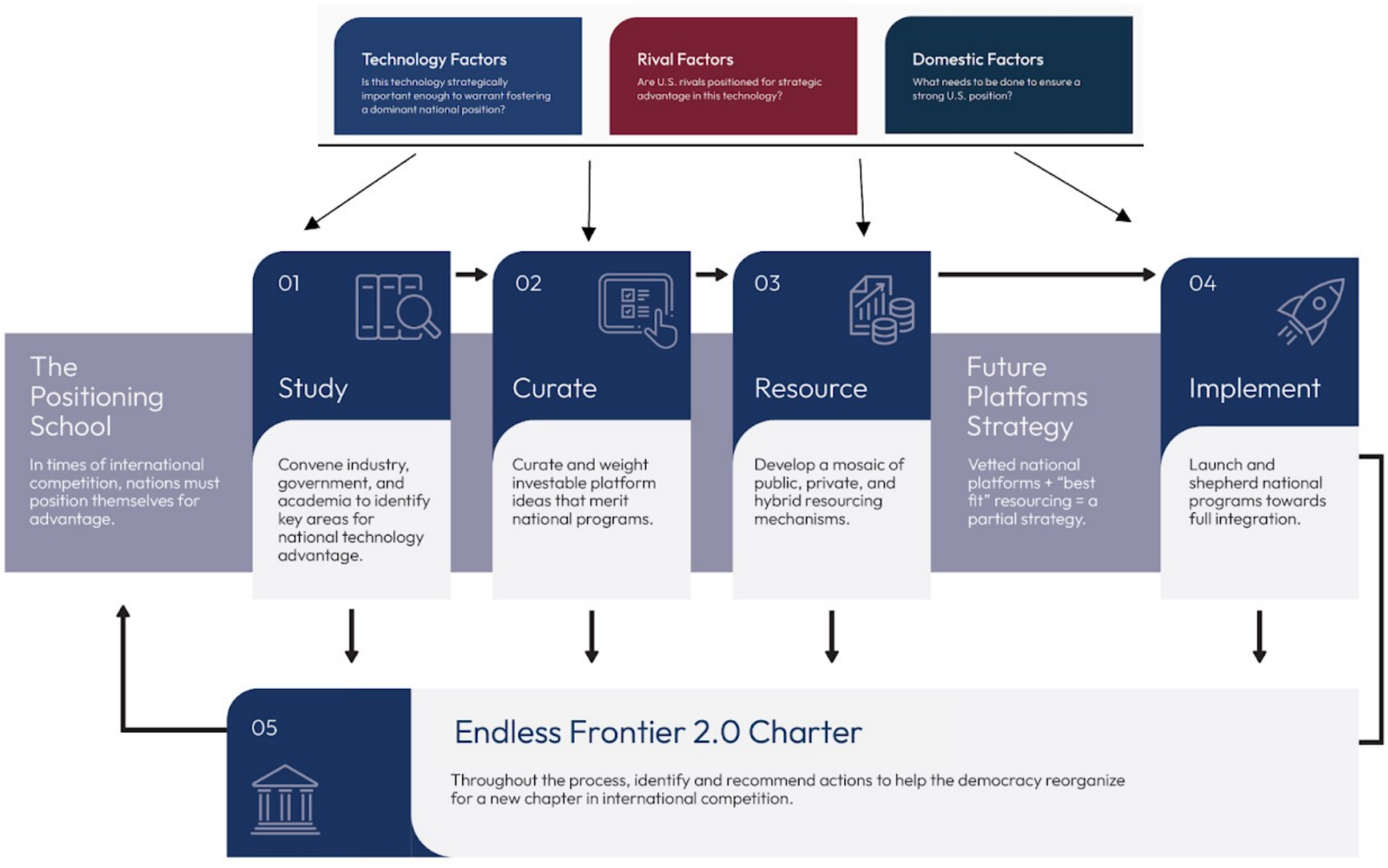
SPECIAL COMPETITIVE STUDIES PROJECT

The National Platform Machine



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Strategic Evaluation Framework

These questions can be used to find strategic signal in the noise to define national technology goals to enhance American competitiveness in the 2025-2030 timeframe.

Technology Factors

Is this technology strategically important enough to warrant fostering a dominant national position?

