# ITA Beijing
# Machine Tool Desk

## Second Period Report

(September – November 2024)

ITALIAN TRADE AGENCY

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# China’s latest economic dynamics and machine tool industry trends summary

- *China’s macroeconomy is showing a stable growth from July to September 2024.*
- *According to the Purchasing Manager Index (PMI), from August to October 2024, China’s manufacturing industry trend has gradually shifted from a moderate decline to an expansion.*
- *From January to August 2024, China’s machine tool enterprises are generally making less profit in spite of a larger production (concentrated in Yangtze Delta Region).*
- *Data from May 2024: Italy’s import of machine tools from China shows a comprehensive decline for all categories, while the export remains overall unchanged.*
- *Data from June 2024: Italy’s trade with China is on the decline in terms of both import and export, with exceptions on some machine tool categories.*
- *Data from July 2024: Italy’s machine tool trade with China is on a significant decline, except a large rise in Italy’s metal-forming machine tool export to China.*

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# China’s macroeconomy is showing a stable growth from July to September 2024, highlighted by the following factors -- July

## Rapid Growth in industry output

| Enterprises above the designated size | 5.1% |
|---|---|
| **By industry** | |
| *Mining industry* | *5.3%* |
| *Equipment manufacturing industry* | *7.3%* |
| *High-tech industry* | *10%* |
| **By product type** | |
| *New energy vehicles* | *27.8%* |
| *Integrated circuits* | *26.9%* |
| *3D printing equipment* | *25.3%* |

## Moderate rebound of consumer prices

| CPI | 0.5% |
|---|---|
| *Food,tobacco&alcohol* | *0.2%* |
| *Housing* | *0.1%* |
| *Living goods&services* | *0.7%* |
| *Communication&transportation* | *-0.6%* |

## Generally stable employment situation

| National urban unemployment rate | 5.2% |
|---|---|
| *Unemployment rate for local household labor force* | *5.1%* |
| *Unemployment rate for immigrant household labor force* | *5.2%* |
| *Unemployment rate for labor force in 31 big cities* | *5.3%* |
| **Average weekly working hours** | **48.7 hours** |

# China's macroeconomy is showing a stable growth from July to September 2024, highlighted by the following factors -- August

## Strong growth in industry output

| Enterprises above the designated size | 4.5% |
|---|---|
| **Highlighed industries** | |
| *Equipment manufacturing industry* | *6.4%* |
| *High-tech industry* | *8.6%* |
| **Highlighted products** | |
| *New energy vehicles* | *30.5%* |
| *Service robots* | *20.1%* |
| *Integrated circuits* | *17.8%* |

## Rising consumer prices and falling producer prices

| CPI (consumer prices) | 0.6% |
|---|---|
| *Food, tobacco & alcohol* | *2.1%* |
| *Housing* | *Unchanged* |
| *Living goods & services* | *0.2%* |
| **Producer prices** | |
| *Industrial producer factory prices* | *-1.8%* |
| *Industrial producer purchase prices* | *-0.8%* |

## Slight rise in national urban unemployment rate

| Natinoal urban unemployment rate | 5.3% (+0.1%) |
|---|---|
| *Unemployment rate for local household labor force* | *5.4% (+0.3%)* |
| *Unemployment rate for immigrant household labor force* | *4.9% (-0.3%)* |
| *Unemployment rate for 31 big cities* | *5.1% (-0.1%)* |
| *Average weekly working hours* | *48.7 hours* |

***Index in the bracket:*** *YOY growth change compared to the previous month*

# China's macroeconomy is showing a stable growth from July to September 2024, highlighted by the following factors -- September

## An upward trend in industry output

| Enterprises above the designated size | 5.4% (+0.9%) |
|---|---|
| **By product type** | |
| *Oil & gas mining* | *2%* |
| *Wine & beverage & tea* | *5.6%* |
| *Electric power & heat* | *10.2%* |
| *Aerospace & shipbuilding* | *13.7%* |

## Continued (albeit relatively smaller) recovery of consumer prices

| CPI | 0.4% |
|---|---|
| *CPI (in urban areas)* | *0.4%* |
| *CPI (in rural areas)* | *0.6%* |
| **By category** | |
| *Food prices* | *3.3%* |
| *Consumer goods prices* | *0.5%* |
| *Services prices* | *2.2%* |

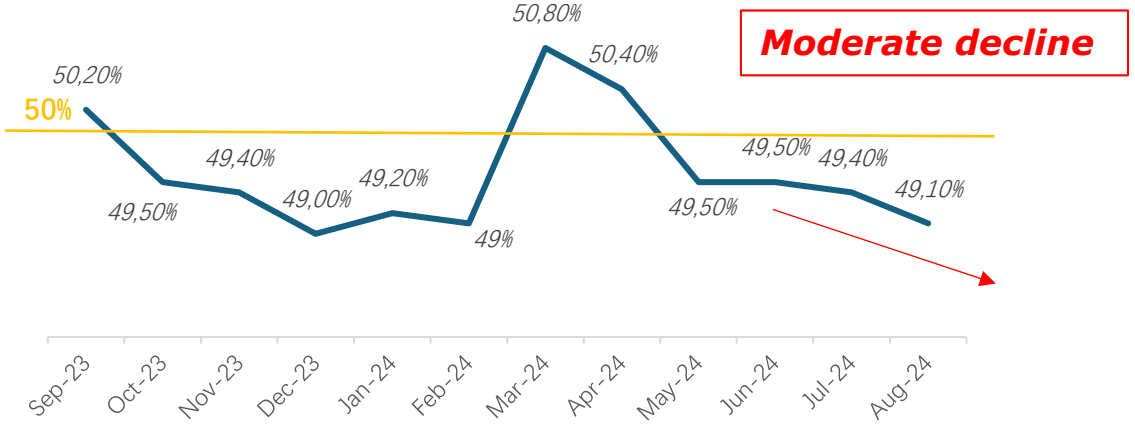
## Decent increase in business retail sales

| Retail sales of consumer goods | 4111.2 billion rmb (+3.2%) |
|---|---|
| *Retail sales of consumer goods excluding automobiles* | *3657.3 billion rmb (+3.3%)* |
| *By business operating location* | |
| *Retail sales in cities and towns* | *3504.4 billion rmb (+3.1%)* |
| *Retail sales in villages* | *606.8 billion rmb (+3.9%)* |

***Index in the bracket:*** *YOY growth change compared to the previous month*

# According to the Purchasing Manager Index (PMI), from August to October 2024, China's manufacturing industry trend has gradually shifted from a moderate decline to an expansion -- August

## PMI indexes (Sep 2023 - Aug 2024)




**Notes: A PMI index over 50 represents growth or expansion within the manufacturing sector compared with the prior month. A reading under 50 represents contraction, and a reading at 50 indicates an equal balance between manufacturers reporting advances and declines in their business.*

## Possible reasons for the decline

**1** August is the traditional "light season" (periods of the year with fewer business activities).

**2** Regional natural disasters, such as flooding and extreme weather events, inflict adverse impacts on industry operations.

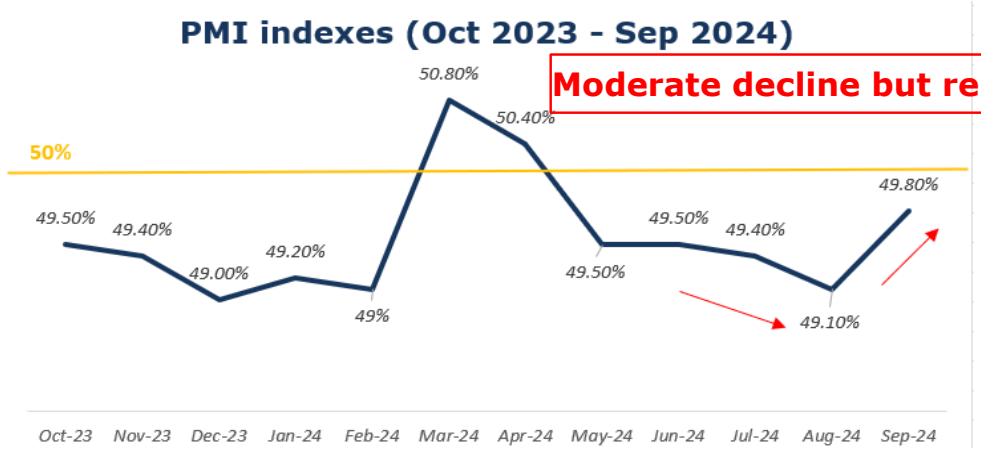
**3** Weak downstream demands as a result of downward economy pressure.

