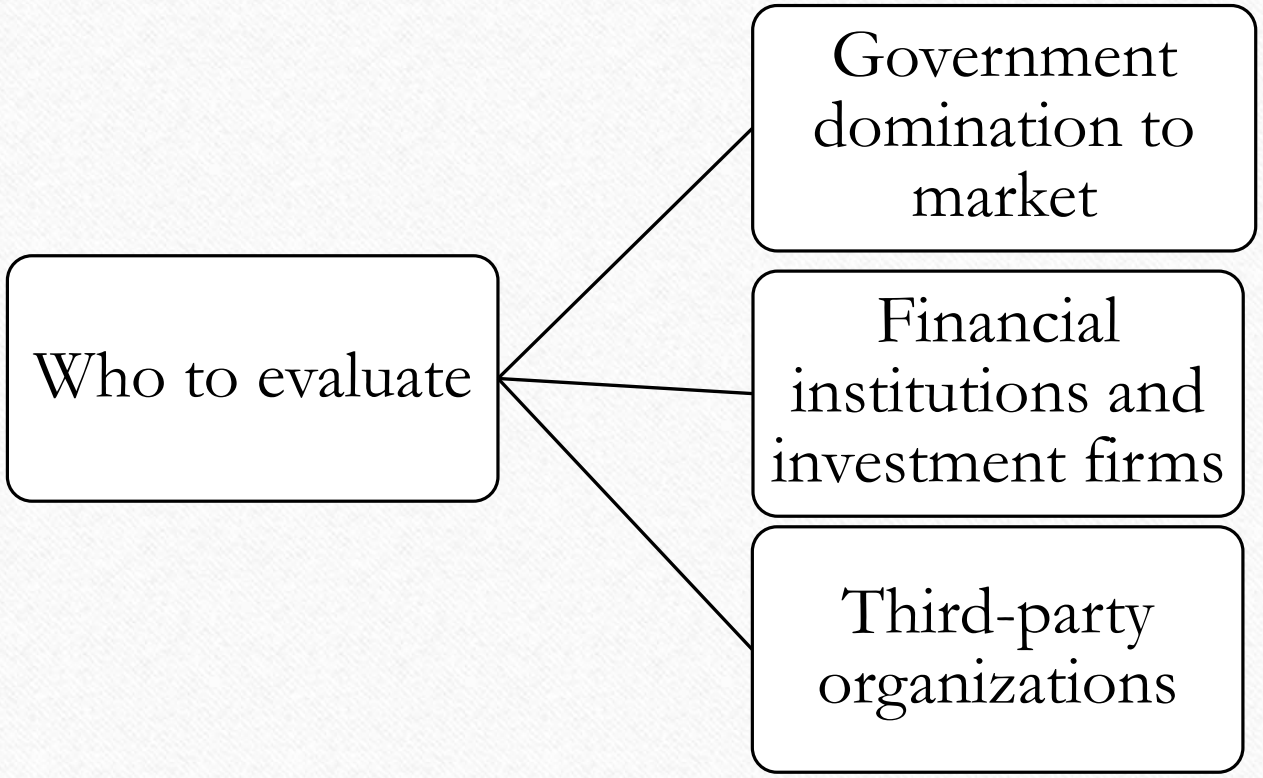

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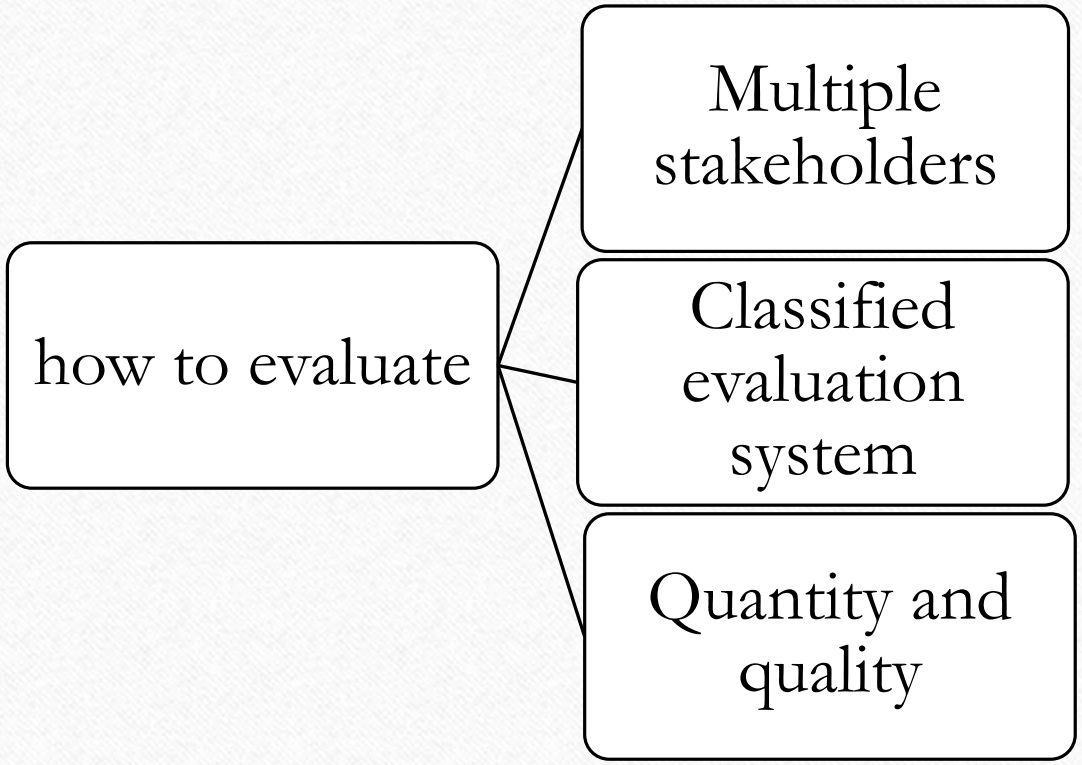

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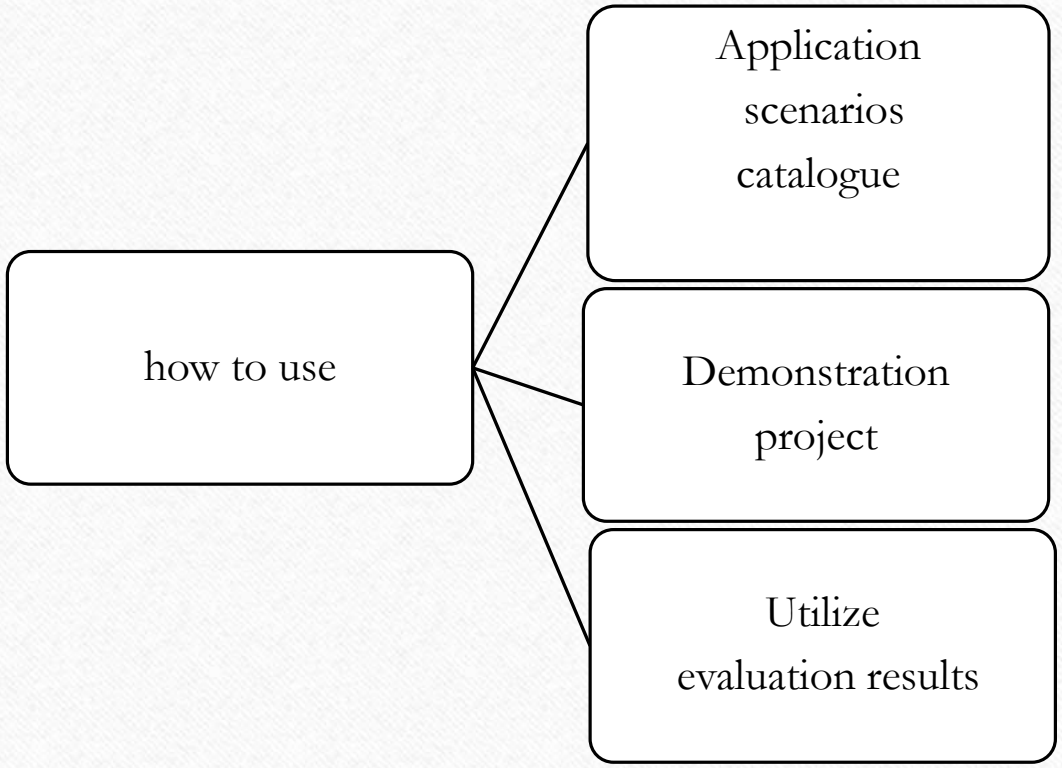


Guidelines to reform and better manage central budgetary research **funding** (Aug 13, 2021)

- Guidelines to reform and better manage central budgetary research **funding** (Aug 13, 2021)
- Half of 2.44 trillion RMB (2020)
- 40% from central government
- Problem 1: Fund management too rigid
- Problem 2: Slow allocation
- Problem 3: Low incentives for researchers
- Problem 4: Managerial burden

Problem 1: Fund management too rigid

- Greater discretion will be given to researchers in fund use with **streamlined budget compilation**, according to the guideline. The items subject to budget accounting will be merged into three categories - **equipment costs**, **operating expenses** and **labor costs**.
- Old item subjects (9): equipment cost, material cost, testing cost, fuel cost, publication/IP cost, travel/conference cost, labor cost, consultation cost, other cost
- The **power over budget reassignments** regarding equipment costs and others will all be delegated to institutes undertaking research projects, with approval no longer needed from departments governing the projects
- The **overall rationing system** that enable the retention of unused funds will cover a larger scope and be promoted in talent-related programs and basic research projects, which are no longer subject to budget compilations

Problem 2: Slow allocation

- General principle: funds channeled to projects at a faster pace
- When deciding the proportion of **first appropriation**, project's **leading researcher** must be listened
- **Better connection** between project establishment and fund allocation, fund to be allocated within **30 days** of contractor and project management agency signing the task
- **unused funds** can be kept by contractor research institutes

Problem 3: Low incentives for researchers

- increasing the **proportion of indirect funding(PIF)** in research projects
- For **purely theoretical research subjects** (eg. math), PIF to increase to 60%. Contractor research institutes can use all the indirect funding to incentivize research team and individuals.
- Central-level research institutes can **draw up to 20%** from their operational funding to motivate researchers with full direction.
- Project employees' **social security** and **housing fun**d to be included in the subject item of "labor cost"
- S&T transformation income is not to be limited by the **ceiling** performance salary totals.