- Could this technology yield a revolutionary breakthrough that upends existing paradigms or fundamentally changes the way the world works?
- Is this a general purpose technology (GPT) like electricity that could subtend or accelerate many other sectors?
- Does this technology present or solve a novel, foreseeable, and material existential national security threat?
- Could this technology alter the economic fundamentals of the United States? Relatedly, does this technology or program present massive spinoff potential?
- Could this technology change the military balance of power outright by its existence?
- Could this technology transform the means of production of information and/or the control of its flow in society?
- Does this technology possess “first-mover” criteria such as scarce factors of production, network effects, or other forms of potential lock-in.

Rival Factors

Are U.S. rivals positioned for strategic advantage in this technology?

- Are rivals ahead in this area? Is there a need for an offset/leapfrog move due to blindspots of U.S. commercial investment?
- Are rivals substantially trying to get ahead (strategy, invested, determined, aligned public and private efforts towards its development)?
- Are rivals likely to get ahead due to technology readiness level in their ecosystems compared with the U.S. ecosystem?
- Do rival economic/political systems obviously favor development of this technology over others (e.g. resource allocation, regulatory environment, norms)?
- Does this technology represent a major or potential front along clashing tech-spheres of influence?
- How will U.S. rivals react to U.S. development of or leadership in this technology? Does this technology intersect with weaknesses, organizational inertias, or fundamental asymmetries of U.S. rivals?
- Can we foresee how future rival leadership in this space could fundamentally undercut U.S. leadership and power?

Domestic Factors

What needs to be done to ensure a strong U.S. position?

- Is the U.S. innovation ecosystem naturally generating sufficient advantage?
- Is there a clear U.S. competitive advantage surrounding this technology that needs a national endeavor to harvest?
- What is the maturity level of this technology? Would the U.S. need to “invent the future” to achieve positional advantage?
- Has the U.S. government listed this technology as a priority threat or opportunity area? What is the level of political or social will for this technology?
- Do allies and partners currently possess the key expertise and materials/resources in this technology?
- How might other countries respond to a U.S. national endeavor and are there obvious opportunities for joint efforts with allies?
- Which factors (incentives, financial, political, organizational, or regulatory) are currently limiting progress on this technology in the U.S.? Are these in the USG’s control?

Platforms Panel

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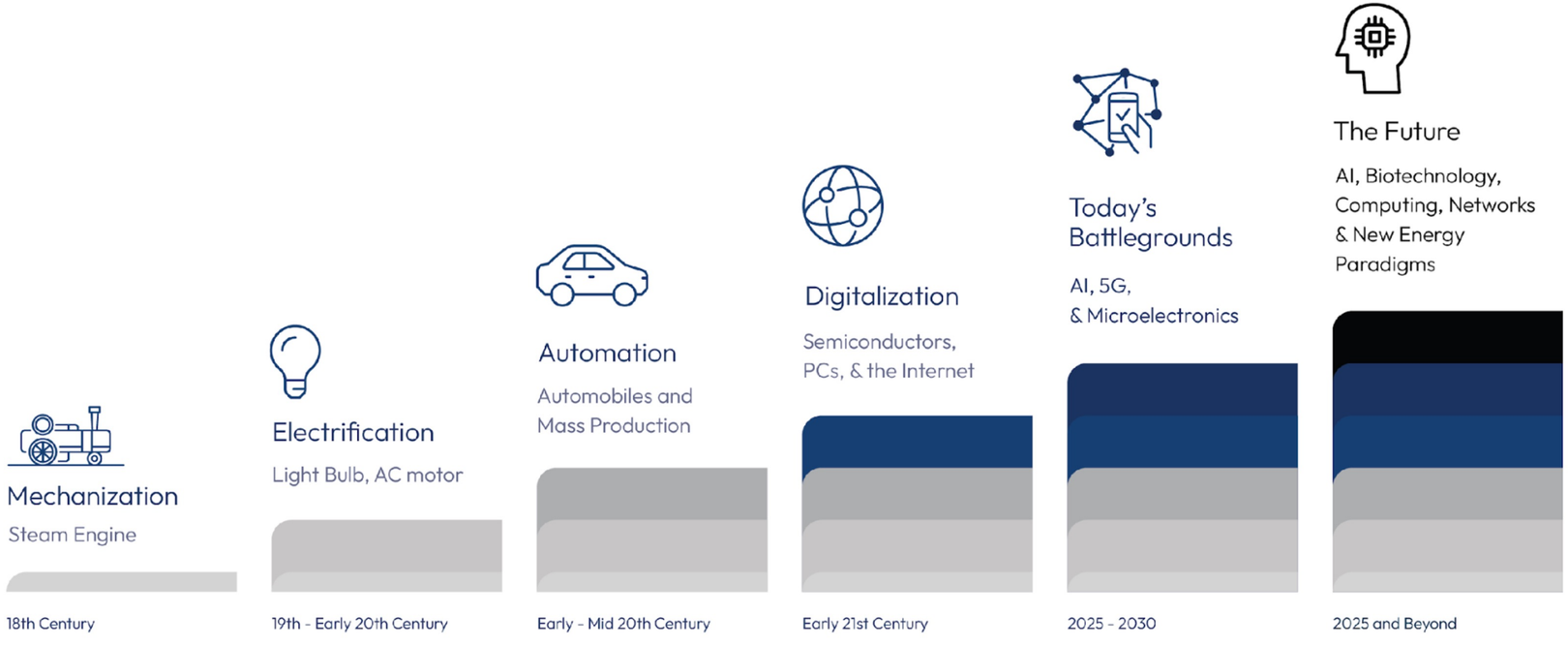
The Technologies that Will Drive Future American Competitiveness

