The Rise of China's Industrial Policy, 1978-2021

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Leapfrogging: From Zero to Maximum Industrial Policy

1. Before 2006-2008, China really had no industrial policy.
2. After 2008, in the wake of the Global Financial Crisis, China rapidly ramped up a super-sized industrial policy, much more ambitious and more expensive than most people realize.
3. What China is doing today is unprecedented, both in terms of China's own experience and in international comparison.

We can call it "**Grand Steerage**."

Implications:

A. The possibility the China is overshooting is great: there is substantial evidence that a little bit of industrial policy is a good thing: a "light touch" can work.

B. China's actions today create significant risk and have already lead to international backlash.

C. This pattern may lead to misinterpretation: China is a success, so (today's) industrial policy must be successful? False.

1. China had already grown at 10% per year for 30 years (1978-2008) before it *started* industrial policy.

1. During this period, the pattern of China's growth was shaped by the gradual process of market opening.

   --New, labor-intensive and export-oriented sectors drove growth.

   --"Enlivening" created new demand and new supply simultaneously.

   --Foreign firms and foreign investment were important drivers.

   --Private sector growth was fundamental.

2. Government planning was irrelevant.

   A. Policy intentionally froze the planned economy to allow the economy to "grow out of the plan."

   B. Government sometimes made efforts to guide development, but these plans always failed. This was not surprising, since planners lacked:

      (1) information; (2) instruments; (3) resources. There are no success stories.

What is “Industrial Policy”?

- “Industrial policy is any type of selective, targeted government intervention that attempts to alter the sectoral structure of production toward sectors that are expected to offer better growth than would occur in the (non-interventionist) market equilibrium.”
  - Based on definition in Pack, Howard and Saggi, Kamal (2006). "The case for industrial policy: a critical survey". World Bank Policy Research Working Paper 3839, February 2006, p. 2.
- Industrial policy is based on a market economy.
- Industrial policy is “vertical,” that is it targets a specific sector and directs resources to it.
  A. It can be contrasted with “horizontal” policies such as innovation policy or competition policy.
  B. Horizontal policies try to improve the overall environment, without specifying the specific types of sectoral outcomes desired.

Around 2010, China's "miracle growth" period was coming to an end.

- GDP growth of 10% and more was coming to an end, never to return.
- China had just pumped a massive stimulus program into their economy to counteract the effects of the (US) Global Financial Crisis. It worked.
- They had already started a modest industrial policy to support "Strategic Emerging Industries"
- They looked around at Japan in the 1990s, and decided they didn't want to repeat that kind of abrupt slowdown.
- They decided to pour money into "New Growth Drivers" to keep growth as high as possible.

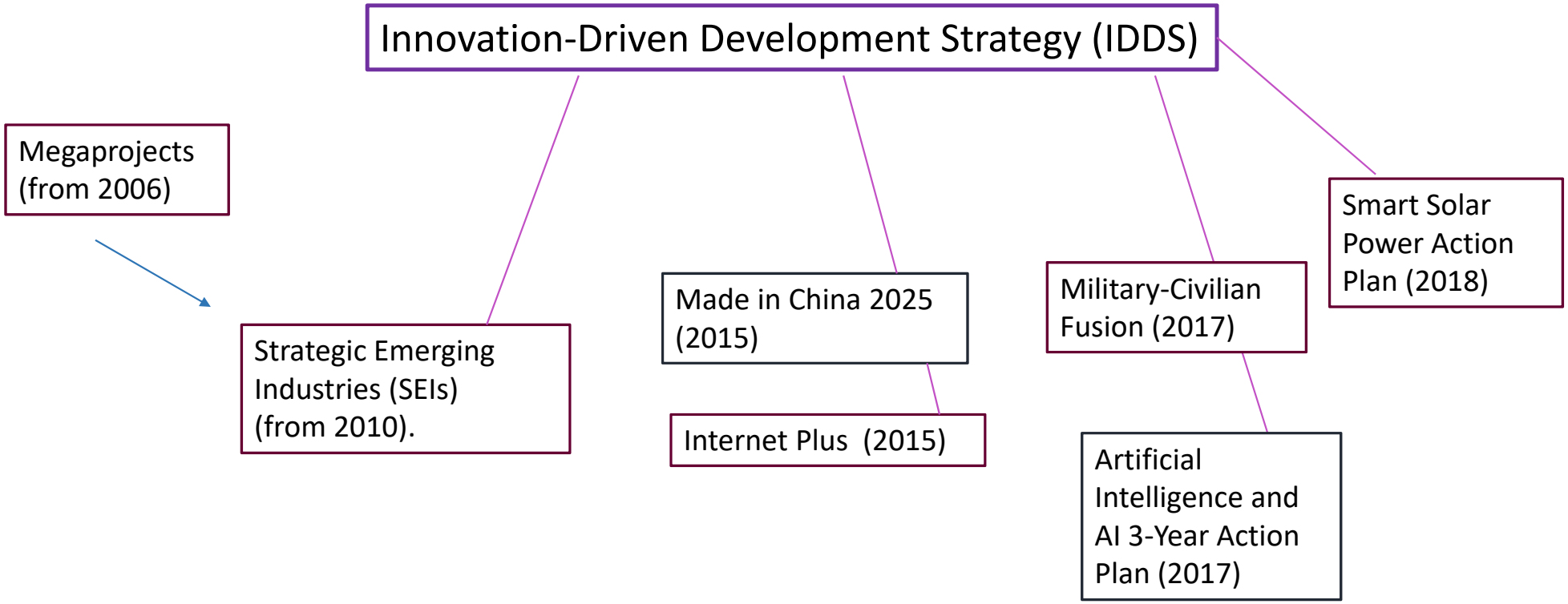
2. Industrial Policy Went Into High Gear after 2010: Strategic Emerging Industries

- “Strategic Emerging Industries” (SEIs) have consistently been high priority since 2010.
- SEIs have been refashioned from an initial grab-bag of 20 industries into a set of five large priority sectors: IT hardware; industrial machinery (including military industry); bio and pharmaceuticals; clean energy and EVs; and digital media.
- Plus four “nurturing” sectors: space; networks; life sciences; and nuclear.
- Enormous emphasis on “core technologies.”
  - No clear definition: could cover anything.
  - Core technologies are seen as the bottleneck sectors of production networks (or “value chains”).
  - Xi Jinping has been saying: 一定要把关键核心技术掌握在自己手里 “We must control crucial core technologies in our own hands.”