Problem 4: Managerial burden

- Designated **financial assistants** to research projects, human costs to be covered by research funds.
- **Easier reimbursement**: travel costs can be reimbursed from conference cost, no-invoice spending to use overall rationing system
- Combine **technical project completion** and **financial completion**, scrap project completion auditing
- Scrap bidding requirement in equipment purchase
- Travel abroad to be made easier, **differentiate** government affairs travel spending and academic travel spending

Thanks

STI Policy and Science and Technology Parks In Iran

www.istt.ir

Mozhgan Yazdianpour
Director of International Cooperation, IRIS-ISTT

MSRT IRIS World Technopolis Association WTA ASPA Member of IASP

4th Joint Training Program
STI Policy and Tools for Sustainable Development in the Belt and Road Countries

STI Policy and Science and Technology Parks In Iran

Mozhgan Yazdianpour

Director, IRIS & ISTT International Relations
Isfahan Regional Center for SP and TBI Development, under the auspices of UNESCO (IRIS)
Isfahan Science & Technology Town (ISTT)
15th December 2021

ISTT
Isfahan Science and Technology Town

Contents

IRIS
Isfahan Regional Center for Technology Incubators & Science Parks Development (under the auspices of UNESCO)

- STI in Iran
- STPs Development in Iran
- Technology Commercialization
- Proposing Cooperation Models

Introduction of Iran

Location:

- ✓ Middle Eastern country
- ✓ South of the Caspian Sea
- ✓ North of the Persian Gulf

Area:

- ✓ 1,648,195 km²
- ✓ The 18th Largest Country

Population:

- ✓ over seventy seven million
- ✓ 60% population under 35
- ✓ The 17th in the world

Currency:

- ✓ Iranian Rials

Administration:

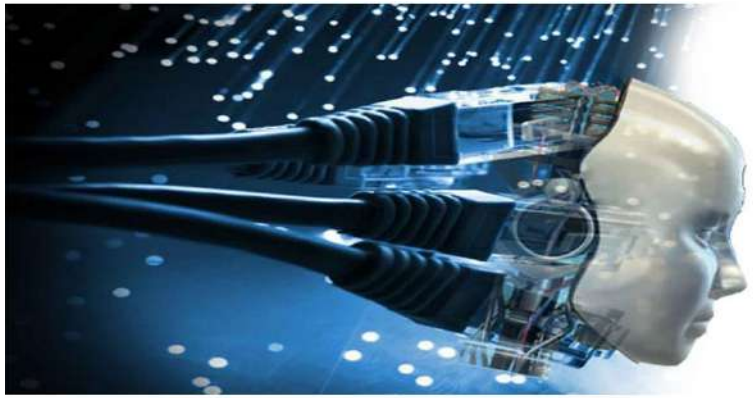
- ✓ 31 Provinces

Industries:

- ✓ petroleum
- ✓ petrochemicals
- ✓ textiles
- ✓ construction materials
- ✓ food processing
- ✓ metal fabricating

ISTT
Isfahan Science and Technology Town
ISTT, WHERE THE BUSINESS OF SCIENCE COMES TO LIFE

Science & Technology in IRAN

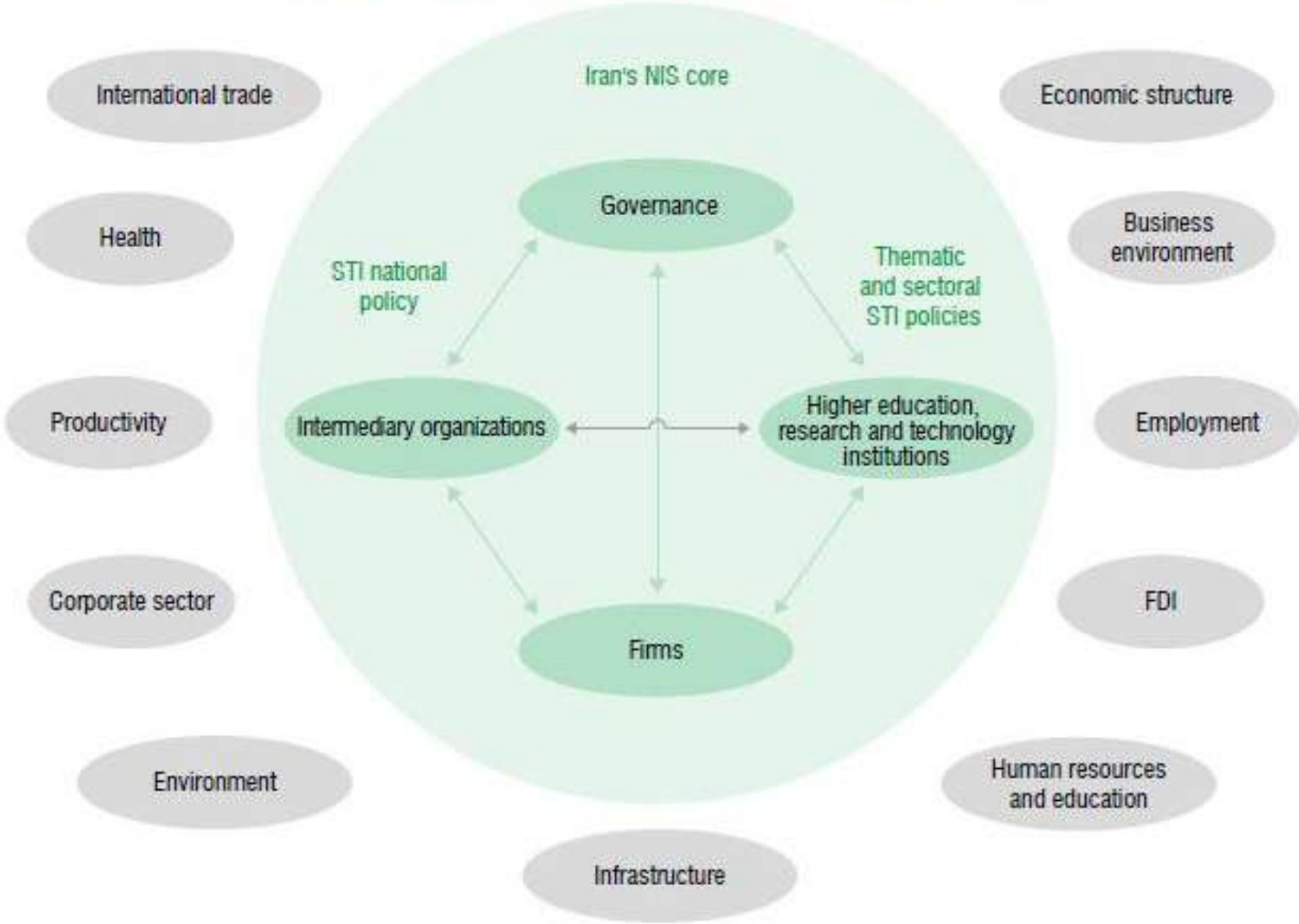


ISTT
Isfahan Science and Technology Town

Iran's Science and Technology Statistics

Items	In Number
Research Centers	140
Public Universities	500+
Incubators	260+
Science & Technology Parks	48
University Students (about)	4,500,000

GENERAL CONTEXT OF SCIENCE, TECHNOLOGY AND INNOVATION IN IRAN



Overview of S&T Policy

Administrative Framework of S&T

- The Parliament
- The Supreme Council of Cultural Revolution (SCCR)
- The Supreme Council of Science, Research and Technology (SCSRT)
- Ministry of Science, Research and Technology (MSRT)
- Vice-Presidency for Science & Technology

STI Indicators in IRAN

Categories	Indicators	Sub-indicators
STI inputs	STI human resources	Enrolment in and graduation from tertiary education
		Percentage of students at each educational level
		University and college students by discipline
		Science and engineering graduates
		University students by gender
	STI infrastructure	S&T parks
		Incubators
		Universities
		Laboratories
	R&D and financial support	GERD/GDP ratio
		Distribution of GERD by activity and performing sector
		Financial sources for funding STI
STI outputs	Scientific publications	Share of Iran in regional and global scientific publications
	Patents	Patents filed and registered in Iran
		Patents filed and granted to Iranian inventors at international intellectual property (IP) offices
	Knowledge- based outputs	Knowledge-based firms
		Companies located at S&T parks and incubators
		Employees in firms located at S&T parks and incubators
		Exports of knowledge-based product, by value
		High-technology exports
	Business innovations (from innovation surveys)	

Overview of S&T Policy

S&T Policy

1. Emphasis on knowledge-based economy for development plans
2. Privatization of major government owned industries including big industries such as steel, automobile, mines, shipping, insurance, communication, banks, etc.
3. Support for products and services of local vendors specially hi-tech companies
4. Provision of the new intellectual property regulations
5. Support for patenting new inventions
6. Facilitating a competitive business environment
7. Increase of government R&D expenditure to 3 percent of GDP
8. Financial support for start-up companies and SMEs
9. Easing regulation for spending research funds
10. Easing regulations for establishment of non-government universities

Overview of S&T Policy

Vision of 2025:

2025 Vision was developed in 2002. It is about the Future Outlook of the Islamic Republic of Iran in the Horizon of the Next Two Decades.

According to this document in the 20-year outlook Iran is a developed country, with a first class economic, scientific and technological status in the region, with the constructive and the effective interaction in international relationships.

Three Waves of Iran STI Policy

First Generation
Developing Higher Education

Second Generation
Focus on Research & Technologies

Third Generation
Knowledge-based Economy

Yesterday:
Growth was based on Capital Goods

Intangible
Tangible

Increase the importance of intangible assets

Tangible
Intangible

Today:
Growth is based on Innovation

2. Analysis of National Capabilities

Strengths and Weaknesses

❖***STRENGHs***

- ❑Stronger focus on innovation since 2010 (3rd wave of STI policy)
- ❑More of a systemic approach to innovation by some policy makers
- ❑New institutions for promoting innovation (VPST*, 16 technology councils)
- ❑New mechanisms to support KBFs (IPF*, VCFs*, STPs, incubators)
- ❑Financing for improving innovation
- ❑Emergence of many new KBFs*
- ❑Significant advances in research, higher education, technology
- ❑Increase in patents

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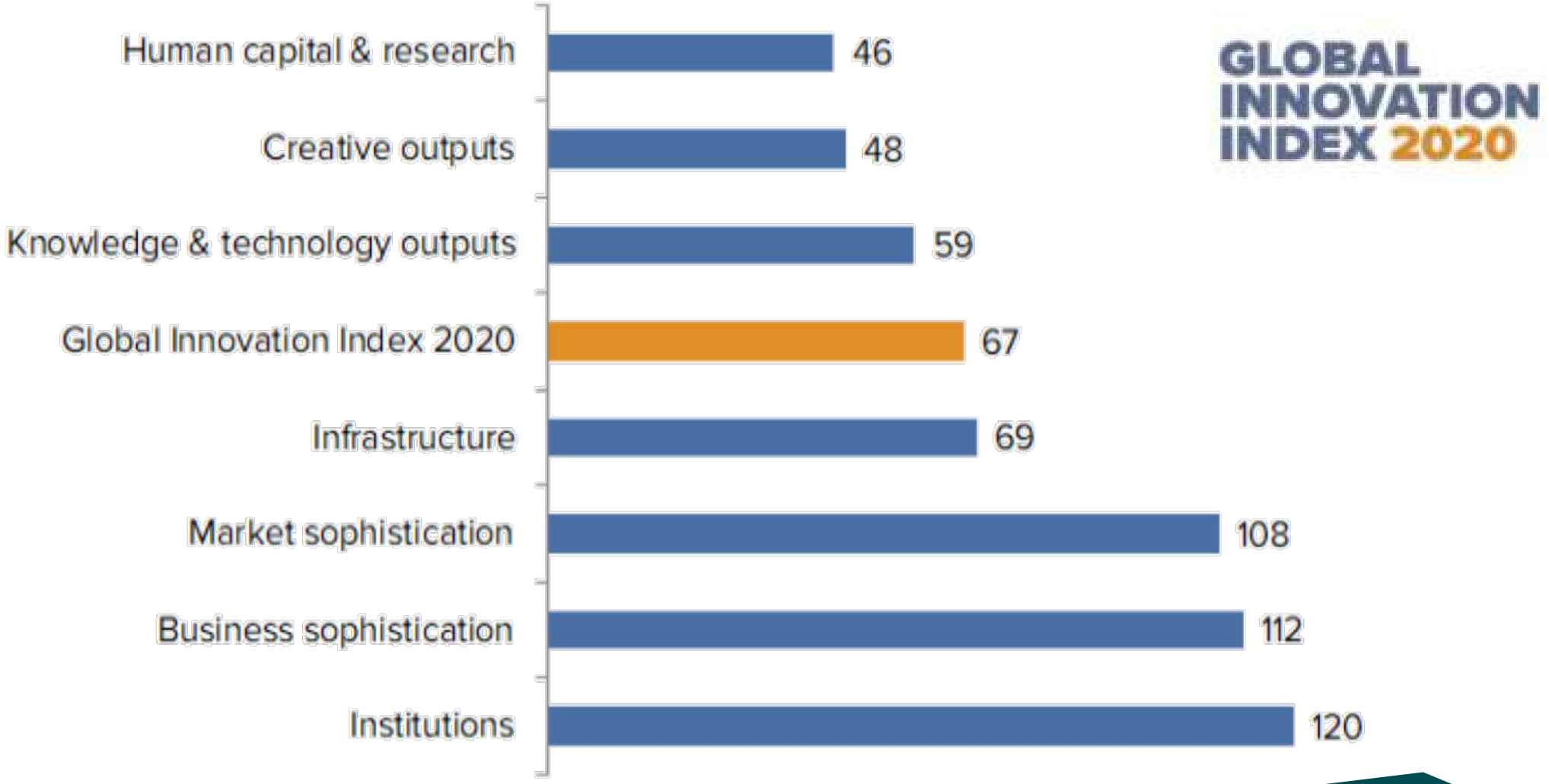
Innovation Strengths in Iran