The innovations of the last two decades primarily unfolded in the digital realm. The next phase of technological innovation involves multiple emerging and evolving general purpose technologies (GPTs) that are unfolding across three intersecting domains: the physical (atoms), the digital (bits), and the biotechnical (cells). This portends an epochal reshuffling of the global geopolitical and economic status quo.

Waves of General Purpose Technologies (GPTs)



The ABC's of the Technology Competition

Atoms: The Physical

Bits: The Digital

Cells: The Biotechnical

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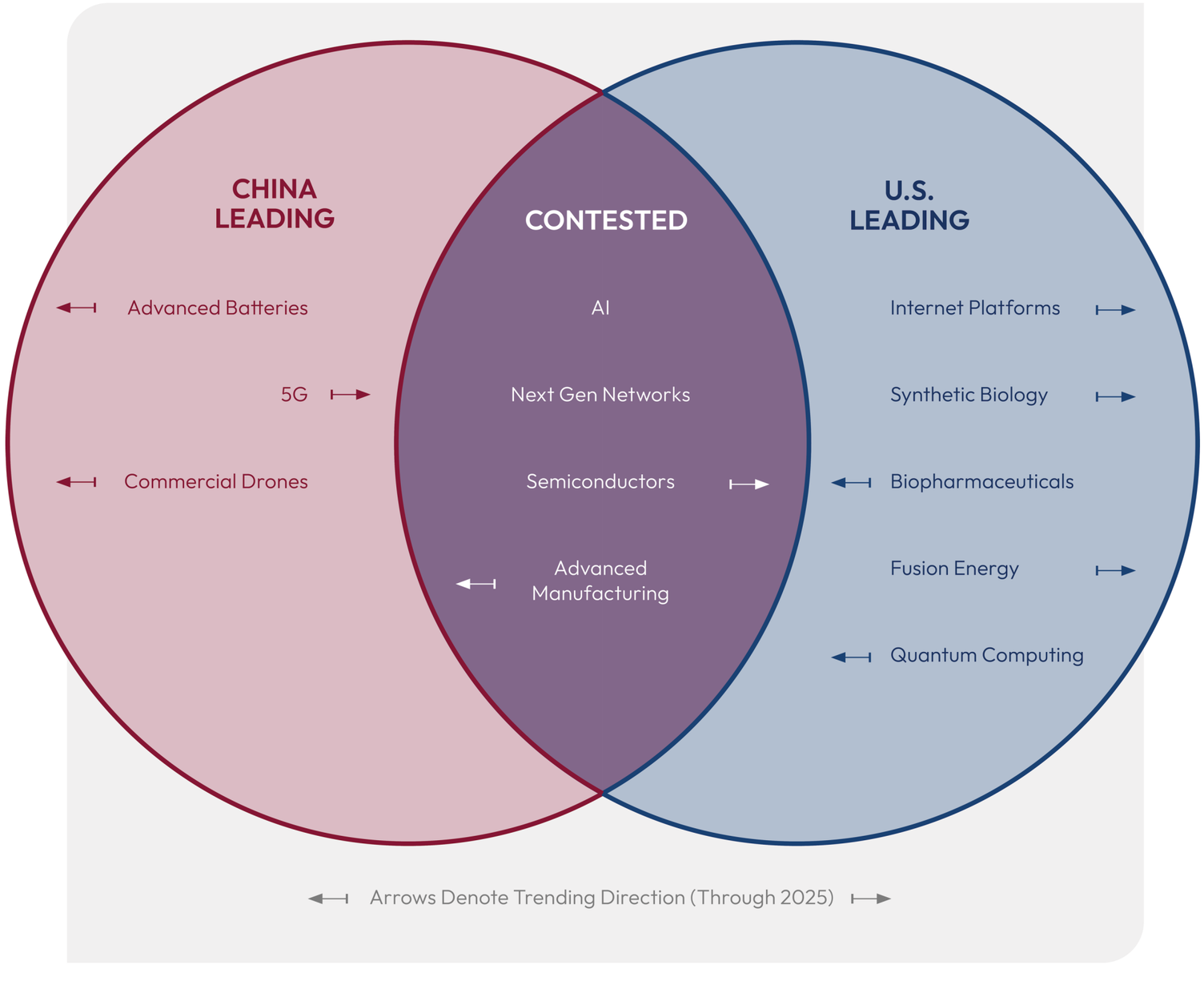
Leadership in Key Technologies is Increasingly Contested