2A. Innovation-Driven Development Strategy (2016)

- Endorsed by a key joint Communist Party Center and State Council (government) document in May 2016. It is the most authoritative type of policy that the Communist Party issues.
- A broad program, with many distinct components. Many of the better-known industrial policy programs with—such as "Made in China 2025"—are in fact components of this broader strategy.
- A broad strategy, rather than a tightly controlled plan. Supports multiple, opportunistic approaches to technology acquisition.
- Signals a new level of commitment and a dramatic increase in the volume of resources devoted to industrial policy.

Broad Program with Many Components



Selected Quotations from "Innovation-Driven Development Strategy":

"A new round of global technological revolution, sectoral change and military change is accelerating … A group of revolutionary new technologies—intelligent, green and ubiquitous—are reshaping the global competitive landscape and changing the relative strength of nations … We not only face a rare historical opportunity to catch up and surpass, we also face the serious challenge that the gap might widen again."

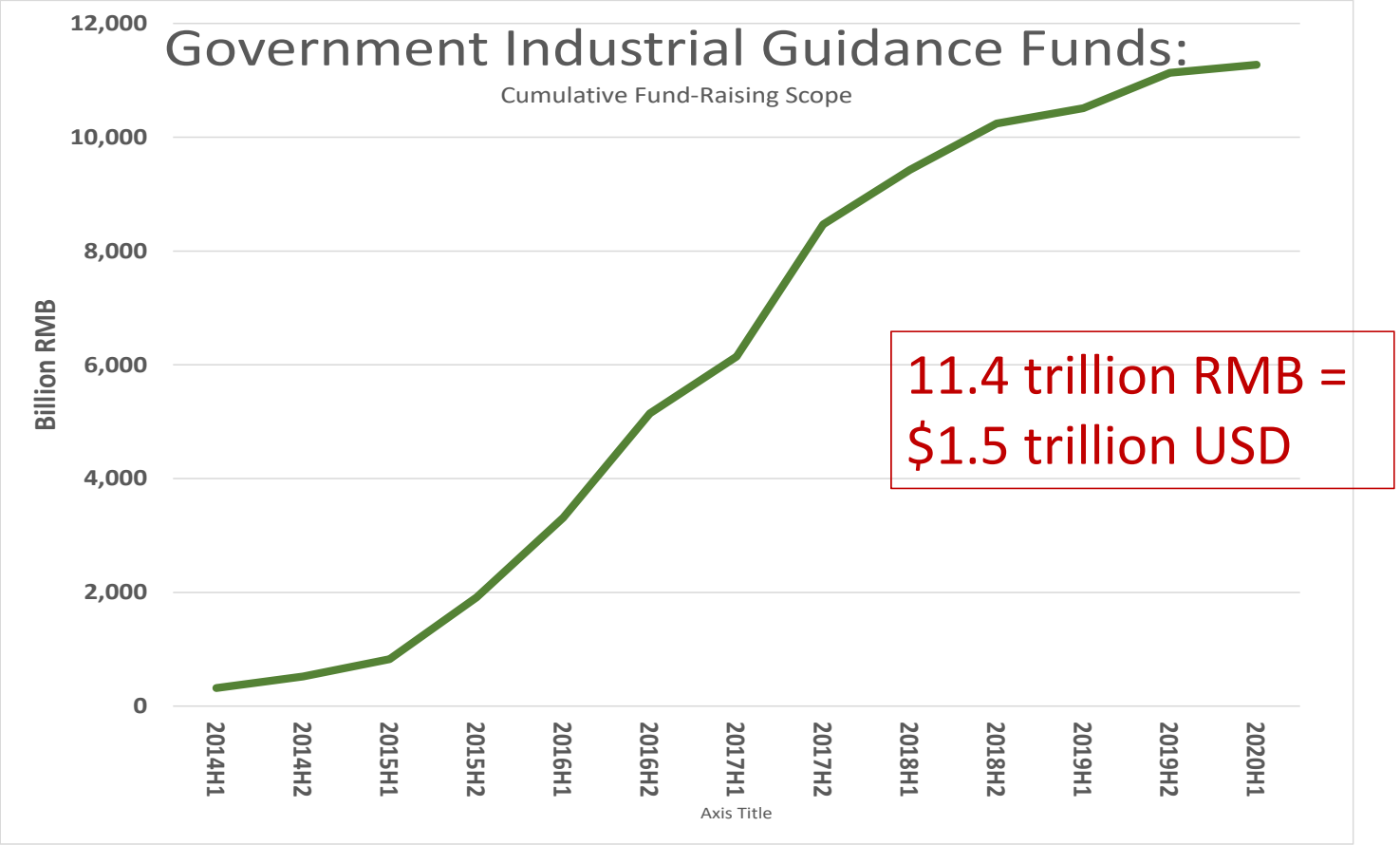
"The basis of national strength is technological innovation capacity… a nation with weak innovation is in peril. A main reason China was weak and preyed upon in the modern era was that we had missed out on successive technological revolutions; we were technologically weak and a weak nation."

