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"Scientific Innovation and Geopolitical Risks in Northeast Asia"

Initial Remarks

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The United States has maintained the technological leadership globally since the 1890s. The second industrial revolution starting around 1870 has greatly strengthened the industrial and technological capability of the U.S., Germany and Japan. The U.S. in particular has built up a formidable technology and military powerhouse combining oil resources, infrastructure investments(rails, roads and telecoms), economies of scale coming from the huge domestic market(mass production and mass distribution) and systematic technology development since the 1920s. The second World War drove the U.S. to invest even more resources on technology development, and the U.S. has emerged as the dominant economic, technological and military power since 1945. There was Sputnik moment, but the USSR could not match the U.S. in terms of the overall productivity and innovation capability, especially in non-military industries and markets. And since the collapse of the Soviet Union in 1991, the U.S. has become the only superpower; Pax Americana has arrived.

21st century and enter China. China joined WTO in 2001. Americans thought if China joins the global trade system she will become more prosperous and move toward democratic political system and market economy. China has become more prosperous, for sure. Her economy has grown at the annual rate of more than ten percent throughout the Naughties(2001-2010) and became number two economic power in 2010 surpassing Japan. Chinese industries, especially the manufacturing sector, has become very competitive and the quality and technological capability of Chinese firms have progressed rapidly, thanks partly to the government protection and to fierce competition in the domestic market. But China has not become similar to the U.S. in political and economic systems. On the contrary, new China under Xi Jinping's leadership has become more authoritarian and more aggressive with heavy state intervention both in politics and the market.

On the technology front, internet firms began to dominate the global business landscape since 2013; GAFA and BAT became key actors in the internet business, including search engines, SNS and e-commerce. And the AI began to emerge as the "general purpose technology" (GPT) around that time. And China has great advantages in developing AI thanks to the huge population base, higher usage of internet/mobile phones and the lax regulation of privacy. According to one study, China will be either on par or slightly ahead compared to the U.S. in AI by 2023. And China's version of Sputnik is Huawei. 5G telecom will be a key engine driving many 4th industrial revolution innovations including autonomous driving, cloud computing, block chains and AR/VR. Huawei, China's leading tech company, is a leader in 5G telecom and in a position to supply 5G equipment to many countries. The U.S. is trying to block the sale of Huawei's equipment based on security arguments. Besides the ban on Huawei equipment, the U.S. has taken several other measures that aim to either delay or stop China's technological progress, including purchase ban of equipment for memory chips, blocking acquisition of American tech companies by Chinese, regulating bilateral human exchanges of S&T experts and students and banning research collaborations between American universities and some Chinese institutions/firms. Altogether, the U.S. regulation of China's technology acquisition amounts to the denial of access to American technology, not just asking China to pay fair price for American technology.

This is the beginning of a long competition and conflict between two powers for the hegemony of global technology leadership. This coincides with the emergence of many new technologies, called the 4th IR. The current trade war is just a one battle ground among many battle grounds, including financial market, foreign exchange rate, access to SLOC and competition for regional influence(RBI). The outcome of this hegemonic competition will be eventually decided by technology and military superiority. The countries in the Asia Pacific, especially in East Asia, who are linked with both superpowers in economic and/or security areas, will be more directly affected and sometimes asked to choose the side. The uncertainty and instability will be with the region for the foreseeable future. The implications are huge and just beginning to have some shapes.

End.