## PMI component indexes of the manufacturing industry

| | PMI | Production | New order | Raw material inventory | Employee | Supplier delivery time |
|---|---|---|---|---|---|---|
| Sep 2023 | 50.2 | 52.7 | 50.5 | 48.5 | 48.1 | 50.8 |
| Oct 2023 | 49.5 | 50.9 | 49.5 | 48.2 | 48.0 | 50.2 |
| Nov 2023 | 49.4 | 50.7 | 49.4 | 48.0 | 48.1 | 50.3 |
| Dec 2023 | 49.0 | 50.2 | 48.7 | 47.7 | 47.9 | 50.3 |
| Jan 2024 | 49.2 | 51.3 | 49.0 | 47.6 | 47.6 | 50.8 |
| Feb 2024 | 49.1 | 49.8 | 49.0 | 47.4 | 47.5 | 48.8 |
| Mar 2024 | 50.8 | 52.2 | 53.0 | 48.1 | 48.1 | 50.6 |
| Apr 2024 | 50.4 | 52.9 | 51.1 | 48.1 | 48.0 | 50.4 |
| May 2024 | 49.5 | 50.8 | 49.6 | 47.8 | 48.1 | 50.1 |
| Jun 2024 | 49.5 | 50.6 | 49.5 | 47.6 | 48.1 | 49.5 |
| Jul 2024 | 49.4 | 50.1 | 49.3 | 49.9 | 48.3 | 49.3 |
| Aug 2024 | 49.1 | 49.8 | 48.9 | 47.6 | 48.1 | 49.6 |

- The manufacturing industry displayed a moderate decline on an overall basis.
- The manufacturing industry was experiencing a mild recession in production.
- The market new order is, to some degree, lower than the previous level.
- The inventory of raw materials is significantly narrowing down.
- The overall employment situation is undergoing an observable drop.
- In comparison to the previous month, the delivery time for raw materials of suppliers shows a moderate extension.

# According to the Purchasing Manager Index (PMI), from August to October 2024, China's manufacturing industry trend has gradually shifted from a moderate decline to an expansion -- September




**Notes: A PMI index over 50 represents growth or expansion within the manufacturing sector compared with the prior month. A reading under 50 represents contraction, and a reading at 50 indicates an equal balance between manufacturers reporting advances and declines in their business.*

## Possible reasons for the recovery

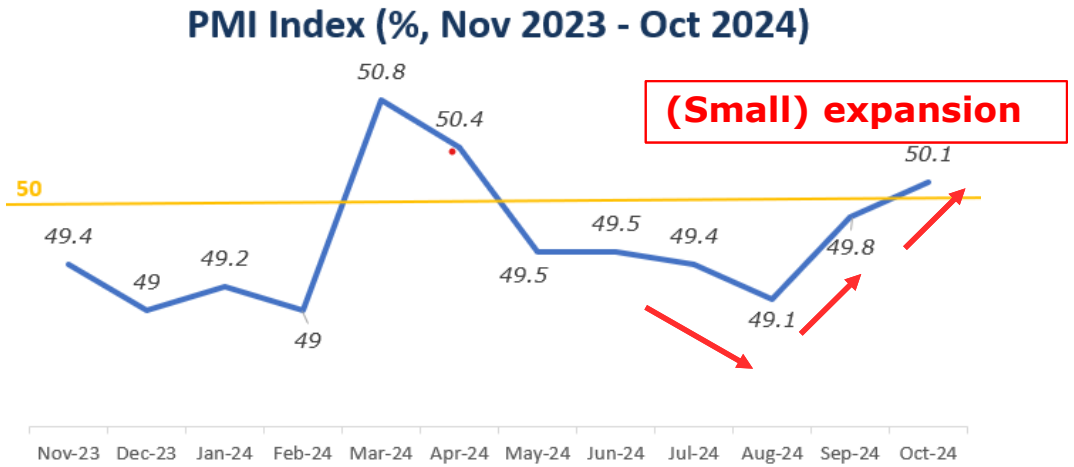
1. Some industry sectors have come to the "busy season" of the year (periods of time with more business activities).
2. Market demand for the manufacturing industry is gradually steadying.
3. Large-scale equipment renewal and consumer goods trade-in initiatives has been injecting vitality into the manufacturing industry.

## PMI and component indexes of the manufacturing industry

| | PMI | Production | New order | Raw material inventory | Employee | Supplier delivery time |
|---|---|---|---|---|---|---|
| Sep 2023 | 50.2 | 52.7 | 50.5 | 48.5 | 48.1 | 50.8 |
| Oct 2023 | 49.5 | 50.9 | 49.5 | 48.2 | 48.0 | 50.2 |
| Nov 2023 | 49.4 | 50.7 | 49.4 | 48.0 | 48.1 | 50.3 |
| Dec 2023 | 49.0 | 50.2 | 48.7 | 47.7 | 47.9 | 50.3 |
| Jan 2024 | 49.2 | 51.3 | 49.0 | 47.6 | 47.6 | 50.8 |
| Feb 2024 | 49.1 | 49.8 | 49.0 | 47.4 | 47.5 | 48.8 |
| Mar 2024 | 50.8 | 52.2 | 53.0 | 48.1 | 48.1 | 50.6 |
| Apr 2024 | 50.4 | 52.9 | 51.1 | 48.1 | 48.0 | 50.4 |
| May 2024 | 49.5 | 50.8 | 49.6 | 47.8 | 48.1 | 50.1 |
| Jun 2024 | 49.5 | 50.6 | 49.5 | 47.6 | 48.1 | 49.5 |
| Jul 2024 | 49.4 | 50.1 | 49.3 | 49.9 | 48.3 | 49.3 |
| Aug 2024 | 49.1 | 49.8 | 48.9 | 47.6 | 48.1 | 49.6 |

- The manufacturing industry is in a moderate decline, despite on a smaller scale compared to the previous month.
- The manufacturing industry shows an expansion in the aspect of production quantity.
- New market order is maintaining approximately stable after a prolonged decline, indicating signs of recovery.
- The overall employment situation observes a significant drop.
- In compared to the previous month, raw material delivery time for suppliers shows a moderate extension.

# According to the Purchasing Manager Index (PMI), from August to October 2024, China's manufacturing industry trend has gradually shifted from a moderate decline to an expansion -- October




**Notes: A PMI index over 50 represents growth or expansion within the manufacturing sector compared with the prior month. A reading under 50 represents contraction, and a reading at 50 indicates an equal balance between manufacturers reporting advances and declines in their business.*

## Reasons for the first expansion since May 2024

**1** Some sectors have come to the "busy season" of the year (periods of the year with more business activities).

**2** A series of supportive policies (lower bank reserve rate requirement, lower real-estate mortgage rate, huge monetary injection) carried out by the central government at the end of September significantly facilitates the recovery of the general economy including the manufacturing industry, but it cannot be told how long the positive policy impacts can be lasting.

## PMI and component indexes of the manufacturing industry

| | PMI | Production | New order | Raw material inventory | Employee | Supplier delivery time |
|---|---|---|---|---|---|---|
| Nov 2023 | 49.4 | 50.7 | 49.4 | 48.0 | 48.1 | 50.3 |
| Dec 2023 | 49.0 | 50.2 | 48.7 | 47.7 | 47.9 | 50.3 |
| Jan 2024 | 49.2 | 51.3 | 49.0 | 47.6 | 47.6 | 50.8 |
| Feb 2024 | 49.1 | 49.8 | 49.0 | 47.4 | 47.5 | 48.8 |
| Mar 2024 | 50.8 | 52.2 | 53.0 | 48.1 | 48.1 | 50.6 |
| Apr 2024 | 50.4 | 52.9 | 51.1 | 48.1 | 48.0 | 50.4 |
| May 2024 | 49.5 | 50.8 | 49.6 | 47.8 | 48.1 | 50.1 |
| Jun 2024 | 49.5 | 50.6 | 49.5 | 47.6 | 48.1 | 49.5 |
| Jul 2024 | 49.4 | 50.1 | 49.3 | 49.9 | 48.3 | 49.3 |
| Aug 2024 | 49.1 | 49.8 | 48.9 | 47.6 | 48.1 | 49.6 |
| Sep 2024 | 49.8 | 51.2 | 49.9 | 47.7 | 48.2 | 49.5 |
| Oct 2024 | 50.1 | 52 | 50 | 48.2 | 48.4 | 49.6 |

- The manufacturing industry is **showing an expansion (despite moderate)** after an extended period of decline.
- The production of the manufacturing industry is significantly improving.
- New market order remains unchanged compared to the previous month.
- The overall employment situation is still to-some-extent worsening.
- A slight extension on the delivery time of raw materials can be observed.

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# From January to August 2024, China's machine tool enterprises are generally making less profit in spite of a larger production(concentrated in Yangtze Delta Region)

*Key indexes of China's machine tool industry*
*(According to official data from January to August 2024)*

**Financial performance**

| | |
|---|---|
| *Operating income for key contact enterprises:* | *-3.5%* |
| *Total profits of key contact enterprises:* | *-9.9%* |

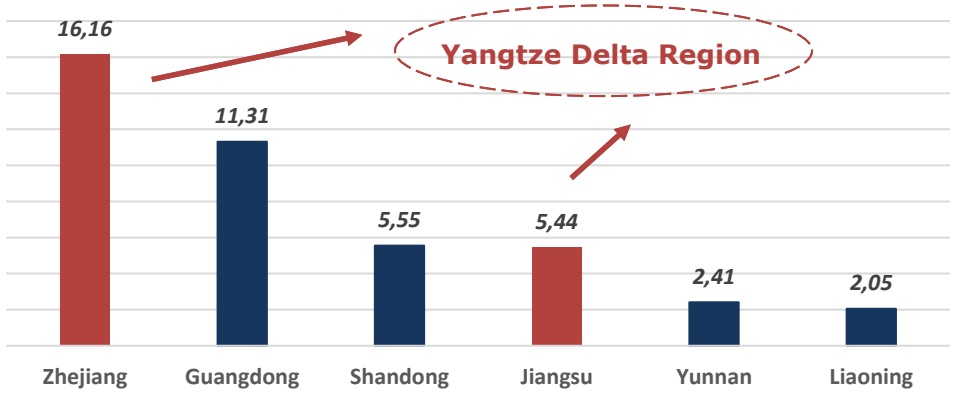
**Production quantity**

| | |
|---|---|
| *New orders for metal-forming machine tools:* | *+3.5%* |
| *Existing orders on hand for machine tools:* | *-0.3%* |
| *Production of metal-cutting machine tools:* | *+7.7%* |
| *Production of metal-forming machine tools::* | *+6.7%* |