IRIS
Isfahan Regional Center for Technology Incubators & Science Parks Development (under the auspices of UNESCO)



GLOBAL INNOVATION INDEX 2020

2. Analysis of National Capabilities

Strengths and Weaknesses

❖***WEAKNESSEs***

- ❑Insufficient policy alignment - STI, trade, industrial policy, financial, Competition
- ❑Some overlaps in STI organizations
- ❑Some key economic institutions focus on production, too little on innovation capacity
- ❑Low productivity levels and productivity growth
- ❑Need to further improve business environment
- ❑More private sector development and competition
- ❑Financing for innovation still insufficient
- ❑R&D spending relatively low (especially business R&D)

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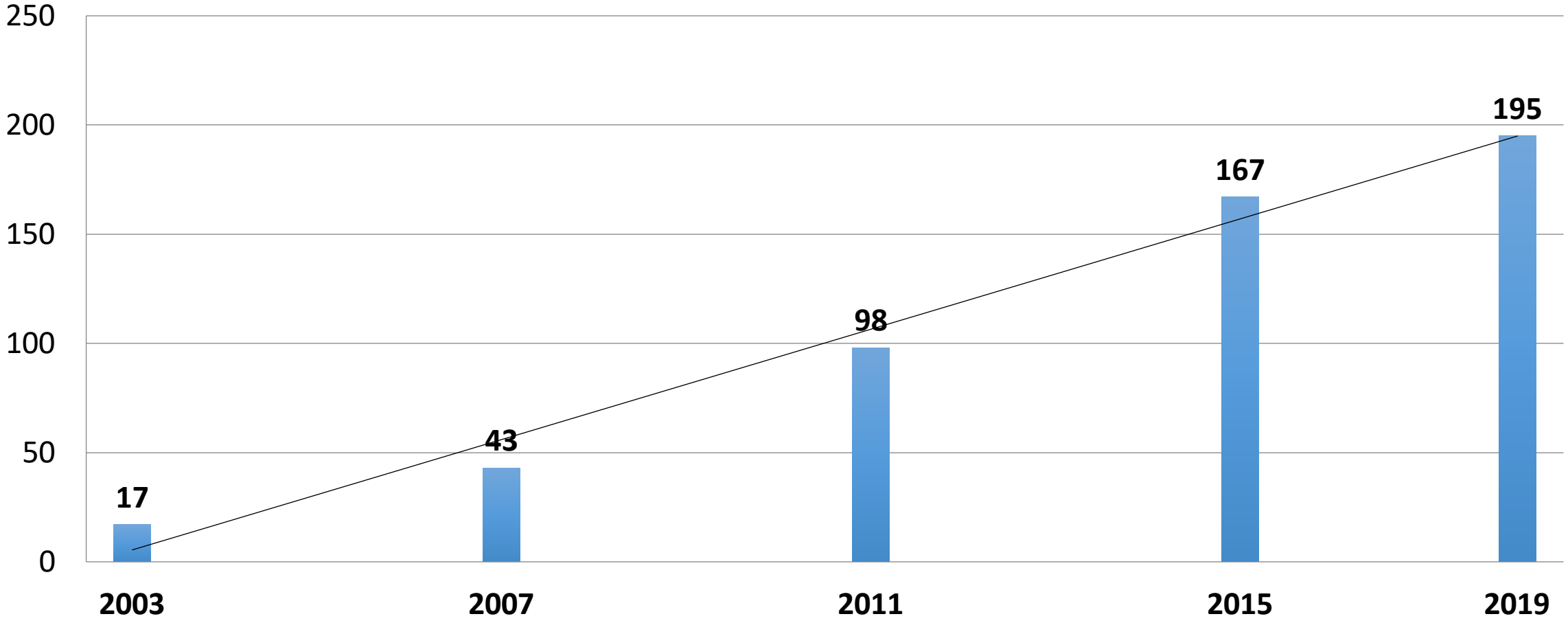
Role of STPs in Iranian Economy

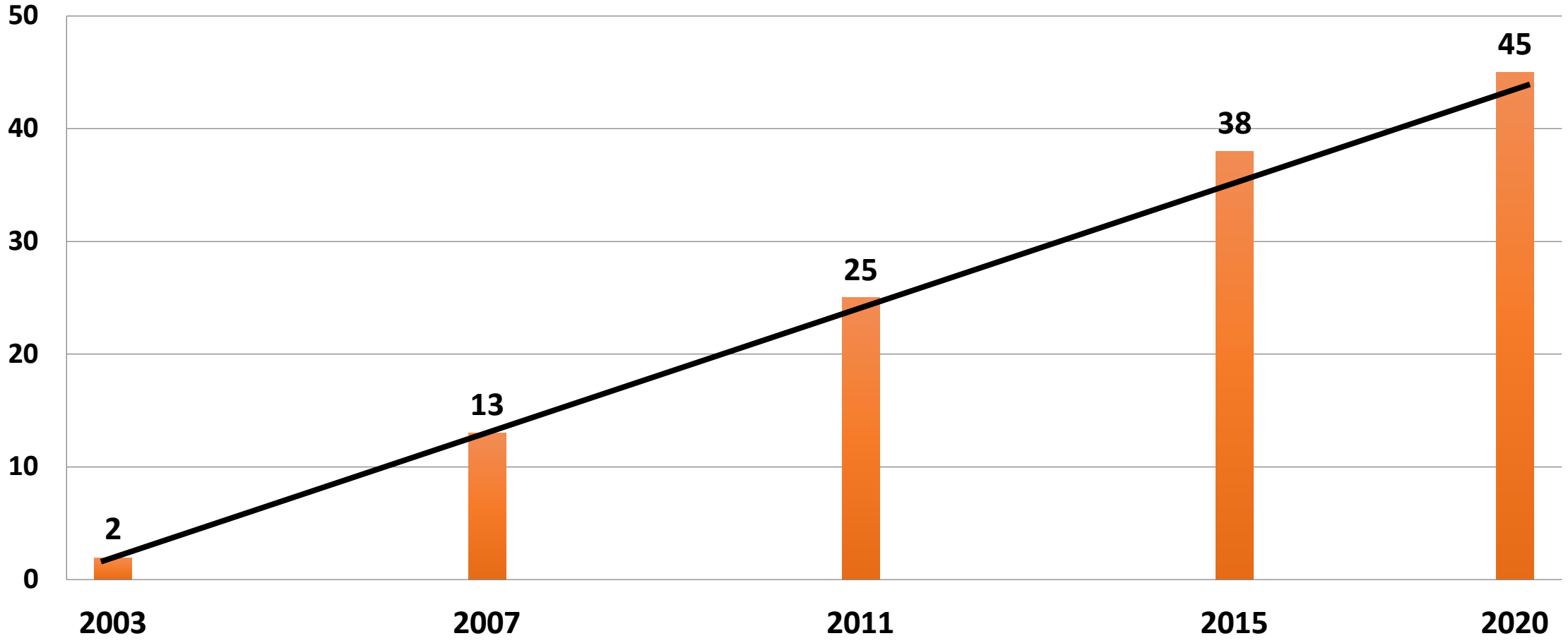
- Promoting and strengthening knowledge-based economy
- Providing supportive programs and facilities for commercialization of knowledge-based plans and programs
- Helping the growth and internationalization of start ups
- Helping solve the technical problems of the industries with reliance on capabilities of domestic companies during sanctions
- Ability to meet the technical and engineering needs in the country

Technology Business Incubators (TBI) in Iran



Growth Trend of TBIs

Science and Technology Parks (STP) in Iran



Growth Trend of STPs

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Sci. & Tech. Status in Iran

48

Sci. & Tech. Parks

260

Incubators

> 6000

K-Based Co.

> 12000

Startups

Success rate: 75%

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STPs in Iran

STPs affiliated to Ministry of SRT 45

STPs affiliated to Ministry of Health 2

STP Affiliated to Vice-Presidency for S&T 1

STPs affiliated to other organizations

Private STPs

Economic Impact of K-Based Companies

2020

$6 Billion

Revenue

300,000

Job Creation

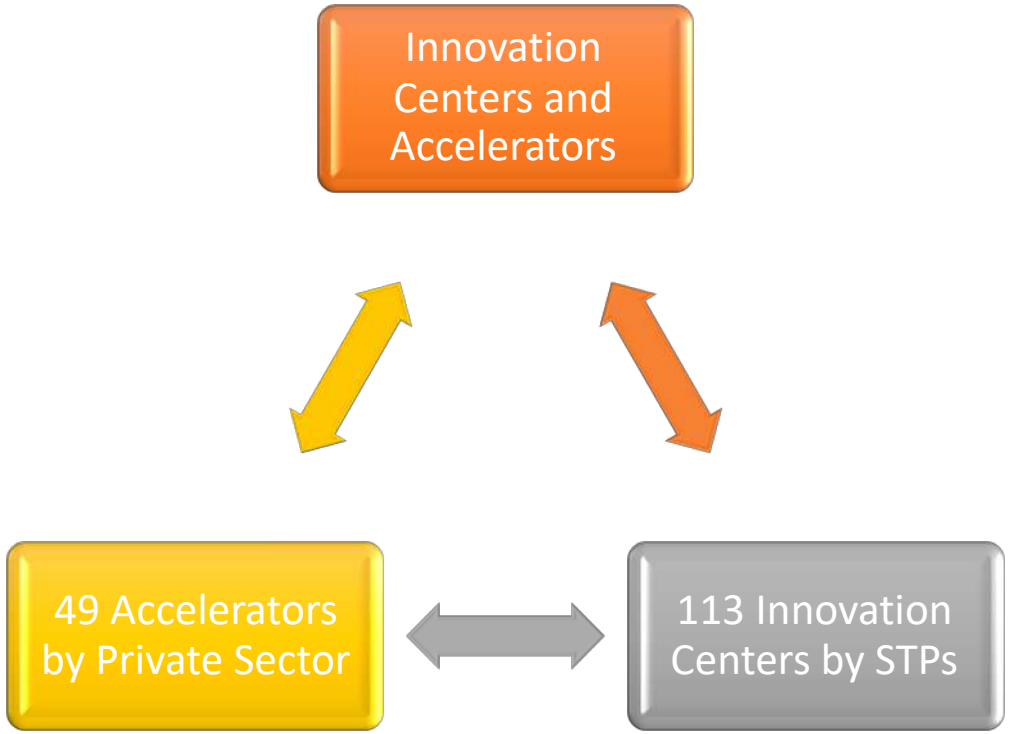
$1 Billion

Export

700

New Technologies

Role of STPs in Iranian Economy



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Role of STPs in Iranian Economy

