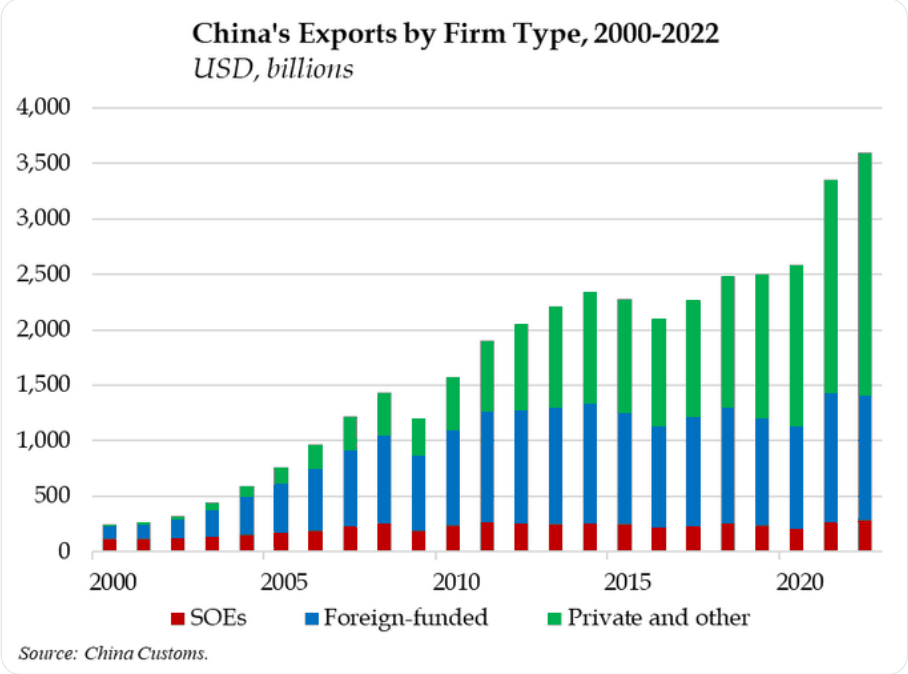
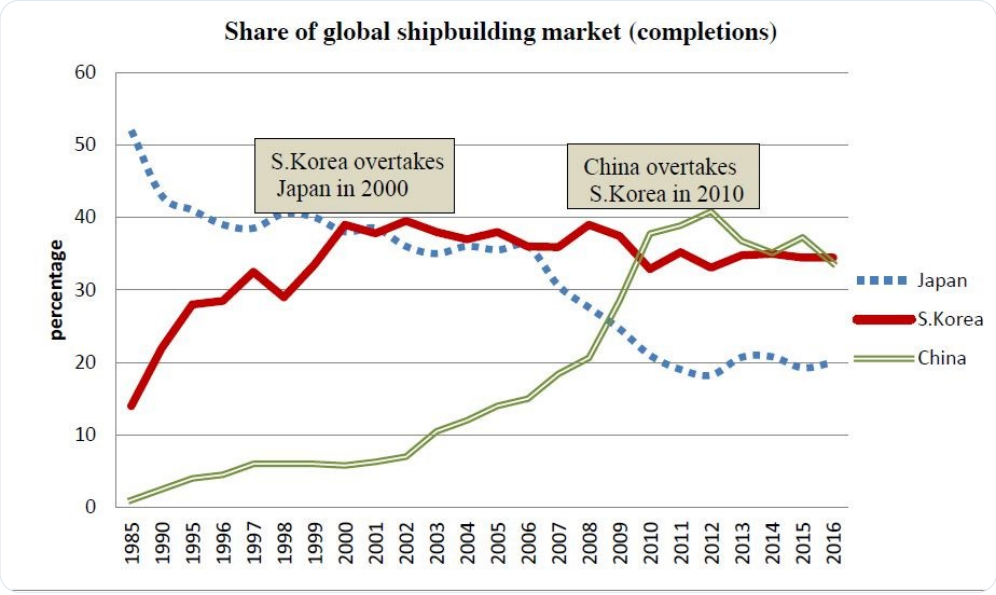
tphuang @tphuang

Apr 14, 2025 · 17 tweets · tphuang/status/1911591160922972565

We are in 3rd economic period since China opened up.
1st period 1980-2005
Advanced economies invested in China, taught China how to make stuff to lower cost
2nd 2006-2020
China became world's factory, US moved from mfg to design.
3rd 2021-
China competes on top end in design.
See graph for foreign export vs private/others



Use shipbuilding as an example:
Until 2006, China was still learning how to build ships.
It was competing mostly on low cost for simpler ships like container ships.
It used mostly foreign supply chain like engines, propellers & more.
Other heavy industries also like this.