**Exports & Imports**

| | |
|---|---|
| *Value of China's machine tool exports:* | *+11.64%* |
| *Value of China's machine tool imports:* | *-1.88%* |

**Metal-cutting machine tool production across regions (in 1000 units, Jan-Sep 2024)**




- *Provinces around the Yangtze River Delta Region are the leading construction site for metal-cutting machine tools, such as Zhejiang(1st) and Jiangsu(4th).*

- *On top of that, Guangdong and Shandong also produce a large quantity of metal-cutting machine tools, followed by other cities like Yunnan and Liaoning.*

# Italy's import of machine tools from China shows a comprehensive decline for all categories, while the export remains overall unchanged (data from May 2024)

*Italy's import and export of machine tools with Asian region (in millions of Euro)*

| | Import | | | Export | | |
|---|---|---|---|---|---|---|
| | Value | YOY change 2023-2024 | Percentage share | Value | YOY change 2023-2024 | Percentage share |
| **Asia** | 128.6 | -42.3% | 30.9% | 276.8 | +13.0% | 17.7% |
| **Oriental Asia** | 123.9 | -42.1% | 29.8% | 121.9 | -4.7% | 7.8% |
| **China** | 26.2 | -16.7% | 6.3% | 90.8 | -0.4% | 5.8% |
| **Worldwide total** | 415.8 | -42.6% | | 1565.8 | +12.1% | |

*Italy's import and export of machine tools with China (in millions of Euro)*

Marked blue are the respective indicators for worldwide total

| | | Value | YOY change | Percentage share of worldwide total |
|---|---|---|---|---|
| **Metal-cutting machine tools** | Import | 9.6 (291.7) | -14.6% (-38.7%) | 3.3% |
| | Export | 66.5 (683.8) | -7.1% (+10.8%) | 9.7% |
| **Metal-forming Machine tools** | Import | 6.5 (68.4) | -19.8% (-47.7%) | 9.5% |
| | Export | 18.8 (713.3) | +102.3% (+14.0%) | 2.6% |
| **Non-conventional technology machine tools** | Imports | 10.1 (55.7) | -16.5% (-52.3%) | 18.2% |
| | Exports | 5.5 (168.6) | -46.4% (+9.9%) | 3.3% |

## Key takeaways

- According to the official data on May 2024, Italy's import of machine tools from worldwide **decreased by close to a half**, similar to the import dynamics from both Asia and Oriental Asia. It's worth noting **that Italy's import from China was also dropping, but on a much smaller scale (-16.7%).**
- Italy's **export of machine tools to Asia was increasing** by a certain degree (+13%), while **the export to China remained approximately unchanged**.
- By category, **Italy's import from China was decreasing for all kinds of machine tools**. In terms of export**, a downward trend could be seen for metal-cutting and non-conventional technology machine tools**, but with a **significant increase (+102.3%) in metal-forming machine tools.**

# Italy's trade with China is on the decline in terms of both import and export, with exceptions on some machine tool categories (data from June 2024)

*Italy's machine tool imports and exports with Asian region (in millions of Euro)*

| | IMPORT | | | EXPORT | | |
|---|---|---|---|---|---|---|
| | Value | YOY change 2023-2024 | Percentage share | Value | YOY change 2023-2024 | Percentage share |
| **ASIA** | 147.3 | -46.3% | 29.5% | 337.6 | +9.9% | 18.0% |
| **ORIENTAL ASIA** | 142.0 | -46.3% | 28.4% | 142.2 | -10.9% | 7.6% |
| **CHINA** | 31.0 | -24.5% | 6.2% | 103.2 | -8.9% | 5.5% |
| **WORLDWIDE TOTAL** | 500.1 | -45.8% | | 1880.6 | +8.1% | |

*Italy's machine tool imports and exports with China (in millions of Euro)*

| | | VALUE | YOY CHANGE | PERCENTAGE SHARE OF WORLDWIDE TOTAL |
|---|---|---|---|---|
| **METAL-CUTTING MACHINE TOOLS** | Import | 11.4 (341.7) | -26.1% (-43.4%) | 3.3% |
| | Export | 76.6 (822.3) | -13.2% (+7.7%) | 9.3% |
| **METAL-FORMING MACHINE TOOLS** | Import | 7.5 (87.5) | -21.6% (-48.9%) | 8.6% |
| | Export | 19.9 (852.7) | +46.8% (+8.1%) | 2.3% |
| **NON-CONVENTIONAL TECHNOLOGY MACHINE TOOLS** | Imports | 12.0 (70.9) | -24.9% (-59.8%) | 30.7% |
| | Exports | 6.7 (205.7) | -41.9% (+10.0%) | 3.3% |

## Key Takeaways

- Italy's machine tool import is showing a comprehensive decline, with **the import from Oriental Asia dropping by close to a half** (-46.3%) on a year-on-year basis. Conversely, **the export is increasing on a worldwide basis** (+8.1%), despite a moderate decline to China (-8.9%).

- Italy's trade with China, **both import and export, is significant decreasing** for all machine tool categories, **with the exception of a big rise in metal-forming machine tool export** (+46.8%).

# Italy's machine tool trade with China is on a significant decline, except a large rise in Italy's metal-forming machine tool export to China (data from July 2024)

**Italy's machine tool imports and exports with Asian region**

**(In millions of Euro)**

| | Import | | | Export | | |
|---|---|---|---|---|---|---|
| | Value | YOY change 2023-2024 | Percentage share | Value | YOY change 2023-2024 | Percentage share |
| **Asia** | 166.3 | -46.9% | 26.9% | 398.0 | +8.0% | 17.7% |
| **Oriental Asia** | 160.6 | -46.2% | 26% | 165.9 | -12.7% | 7.4% |
| **China** | 37.8 | -22.9% | 6.1% | 120.5 | -12.9% | 5.3% |
| **Worldwide total** | 617.7 | -42.7% | | 2254.3 | +8.4% | |

**Italy's machine tool imports and exports with China by category**

**(In millions of Euro)**

Marked blue are the respective indicators for worldwide total

| | | Value | YOY change | Percentage share of worldwide total |
|---|---|---|---|---|
| **Metal-cutting machine tools** | Import | 13.4 (417.1) | -23.8% (-41.4%) | 3.2% |
| | Export | 88.6 (989.5) | -18.8% (+9.5%) | 9.0% |
| **Metal-forming Machine tools** | Import | 9.2 (110.2) | -22.3% (-44.0%) | 8.3% |
| | Export | 23.0 (1023.0) | +49.3% (+7.0%) | 2.2% |
| **Non-conventional technology machine tools** | Imports | 15.3 (90.4) | -22.4% (-46.5%) | 16.9% |
| | Exports | 8.8 (241.8) | -35.7% (+10.1%) | 3.7% |

## Key takeaways

- **Italy's machine tool import from the world is cut by close to a half** on a year-on-year basis, in line with the import dynamics from China despite on a smaller scale (down by close to a quarter).
- **Oriental Asia countries (China, Japan, South Korea) purchase the vast majority of Italy's machine tool export** to Asia; in terms of Italy's machine tool import from Asia, Oriental Asia countries and non-Oriental Asia countries are of similar importance for the product supply.
- Italy's **metal-forming machine tool export to China is on the rise**, amid **the overall downturn** of China-Italy machine tool trade.

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# Supply analysis: International machine tool manufacturers in China summary

- Background: among the top eight machine tool producing countries (and regions) in the world (in 2023), half are from Asia Pacific region, with China taking the lead in terms of production revenue.
- Japanese machine tool producers in China – renowned for global leading technology and high industry standards, particularly in CNC machine tools and automation technology.
- South Korean machine tool producers in China – gradually closing the gap with Japan, and offers products with relatively lower prices.
- Taiwanese (China) manufacturers in China – high applicability, holding a significant share in China's mid-tier market.
- Hass, Gleason, Hardinge, Hurco are the major active US manufacturers with entities in China market.
- The US manufacturing industry is gradually losing its dominance on the global stage.
- Germany is one of the largest machine tool exporters to China, with 13 machine tool facilities within Chinese border.
- Similar to Germany (and Italy), other European machine tool manufacturers also own facilities in China.
- European machine tool manufacturers all have unique characteristics in China's competitive market landscape.

