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Data and Geopolitics: Part II

In Part I of this report, we discussed why today's political leaders and governments are now paying such close attention to the control of data and information, and what that means for geopolitics. In Part II, we will show how China is perhaps the best example of modern state control over data and information. Indeed, China's current "industrial policy" is essentially a form of "information policy." A central strategy for China's current leadership is to generate, utilize, control, and protect information as a way of building up its geopolitical and economic power. To wrap up the discussion, we will discuss the ramifications of this trend for investors.

What is Industrial Policy?

As mentioned above, our starting point for this analysis is industrial policy. In general, economists define industrial policy as the set of measures a government takes to cultivate and accelerate the development of particular industries or economic sectors, based on the leadership's view of what industries or sectors are critical to the country's political and economic prospects. Because it encompasses deliberate efforts to advance particular industries or sectors, industrial policy is often disparagingly referred to as "picking winners and losers."

It's important to remember that there have been many cases where governments were able to rapidly industrialize their economies by supporting particular sectors with policies such as cheap financing, trade

protectionism, currency manipulation, or subsidies. Japan, South Korea, and some other countries in East Asia are prime examples. In fact, industrial policies were instrumental in lifting these countries into "advanced" status over the course of the 1960s, 1970s, and 1980s. All the same, industrial policy has also been bungled. One example of this is how Brazil's effort to develop its manufacturing industries through protectionism ultimately left it with a factory base that couldn't compete on world markets. One can even argue that Japan and South Korea held on to their industrial policies far beyond the point where they lost their usefulness and effectiveness.

Chinese Industrial Policies

When Chinese leaders decided to jump start China's economy beginning in 1978, global economic consensus was already turning against the use of industrial policy. As a result, Chinese leaders essentially decided to forego such an approach for decades. As described below, however, Beijing has now come full circle and is strongly following an industrial policy approach to future economic development.¹ We describe three key phases in Chinese economic policy:

1978-2006. For almost three decades, China's approach to economic development was actually the opposite of industrial policy. Rather than explicitly interfering in the operations of its companies or markets,

¹ For a fuller discussion of how China's industrial policy has evolved over time, see: Naughton, Barry. (2021). *The Rise of China's Industrial Policy, 1978 to 2020*. Mexico City, Mexico: Universidad Nacional Autónoma de México.

Beijing focused on stepping back from the marketplace, allowing free enterprise to flourish, and letting companies rise or fall based on their operational prowess. At the same time, the government focused on building up its institutional and physical infrastructure, fixing its state-owned enterprises, and preparing for entry into the World Trade Organization. Naturally, there were exceptions to this rule. The government still kept tight control over some sectors and to this day is still keeping its thumb on certain aspects of the economy, such as international capital flows and the currency. Nevertheless, the main thrust of Chinese development policy for decades was to forego any tight industrial policy and boost its growth via private enterprise, free markets, openness to international trade, and some financial liberalization.

2006-2015. Even as the world was still marveling at China’s dramatic economic growth in the early 2000s, leaders in Beijing were already sensing that growth was on the verge of slowing. Such slowing would be natural as the economy became bigger and much of the “low hanging fruit” in terms of investment opportunities and reforms were achieved. Chinese leaders therefore began to look for alternative growth drivers. What’s important to remember, however, is that their goal was not to “catch up” in traditional industries and match the level of development in places like Japan or South Korea. Rather, leaders were looking to leapfrog the more advanced countries and end up ahead of them. Two programs were especially important during this period:

- ***The Medium- and Long-Term Program for Science and Technology (MLP).*** This program, which began development in 2005, was still not industrial policy because it wasn’t focused on developing specific industries or sectors. Rather, its focus was on fostering a broad

“innovation system” supporting Chinese firms in their effort to create higher-value goods and services. It did provide funding for more than a dozen “megaprojects” across multiple industries and sectors, but the list of projects was rather haphazard and scattershot. This funding was boosted further as part of China’s fiscal stimulus during the Great Financial Crisis of 2008-2009, but it remained somewhat less than a full-fledged industrial policy.