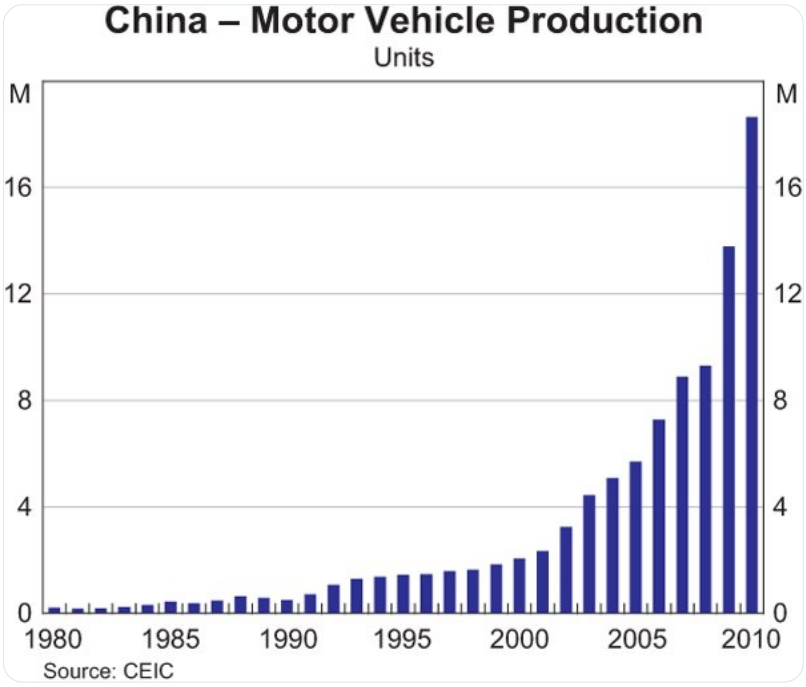


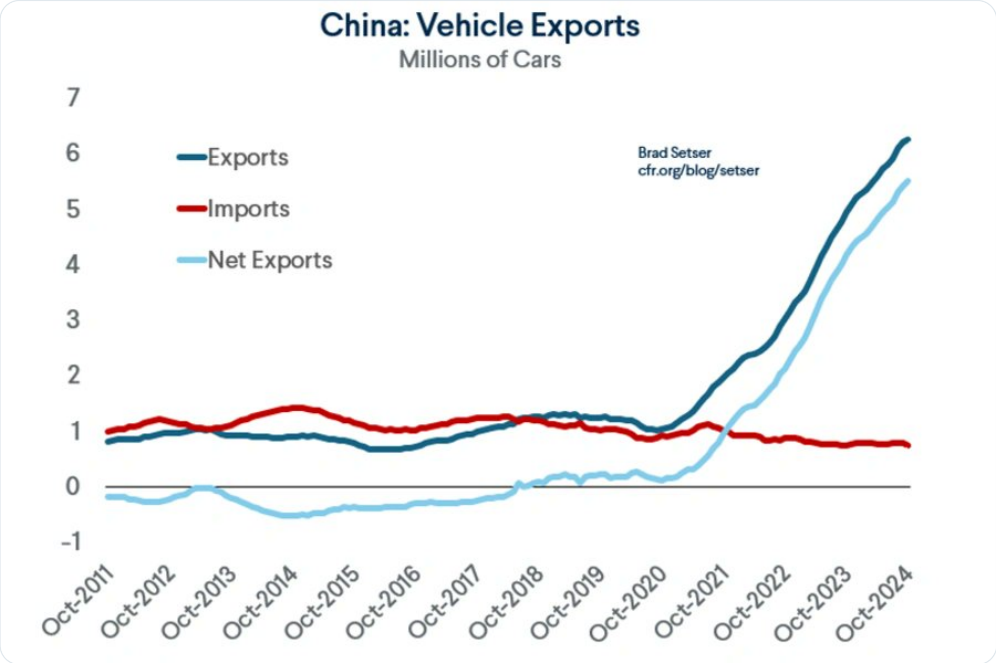
By mid 2000s, China was making stuff like cars, TVs, PCs & phones locally

Focusing on auto industry, Chinese production was mostly foreign JVs. Local automakers made cheaper cars.