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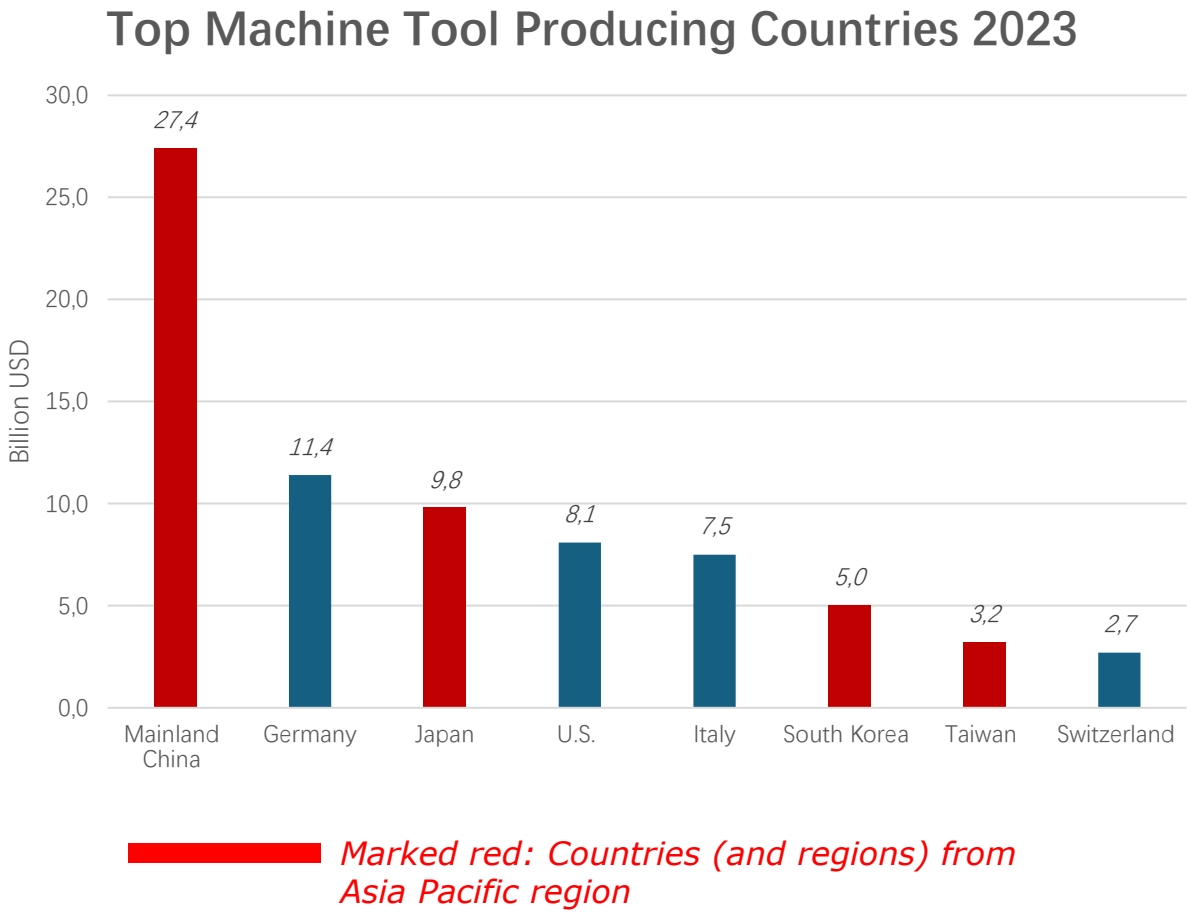
# Background: among the top eight machine tool producing countries (and regions) in the world (in 2023), half are from Asia Pacific region, with China taking the lead in terms of production revenue




- In 2023, the revenue of Asia Pacific machine tool market stood at 45.39 billion USD, accounting for **55.5% of the worldwide total.**
- Among the top eight machine tool producing countries (and regions), half are from the Asia Pacific region, specifically **Mainland China, Japan, South Korea and Taiwan(China), with Mainland China taking the lead** in terms of revenue.
- Machine tool **companies in Mainland China are mostly large state-owned enterprises**, while **companies in Japan, South Korea and Taiwan (China) are mostly small and medium-sized enterprises**, which are more **flexible and can more easily adapt to market changes**.

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# Japanese machine tool producers in China – renowned for global leading technology and high industry standards, particularly in CNC machine tools and automation technology

| Company | Background & Presence in China |
|---|---|
| **Mazak** | ▪ Founded in 1919, MAZAK is a global leading manufacturer known for its high-speed and high-precision CNC machines, including lathes and multi-tasking milling centers. It has a market significant presence with multiple manufacturing plants and extensive customer support network worldwide.<br>▪ Mazak's first entry into the Chinese market was in the early 2000s, and since then began to set up technical centers (Guangzhou, Shanghai, Dalian) and gradually expanded its investment in China.<br>▪ It has now established 2 factories in China located in Liaoning and Ningxia provinces respectively and has become one of the major players in the Chinese market.<br>▪ It is one of the first representatives of Japanese machine tool manufacturers to enter China and achieve success. |
| **Makino** | ▪ Makino was founded in 1937 and is one of the earliest manufacturers of CNC milling machines and machining centers in Japan.<br>▪ Makino established Makino Machine Tool (China) Co., Ltd. in Kunshan City, Jiangsu Province, China in 2002, marking its official entry into the Chinese market.<br>▪ Makino has established multiple technical centers in China to support customer needs and provide training & technical support.<br>▪ As China's manufacturing industry continues to upgrade, Makino Machine Tool continues to adjust its product lines to meet the needs of different industries, especially in the fields of aerospace, automotive and medical equipment. |
| **Okuma** | ▪ Okuma Corporation, founded in 1898, is Japan's leading CNC machine tool manufacturer, known for its high-precision and high-efficiency machine tools.<br>▪ The JV with Beijing Beiyi Machine Tool Co., Ltd BYJC-Okuma (Beijing) Machine Tool Co., Ltd. was established in 2002 to produce CNC lathes and machining centers. In 2007, Okuma Machinery (Shanghai) Co., Ltd. was established, and maintenance service centers & offices were established in Guangzhou, Jinan, Dalian, Wuhan, Chongqing, Xi'an, etc.. In 2019, Okuma (Changzhou) Machine Tool Co., Ltd. was established to produce certain machine tool series. |
| **DMG MORI** | ▪ DMG MORI was formed by the merger of Germany's DMG Company (formerly known as Gildemeister AG) and Japan's Mori Seiki Company. The two parties cooperated closely in the fields of R&D, production and sales, and together adopted the name "DMG MORI" .<br>▪ DMG MORI established its first subsidiary MORI SEIKI (SHANGHAI) CO., LTD. in Shanghai, China in 2001, as an official entry into the Chinese market.<br>▪ Currently, DMG MORI has more than 30 sales and service offices in China. |


*Source: Machine Tool Desk ITA Beijing Analysis, 2024*

# South Korean machine tool producers in China – gradually closing the gap with Japan, and offers products with relatively lower prices

| Company name | Background & Presence in China |
|---|---|
| **Doosan** | ▪ Doosan Machine Tools, now rebranded as DN Solutions, was founded in 1976 and is the largest machine tool manufacturer in South Korea.<br>▪ In 2023, Doosan Machine Tools ranked first in the Korean machine tool market with a market share of 49.7%.<br>▪ Doosan Machine Tools (China) Co., Ltd. was registered and established on July 1, 2003 in Shandong province. |
| **HYUNDAI WIA** | ▪ Hyundai WIA, originally established as Samwon Manufacturing Works in 1976, has evolved into a significant player in the machine tools industry.<br>▪ The company established Wia Automotive Parts Co., Ltd. in Jiangsu Province in 2005<br>▪ Until today, Hyundai WIA has been operating multiple facilities across China. |
| **Hwacheon** | ▪ Founded in 1952, Hwacheon is Korea's first machine tool manufacturer and has a reputation for producing high-quality CNC lathes and milling machines.<br>▪ Hwacheon entered the Chinese market in the early 2000s. Hwacheon Machine Tool's main production base in China is Hwacheon Machinery (DongGuan) Co., Ltd., located in Chang'an Town, Dongguan, Guangdong Province. |

*Source: Machine Tool Desk ITA Beijing Analysis, 2024*

# China Taiwan  manufacturers in China – high applicability, holding a significant share in China’s mid-tier market

| Company name | Background & Presence in China |
|---|---|
| **Tongtai** | ▪ Tongtai Machine & Tool Co., Ltd. was established in 1969 and is headquartered in Kaohsiung, Taiwan (China).<br>▪ In the early 1990s, Tongtai expanded into the Chinese market. In 2002, Tongtai established a production base in Suzhou, China.<br>▪ Tongtai has established multiple technology centers in Mainland China and continues to optimize its product lines, launching high-end machine tools demanded by Mainland China's manufacturing industry, such as 5-axis machining centersand multi-function compound processing machines. |
| **Victor Taichung** | ▪ Taichung Precision Machinery, founded in 1954, is a well-known machine tool manufacturer in Taiwan (China), famous for its production of positioning machine tools.<br>▪ Taichung started the investment in Mainland China in 1992, and has established its subsidiaries in Shanghai, Tianjin and Guangzhou. |
| **Johnford** | ▪ Established in 1984, Johnford entered the Mainland China market in the early 1990s.<br>▪ Johnford has established multiple production bases in Mainland China, among which the factory in Suzhou focuses on the production of high-precision CNC machine tools. |
| **FFG (Fair Friend Group)** | ▪ Founded in 1979 and headquartered in Taiwan (China), it is a global leading machine tool manufacturer group.<br>▪ FFG entered the Chinese market in 1993 and established Hangzhou Youjia Precision Machinery Co., Ltd.<br>▪ Apart from Asia market, FFG has also further expanded its market presence and technological capabilities in Europe through the acquisition of companies such as Italy's Grinding Technology S.R.L. and Industria Meccanica Applicazioni Speciali S.r.l. |


