China's Rise as a Global Military Technological Power: Geo-Strategic and Geo-Economic Implications (L'émergence de la Chine Comme Puissance Militaire et Technologique de Niveau Mondial: Implications Géo-Stratégiques et Géo-Economiques)

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Xi Jinping's Strategic Vision of China's Place in the World

At the **19th Party Congress** in October 2017 that solidified Xi Jinping's hold on power, he offered a **confident vision of China's growing long-term influence** and might in the international system

Xi talked about **"socialism with Chinese characteristics entering a new era"** in which:

- China is moving closer to the global **center stage**
- China's brand of socialism offers a new option for countries who want to speed up their development while preserving their independence
- China is becoming a **great power** in economic might, technological strength, defense capabilities

Xi's Goals for Making China a World-Class Defense Innovation Power

Xi described his **vision and timeframe of turning China into a militarily powerful and advanced high-tech country** at the 19th Communist Party Congress in October 2017

- China should reach **first tier of world's most innovative countries by 2035** and at the same time the defense establishment would realize its modernization objectives of becoming a fully information-enabled force

- **By 2050, China would challenge for global leadership** with a world-class military a centerpiece of the country's national power

Xi's Long-Term Strategy For a Technologically Advanced and Militarily Powerful China

Xi spelled out how he would **turn China into a militarily powerful and technologically advanced country** by the middle of this century

He said that China should reach the **first tier** of the world's **most innovative countries** by **2035** and at the same time the military would realize its objectives of becoming a **fully modern force**

By **2050**, China would challenge for global leadership with a **world-class military** a centerpiece of the country's "comprehensive national strength"

Can China Become a Global Military and Technological Leader By 2050?

This presentation examines China's efforts to **transform from being a big country to becoming a strong global power** by becoming technologically innovative and militarily capable

- Is Xi's ambitious targets **achievable?**
- How will China undertake this grand transformation? What are its **priorities?**
- Where is China **presently** in this endeavor?
- What are the **implications?** If China succeeds, this will have profound geo-strategic and geo-economic consequences

Conceptually Thinking About China's Military Technological Rise: The Techno-Security State and its Rise Under Xi Jinping

The Techno-Security State (TSS) Concept

China under Xi Jinping is a **security-maximizing state** building its power and prestige on a capable economic and technological foundation and fits TSS profile as development efforts are prioritized to meet national security requirements, of which **cultivating strategic S&T and industrial capabilities** are prime goals

TSS take a **threat-based, zero-sum view**, although whether they respond defensively or offensively depend on many factors -development level, size, regime type, nature of external engagement

National security and technology coalitions enjoyed **privileged access** to resources and leaders

What is a Techno-Security State?

Notion of a TSS is centred around **inter-relationships between the state, national security, innovation, and development**

Overriding question is **how the state can effectively coordinate** national security, technological innovation, and economic systems so they can work together

Is this best achieved through state-led top-down, market-driven, bottom-up approaches, or both?

Responses depend on factors such as **regime type** (authoritarian, democratic), **security environment** (peaceful, threatening), and **nature of coordination mechanisms** (direct or indirect regulatory controls)

Statist vs. Anti-Statist Techno-Security States

TSSs can be **both democratic and authoritarian** in nature –U.S. in Cold War and Israel today are democratic examples of TSS

What **distinguishes** these democratic techno-security regimes from authoritarian variant are their **anti-statist** nature

Most TSS tend to be **authoritarian regimes** because the state assumes the dominant role and the national security apparatuses are extremely powerful –Soviet Union, North Korea today, China under Mao Zedong

They can be referred to as **statist** TSS

Great Powers and Techno-Security States

TSS come in all sizes, but most consequential of them are large and powerful and in **International Relations theory** are termed **great powers** that are small elite of powerful states that exert far-reaching influence on the international system with each power representing a pole

No precise definition of great powers, but stress on **hard power** capabilities: population, territory, resource endowment, economic capability, military strength, political stability and competence (Waltz)