But China Inc kept improving, building local supply chain & growing in size.

Still, export was flat





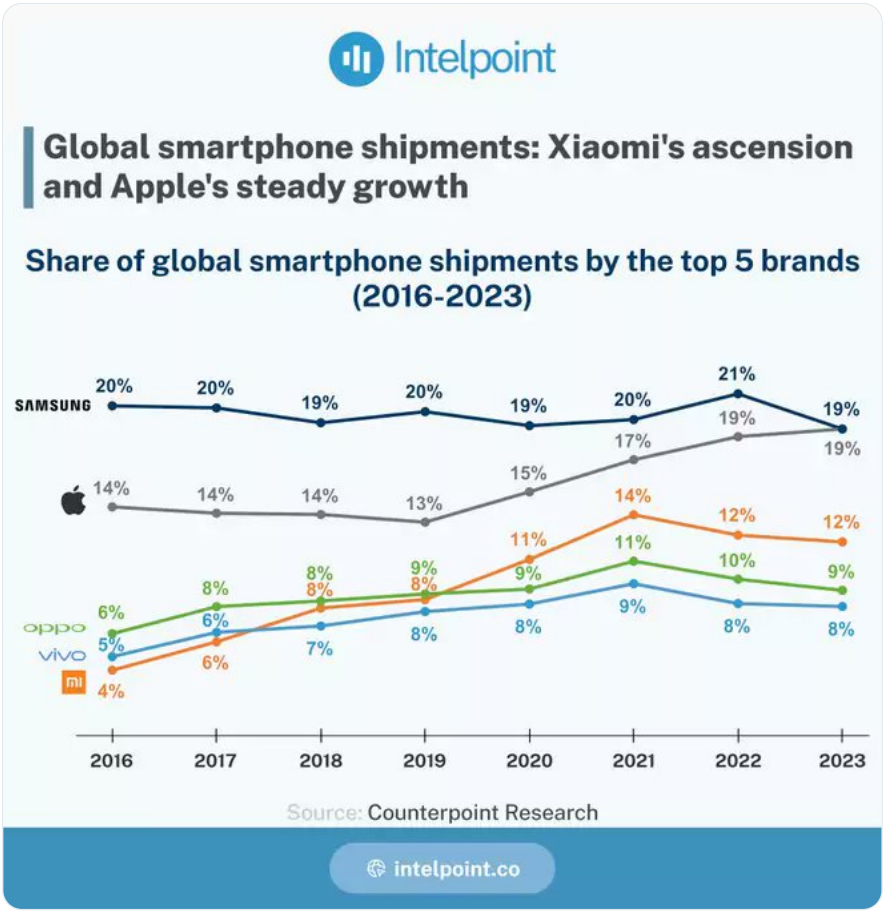
During this period, China started to dominate production of smart phones, pads, PCs & more.

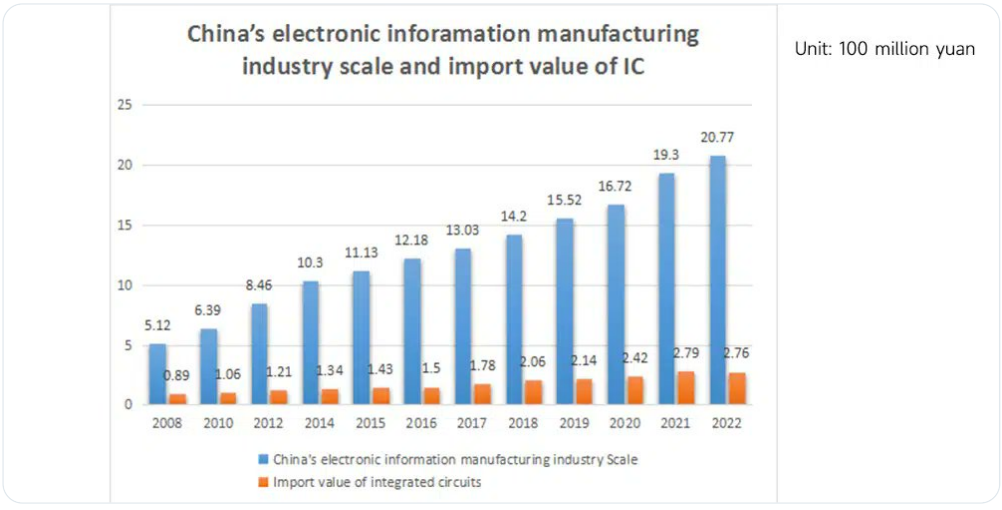
See its steady growth in electronics mfg (need ICs to produce more electronics)