*Source: Machine Tool Desk ITA Beijing Analysis, 2024*

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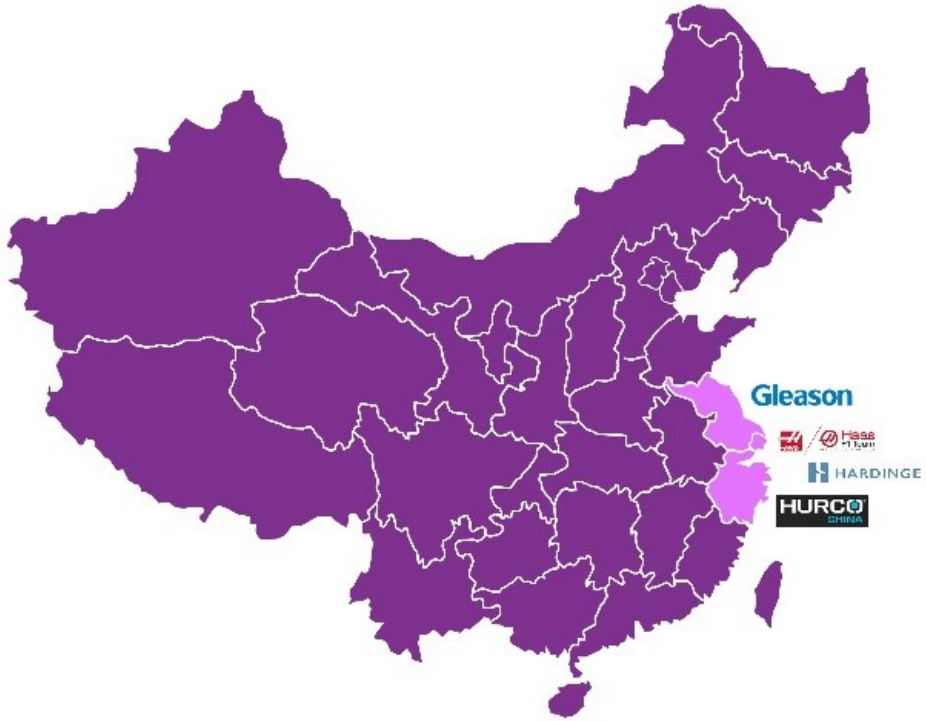
# Hass, Gleason, Hardinge, Hurco are the major active US manufacturers with entities in China market

| Company | Background | Company | Background |
|---|---|---|---|
| **Haas Automation Inc.** (哈斯) | ▪ Founded by Gene Haas in 1983, Haas Automation is now the largest machine tool manufacturer in the U.S.<br>▪ Haas Automation entered the Chinese market in 1995, already establishing a network of 25 Haas Factory Outlets (HFOs) and employing around 100 sales professionals for the local market up until now<br>▪ By 2017, Haas had sold over 13,500 units of machine tools in China. | **Hardinge Inc.** (哈挺) | ▪ Hardinge has built a strong reputation in the global market since the establishment in 1890. It once commanded 80% of the small and medium-sized ultra-precision turning tool market in the United States and Europe, thanks to its unique advantages.<br>▪ In 1996, a wholly owned subsidiary was established in Shanghai: Hardinge Machine Tool (Shanghai) Co., Ltd. This facility also serves as Hardinge's demonstration, training, and maintenance centre in China. |
| **Gleason Corporation** (格里森) | ▪ Established in 1865, Gleason Corporation is the global leader in gear technology, specializing in the manufacturing of cutting tools and gear production machinery.<br>▪ In 1986, Gleason Corporation officially established a sales office in Beijing. Over the past four decades, it has been consistently ranking first in China's high-end gear-related machinery and equipment market.<br>▪ In 2006, Gleason Gear Technology (Suzhou) Co., Ltd. was founded to further enhance its presence in China. | **Hurco Companies Inc.** (赫克) | ▪ Established in 1986, Hurco is now operating 12 independent wholly owned subsidiaries around the world and is on NASDAQ list.<br>▪ Hurco's China headquarter is located in Ningbo, with sales and service centres in Beijing, Dongguan, Chongqing, and Xi'an.<br>▪ Hurco machine tool showrooms are situated in Dalian, Shanghai, Wuxi, and Dongguan. |




*Source: Machine Tool Desk ITA Beijing Analysis, 2024*

# The US manufacturing industry is gradually losing its dominance on the global stage

## Early-mid 20th century

*The US was the industry leader in machine tool manufacturing. This leadership was largely attributed to the rapid industrialization in sectors such as automobiles and steel. Notably, the world's first CNC machine tool was developed at the Massachusetts Institute of Technology in 1951.*

## By the end of 1980s

*The US machine tool production had fallen to less than half that of Japanese and German firms combined. This decline was primarily due to a failure of adapting to changing market conditions and increasing competition from abroad, particularly Japan, which rapidly adopted and enhanced US technologies such as CNC.*

## Today

*The US still is the most advanced country in terms of machine tool technology, and primarily serves high-tech sectors such as aerospace, automobile manufacturing and medical equipment. And the US is the largest machine tool importer globally and second-largest consumer after China. However, its production is behind the key competitors Germany and Japan. In terms of exports, it ranked only 8th in 2023.*

## Several factors that contribute to the sluggishness of the US manufacturing industry

*Weaker strength of US dollar overseas*

*Higher labour costs at the domestic level*

*The extreme volatility of production cycles within the machine tool industry*

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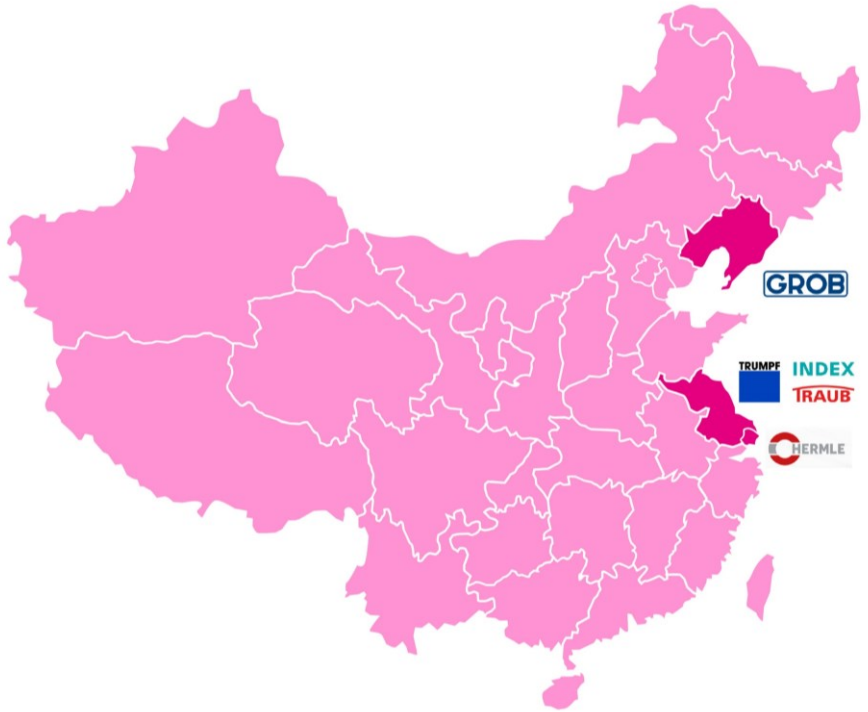
# Germany is one of the largest machine tool exporters to China, with 13 machine tool facilities within Chinese territory

| Company | Background |
|---|---|
| **TRUMPF SE + Co. KG** | ▪ Founded in 1923, TRUMPF has now established itself as a technological and market leader, particularly in flexible sheet metal processing.<br>▪ TRUMPF holds a significant global market share for machine tools and industrial lasers. |
| **GROB-WERKE GmbH & Co. KG** | ▪ Founded in 1926 (and commonly known as Grob), Grob-Werke GmbH & Co. KG, is a prominent manufacturer of CNC machines tools and production systems, especially for the automotive industry. |
| **INDEX-Werke GmbH & Co. KG** | ▪ Founded in 1914, INDEX-Werke Gmbh & Co.KG is known for its high-precision automated lathes and multi-purpose machining centers.<br>▪ Consisting of two (INDEX and TRAUB) prominent brands, the INDEX Group is today one of the world's leading manufacturers of CNC lathes. |
| **Hermle AG** | ▪ Founded in 1938, Hermle is a leading manufacturer of CNC milling machines and high-precision machine tools, with a focus on sectors such as aerospace, automotive, medical technology and optics.<br>▪ Hermle initially produced bolts and machine screws before extending into milling machines in 1957. |