What the TSS concept offers in analysis of great power dynamics is understanding of **complex interplay** of security, S&T, political economy factors

The Making of the Chinese Techno-Security State Under Xi Jinping

Xi has been working extremely hard since coming to power in 2012 to turn China into a militarily innovative great power

He has **invested considerable time, effort, and capital in site visits,** keynote **speeches,** formulation of **new strategies and plans,** and major organizational reforms to China's military establishment and science and technology system

Guiding Principles of the Chinese Techno-Security State Under Xi

Xi's vision is heavily **influenced** by the **ideological and organizational principles** laid down in the **Maoist era** and updated by his predecessors Jiang Zemin and Hu Jintao:

- **Technological development is strategic** and fundamental for determining China's place in the global strategic and economic balance –it is a vital ingredient in grand strategic thinking

- **The state must invest in critical technological sectors** because of high risks and long and costly research and development cycles

Guiding Principles of the Chinese Techno-Security State Under Xi

- The state must **nurture indigenous innovation capacity,** although this should allow for absorption of foreign technologies to help catch up
- Technology diffusion through **spin-off or spin-on** should be a central long-term goal
- Military and security considerations should be **paramount**
- Emphasis should be on **'big science'** mega-projects

Grand Strategy of Xi's Techno-Security State: Integrated Techno-Nationalism

The grand strategy of Xi's techno-security state can be defined as **integrated techno-nationalism,** which has four core components:

1. Building a **strong national security state**, especially military and internal security forces

2. Constructing a strong **strategic innovation system** as part of a strong national innovation system

3. Building an advanced **defense science, technological and industrial base**

4. Forging a dual-use **civil-military economy**

Building a Strong National Security State

External Security Concerns

2015 Chinese Defense white paper provides detailed and authoritative assessment of the external security environment

It points out that although China enjoys a "generally favourable' situation", it faces **"multiple and complex security threats"** and challenges that means that the country "has an arduous task to safeguard its national unification, territorial integrity, and development interests"

In 19th Party Congress work report, Xi talks about the need to **"do more to safeguard China's sovereignty and security"**

External Security Concerns

Defense white paper highlighted **major threats** driving China's efforts to enhance military capabilities:

- **US rebalancing** strategy to Asia-Pacific and enhancing of its military posture and alliances
- **Normalization of Japan's** security policies and capabilities, and 'dodging' of pacifist legacy
- **Encroachment** of China's sovereignty and maritime rights and interests by "offshore neighbors"
- **Cross-Strait relations**, especially as pro-independence forces in Taiwan 'not yet removed'

Technological Threats

At a 2014 Politburo meeting to study global military development trends, Xi impressed upon his fellow leaders that a **full-scale military technological revolution** was taking place

He warned that the **gales of change** were blowing "at a speed so fast, in a scope so wide, at a level so deep, and with an impact so great that it has rarely been seen since the end of World War Two"

In a rallying call, Xi said that China can "only narrow the gap and realize a new leap forward by advancing with the times and **vigorously promoting military innovation**"