- Promoting knowledge-based economy toward sustainable development
- Providing supportive programs and facilities for commercialization of knowledge-based plans and programs
- Helping the growth and internationalization of start-ups
- Providing job opportunities for talents and high educated people
- Problem solving for the industries with reliance on capabilities of domestic companies during sanctions

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ISTT, The Pioneering Science Town in the Region

INTRODUCTION

A view of ISTT Infrastructures

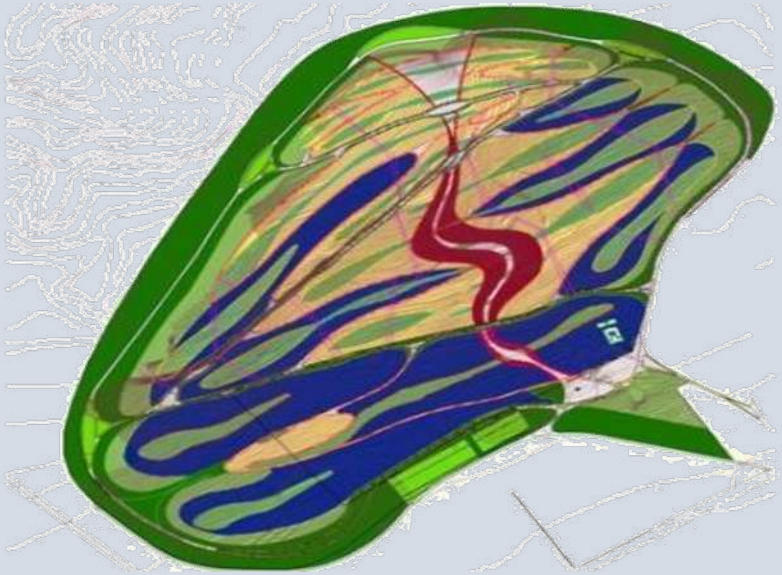
ISTT Introduction

Affiliation by:

- The Ministry of Science, Research & Technology (MSRT)

Support by:

- Isfahan Provincial Government
- Industries
- Universities
- Research Centers



Location:

- On 520 ha of land adjacent to Isfahan University of Technology

ISTT Mission and Vision

Mission:

To promote knowledge-based economic development by supporting innovative companies, fostering entrepreneurial culture, creating science and technology parks and incubators and stimulating the flow of knowledge amongst universities, scientific organizations,
companies and market

Vision:

To be the key organization for development of Isfahan Region by attracting human resources and creating a knowledge-based society through establishing a special technology zone within the next 5 years

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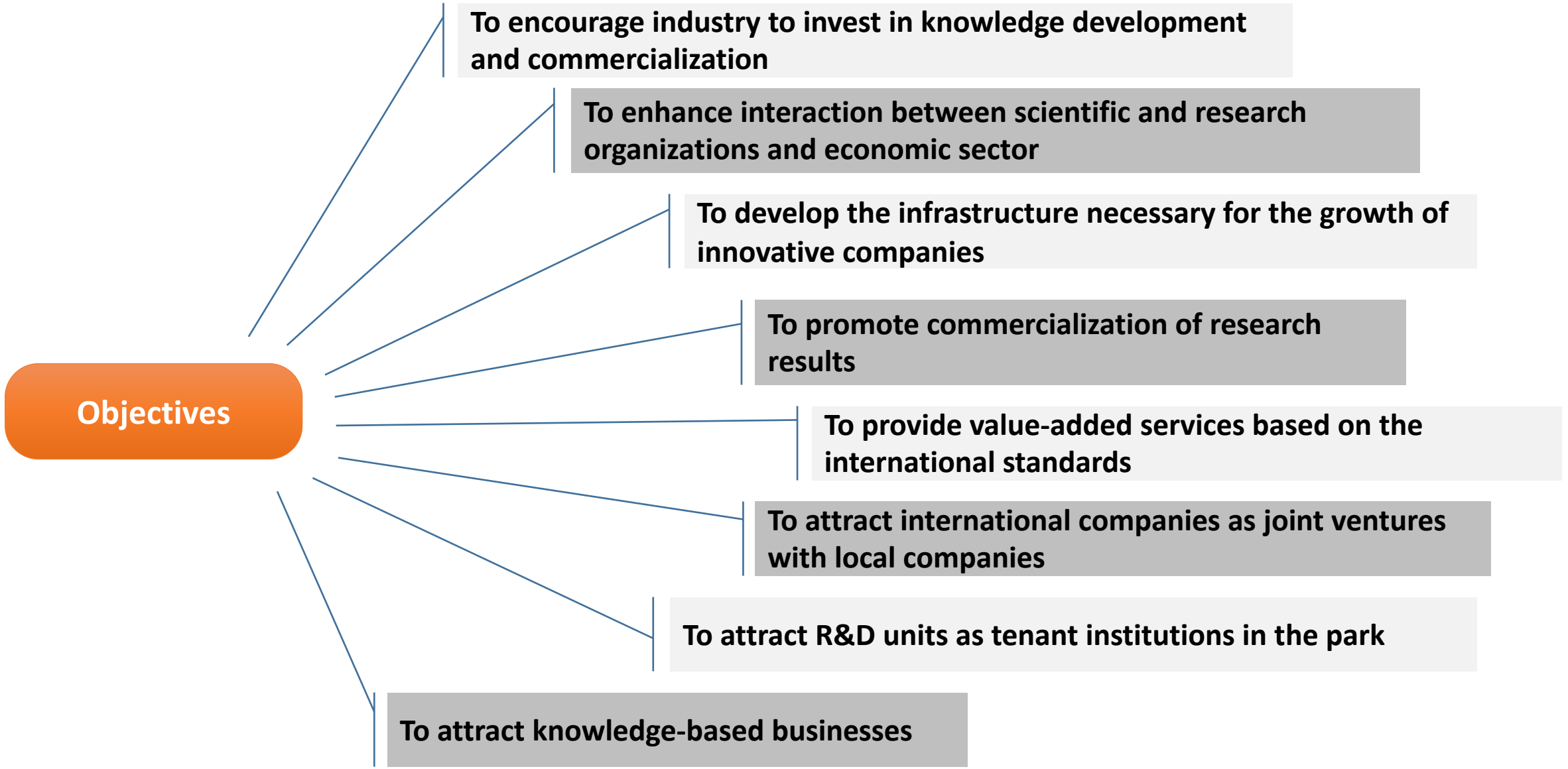
ISTT Objectives

- ✓Industrial renovation and competitiveness
- ✓Bridging the technological divide
- ✓Encouraging entrepreneurial and scientific thinking
- ✓National empowerment
- ✓Job creation for young scientists

ISTT Objectives



ISTT Today

Sci. & Tech. Parks

1- Sheikh Bahaei STP
2- A. Birouni STP
3- Ghiasodin STP

Incubators

1- Pre-incubation
2- Technology Incubator
3- Isf. Univ. of Tech.
4- Art incubator
5- ICT
6- Agriculture
7- Steel
8- Najafabad

Specialized STPs

1-Steel & Mining
2- Agriculture & Water
3- Oil & Gas
4- ICT
5- Health & Medical Equ.

6

Accelerators & Innovation Centers

Children Science & Technology Center

ISTT at A Glance

2020

$200 Million

Revenue

582

Companies

$37 Million

Export

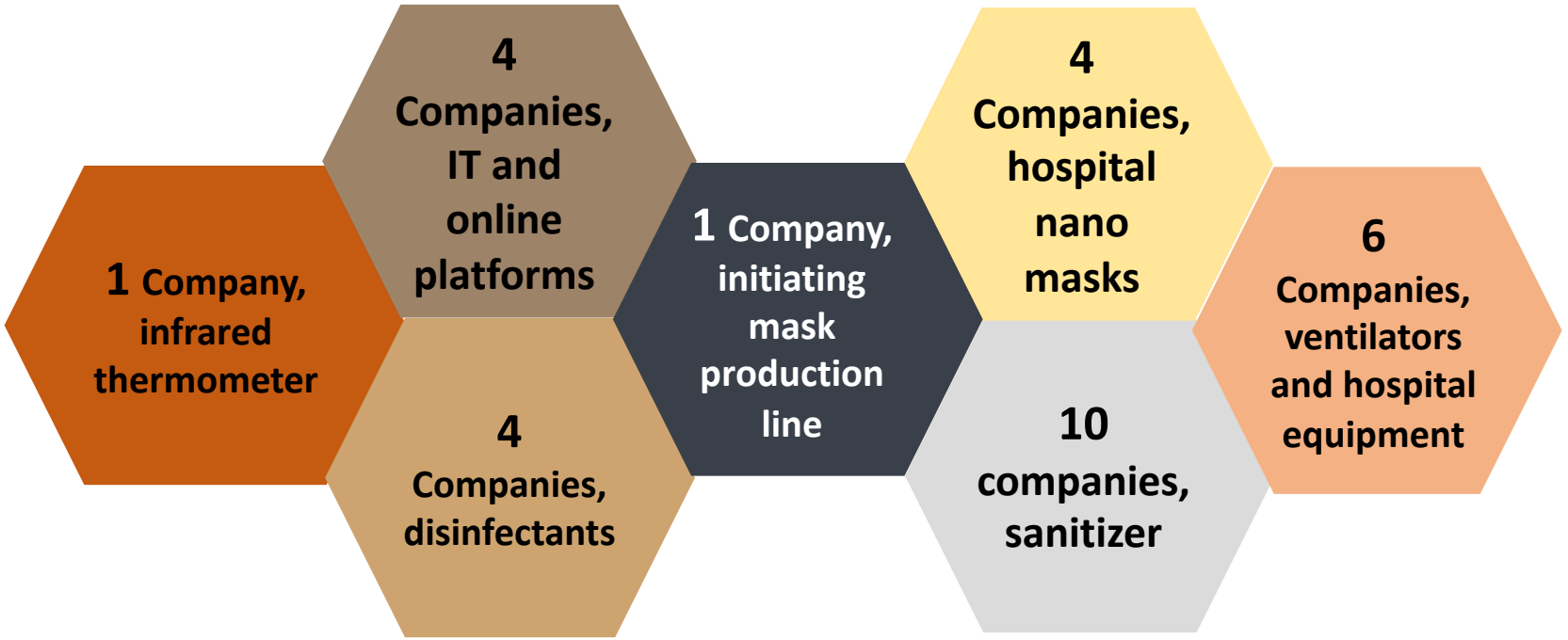
7800

Job Creation

ISTT Companies in combat against Covid-19

Daily Production

- 52000 liters of sanitizer
- 19000 Nano Masks
- 150000 3-layer Masks
- 72 equipment