- ***The Strategic Emerging Industry (SEI) Program.*** China made a giant leap toward an industrial policy in 2009, when Premier Wen Jiabao initiated a brainstorming session with leading Chinese scientists, engineers, and entrepreneurs to identify those industries that would be most important and advanced in the future global economy. Importantly, Wen challenged the group to identify those industries that were so far out on the cutting edge of technology that no companies at home or abroad were clear leaders or market incumbents. In other words, Wen challenged the group to identify the world’s most lucrative future industries where Chinese companies would have the best chance of becoming the leaders. The resulting list of targeted industries was still rather scattershot, but nevertheless the project was a major step toward adopting China’s current industrial policy.

2015-Present. By all accounts, China has really only adopted a full-fledged industrial policy over the last half decade or so, under the leadership of President Xi Jinping. As with the 2006-2015 period, adopting the policy involved two distinct steps. Outside observers have focused on the first of these steps to date but doing so is probably a mistake because that step doesn’t reflect the fully developed policy. It also doesn’t

provide a clear guidepost to Beijing’s approach to the economy and why it is taking these current steps.

- Made in China 2025 (MIC25).** The MIC25 plan, issued in May 2015, is now a key focus for analysts in the U.S. and other Western democracies. To reduce China’s dependence on foreign technology and allow it to reap the fullest benefit from the growth industries of the future, the initiative aims to make China a global powerhouse in 10 specific high-tech industries by the middle of the decade. Along with a related “Internet Plus” program, MIC25 provides low-cost funding to Chinese companies in these industries, and it aims to push them toward development by laying out specific goals in areas such as research and development spending and their rate of productivity growth.

 - As the U.S.-China geopolitical rivalry heated up and Westerners began to push back against the economic damage caused by Chinese competition, MIC25 became an easy political target for Western leaders. That’s probably been one reason why Chinese leaders have stopped championing the program as loudly as they used to.
 - Importantly, the MIC25 plan as initially promulgated was still rather unfocused and scattershot, as can be seen in the following list of target industries. Not many observers have noticed that MIC25 has been subsumed by a much more focused, integrated, full-fledged industrial policy focused on data and information.

Table 1

Made in China 2025
Targeted Industries
Advanced Information Technology
Automated Machine Tools & Robotics
Aerospace & Aeronautical Equipment
Ocean Engineering Equipment & High-Tech Shipping
Modern Rail Transport Equipment
Energy-Saving & New Energy Vehicles
Power Equipment
Advanced Materials
Medicine & Medical Devices
Agricultural Equipment

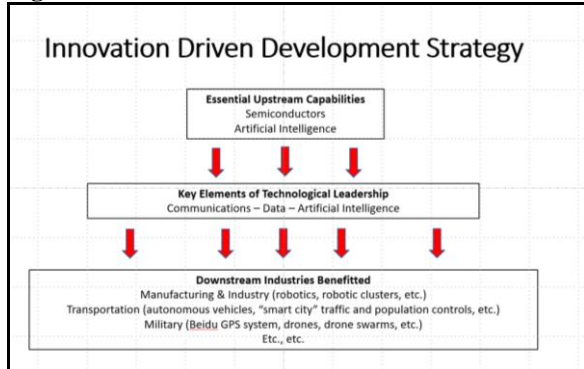
- The Innovation Driven Development Strategy (IDDS).** Whereas the SEI and MIC25 programs focused on discreet industries, China’s new industrial policy is much more unified and integrated. Adopted by the State Council in 2016, the IDDS focuses on one common theme: making China the unparalleled leader in what it sees as the single “general purpose technology” of the future. This key technology basically consists of the information systems we’ve been describing in this report. For Chinese leaders, making China the preeminent power in information technology requires it to master and dominate three specific areas: 1) communications; 2) data; and 3) artificial intelligence. Each of these areas is supported with specific targets and new government funding, but all three are seen as essential and mutually supporting. Indeed, like a three-legged stool, failure in any one of the legs means the whole program fails.