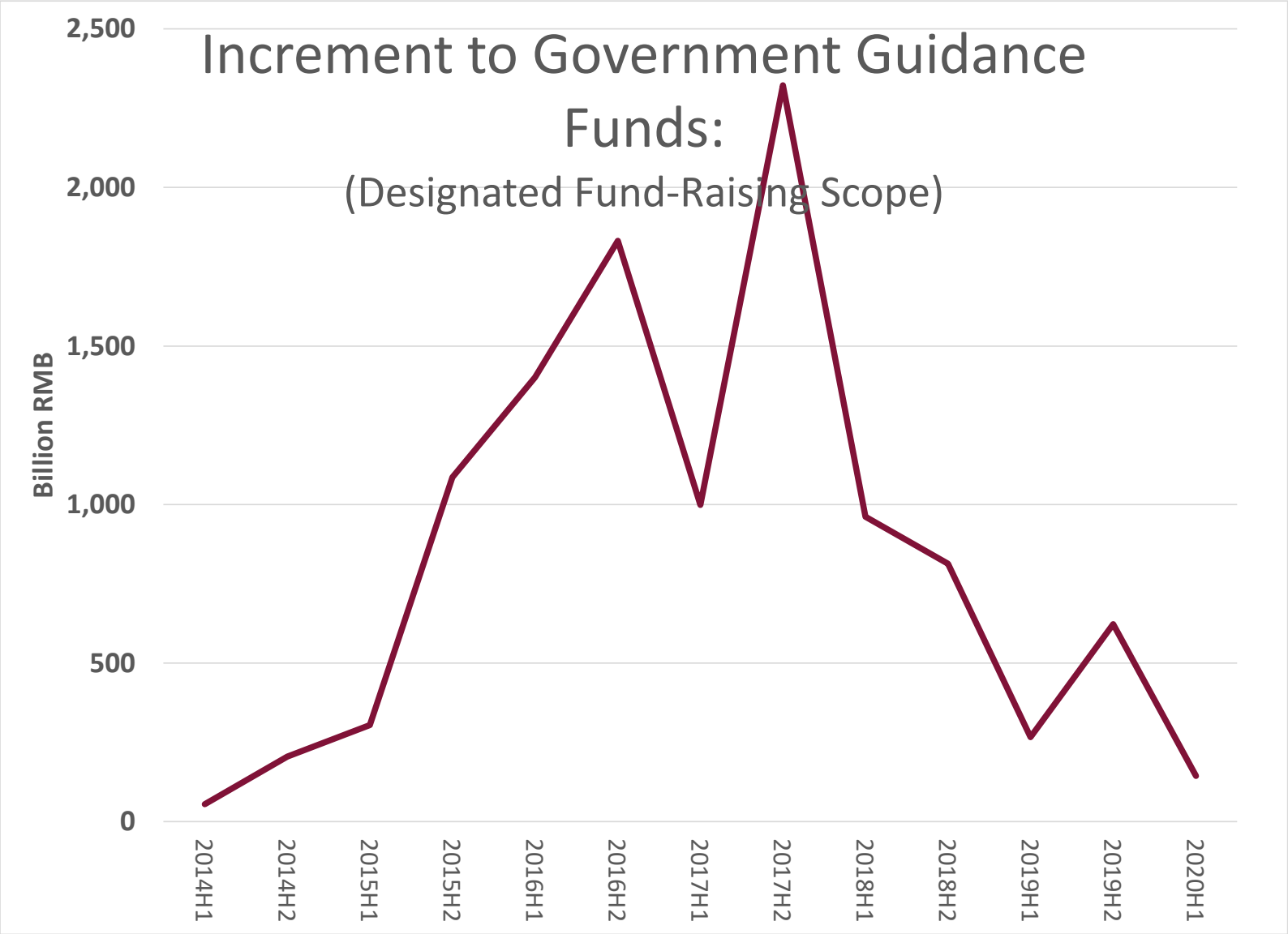
"Traditional development drivers are steadily weakening … we must rely on innovation to create a new engine for development, to nurture new growth poles, to continuously raise quality and efficiency."

Chinese Industrial Policy is not "Catch-up." It is intended to operate at the industrial frontier.

1. China's industrial policy today is focused on—but not limited to—the "fourth wave" of technological change. China is "all in" on this technological revolution.
2. It operates in a technological realm where there is more uncertainty than in previous catch-up industrial policies.
   - This is the opposite trajectory from industrial policy in Japan, Korea, and Taiwan, where industrial policy was toned down (became "light touch") as the economies approached the technological frontier.
3. Innovation is the "keystone" supporting many objectives: national security; comprehensive national strength; new growth drivers or growth poles; and economy-wide productivity growth.
4. China has developed new "financialized" instruments to improve incentives and expertise. It wants to combine the best of both worlds, the efficiency of the market, plus a government vision to guide the economy.