30 Technology Companies

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ISTT Settlement Advantages

- ✓ Infrastructural and General Services & Facilities
- ✓ Links and synergy among centers and companies
- ✓ National/international brand of ISTT
- ✓ Value-added services
- ✓ +++

ISTT's Tenant Statistics

Number of settled knowledge-based companies in ISTT

	Number
Pre-Incubation	115
Technology Incubators	197
Sheikh-Bahai STP	268
Total:	580

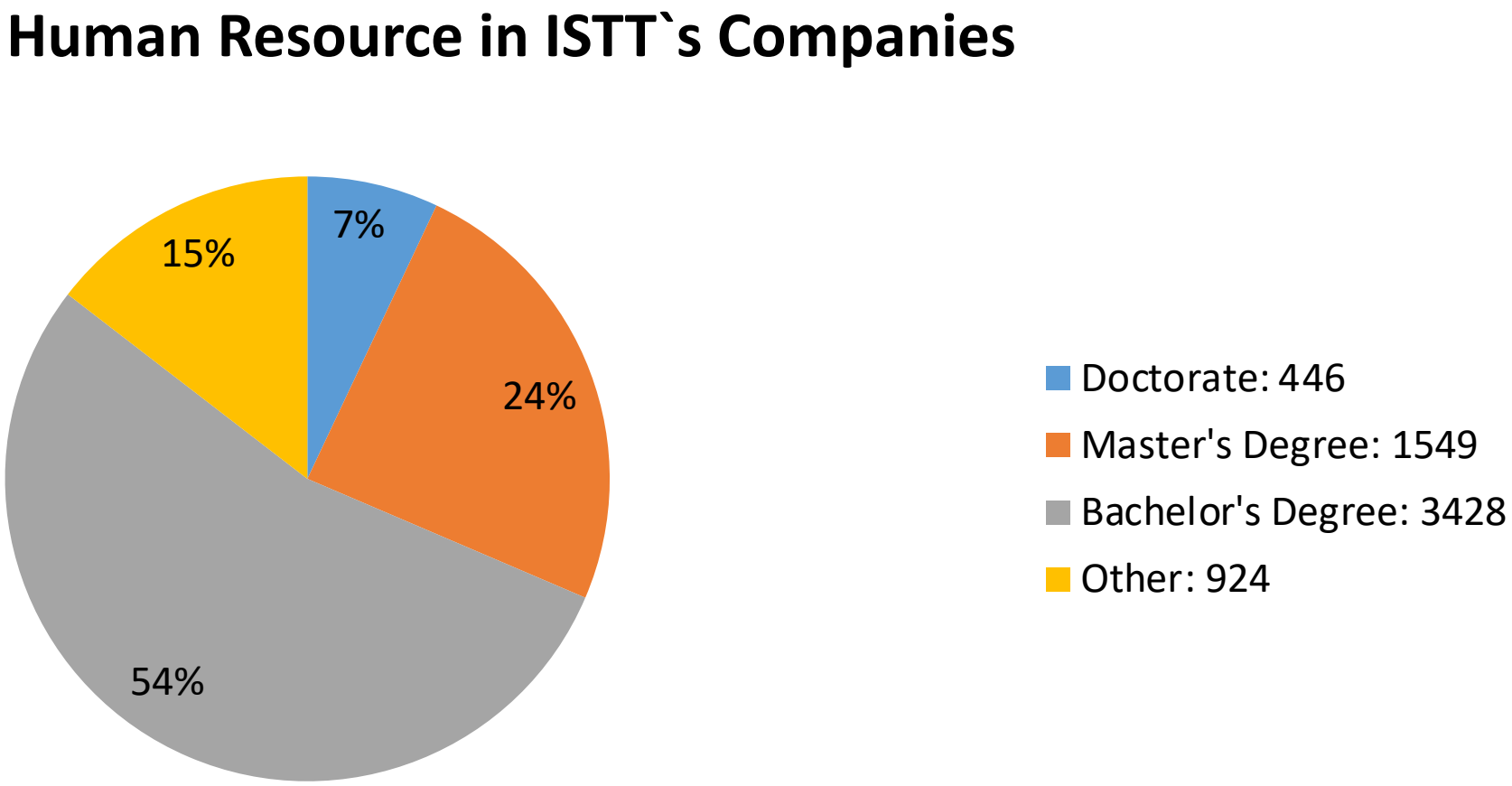
Updated on 03/07/2017

ISTT’s Tenant Statistics

Human Resource in ISTT`s Companies

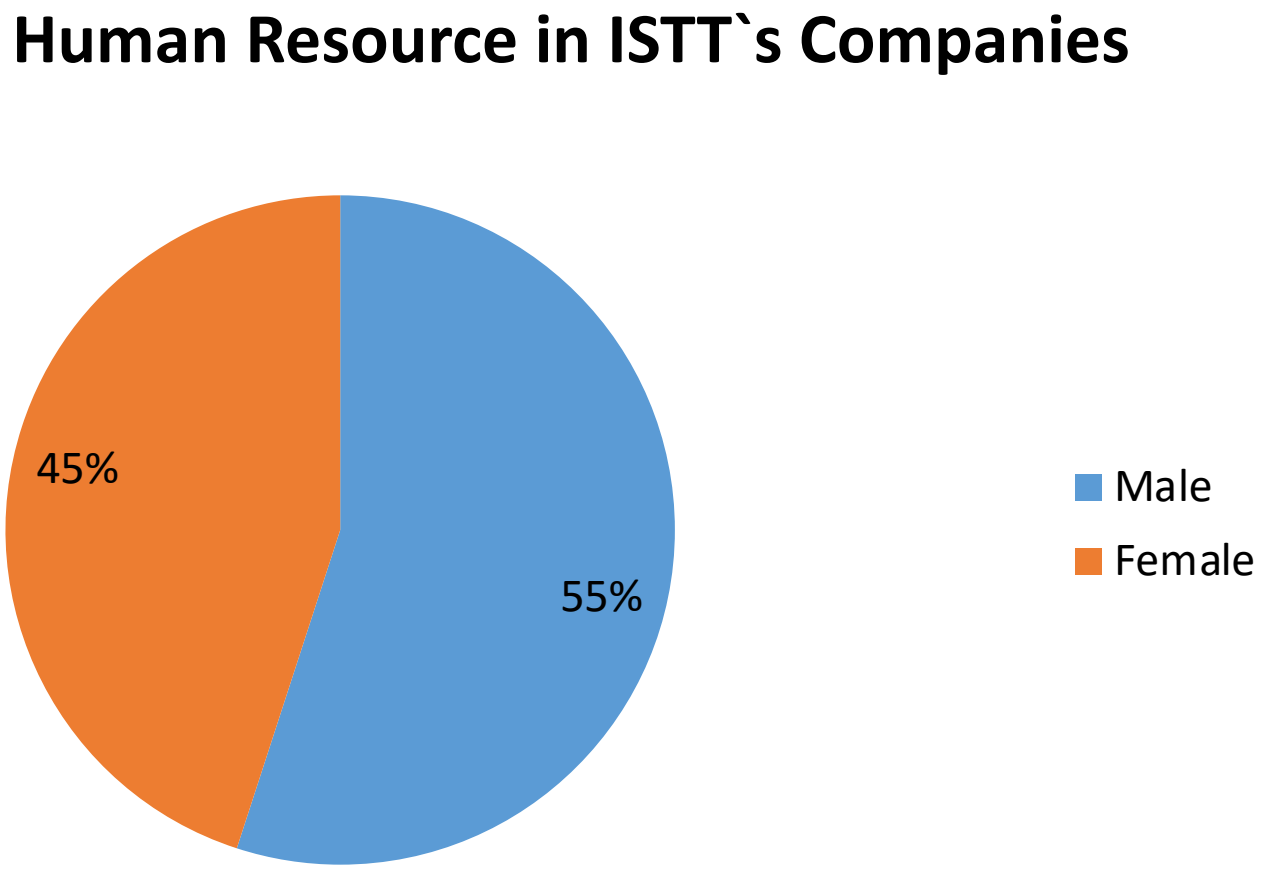
	Number
Full Time	5480
Part Time	2345
Total:	7825