Technological Threats

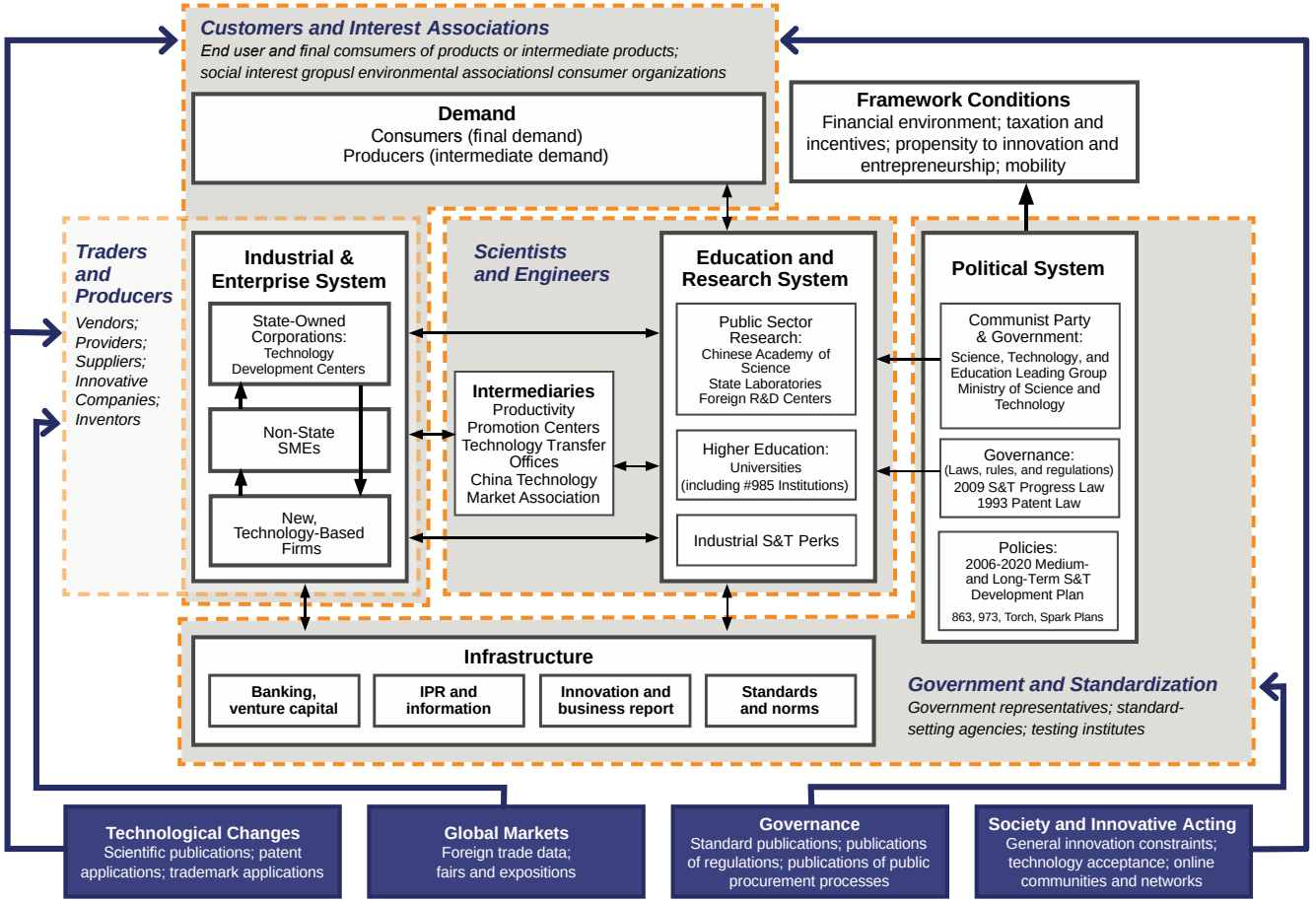
Xi's views reflected in 2015 defense white paper that highlighted significant technological trends

Global revolution in military affairs is at a new stage and is 'posing new and severe challenges to China's military security'

Of **special concern** was the threat from long-range, precise, smart, stealthy and **unmanned** weapons

Second feature of rapidly evolving technological landscape is emergence of **new domains**, of which **outer space and cyber-space** are emphasized as 'new commanding heights in strategic competition'

Constructing a Strong National and Strategic Innovation System



Xi's Focus on Innovation at the 19th Party Congress

At the Party Congress, Xi said that "**innovation is the primary driving force** for development and the strategic support for building a modern economy"

He said that "we must strengthen the application of basic research, expand implementation of major S&T projects, and highlight innovation in key common, cutting-edge, engineering and disruptive technologies to provide powerful support for building a strong S&T country"

"We must strengthen the building of the **national innovation system** and reinforce the strength of strategic S&T"

Xi's View of Science and Technology in China's Development and National Security

"Science and technology" power determines changes in the world's political and economic **power balance"**