2B. Ambitious State Financial Effort: Government Guidance Funds



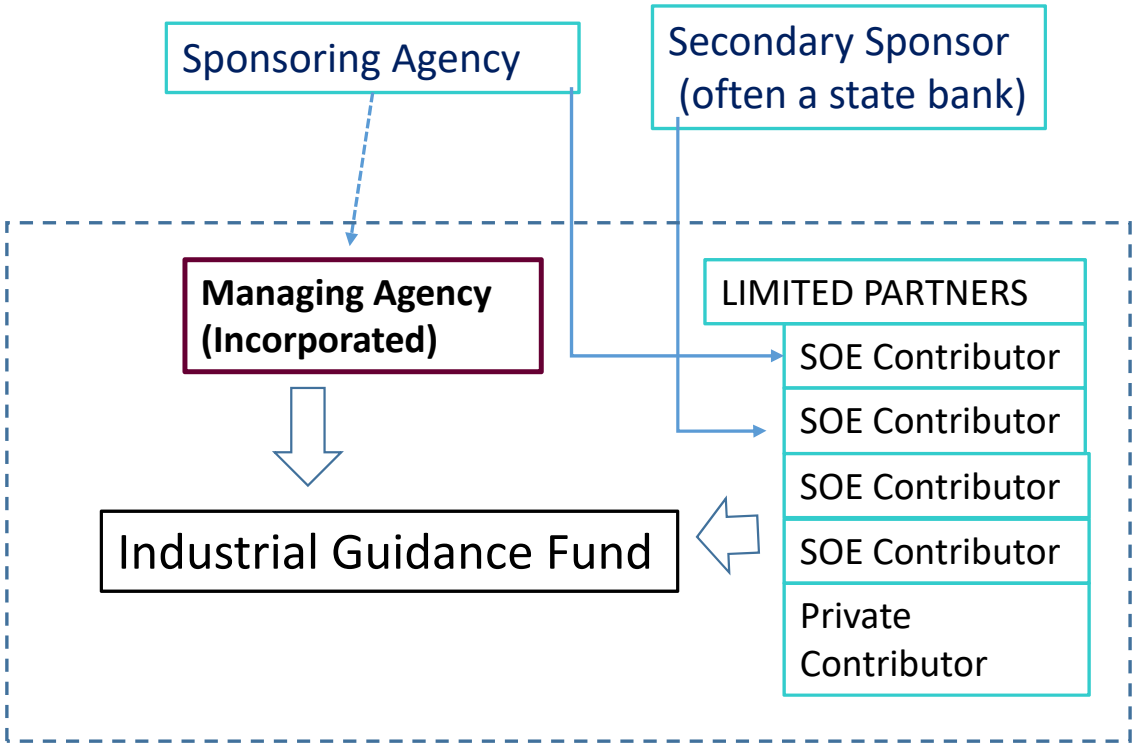

Increment to Government Guidance Funds:
(Designated Fund-Raising Scope)
Billion RMB
2,500
2,000
1,500
1,000
500
0
2014H1
2014H2
2015H1
2015H2
2016H1
2016H2
2017H1
2017H2
2018H1
2018H2
2019H1
2019H2
2020H1

2C. Instruments: Effort to Create an Industrial Policy that is Consistent with a Market Economy

- Chinese policy-makers have invested substantial time and institutional ingenuity in a new model of (supposedly) market-friendly industrial policy. They believe their model is "market-driven and government-guided."
- This includes tax breaks and subsidized credits. China Development Bank has been recapitalized by $48 billion in funds In July 2015, with its purpose as a government-directed development bank re-affirmed and revitalized.
- Most dramatically, a new category of "government industrial guidance funds" (政府产业引导基金) has been launched. These funds are intended to magnify government financial resources and support the development of priority sectors.

Industrial Guidance Funds: How they Work

- Sponsors establish clear sectoral scope and business model (e.g., venture capital; growth fund)
- Corporate governance is clear, at least in principal.
- Managing agency has responsibility for investments; enjoys explicit high-powered incentive packages that include rate of return on investment.
- Specialization and skill-building fostered.