China built up its electronics supply chain dominance

You design something?

well, you need China to make it





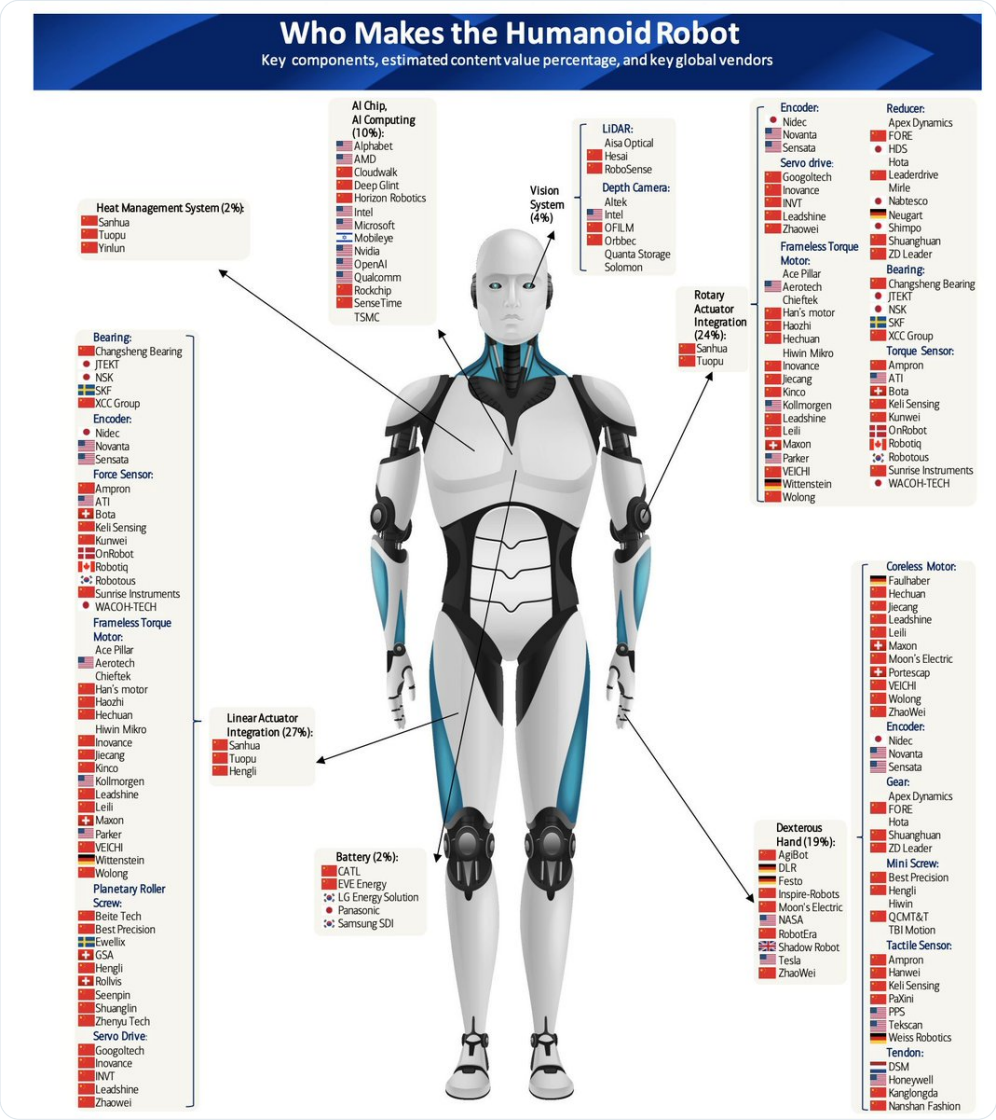
As we get to 3rd stage, AI products are the future.