*Source: Machine Tool Desk ITA Beijing Analysis, 2024*

# Similar to Germany (and Italy), other European machine tool manufacturers also own facilities in China

| Company | Country | Background |
|---|---|---|
| **EMCO GmbH** | Austria | ▪ EMCO has a rich history that dates back to its founding in 1947. Until now the company has evolved from producing lathes to specializing in CNC (computer numerical control) machines, including lathes, milling machines, and automation systems. |
| **Colchester Machine Tool Solutions Ltd.** | UK | ▪ As one of the UK's oldest machine tool manufacturers with the history dating back to 1886, Colchester is famous for its durable lathes and milling machines, which are widely used around the world. |
| **HARRISON LATHE** | UK | ▪ Founded in 1898, Harrison is known for its high-quality lathes and CNC machine tools, which are widely used in industries such as automotive and aerospace.<br>▪ The company offers various models of CNC and manual lathes. |
| **Fagor Arrasate S.Coop.** | Spain | ▪ Founded in 1957 as part of Mondragón Corporation (one of Europe's largest industrial groups), FAGOR specializes in forming and cutting solutions for materials. |
| **DANOBAT Group** | Spain | ▪ Founded in 1954, DANOBAT provides high-end metal processing solutions covering turning, milling and grinding; Widely used in the automotive and aerospace industries. |
| **Five Groups** | France | ▪ Founded in 1812, Fives is a leading global engineering group specializing in high-precision machine tools and automation solutions.<br>▪ The product portfolio covers many fields such as machining, turning, milling, and grinding. |

| Company | Country | Background |
|---|---|---|
| **Mikron Group** | Switzerland | ▪ Focusing on the development and production of high-precision automation solutions, machining systems and cutting tools.<br>▪ Mikron originated in the watchmaking industry in 1908, and has now extended the operations into multiple industries, including pharmaceuticals, medical technology, consumer goods, automotive and general engineering. |
| **Schaublin Machines SA** | Switzerland | ▪ Founded in 1915, Schaublin is famous for its high-precision lathes and milling machines, especially in the fields of watchmaking and precision engineering. |
| **Tornos AG** | Switzerland | ▪ Founded in 1914, Torns has been focusing on the development and production of high-precision automatic lathes and multi-spindle machine tools.<br>▪ As a pioneer in Swiss-type lathe technology, Tornos enjoys a strong reputation in multiple industries including automotive, medical, micromachining and electronics. |
| **Starrag Group** | Switzerland | ▪ Starrag, founded in 1897, specializes in the production of high-precision machine tools for milling, turning, boring and grinding of metals, composites and ceramic materials. |
| **GF Machining Solutions** | Switzerland | ▪ GF Belongs to the 200-year-old Georg Fischer Group, which was founded in 1802.<br>▪ GF has been focusing on providing high-end machine tools, automation solutions & services, and precision components to the mold manufacturing industry. |

*Source: Machine Tool Desk ITA Beijing Analysis, 2024*

# European machine tool manufacturers all have unique characteristics in China's competitive market landscape

| | |
|---|---|
| Germany | High precision and stability machine tool products |
| UK | Efficient grinding machines |
| Austria | Diverse modular designs and vocational training systems |
| Spain | Technological innovation (concentrated in a few top-notch brands) |
| France | High-precision processing and comprehensive solutions, particularly in the aerospace and automotive industries |
| Switzerland | Exceptional precision and stability of machine tools |

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# Downstream application industries summary

## 3C

- *3C (computers, communications, and consumer electronics) industry has been a significant downstream market for CNC machine tools with various machining processes.*
- *China's 3C industry is concentrated in coastal regions (east and south), with inland and western regions gradually catching up.*
- *The HQ locations of China's 3C manufacturers.*

## Aerospace

- *China's rising aerospace industry also drives up the market demand of related machine tools.*
- *An increasing registration rate of aerospace-related companies can be observed, most of which are concentrated in Guangdong and Shaanxi provinces.*
- *China's aerospace industry landscape is represented by several major market players.*

## Shipbuilding

- *CNC Machine tools are applied in the shipping industry, in various manufacturing processes.*
- *China is home to several of the world's largest shipbuilding manufacturers, which are concentrated in coastal areas.*
- *The expansion in the shipbuilding industry leads to a rising demand for machine tools.*

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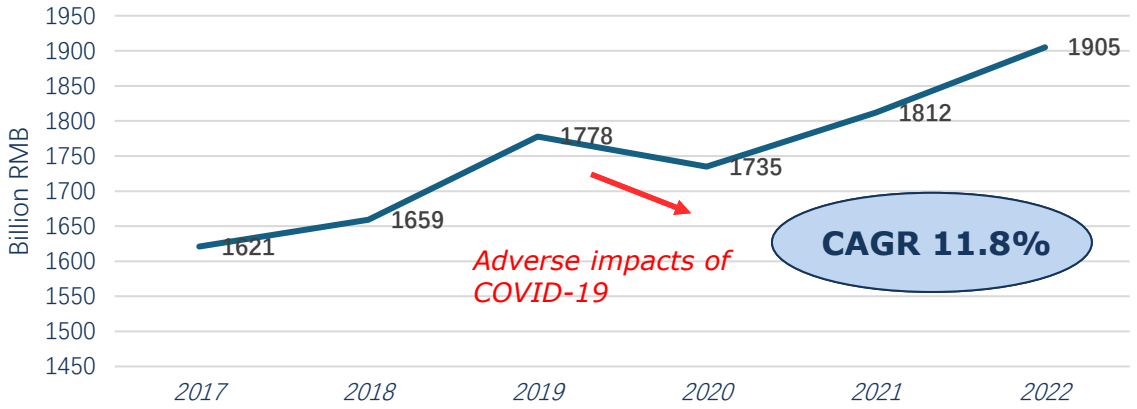
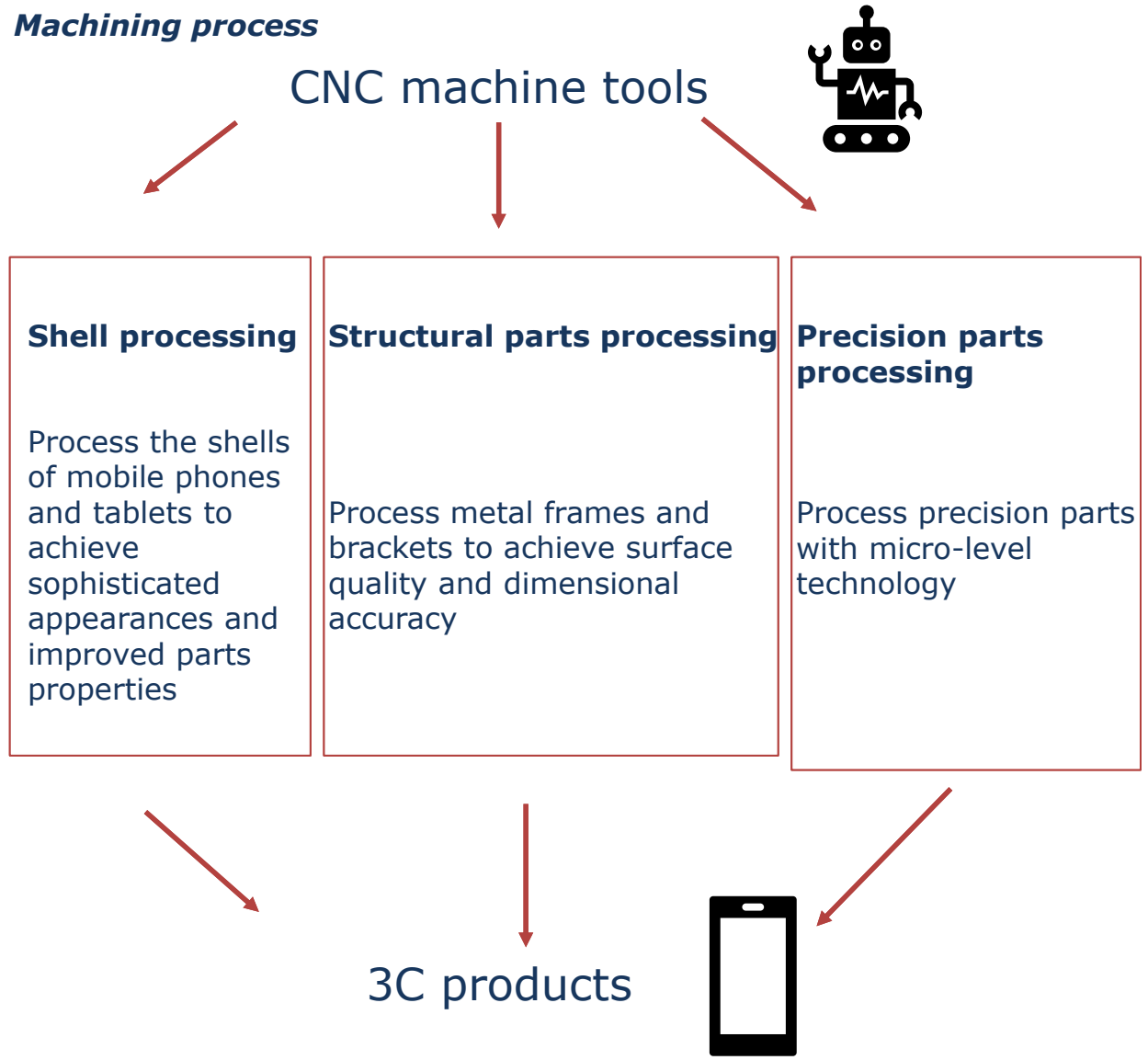
# 3C (computers, communications, and consumer electronics) industry has been a significant downstream market for CNC machine tools with various machining processes

*From 2017 to 2022, the scale of China's 3C industry exhibited an overall expansion of **CAGR 11.8%** (1612 billion rmb to 1905 billion rmb), aside from **a slight decline in 2020** due to the adverse impacts of COVID-19. This indicated a **steady and orderly development** of the domestic 3C industry.*

## Market Size of 3C industry in China (2017-2022)




***Machining process***



# China’s 3C industry is concentrated in coastal regions (east and south), with inland and western regions gradually catching up

**Northern China**, including Beijing, Tianjin and Hebei: has a certain number of 3C companies. As one of country's technology and innovation centers, Beijing has attracted many high-tech enterprises and startups.