ISTT’s Tenant Statistics



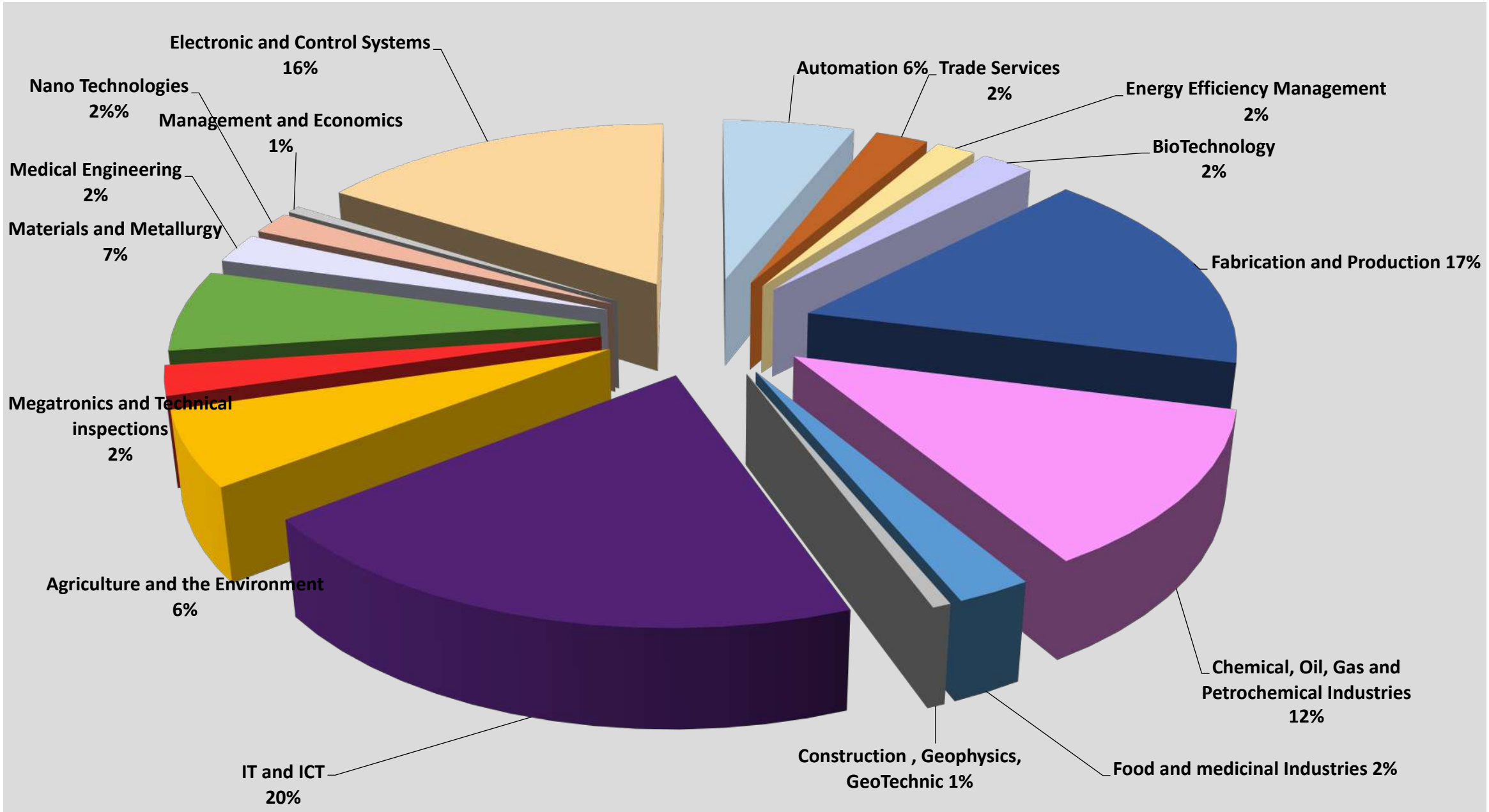
Updated on: 03/07/2017

ISTT’s Tenant Statistics



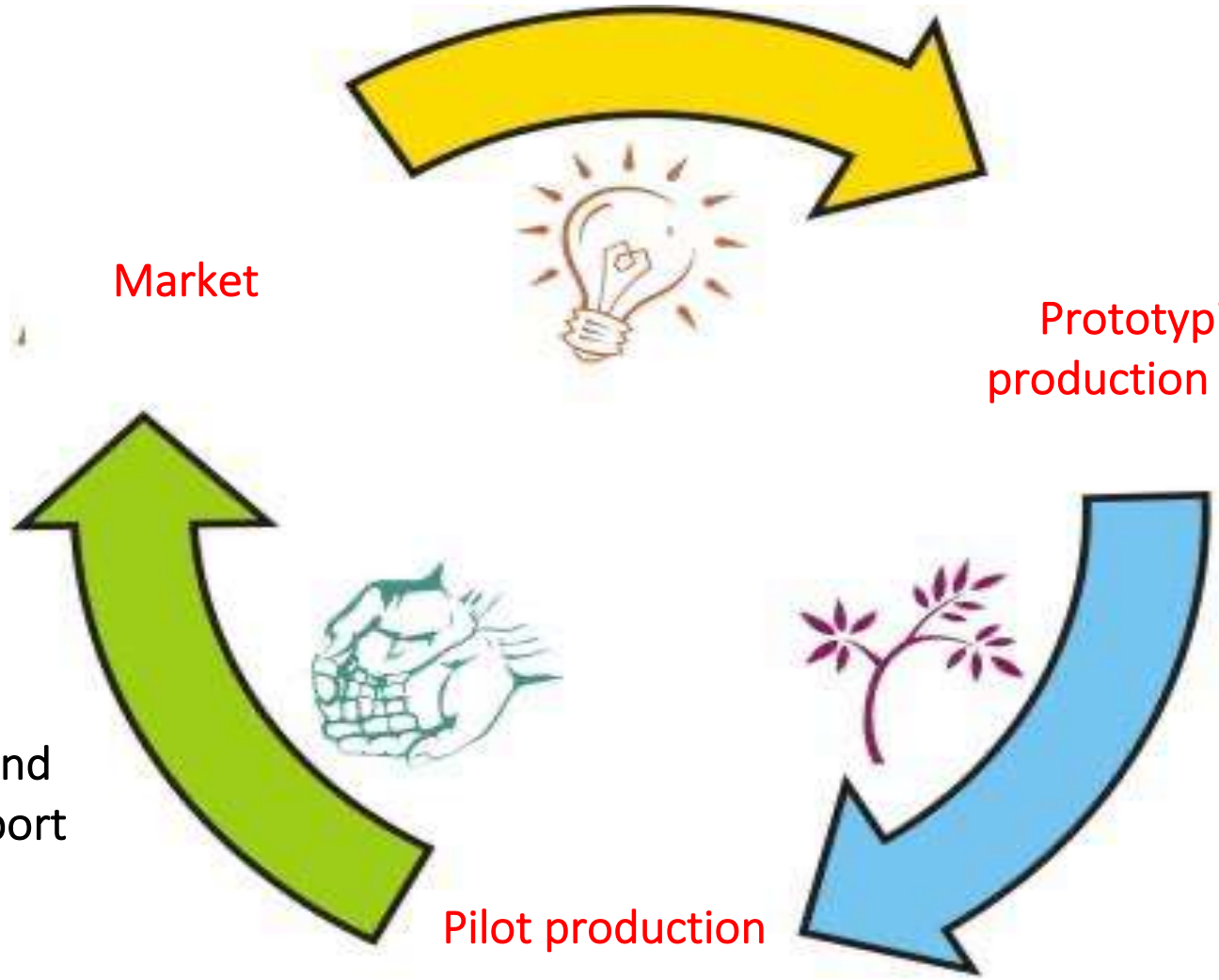
Updated on: 24/09/2016

Industry Classification of K-based Companies settled at Sheikh Bahai Science Park



Technology Transfer Office

Admission of ideas and the teams to ISTT



Children Science Centre

To make children familiar with the world of Technology

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INTERNATIONAL RELATIONS & ACTIVITIES

ISTT International Relations

International Associations & Organizations

UNESCO

IRIS

IASP

ASPA
Asian Science Park Association

THE WORLD BANK

IDB
Islamic Development Bank

ECOSF

World Technopolis Association
WTA

African Union

COMSTEC

CSTEC

ISTIC
INTERNATIONAL SCIENCE, TECHNOLOGY AND INNOVATION CENTRE FOR SOUTH-SOUTH COOPERATION UNDER THE AUSPICES OF UNESCO

MIGHT

REDINN
Rete Europea Dell'Innovazione

中关村
ZHONGGUANCUN SCIENCE PARK
Z-Park

CTP
Chungnam Techno Park

TECHNOPOLE
SFAX

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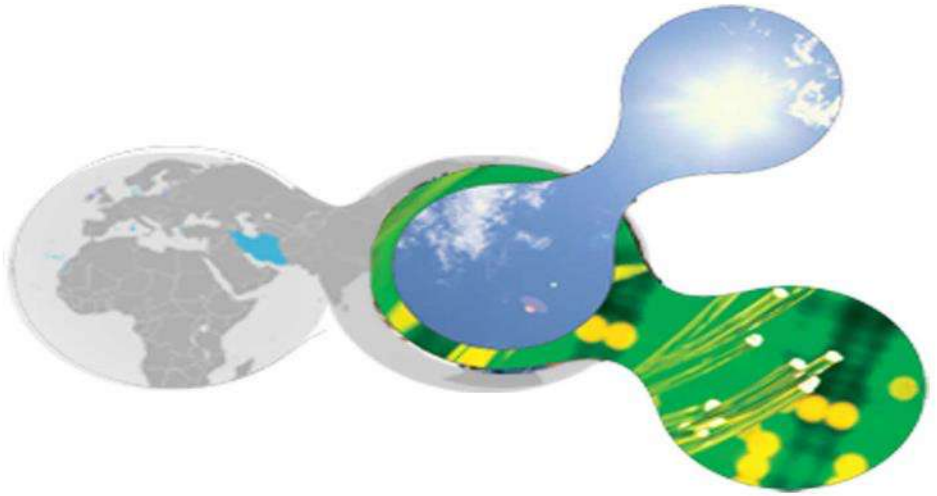
ISTT, WHERE THE BUSINESS OF SCIENCE COMES TO LIFE

IRIS



Isfahan Regional Center for Technology Incubators and Science Parks Development, under the auspices of UNESCO (IRIS)

IRIS

Signing the contract between UNESCO and the Government of Iran

IRIS Mission and Objectives

Mission:

This regional center intends to prepare the ground for the development of technology incubators and science parks in the region through providing consultations, training courses and capacity building. The center is also going to facilitate the international relations among science parks and incubators with their counterparts in the region.

Objectives:

- Conducting capacity-building.
- Providing technical assistance.
- Facilitating knowledge transfer
- Supporting research
- Networking
- Information exchange and dissemination

Geographic Scope

At the 1st Stage:

It covers ECO countries including:

Tajikistan, Turkmenistan, Kyrgyzstan, Uzbekistan, Turkey, Afghanistan, Pakistan, Azerbaijan, Kazakhstan and Iran

At the 2nd Stage:

It will be expanded to a wider international scope.

Commercialization of Technologies and Products

- Strengths and potentials of Iranian Companies

  - ✓ Producing quality products
  - ✓ Having High Technologies (TRL>6)
  - ✓ Export potentials
  - ✓ High technical, engineering and Designing capabilities
  - ✓ Talented human resource

Models of Cooperation

- Sisterhood agreement between STPs from Iran and other countries
- Joint Partnership between the companies
- Co-branding
- Re-branding
- Joint Product

Suggestions for Cooperation

- Performing technology transfer programs between the companies (through partnership, co-branding, …)
- Organizing joint training programs, workshops, webinars, etc. with IRIS, ISTT and other STPs
- Cooperation with Art Incubator in different fields related to art and tourism
- Cooperation between the S&T parks of different countries

ISTT
Isfahan Science and Technology Town

www.istt.ir **www.unesco-iris.com**

ghaisari@istt.ir

MSRT IRIS World Technopolis Association WTA ASPA Member of IASP

Sialkot Technology Park

Unlocking Sialkot's Potential as Industrial Cluster for Industrial Growth in Pakistan

Presented by:
Tassadaq Hussain

Contents

- Brief Introduction of Presenter
- Technology Parks
- Sialkot's Potential as Industrial Cluster
- Unlocking Sialkot Potential through Sialkot Technology Park (STP)

Sialkot Technology Park

Introduction

Academia

PhD – UPC BarcelonaTech Spain

Microsoft Cambridge, IBM, Barcelona Supercomputing Center, PLDA Italia

Proven successful record of academic management as Professor and Dean.

Enhanced Quality of academic **outcomes** into **applied and sustainable projects.**

Research

Developed Labs Supercomputing, Distributed Artificial Intelligence, Computer Vision, Software Defined Radio, Parallel programming and Embedded Systems;

80+ publications and **PKR 60+ Million research funding** during the last 5 years.

Introduction

Experience

16+ years' versatile experience of **supercomputing, artificial intelligence and IT** domain in **national** and **international academia**, **industry** and **government**

Development and Commercialization

Developed systems for industrial problems. Transform ideas into applied product, **innovation and commercialization, sustainability and capacity building.** Completed multiple industrial projects having worth of PKR 30+ Million.