See below for suppliers of humanoid robot.

China dominates supply chain for AI robots.

That allows faster product iteration for local companies that put everything together.

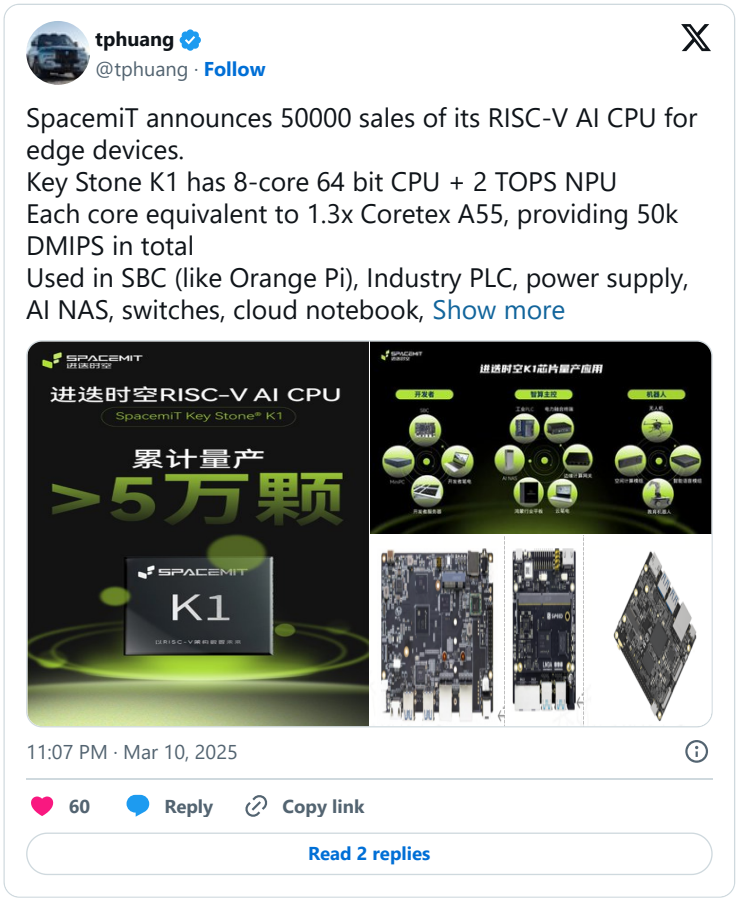
Notice how many AI robot companies are in China?



I'm continuously surprised by the wide range of Edge AI chips, AIoT products, smaller AI models (Qwen) & multi-modal models coming out of China.

See below for SpacemiT RISC-V AI chip used in wide range of scenario.

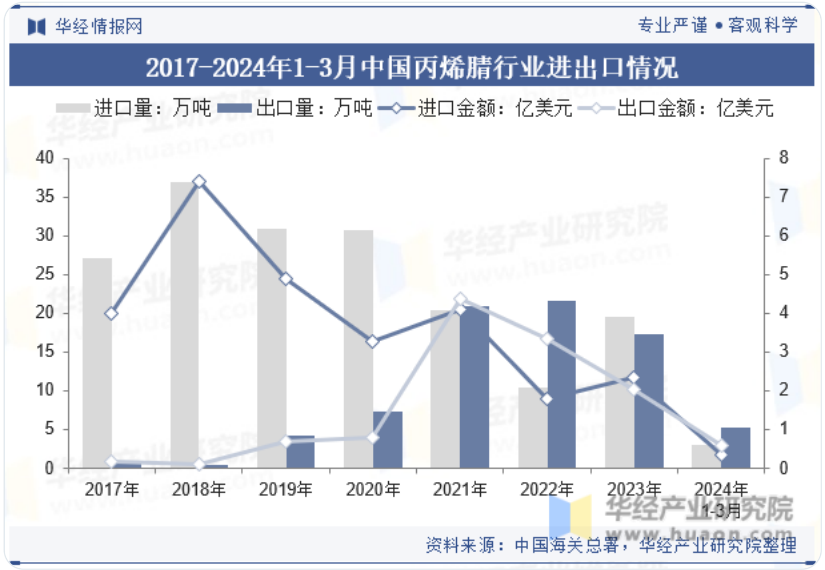
Accessing this supply chain is huge



Product iteration time for a company in Shenzhen or Hangzhou is so fast.
They have full access to ppl that design boards, understands mfg process, can buy all the ICs/parts & that do multi-modal small models.
There is no language or timezone barrier.
How to compete w/ this?