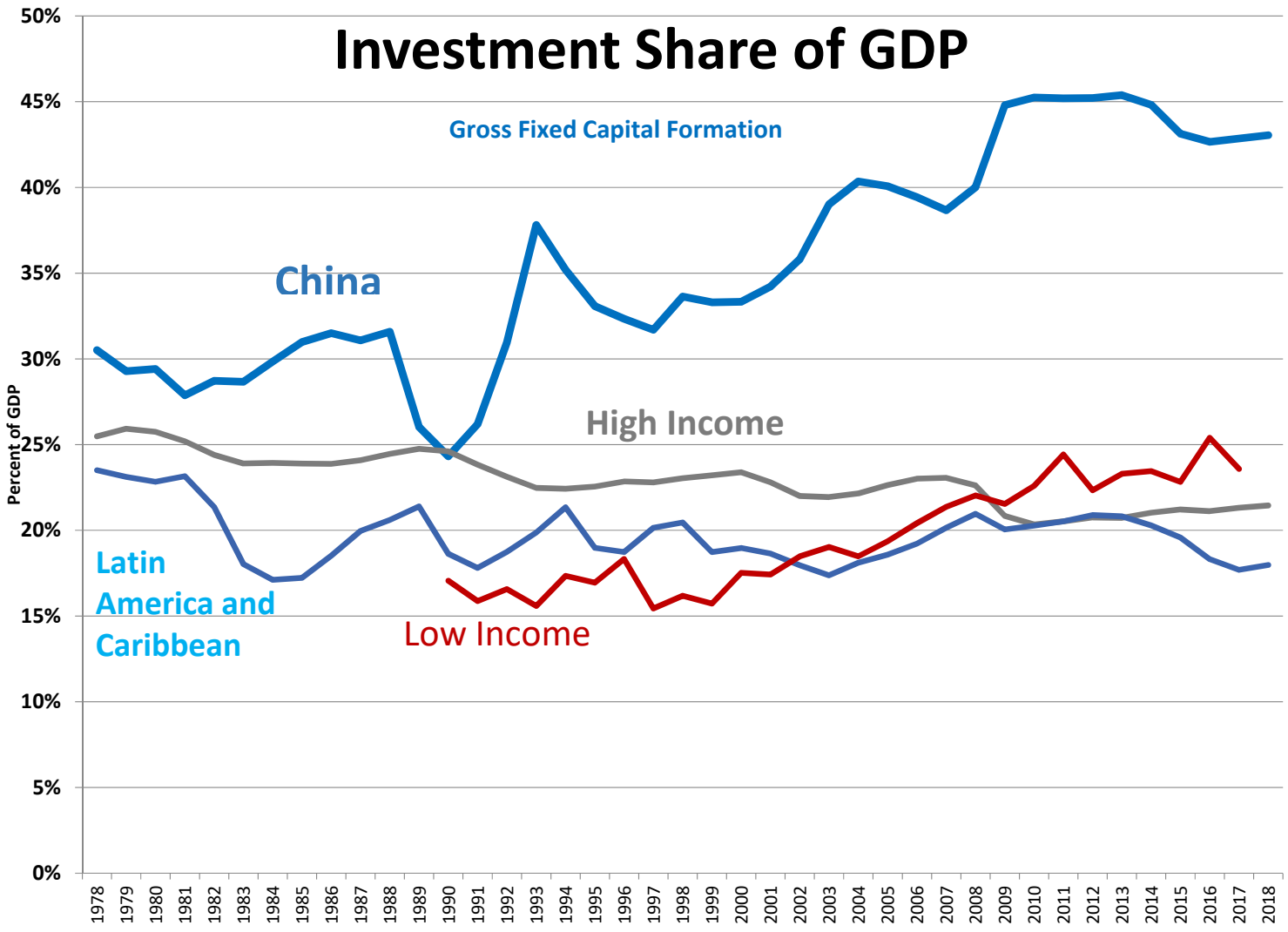


3. Government “steerage” is continuing and intensifying, as we move into 2021.

Investment continues to play its leading role in the economy. Consumption, especially of services, is still slightly depressed because of COVID restrictions; investment, meanwhile, has raced ahead.

- Thus, China is the only top economy that grew in 2020, at 2.3% real GDP growth.

1. “New infrastructure”: Accelerated roll-out of 5G, sensors, smart grid, etc.
2. “Urbanization 2.0”: Intensification of existing policy.
3. Secure Supply Chain initiative, with audits and (doubtless) re-investment.
4. Semiconductor Investment, Winnowing and Stronger Oversight



2020 investment rate increased again

Annual Domestic Investment (2019):

China	$6 trillion
USA	$4.5 trillion

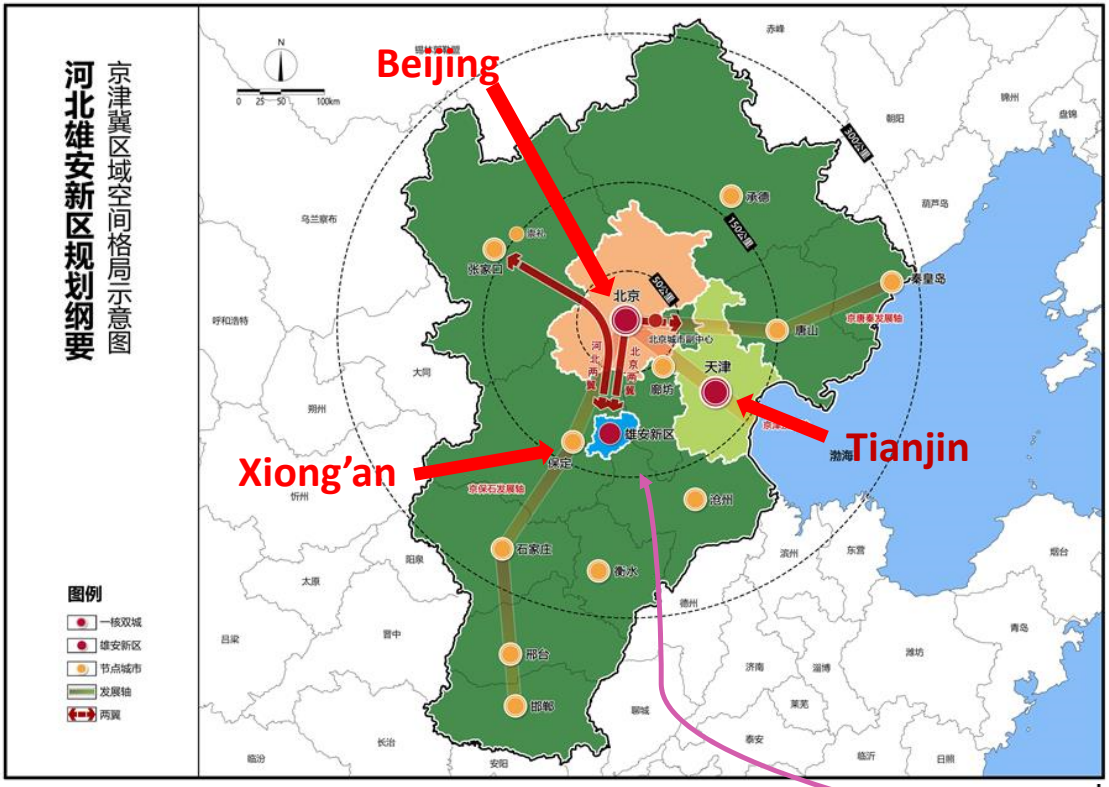
China has much greater ability to develop smart infrastructure because of its very high investment rate.