- **Barcelona Technology Park Spain,**
- **Cambridge Science Park**
- **Technopolis Of Sofia-Antipolis, France**

Introduction

Recent Projects (worth 0.6 Million US $)

- Development of a patient monitor system
- Indigenous Ventilator
- High Performance Software Defined Radio System
- Scalable Heterogeneous Supercomputing System
- BLDC Motor Controller

Contents

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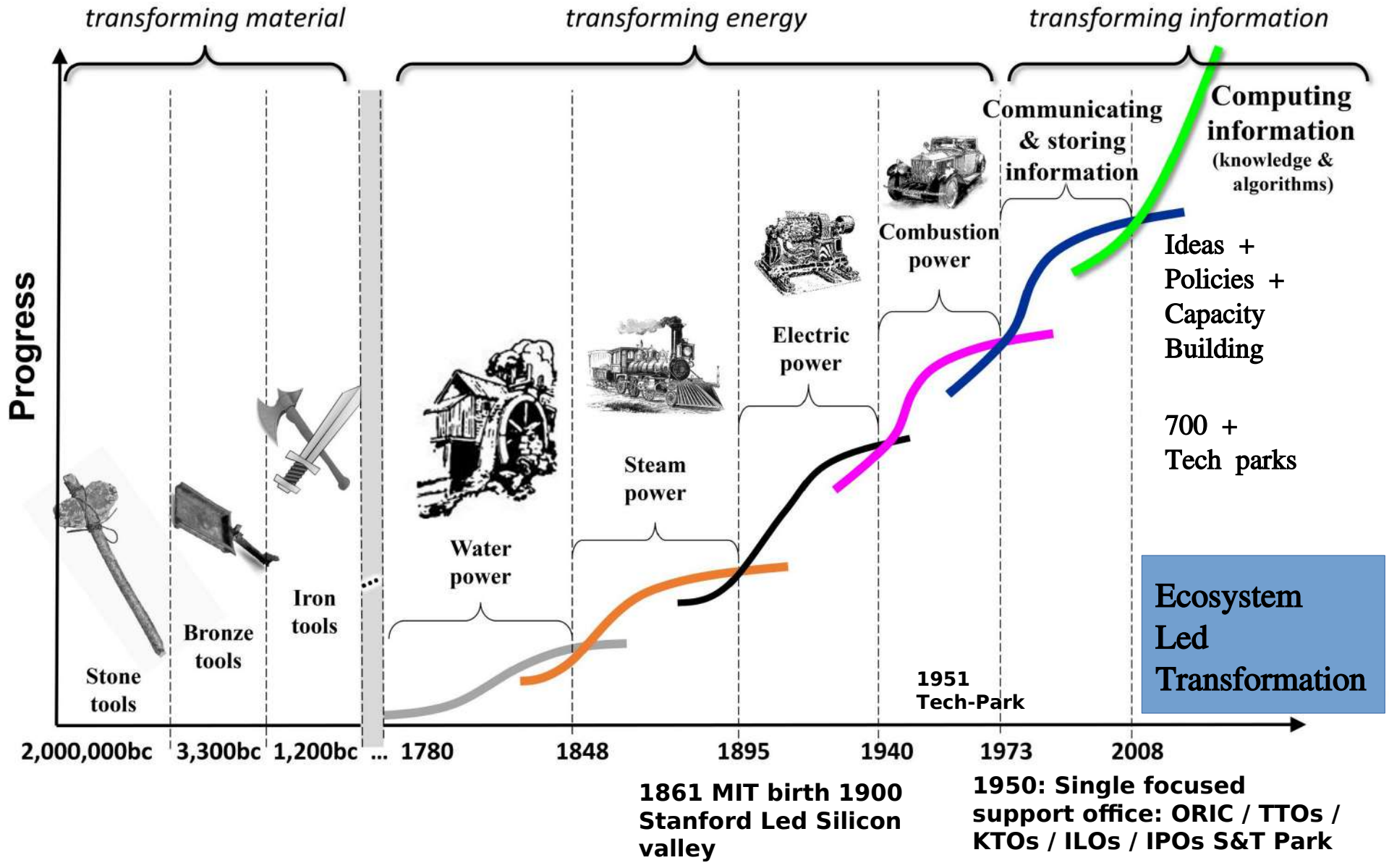
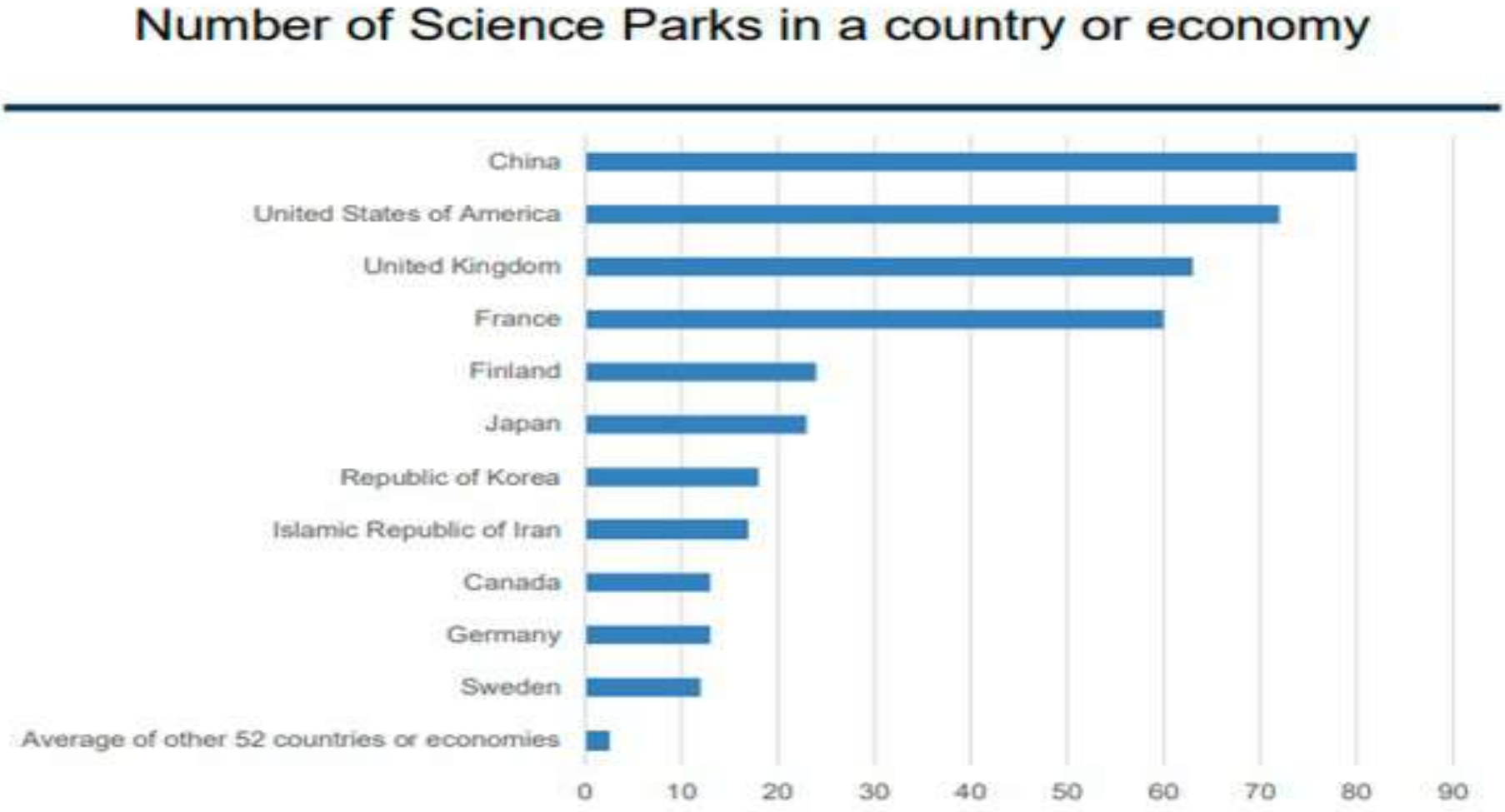
Sialkot Technology Park

Mankind Progress



Global S&T Parks: Overview



Note: the number of parks may vary according to different sources, mainly because there is no universally agreed definition of S&T parks

Source: UNESCO, http://www.unesco.org/new/en/natural-sciences/science-technology/university-industry-partnerships/science-parks-around-the-world/

Revenue Growth of Technology Park

	2012	2013	2014	2015	2016	2017	2018
No of employees	13,430	13,921	14,907	14,412	12,618	14,145	22,644
Sales (billion won)	8004.2	9395.0	9686.6	10287.8	13958.3	1579.7	13034.9
No of tenants	1657	1756	1917	1935	2086	2360	2121
Average sales (billion won)	4.8	5.4	5.1	5.3	6.7	6.7	6.1

Table: Korean Technology Park Employment and Sale Trend of Tenant Companies

Contents

- Brief Introduction of Presenter
- Technology Parks
- **Sialkot's Potential as Industrial Cluster**
- Unlocking Sialkot Potential through Sialkot Technology Park (STP)

Sialkot Technology Park

Sialkot's Potential as Industrial Cluster

Sialkot Industry

- Sports Goods – Soccer, Martial Arts, Rackets, Baseball, others
- Surgical Goods
- Cutlery Products
- Musicals Instruments
- Hosiery and Knitwear – Sports, Work wears, Beekeeping Suits
- Gloves and Shoes
- Leather Garments

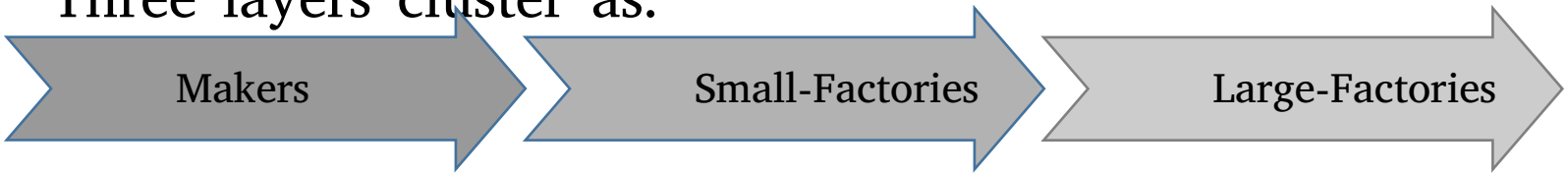
Export Destinations

- USA
- Europe
- Africa
- Central Asia
- Middle East

USD 2.5 Billion Export

Sialkot Potential

1. Sustaining for three generations
2. Working with world leading brands and having global exposure
3. Three layers cluster as:



4. Ecosystem from

5. Emerged corporate culture
6. Developed big institutions like Airport, Airline, Dry port

Problems

1. Not having Own brands
2. Lacking E-commerce skills
3. Non-Expandable to big corporations
4. Transfer from family led to corporate led
5. Foreign dependency on imported raw material
6. Not having of state-of-the art Automation technologies

Sialkot produces 90% of global surgical supplies
Sialkot sells surgical goods for USD 4.5 million that is branded and resold for USD 18 billion

Contents

- Brief Introduction of Presenter
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Sialkot Technology Park

Sialkot Technology Park-STP

Vision

"Developing Sialkot as Innovative District"