"Scientific innovation is a strategic support for raising social productivity and **comprehensive national strength** and so must be placed in a central position in overall national development"

Speech at June 2014 Conference of Chinese Academy of Sciences & Academy of Engineering

New Global Science and Technology Revolution Presents Historical Opening

Xi has stressed that China must "place S&T innovation at the **core** of national development"

Xi says this is because China is "currently faced with an important **historical opportunity** to push forward S&T innovation. The opportunity cannot be lost because this moment will not come back"

Key reason is that Xi sees a **global S&T competition intensifying** and this revolution coupled with manufacturing transformation is underway and this requires China to be ready to ride this wave

A New Innovation-Driven Development Strategy

Chinese planners formulated an **Innovation-Driven Development Strategy** (IDDS) between 2014-16, which was unveiled in May 2016

IDDS outline provides "top-level design and systemic plan" for China's innovation over next 30 years and defines **3 stages** for turning China into a global innovation champion:

1. Become an "innovative country" by **2020**
2. Move to forefront of innovative countries by **2030** (adjusted to 2035 at 19th Party Congress)
3. Become strong global innovation power **by 2050**

Key Features of the Innovation-Driven Development Strategy

In speech to National S&T Innovation Conference in May 2016, Xi discussed key aspects of the IDDS

He compared the IDDS to previous long-term S&T plans and noted that the promulgation of the IDDS means that **S&T innovation occupies "a more important position"** in the country's priorities and the focus would be on being a **"Strong S&T China"**

Xi highlighted a number of key themes –**original and cutting edge innovation, new institutional mechanisms** (national laboratories), **big science**, shaping global S&T governance regime

Innovation-Driven Development Strategy Unleashes Proliferation of New Initiatives

IDDS is at the **apex of a more comprehensive**, coordinated, and ambitious effort by economic, industrial, academic, corporate, S&T, and defense constituencies to transform China from low end innovation/imitation follower to become higher-end leader

Proliferation of new S&T-related plans and reforms in past couple of years: 13th Five Year Plan, Made in China 2025, Internet Plus, Made in China Defense 2025

What the IDDS Says About China's Approach to S&T Development and Security

IDDS stresses that **S&T development is critical** to ensuring China's rise as world power and its national security

But seeks **more balanced state-market** relationship

Zero-sum sentiment still evident, but sees more room for China to play global leadership role

China has to **take risks** and seek to become an original innovator

Civil-military integration has to happen

Building an Advanced Defence Science, Technological and Industrial Base

China's Transformation of its Defense Science & Technology Capabilities at Critical Juncture

China's efforts to modernize its defense science, technology, and innovation system and capabilities has reached a **critical cross-roads**

After 2 decades of catching up through primarily absorbing foreign technologies, Xi Jinping has laid out new development strategy emphasizing **original higher-end innovation** while at same time continuing with **advanced absorption**

Major institutional reforms, new policies, long-term plans, and new regulatory mechanisms now being implemented

New Plans and Institutional Arrangements

Raft of **new strategies, plans and institutional arrangements** have been developed in the mid-2010s that collectively represent a new phase in the remaking of the defense industry and provide new guidance for mid to long-term development

These initiatives reflect the defense industry's response to far-reaching structural changes taking place in the PLA and the IDDS

13th Five Year Defense S&T Plan (FYP) and the Defense S&T Industry 2025 Plan

13th Defense S&T FYP started in 2016 and covers a critical phase in the defense sector's development to 2020

Considerable number of **R&D programs** transitioning into production during this period, such as J-20 **stealth aircraft** and new truly indigenous **aircraft carrier** (Type 003A)

Chinese defense industrial regulatory authorities also drew up the **Defense S&T 2025 Plan** that aligns closely with the Made in China 2025 advanced manufacturing plan

China's Defense S&T Apparatus is Moving to Higher-End Innovation

China's defense S&T system broadening from **absorption to more advanced innovation**

Much of this effort is directed to **asymmetric and deterrence capabilities** as US is primary focus