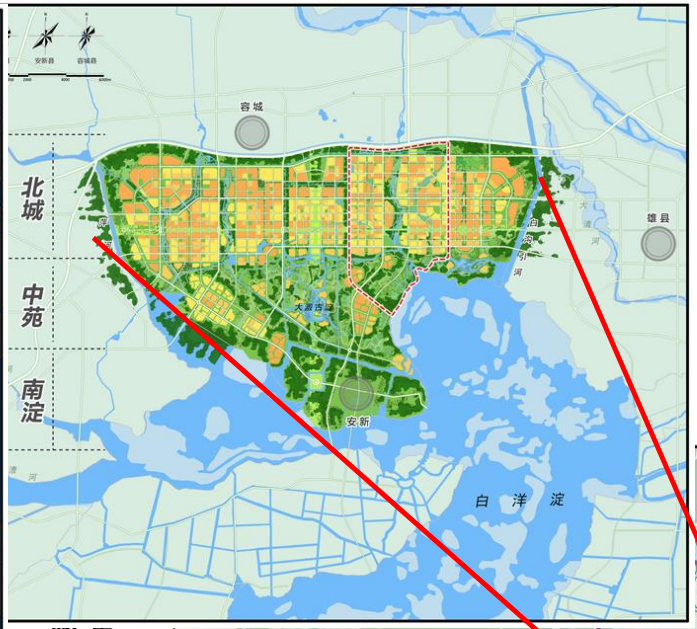
3A. Smart Infrastructure

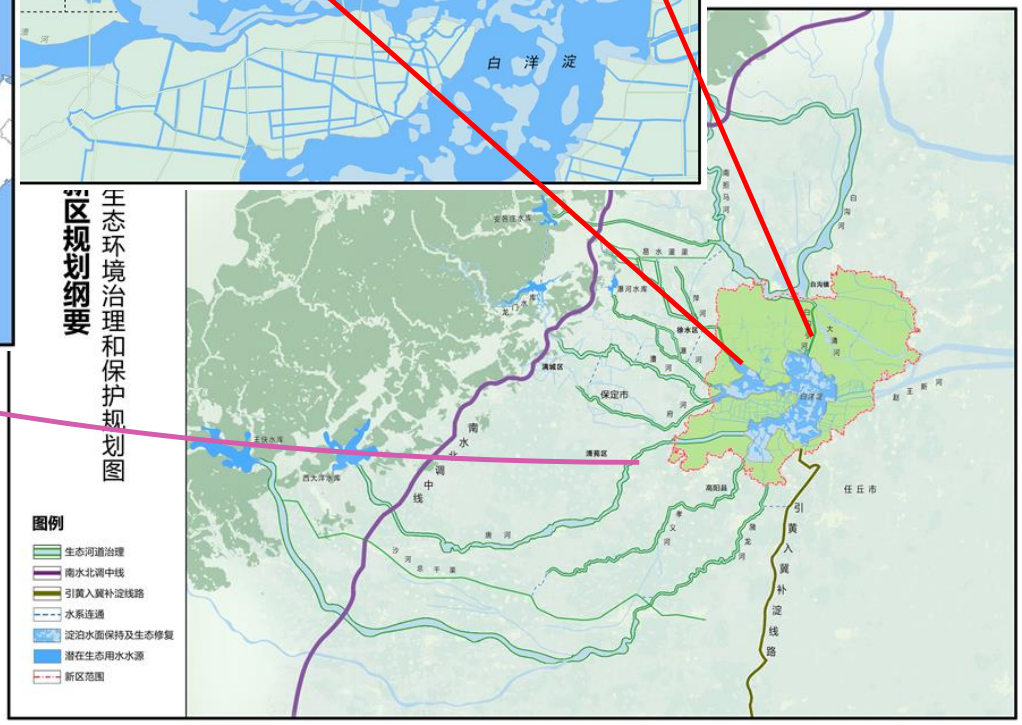
- “Smart infrastructure” became a widely circulated program/objective in 2020, in part because investment is part of COVID recovery.
- Deep investment in transport infrastructure already ongoing: high-speed rail, yes, but also highways, bridges, airports, and urban subway systems. China is being transformed.
- Smart infrastructure embeds sensors in the concrete, producing smart networks using artificial intelligence to measure and improve outcomes.
- Now, 5G telecom infrastructure is being rolled out, ahead of actual capabilities. About 50% of global 5G base stations have been built in China.
- This has implications first for mobility, then for governance and security.

3B. "Urbanization 2.0": Grand Designs

- Strong endorsement of giant, rebuilt urban areas
  - Urban population will be *more concentrated* in core urban regions, even while "mega-cities" like Shanghai and Beijing are subject to stricter limits and should shrink.
  - New satellite cities will be built and expanded.
  - New *hukou [household registration]* policies will create (for example) a transferable Lower Yangtze *hukou* that works everywhere *except* Shanghai.
  - Lots of new infrastructure is being constructed, starting with webs of high-speed transportation, both rail and highway.
- Beijing and Shanghai have new population caps which will cause them to shrink.
  - Beijing central city population (existing 6 urban districts) to be capped at 10.85 million in 2020, *down* from 2015 population of 12.8 million.
- New version of traditional policy of restraining growth of the largest cities, channeling growth into smaller cities, but accepting huge city clusters.
- Opportunity to build pilot "Smart Cities." Right now, Hangzhou, headquarters of Alibaba, which runs the "City Brain" program, has a claim to be the world's first smart city.