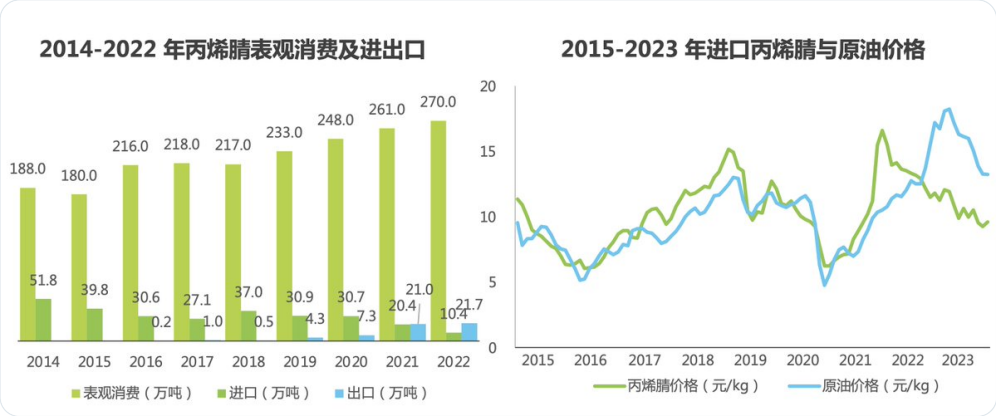
You may think I'm joking, but go look up GitHub & Huggingface and check out just how many of these multi-modal models w/ smallish # of params come out of China.
And then, look up how many AIoT chips are designed in China/Taiwan.
Nvidia makes AI chips, but they are not affordable!

This supply advantage go way beyond AI. It goes into the most basic materials.
Acrylonitrile is used to make plastics, rubber & acrylic fibers.
See how quickly China went from being a huge importer of Acrylonitrile to a net exporter.
This is quite common across supply chain.



See demand of Acrylonitrile went up 50% from 2015 to 2022 & domestic petrochem production went through the roof during this time while China's import of crude sky rocketed.

Hence why all the relocated toy/apparel production in ASEAN countries rely on Chinese supply chain input.



Supply chain growth of basic material

Carbon fiber production 5x in 4 yr

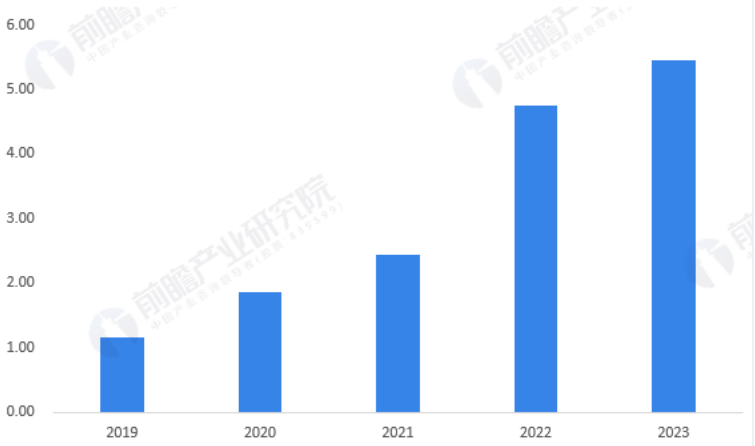
Titanium sponge production 3x in 4 yr

Complete dominance of Acrylic production capacity

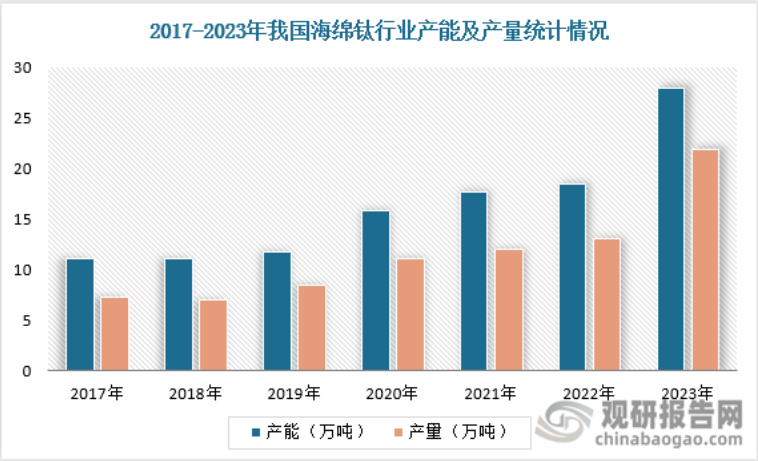
Jilin will have more capacity than ROW combined