Reorganization of PLA high command system in 2016 introduced **new institutional mechanisms** aimed at promoting higher-end innovation

One body is **CMC Science & Technology Commission** that is compared to U.S. Defense Advanced Research Projects Agency (DARPA), which is premier U.S. defense entity engaged in disruptive innovation

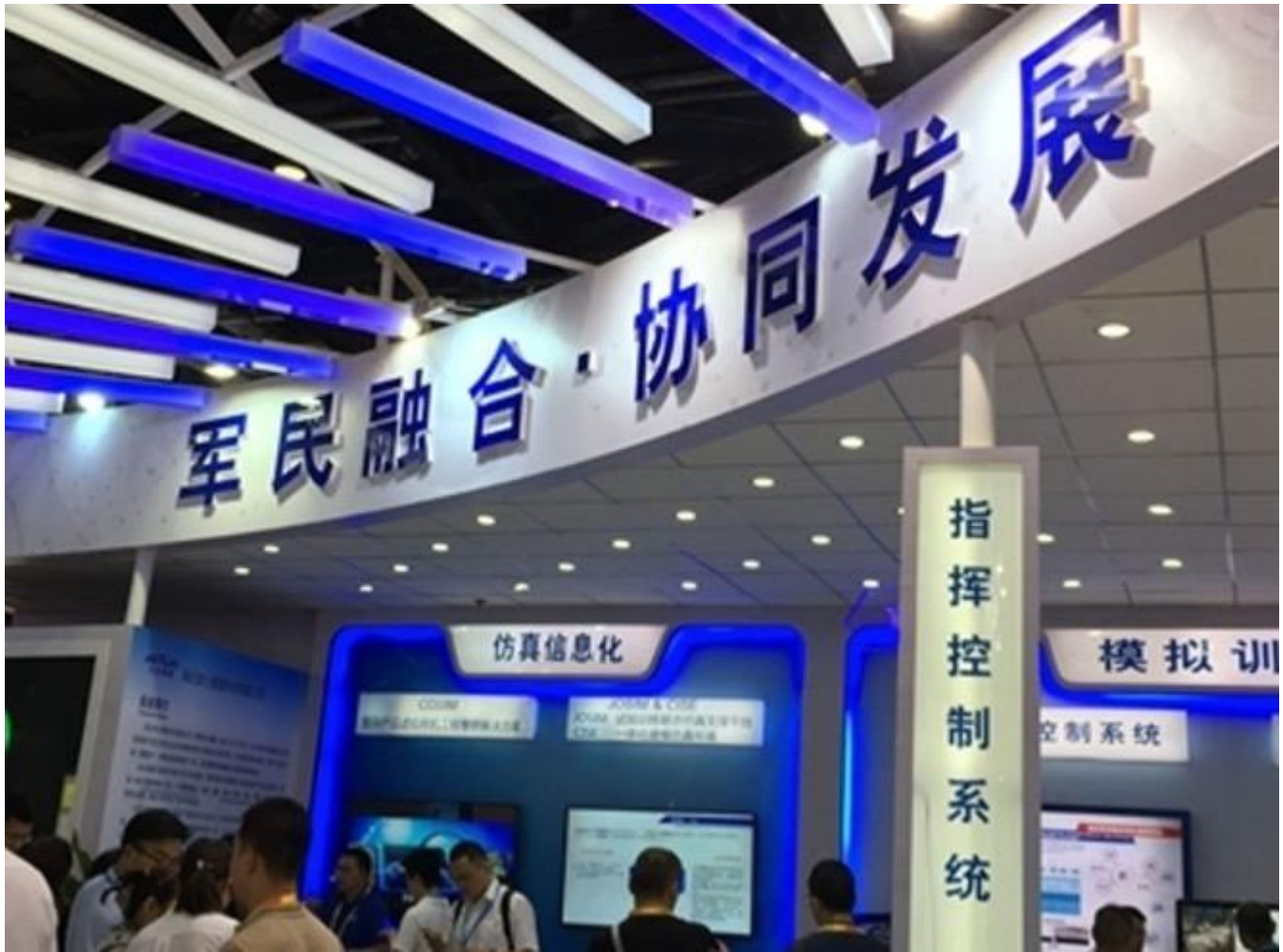
Obstacles to Success

China's defense S&T system though suffers from numerous **structural and normative weaknesses** that makes this transition to innovation far from certain:

- Monopolies
- Bureaucratic fragmentation
- Corruption
- Underdeveloped governance regime

If these obstacles are not seriously addressed, then this transition could be imperiled

Forging a Seamless Dual-Use Civil-Military Economy



Intensifying Efforts to Realize the Potential of Civil-Military Integration (CMI)

CMI promoted since **early 2000s but with little success** because of unclear strategy, ineffective implementation, weak civil-military coordination

Renewed push to make CMI a viable policy tool highlighted by Xi Jinping's decision in March 2015 to **elevate CMI into national strategy** and creation of **Commission for Integrated Civilian-Military Development (CICMD)** January 2017 headed by Xi

Upgrading of CMI helps to address fragmented and marginalized nature of its implementation, in which few agencies were engaged

Xi Jinping's Strategic Guidance on CMI

Xi said at 1st CICMD plenum in June 2017 that "for now and in near future, we have a period of **strategic opportunity**" to advance from "preliminary stage" of CMI to more "in-depth integration" in which progress could occur "by leaps and bounds"

Xi noted "immense CMI potential" in infrastructure, equipment procurement, training, military logistics, and defense mobilization, while pointing out that CMI is already "very strong" in maritime, outer space, cyberspace, biology and new energy

Xi said that it was "necessary to intensify the combination of resources" to support CMI, which suggests more efforts to tap capital markets

Global Implications

Global Implications

Under Xi Jinping's leadership, the **techno-security state is flourishing** once again and looks set to grow even faster and more advanced in the second half of his tenure –he will be in charge until 2022 and perhaps longer

While the Chinese techno-security state suffers from **considerable weaknesses** – compartmentalization, corruption, political interference, entrenched interests to name a few- it also has **plenty of sources of strength** that will allow it to tackle these obstacles and power ahead

Global Implications: Escalating Sino-US Defense Technological Competition

The U.S. has long enjoyed defense technological pre-eminence over China, but **gap has steadily narrowed** in past 2 decades

Pentagon now pursuing **defense S&T offensive** (3rd Offset Strategy, defense innovation initiative) to preserve dwindling superiority

Although these efforts are modest compared to US-Soviet Cold War arms race, it signals **first steps of direct Sino-US defense technological competition** that could significantly intensify in coming years

Escalating Sino-US Defense Technological Competition

Latest **US national defense strategy** issued in January 2018 places great powers, especially China, as foremost U.S. security concern

The U.S. strategy points out: “As China continues its economic and military ascendance, asserting power through an all-of-nation long-term strategy, it will continue to pursue a military modernization program that **seeks** Indo-Pacific **regional hegemony** in the near-term and **displacement of the United States** to achieve **global preeminence** in the future”

Chinese Strategic Assessments of the U.S. and Shaping of Chinese Military Strategy

Chinese authorities have carefully **avoided public** official identification of U.S. as military opponent

But internally, China's defense policy makers **view U.S. as a direct military competitor and adversary since mid 2000s** in response to proliferating security frictions and competing interests that are sowing U.S.-China strategic distrust

Central reason for this logic is widely held belief among Chinese strategists that U.S. has designated China as its main strategic opponent since second half of 2000s

Setting Long-Term Nature of US-China Military Technological Competition

China has **formulated new long-term defense S&T and weapons development strategies** and plans that take into account key principles underlying competitive strategy with U.S.:

- U.S. is China's primary military technological rival
- Strategic competition with U.S. will be **long term**, but China will make steady inroads to narrow gap
- Competition occurring at time of **great civilian and military technological change** that offer opportunities and challenges to catch up or get left behind