**Southwestern regions** such as Sichuan and Chongqing: are gradually developing 3C industries, especially in the fields of consumer electronics and smart hardware.

**Central China,** containing provinces such as Hubei and Henan: had a been actively developing the 3C industry in recent years, especially in the electronics manufacturing & assembly sector.

**Eastern China**, including Shanghai, Jiangsu and Zhejiang: another core area of China's 3C industry, with a high degree of economic development and strong market demand. This region also has many well-known 3C companies and a complete industrial chain.

**Southern China**: especially Guangdong Province, is an important birthplace of the 3C industry. In particular, Shenzhen city is a world-renowned electronic product manufacturing center, and had attracted large investments from both domestic and foreign companies.

# The HQ locations of China’s 3C manufacturers

| Company | HQ | Main Production Base |
|---|---|---|
| Xiaomi | *Beijing* | *Beijing* |
| Huawei | *Shenzhen, Guangdong* | *Guangdong* |
| Lenovo | *Beijing* | *Beijing, Hubei, An’hui , Guangdong* |
| OPPO | *Dongguan, Guangdong* | *Guangdong* |
| VIVO | *Dongguan, Guangdong* | *Guangdong, Chongqing* |
| ZTE | *Shenzhen, Guangdong* | *Guangdong, Jiangsu* |
| TCL | *Huizhou, Guangdong* | *Guangdong, Sichuan* |
| APPLE | *Beijing* | *Henan, Guangdong* |
| DELL | *Xiamen, Fujian* | *Fujian, Sichuan, Jiangsu* |
| SAMSUNG | *Beijing* | *Shaanxi* |
| Microsoft | *Beijing* | *Fujian, Jiangsu, Chongqing* |
| Haier | *Qingdao, Shandong* | *Shandong* |
| Midea | *Foshan, Guangdong* | *Guangdong* |
| Hisense | *Qingdao, Shandong* | *Shandong* |


*Source: Machine Tool Desk ITA Beijing Analysis, 2024*

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# China’s rising aerospace industry also drives up the market demand of related machine tools

## Aerospace industry

*(typically need large, composite, precise and multi-axis linkage machine tools with high rigidity and efficiency, to cut difficult-to-machine materials).*

***End products**: discs, blades, aircraft engine turbines, spacecraft structural parts*

## Categorization

**Civil aerospace industry**

**Military aerospace industry**

## Market dynamics

*1)Civil aerospace **industry output** increased from 376.42 billion yuan in 2015 to over a trillion yuan in 2020, reflecting a **CAGR of over 22%.***
*2)Boeing forecasts that, due to the rising needs of passenger traffic and fuel-efficient fleets, China’s **civil airplane fleets will more than double by 2043**, increasing from 4345 to approximately 9740 units of aircrafts.*
*3)China will continue the path towards **self-sufficiency**, with government and enterprise support such as COMAC, so as to reduce reliance on western aircraft manufacturers.*

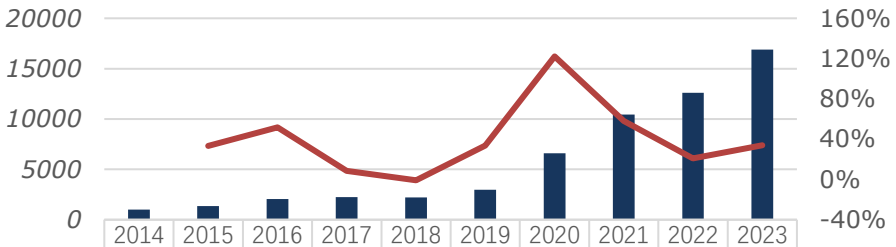
*From 2013 to 2023, **China’s national defense budget nearly doubled**, with a CAGR of approximately 7%, **including financial supports, technological innovation subsidies and equipment modernization funds** for China’s military aerospace industry.*
*The current focus is to develop advanced fighter jets, missiles and space capabilities.*

## Impacts on machine tools

***Demand for aerospace products has been surging** – particularly for civil aircrafts and satellites. This surge in turn leads to **higher order volumes of related machine tools**, especially high-end CNC equipment capable of producing precise and reliable components from advanced materials.*

# An increasing registration rate of aerospace-related companies can be observed, most of which are concentrated in Guangdong and Shaanxi provinces

## Registration volume and growth rate of commercial civil aerospace-related companies (2014-2023)

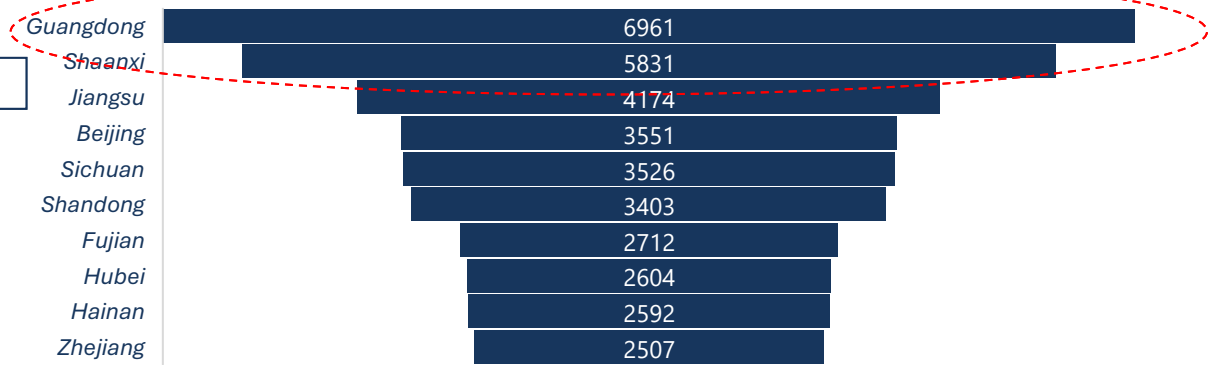



| | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 |
|---|---|---|---|---|---|---|---|---|---|---|
| number of registered enterprises | 1022 | 1362 | 2067 | 2246 | 2227 | 2972 | 6602 | 10432 | 12610 | 16889 |
| annual growth | | 33,27% | 51,76% | 8,66% | -0,85% | 33,45% | 122,14% | 58,01% | 20,88% | 33,93% |

The volume of business registrations has been experiencing an upward trend, while the growth rate of registration is not as high as that before 2020.

- Guangdong and Shannxi are the top places for aerospace-related company registration, followed closely by Beijing and Jiangsu.
- Note:While major projects and core technologies are dominated by state-owned enterprises, private enterprises and joint ventures are beginning to participate in this industry, particularly in emerging sectors such as drones and satellites.

## Geographical distribution of civil aerospace related companies (top 10 provinces)



# China’s aerospace industry landscape is represented by several major market players.

| Company name | Introduction | Company Name | Introduction |
|---|---|---|---|
| **The Aviation Industry Corporation of China (AVIC)** | ▪ Established in 2008 in Beijing, Aviation Industry Corporation of China, Ltd (AVIC), a state-owned aerospace group, is a major player on the global stage.<br>▪ With over 100 branches and 27 subsidiaries, AVIC is a Fortune 500 company and one of China's largest ten industrial corporations.<br>▪ AVIC operates in the fields of military aircraft, civil aircraft, aviation weapons & equipment, etc.<br>▪ As China's largest aviation manufacturing company, AVIC is committed to the R&D and production of civil and military aircraft, covering the entire industrial chain from aircraft design to aircraft manufacturing finalization. | **China Aerospace Science & Industry Corporation (CASIC)** | ▪ Established in 1999 in Beijing, CASIC Group is involved in the design and manufacturing of various types of spacecrafts, including artificial satellites, manned spacecraft and deep space probes.<br>▪ CASIC is committed to the civilianization of aerospace technology and the development of satellite applications, information technology and aerospace service industries. |
| **Commercial Aircraft Corporation of China, Ltd. (COMAC)** | ▪ Established in 2008 in Shanghai, the Commercial Aircraft Corporation of China (COMAC) focuses on the R&D, manufacturing, flight testing and other related services of civil aircrafts It is also responsible for reducing China’s reliance on Western manufacturers. | **Aero Engine Corporation of China (AECC)** | ▪ Established in 1999 in Beijing, AECC is a major player in China's aerospace field, responsible for the R&D, design, manufacturing and launching services of aerospace products. |
| **China Aerospace Science and Technology Corporation (CASC)** | ▪ Established in 1997 in Beijing, China Aerospace Science and Technology Corporation (CASC) is the leading force in China's aerospace science and technology industry.<br>▪ CASC’s business involves launching spacecrafts (including manned spacecrafts), artificial satellites, and strategic & tactical missiles. The "Shenzhou" series of manned spacecrafts and the "Long March" series of launch vehicles are the company's most famous products. | | |

*Source: Machine Tool Desk ITA Beijing Analysis, 2024*

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# CNC Machine tools are applied in the shipping industry, in various manufacturing processes

## CNC machine tools

## Manufacturing processes

- Precision machining and cutting
- Mold manufacturing

  *(shortening the production cycle; improving the mold consistency/ repeatability)*
- Deck dressing