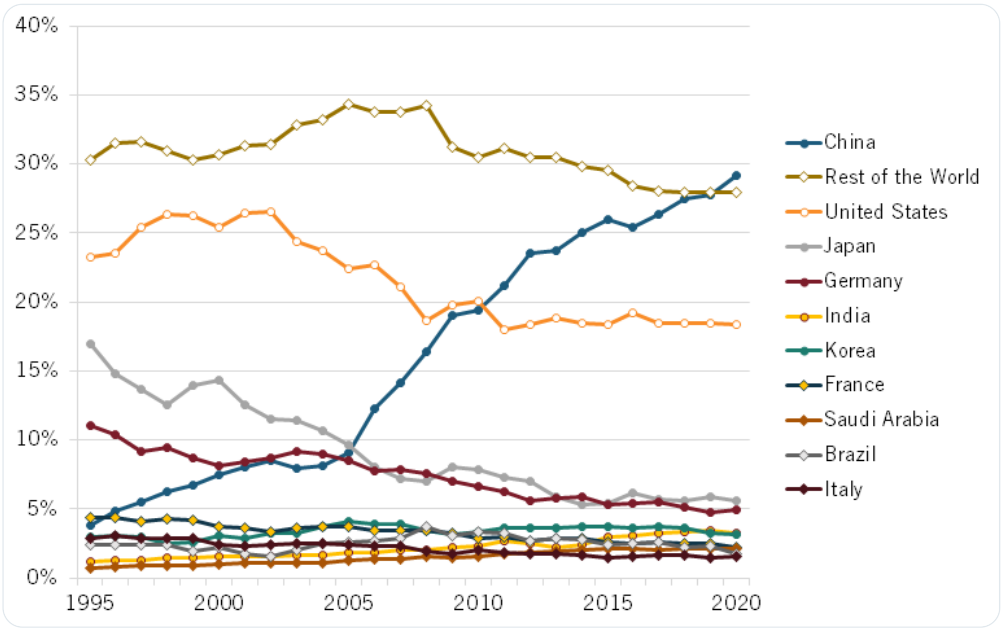
China's chemical value added increased from 8% in 2005 to 29% in 2020.

图表4：2019-2023年中国碳纤维产量(单位：万吨)



资料来源：百川盈孚 前瞻产业研究院 @前瞻经济学人APP

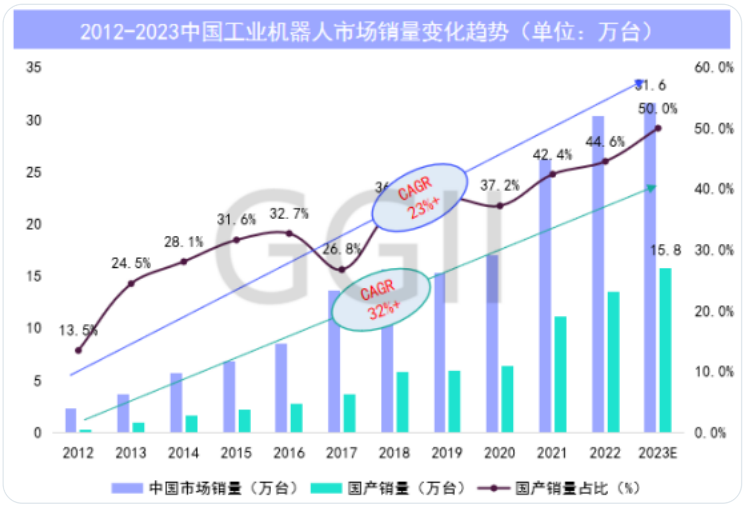




Growth in supply chain extend way beyond basic material like chemical products, RE & other metals.