This graphic summarized SCSP staff's assessment of the current state of the U.S.-China competition in specific technology areas, as well as the direction in which leadership in those technologies is trending through 2025. For our full analysis including methodology and confidence judgments, see Appendix A of the Platforms IPR.

China's Global Influence

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China's Path to Global Techno-Industrial Dominance

- Made in China 2025
- Military-Civil Fusion
- Dual-Circulation
- Belt and Road Initiative
- Digital Silk Road, and more

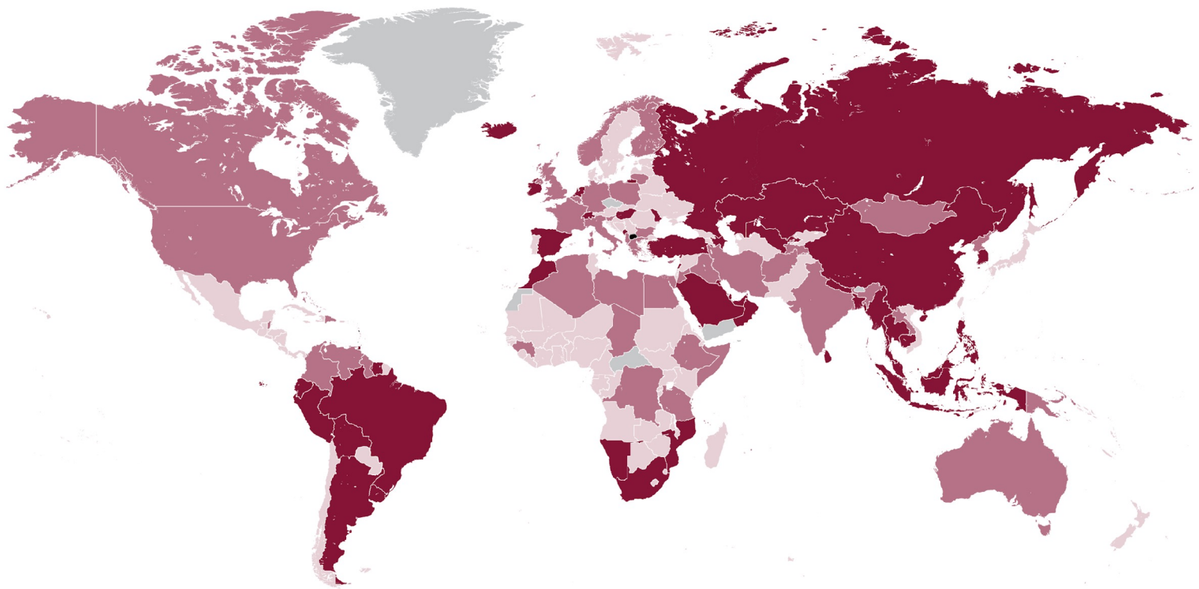
The Stakes for the U.S. and its Allies & Partners

- Dependence on China
- The Post-WWII Rules-Based Order
- A Loss of Freedom of Action in the World
- Smaller Techno-Industrial Base
- Worse Geopolitical Position
- Diminished Military Advantage
- Compromising of Democratic Values