The Key Upstream Capabilities

The three-legged stool analogy helps explain the main elements of China’s current industrial policy, the IDDS, but it’s important to note that achieving success in data, communications, and artificial intelligence presupposes success in two key “upstream” industries that provide the

foundation for those three activities. These two foundational elements consist of *hardware* and *software* (see Figure 1):

Figure 1



The Hardware. As mentioned in Part I and earlier in this report, modern data and information technology are made possible by silicon-based integrated circuits, also known as semiconductors or computer “chips.” These chips are essential to storing, processing, and transmitting data. As we have written previously, however, the Chinese government has failed to make meaningful progress in developing its own domestic semiconductor manufacturing base, at least at the level of the most advanced chips necessary for modern cellphones, advanced computing, and artificial intelligence (see Figure 2).

Figure 2



The Software. Even if China developed its own indigenous ability to make the most advanced computer chips, achieving its

industrial policy goals would require it to become the global leader in developing machine-learning and artificial intelligence software. On this score, China is probably closer to success than it is in chip manufacturing. Chinese technology companies such as Alibaba (BABA, 157.96) and Tencent (TCEHY, 56.06) have great expertise in developing the algorithms needed to exploit vast reams of data generated by their businesses. That helps explain the government’s intense pressure on these firms to protect their data and share it with the government. Smaller, lesser-known Chinese companies are also developing advanced AI capabilities.

Ramifications

Under President Xi, China’s governing ideology isn’t simply nationalist, nor is it just communist. Because of Xi’s drive to build state power and impose social control on the basis of technology, including the IDDS industrial policy outlined above, the country today can be thought of as a grand experiment in a kind of “Great Chinese Techno-Marxism.” As we noted in Part I last week, marrying a communist political economy with just the right doses of capitalism, free markets, advanced artificial intelligence, and access to detailed, economy-wide data could potentially allow China’s government to manage the economy and broader society better than any communist government in history. Will it be successful in doing so? Sadly, it will probably take years or even decades to know for sure.

In the short term, however, we suspect that China’s new IDDS industrial policy will help *embolden* Chinese leaders in ways that create serious risks for global investors. All signs suggest that President Xi is not only ambitious and aggressive, but he is also animated by China’s long history of cultural

greatness, by the fact that Chinese economic growth remains faster than that of the U.S. and other liberal democracies, and by his confidence that he can maintain political support by reining in China's large, rich, fast-growing technology companies and redistributing resources toward China's lower-income citizens. Xi may now believe that the IDDS will give him a further leg up in controlling society, fostering fast and stable economic growth, and strengthening China geopolitically. Indeed, the IDDS seems well-designed to dominate what is likely to be one of the key industries of the future, with enormous potential for wealth creation, commercial and military communications, political influence campaigns, and improved decision-making. As Xi recognizes that, he is likely to take even greater risks in terms of clamping down on domestic companies that threaten to become rival power centers or acting more aggressively in geopolitics.

A second set of risks pertains more specifically to the global technology sector.

For example, since the semiconductor and artificial intelligence industries are so fundamental to China's new industrial strategy, we think Xi will continue to shower them with attention and resources despite the costs and lack of success in advanced chipmaking to date. Over time, that could result in stronger competition for U.S. and other Western firms in these areas, especially if China continues to rely on the theft of foreign intellectual property and technology secrets. Just as importantly, the U.S. and its allies will probably try to cordon off their chip and AI industries to protect them from China. The result is likely to be a further balkanization of the global technology sector, with firms in the sector left with more limited markets, less efficient supply chains, and lower margins. Unfortunately, the result would likely be reduced innovation and slower economic growth worldwide in the coming years.

Patrick Fearon-Hernandez, CFA
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