Industrial robots, Cutting/casting equipment & all other factory equipment saw huge shift from import to domestic.

Same w/ establishment of domestic supply chain for this.



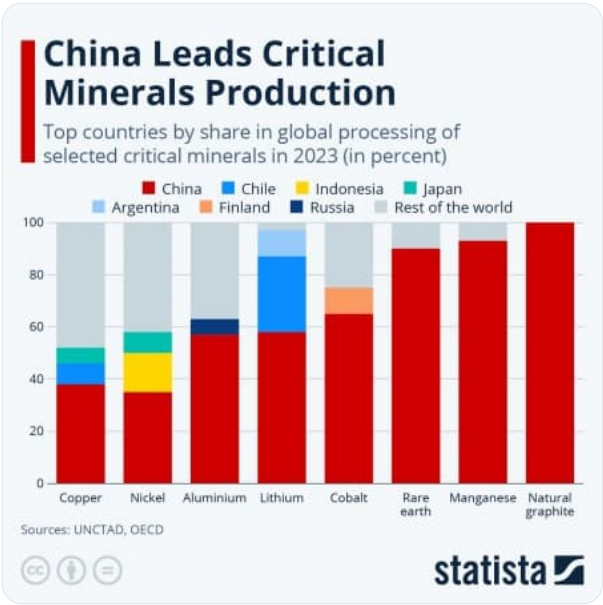
After dominating the raw materials, the move toward higher end materials like chemical fiber, Ti & ultra clear glass as well as ICs, batteries, robots, eMotor, power generation & NEVs is quite clear based on China's 2024 industrial production report.

Product	Unit	Output	Increase over 2023 (%)
Yarn	10000 tons	2277.9	1.3
Cloth	100 million meters	306.3	2.2
Chemical fiber	10000 tons	7910.8	9.7
Refined sugar (final product)	10000 tons	1498.6	17.0
Cigarettes	100 million	24654.6	0.9
Color TV sets	10000	20745.4	4.6
Household refrigerators	10000	10395.7	8.3
Air conditioners	10000	26598.4	9.7
Crude steel	10000 tons	100509.1	-1.7
Rolled steel[23]	10000 tons	139967.4	1.1
Ten kinds of nonferrous metals	10000 tons	7918.8	4.3
Of which: Refined copper (copper)	10000 tons	1364.4	4.1
Aluminum electrolyze	10000 tons	4400.5	4.6
Cement	100 million tons	18.3	-9.5
Sulfuric acid (100%)	10000 tons	10369.9	6.9
Caustic soda (100%)	10000 tons	4365.7	5.5
Ethylene	10000 tons	3493.4	0.7
Chemical fertilizer(100 percent equivalent)	10000 tons	6006.1	8.5
Power generation equipment	10000 kilowatts	28433.9	16.0
Motor vehicles	10000	3155.9	4.8
Of which: New energy vehicles	10000	1316.8	38.7
Integrated circuits	100 million pieces	4514.2	22.2
Mobile telephones	10000	166952.9	7.8
Micro computer equipment	10000	33912.9	2.7
Industrial robots	10000 sets	55.6	14.2
Ultra-clear glass for solar industry	10000 square meters	287884.5	53.5
Charging piles	10000	469.7	58.7
Smart watches	10000	8095.4	5.4
Virtual reality devices	10000	836.6	59.4

A lot of this is driven by intense competition in NEVs, smart phones & drones.
But make no mistake, their supply chain can be re-used in AI robots, VR glasses, eVTOL & other cutting edge AI products.
Ever wondered why Chinese OEMs are all beating Apple in AI feature deployment?

All of this happened while China is rapidly losing jobs in many labor intensive mfg sectors.
They are either getting automated or off-shored
Final assembly is low value added & easily tariffed.
China continues to maintain its place in supply chain while moving up value chain.

Started in 90s w/ goal of dominating dirty, energy intensive minerals.
Moved up supply chain & did final assembly all the way through to 2010s.
Once China got good w/ that, it's rapidly growing in product design also while maintaining supply chain.



We get to today where it's hard to compete w/ Chinese firms that have supply chain advantage.
If you are developing product in US/EU, your main advantages are knowledge of local mkt, service & brand (+ tariffs?)
But what if your Chinese competitors get there a yr earlier than u?

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