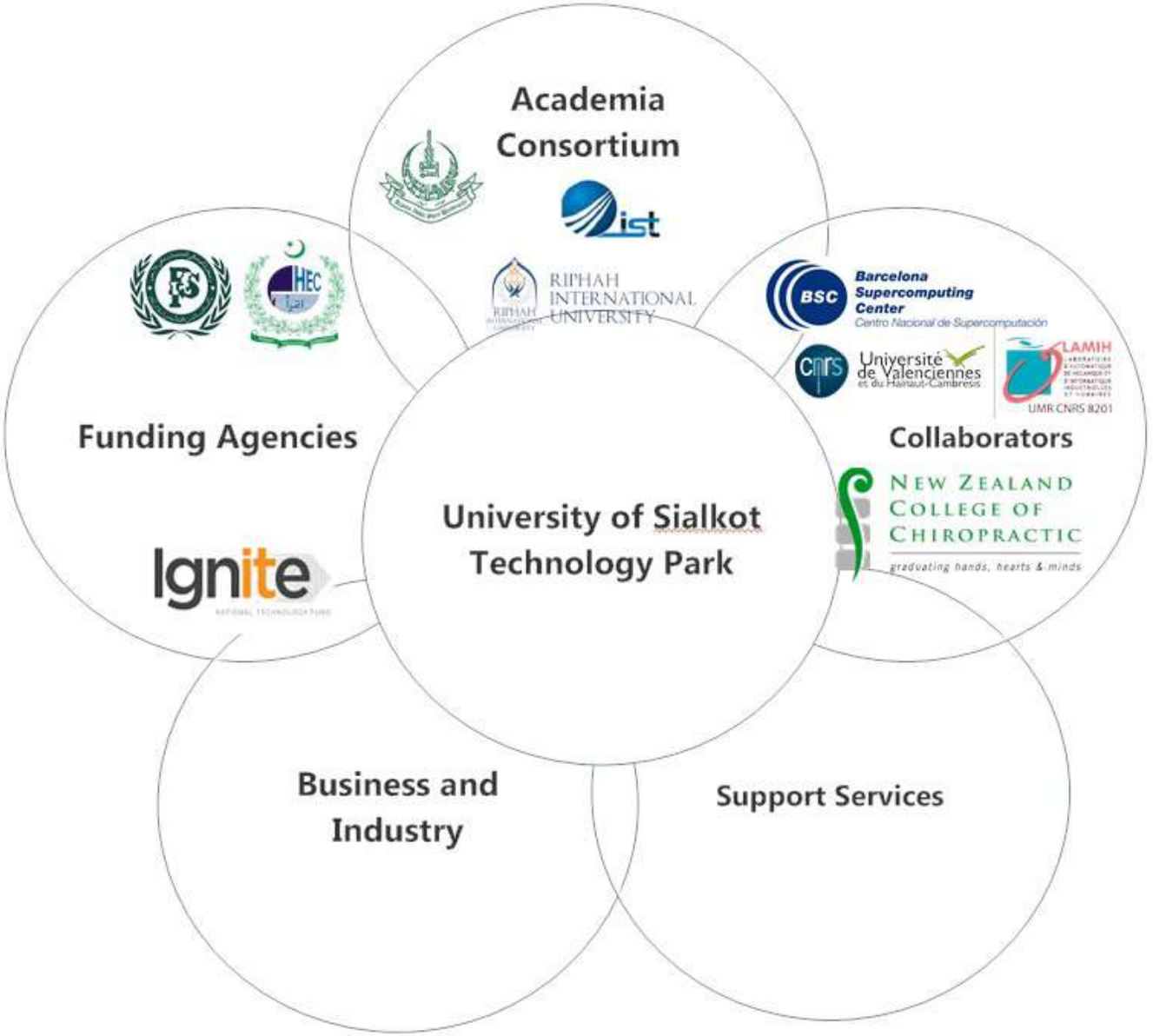
Mission

"Providing Ecosystem for 10X Growth of Sialkot"

Major Services for Startups

- STP incubus, trains, mentors and invests in potential business.
- STP provides legal, financial, and enterprise development services.
- STP facilitates for lab work, pilot production, and marketing.

Synergy of Technology Park



STP: Experties

Academia: 10+ Collaborated Universities

R&D Labs:

- High Performance Computing Centre
- Health-Care and Rehabilitation
- Mechanical Simulation and Modeling
- Electrical Engineering

Collaborators:

- Barcelona Technology Park
- Center of Excellence New Zeland Center of Chiropractic
- University of Valencieance
- Pakistan Supercomputing Center

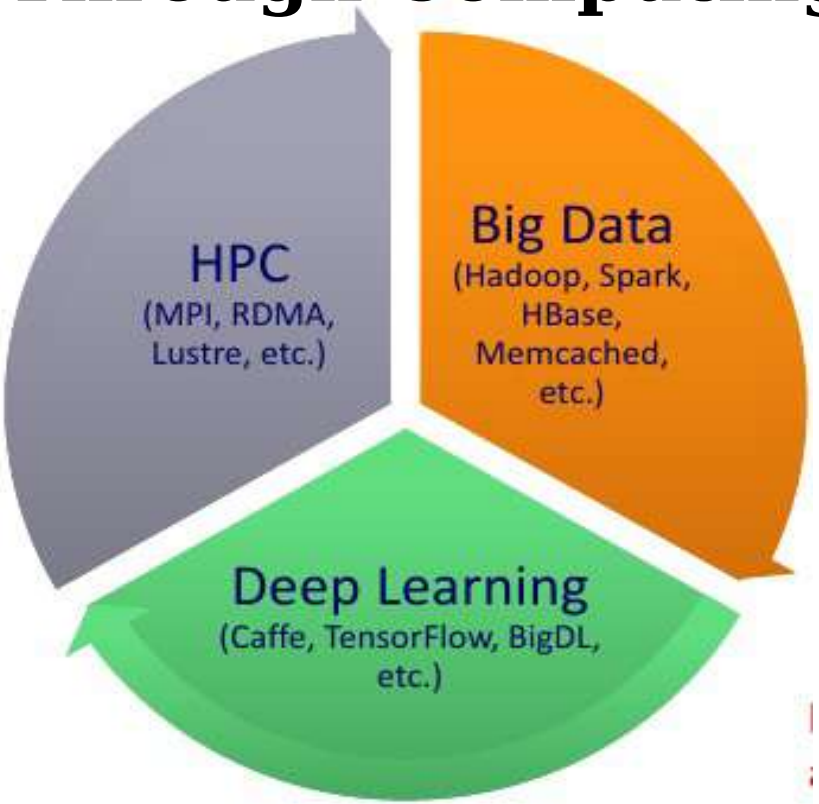
Research Team:

- **10+ Ph.D.**
- **30+ Engineers and Developers**

Research Funding:

- HEC, PSF, Ignite

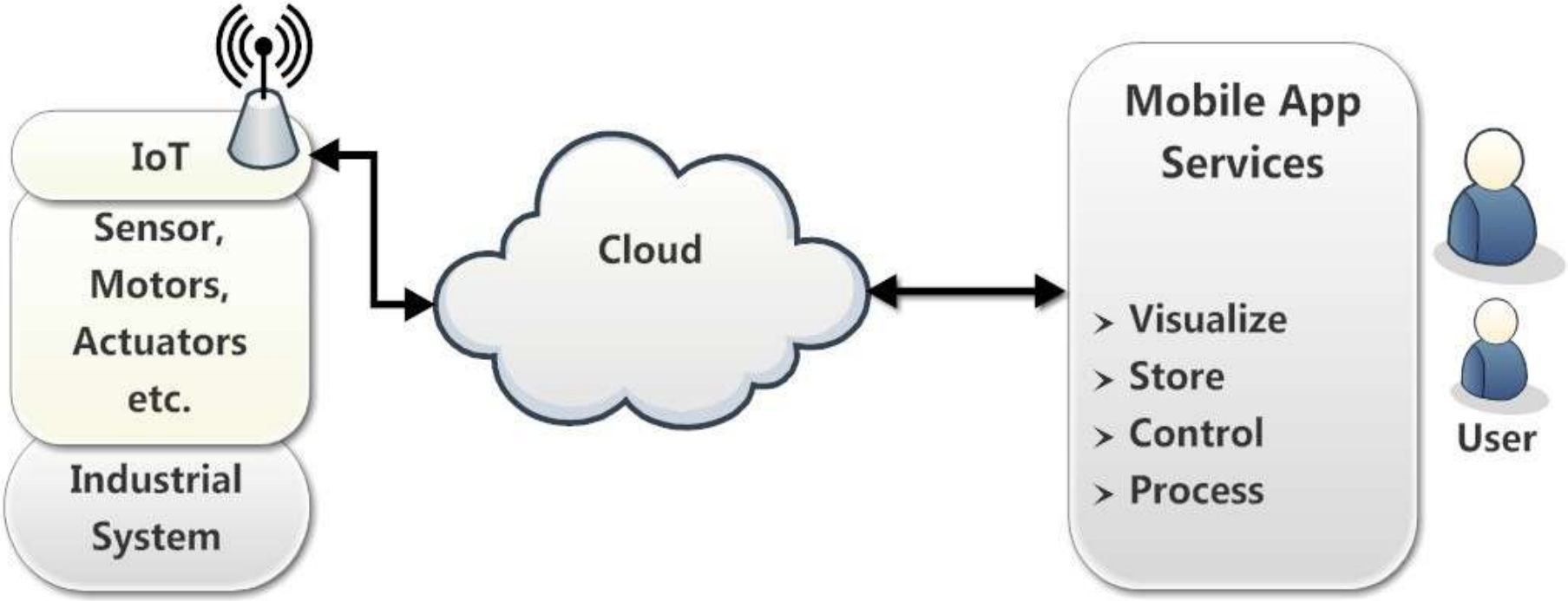
Transformation Through Computing



USD 2.5 Billion Export → 10x Groth → USD 25 Billion Export

Vendor-ship **E-commerce** **Branding**

SME Transformation



Conventional Production

IoT
ERP

Automated Processes and Operations Efficiency

Modeling Simulation

Sports Goods

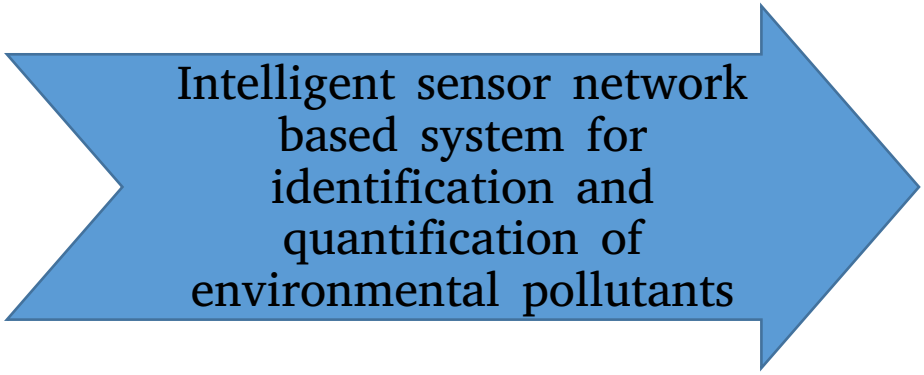
Simulation and Modeling

Mechanical Center

New Products
Industry Innovation and Infrastructure

Environmental Sustainability

Environment Challenges



Towards Sialkot Net-Zero Emission

01 Million Tree

Technical Skills Program

Technical Skills Gap

Tech-Training
Skill-Training

Enhance Industrial Productivity

Supply of Technically Skilled Labor

Connecting Sialkot Industries

Technology gap

Leading S&T Institutions for Innovation Supply

On-Going Science & Technology Innovation and Research

- Health-care
- Super-computing
- Big-Data
- AI
- Rehabilitation
- Electric-Vehicle
- High Performance Computing Applications

100 Million PKR
Submitted Funding

Desired
Sustainable
Outcomes

Sialkot Technology Park

Unlocking Sialkot's Potential as Industrial Cluster for Industrial Growth in Pakistan

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