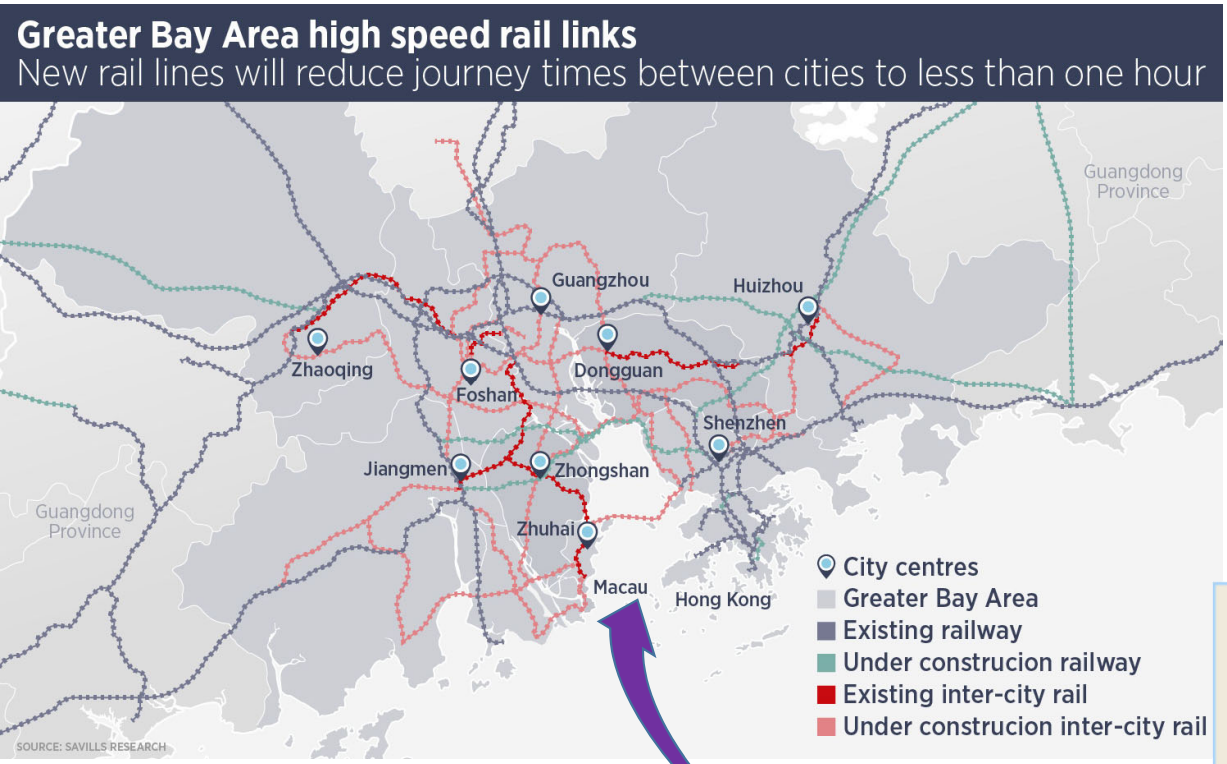


Xiong'an New District

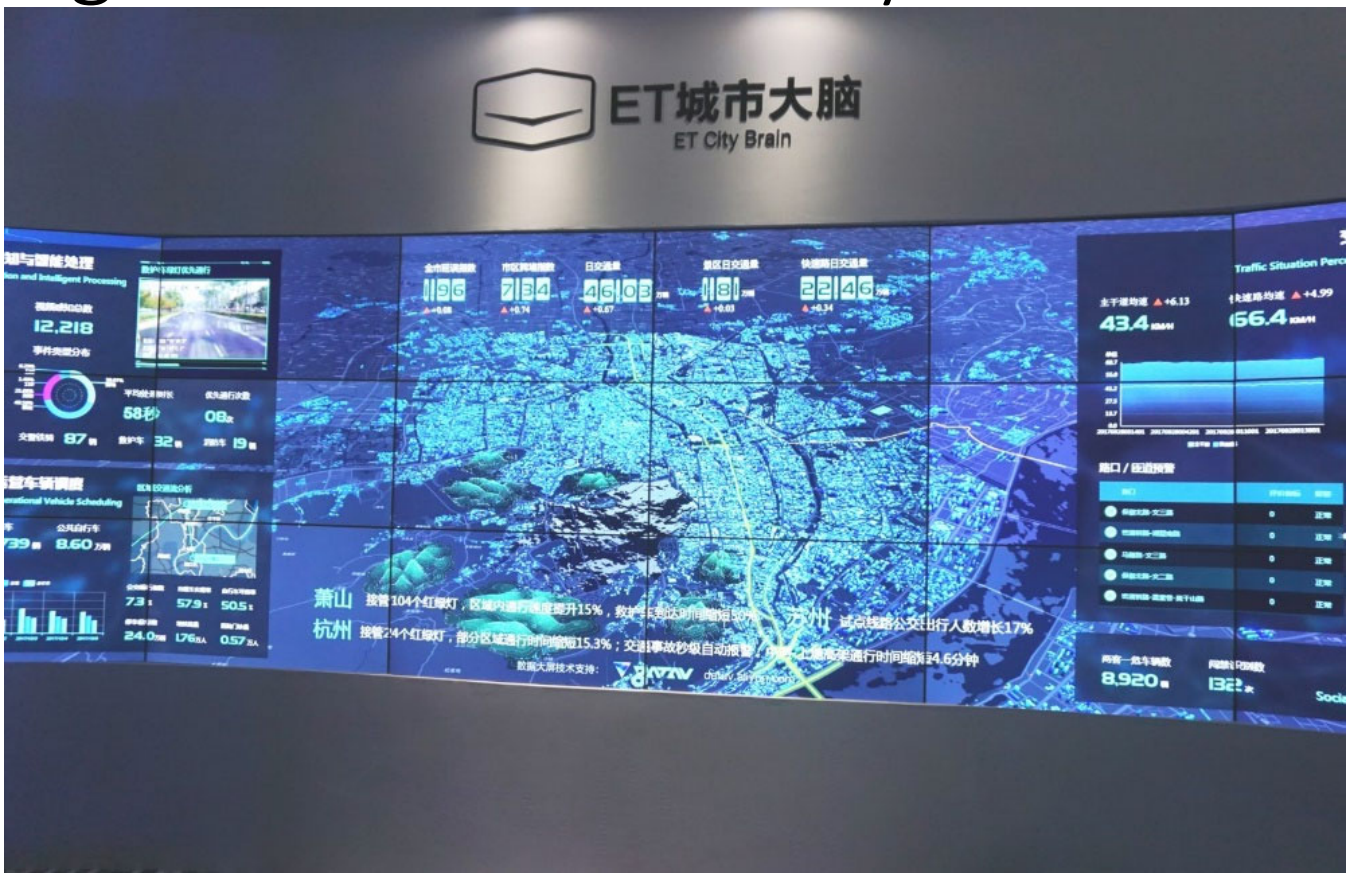
Built-up core will be low-density (< 10,000/km^2), green, universal broad-band. (Singapore *as a whole* is ≈ 8,000/km^2)。
By 2035, a green, harmonious city with excellent infrastructure, in which high tech sectors will lead development and effectively take over the non-capital functions of Beijing.