Huawei & ZTE Telecom Presence

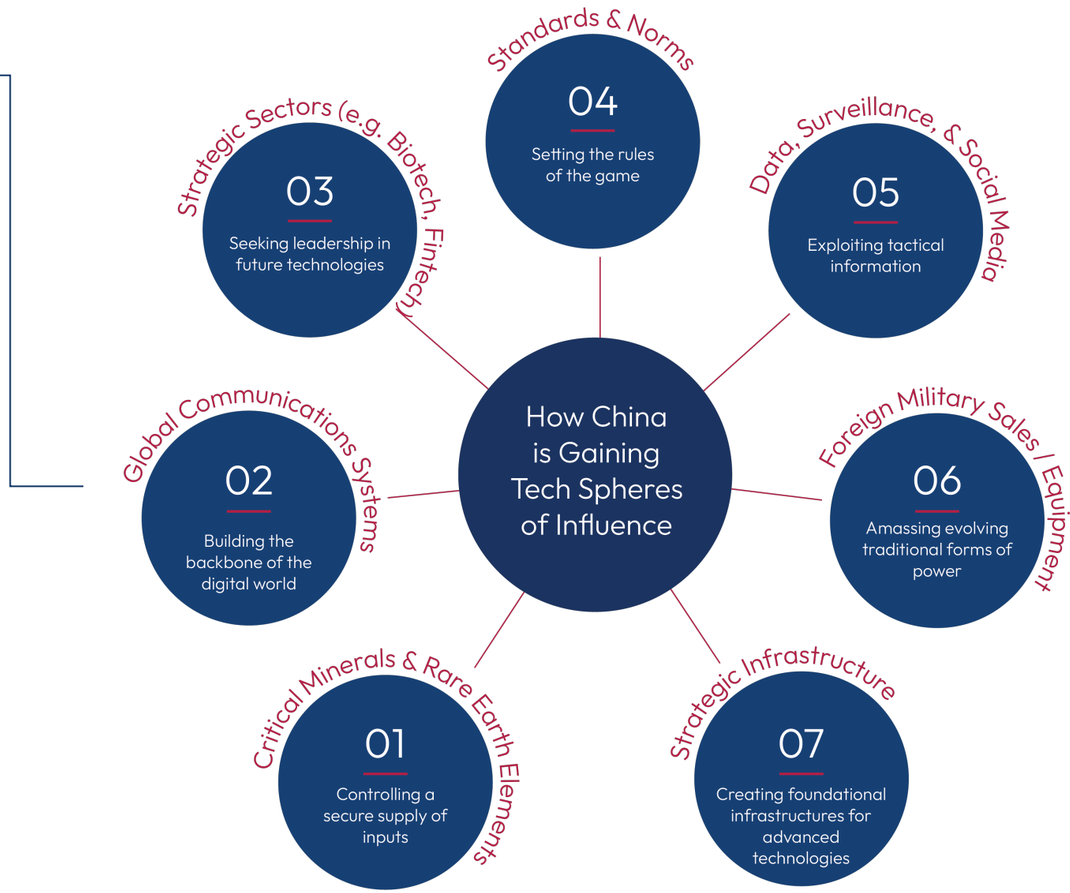
PRC telecommunications companies Huawei and ZTE have expanded their reach across the globe.

5G 4G/3G Other Insufficient data



Note: "5G" indicates Huawei or ZTE 5G networks or technology is either already in use or planning to be used. "4G/3G" indicates Huawei or ZTE has built either 4G or 3G networks. "Other" includes other relationships with Huawei or ZTE, including telecom equipment sales, data centers, smart cities, investments, overseas offices, research partnerships, R&D labs, talent exchanges, fiber-optic cables, subsidiaries, surveillance equipment sales, and training.

Source: SCSP analysis of publicly available information and databases.



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Battlegrounds for Long-Term Leadership

Failure to connect technology developments to strategic competition – **artificial intelligence (AI), microelectronics, and fifth-generation wireless technology (5G)** – tell the story of a nation and its allies coming perilously close to ceding the current strategic technology competition. Strengthening U.S. competitiveness requires major investments across all three areas.

AI: Software

- Intelligent systems and applications driven by computing power, algorithms and data will connect a constellation of technologies to transform entire industries.
- A federal commission, the National Security Commission on Artificial Intelligence, had to develop such a plan four years after China.

Microelectronics: Hardware

- Semiconductors are the brains of modern technology. 100 percent of advanced chips are produced in Asia, leaving the U.S. supply vulnerable.
- It will take time and investments before the U.S. regains manufacturing leadership and supply chain security.

5G: Network Infrastructure

- 5G and 6G networks promise to unlock commercial and public sector applications in smart manufacturing, smart cities, and other uses foundational to the next generation economy.
- Only a U.S. diplomatic campaign and export controls on select microchips have slowed China's 5G march.

Battlegrounds We Need to Win