Guangdong Greater Bay Area:

Plan Released February 2019



Alibaba’s “City Brain” has been running in Hangzhou for about five years…

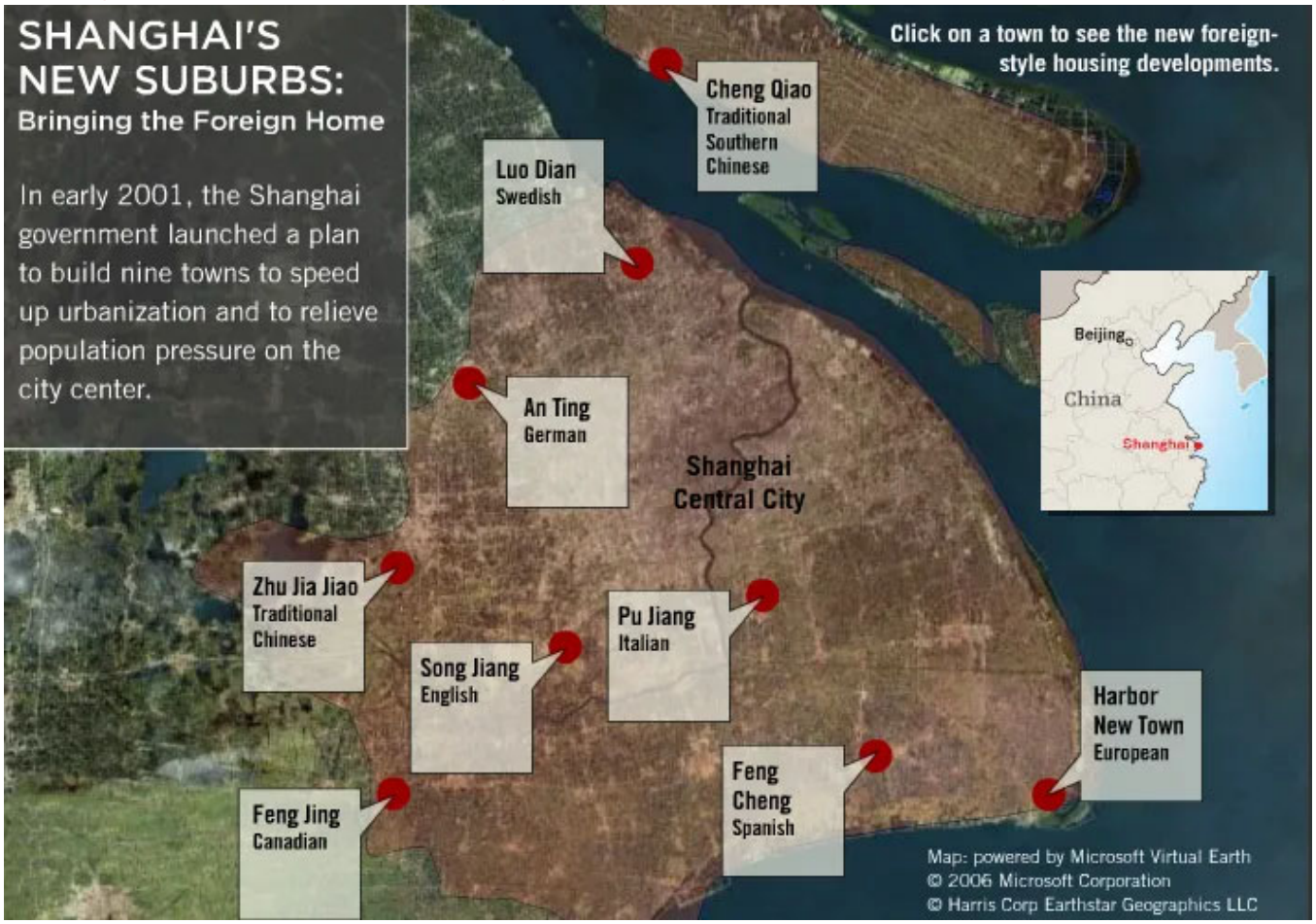


Shanghai: Metropolis of > 24 million people

Massive sprawl, but also concentrated on traditional city center.

Five new “independent and comprehensive node cities” around Shanghai: not “satellites” (Feb. 2021)

BUT: All five are within Shanghai's political boundaries; and they replace a 20-year-old Failed Plan



3C. Current Chinese Policy Toward Global Supply Chains

1. Enhanced emphasis on supply chain security. Already incorporated into the 14th Five Year Plan "Suggestions":

"自主可控,安全高效,供应链" "independently controllable, secure and reliable, high efficiency supply chains." Major audit and restructuring is being carried out.

2. "Now, China is returning to work, but we shouldn't, indeed cannot, simply recreate the old model; we must make an effort to restructure production chains, increasing efforts across the board to boost technological innovation and import substitution."

3. "We must also strengthen our already strong points, …. in sectors such as high-speed rail, electric generating equipment, new energy, and communications equipment. … We must raise sector quality, increase the dependence of international production networks on us, and create the ability to take powerful countermeasures and deter outsiders who cut off supply."

--Xi Jinping, April 10, 2020, reprinted Jan. 2021

Conclusions

1. China's objective: A government-steered economy with market-like efficiency.
   1. China has "leap-frogged" traditional notions of industrial policy.
2. The Chinese government is committed to shaping the development of an economy in a way that we have not seen since the collapse of the Soviet Union in 1991.
3. Industrial policy is clearly too recent to be given credit for China's "miracle growth."
4. Industrial policy has already been very, very expensive.
5. There are not yet any clear cases of industrial policy success.

Conclusions (cont.)

6. There are substantial risks for China, and success is not assured.
   A. Huge resource expenditure increases financial risk.
   B. Many programs and projects will fail (we already see this).
   C. Many programs will succeed, because China has (a) lead market; (b) manufacturing capacity; (c) skilled human resources.
   D. The emerging cluster of AI-based technologies really does have potential to raise productivity across the economy.
7. Continuing conflict with other countries—including but not limited to the U.S.—is inevitable.