  *(cutting, grinding and dressing decks)*
- *Rib and stringer processing*

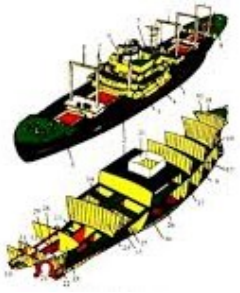
## End products

- Ship hulls, decks, internal structures

- Curves and complicated components of ship hulls

- Flattening the deck surface

- Key components of the hull structure



# China is home to several of the world's largest shipbuilding manufacturers, mostly concentrated in coastal areas

| Company | HQ location | Introduction |
|---|---|---|
| **China State Shipbuilding Corporation (CSSC)**<br>中国船舶集团有限公司 | Beijing | ▪ CSSC is the largest shipbuilding company in the world, formed in 2019 through the merger of two major entities - China Shipbuilding Industry Corporation (CSIC) and the former CSSC. It commands about 20% of the global market share.<br>▪ By the merger of former CSSC and CSIC, the group now owns 104 scientific research institutes, business units and listed companies. CSSC also has the largest shipbuilding and repair base in China.<br>▪ CSSC specializes in building a wide range of vessels, including LNG carriers, Very Large Crude Carriers (VLCCs), and military warships. Its major shipyards include Jiangnan Shipyard, Hudong-Zhonghua Shipbuilding, and Shanghai Waigaoqiao Shipbuilding. |
| **China Shipbuilding Industry Corporation (CSIC)**<br>中国船舶工业集团有限公司 | Beijing | ▪ As part of the post-merged CSSC, CSIC remains a significant entity within the industry, focusing on naval shipbuilding and advanced marine engineering projects.<br>▪ CSIC has contributed to China's defense capabilities and has a strong presence in military ship construction. |
| **Dalian Shipbuilding Industry Company (DSIC)**<br>大连船舶重工集团有限公司 | Liaoning | ▪ As one of the largest shipbuilders in China (also part of CSSC), DSIC has a long history and is known for building a variety of vessels, including naval ships and commercial vessels.<br>▪ It operates extensive facilities in Dalian, with capabilities for large-scale production and advanced technology integration. |

| Company | HQ location | Background |
|---|---|---|
| **Shanghai Waigaoqiao Shipbuilding (SWS)**<br>上海外高桥造船有限公司 | Shanghai | ▪ SWS is a leading ship manufacturer in Shanghai, renowned for its specialization in large container ships and offshore platforms.<br>▪ SWS has delivered numerous complex vessels and is a significant player in both domestic and international markets. |
| **COSCO Shipping Heavy Industry**<br>广东中远海运重工有限公司 | Guangdong | ▪ As a subsidiary of COSCO Shipping, COSCO Shipping Heavy Industry focuses on building various types of vessels, including bulk carriers and specialized ships. |
| **Hudong-Zhonghua Shipbuilding (Group) Co., Ltd.**<br>沪东中华造船（集团）有限公司 | Shanghai | ▪ As another major subsidiary under CSSC, Hudong-Zhonghua specializes in high-tech vessels such as LNG carriers.<br>▪ Hudong-Zhonghua recently secured contracts for ultra-large LNG carriers, partly attributed to advanced maritime technologies. |

*Source: Machine Tool Desk ITA Beijing Analysis, 2024*

# The expansion in the shipbuilding industry leads to a rising demand for machine tools

## Domestic demand

*According to China Association of the National Shipbuilding Industry, in the first half of 2024,*

1 China's shipbuilding completion volume (bulk carriers, container ships, sophisticated naval vessels) **reached 25.02 million deadweight tons (YOY increase of 18.4%).**

2 New orders placed reached **54.22 million deadweight tons(YOY of 43.9%).**

3 **Over 75% of the world's new ship orders** flow to China.

4 Projected annual **profits in 2024 tripling that of 2023**.

+

## International demand

*According to Statista estimations, the global shipbuilding market size is expected to increase from 152 billion USD in 2022 to 195 billion USD in 2030, with a **CAGR of 3.2%.***

Driving factors for the growth:

1 An increased demand for **energy-efficient vessels** out of climate change concern.

2 **Rising seaborne trade**.

3 **Supportive governmental policies** from global dominant shipbuilding nations, such as China, Japan, and South Korea.

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## Outcome

The expanding shipbuilding industry drives up the demand for high-precision and high-performance machine tools, such as CNC gantry boring & milling machines and five-axis linkage CNC machine tools, that are mainly used to process key components of large propelers and medium-and-low speed diesel engines.

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# Regulations & Policy initiatives of the machine tool industry summary

## Green Energy

- *In order to achieve carbon neutrality, a series of "Green Energy"policies have been implemented in the area of carbon reduction and energy conservation.*
- *China's National Energy Administration outlined three key energy goals for 2024.*
- *Huge potential exists for the technological and commercial collaboration between China and Europe.*

## New High-Quality Productivity Forces"

- *China sets developing "New High-Quality Productivity Forces" (新质生产力) as the latest policy agenda.*
- *Essence of "New High-Quality Productivity Force" are illustrated by the central government.*
- *Local governments are hashing out a wide diversity of policy initiatives to practice "New High-Quality Productivity Forces".*
- *Enterprises are also delivering values to push the policy initiative forward.*

## Digital Transformation

- *A series of policy guidelines has been put out by the central government to achieve the digital transformation of the manufacturing industry.*
- *Regional governments are putting policies into practice in response to the central government guideline.*

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# In order to achieve carbon neutrality, a series of "Green Energy " policies have been implemented in the area of carbon reduction and energy conservation

**China's energy market blueprint**

**Oil:** The consumption rebounded after the pandemic; reached 760 million tons in 2023; peak at 800 million tons in the duration of 14th FYP (2021-2025); decline to 280 million tons by 2060.

**Natural gas:** The consumption grew to 395 billion cubic meters in 2023; peak at 600 billion cubic meters in 2040; decrease to 400 billion cubic meters in 2060.

**Non-fossil energy:** The consumption increased to 990 million tons of standard coal equivalent in 2023; exceed 3 billion tons by 2045; land at 4 billion tons by 2060.

**Actions for carbon reduction and energy reservation**

The integration of **electricity and hydrogen power**

- Electricity will become the largest category of end-use energy by 2025.
- Electrification & hydrogenation rate of end-use energy increases from 32% to 35% (2030) and to 69%(2060)

**Outcomes for carbon reduction and energy policies**

China becomes **the forerunner of green technology and clean energy**

In 2023, China contributed 60% of electric vehicle sales; 50% of wind & solar installations; 30% of nuclear energy deployments, globally.

**Concerns on energy security**

Other countries' purchasing decisions were based **on real security concerns rather than bias against China**. Despite the fact that China's sophisticated supply chain allowed it to produce high-quality green-energy products at competitive prices, many countries were also seeking to diversify their energy sources, by means such as boosting domestic production, to ensure their own energy security.

# China's National Energy Administration outlined three key energy goals for 2024

## Ensuring a stable energy supply

A stable energy supply is crucial for economic stability and continuous social development, which can be learnt from the energy scarcity events in Germany:

**Power outage – soaring electricity prices for business (and households) – business face bankruptcy – tremendous pressure on individuals and the country as a whole**

Action plans:

- National energy production to reach 4.98 billion tons of standard coal equivalent.
- An increase in coal, crude oil and natural gas production.
- Power generation capacity to reach approximately 3.17 billion kilowatts.

## Continuous improvement in the energy structure

According to the goals set in "2024 Energy Work Guiding Opinions", in the near future,

- The share of electricity generation from non-fossil energy sources to reach 55%.
- Wind & solar power to contribute more than 17% of total energy generation.
- The proportion of non-fossil energy consumption to rise to around 18.9%.
- Increasing the share of natural gas and electricity consumption in end-use applications.

However, it is worth noting that out of energy security concerns and the changing international situations, China's energy strategy had not greatly deviated from a **balanced approach of development** between fossil (traditional form of reliable power supply) and non-fossil energy sources (environment-friendly power supply).

## Enhancement on the quality and efficiency of energy use

Background:

- More than 10% of the industrial components, such as steel, non-ferrous metals, petrochemicals and building materials, currently fall below energy efficiency benchmarks.
- Over 60% of the existing equipment, including motors, boilers, and transformers, is less efficient than the advanced global standards.
- More than 1/3 of the buildings do not meet domestic energy-saving criteria.

Action plans:

The Chinese government was promoting **major technology upgrading and equipment renewal projects, as a way to modernize the traditional industries**, including industry, textiles, machinery and building material industries.

# Huge potential exists for the technological and commercial collaboration between China and Europe

Strategic collaboration between China and Europe, in the areas of green-tech and clean energy

**Strengths of Europe**

*Taking the lead in high-end and environment-friendly chemicals and materials.*

**China's actions**

*Import chemicals/materials in a large quantity to produce advanced materials like specialty plastics and surfactants.*

**Strengths of China**

*Front-running EV technologies*

**Europe's actions**

- *BYD opened up the first Chinese EV plant in Hungary in 2023*
- *The Industry Minister of Italy is attracting investments from Chinese carmakers, such as BYD, Chery and Great Wall motors, into local regions.*
- *Some other European countries import solely China's EV technologies into their existing manufacturing process (so that local business won't lose competence)*

**Case study: Long-term strategic partnership between Sinopec and TotalEnergies**

A long-term agreement is signed between Sinopec (China) and TotalEnergies (France), covering areas **including new energy development, natural gas & LNG exploration, and the energy refining process**. These two companies would also collaborate on the **R&D of low-carbon technologies, such as green hydrogen, carbon capture and sustainable aviation fuel**.

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# China's latest growth agenda sets developing "New High-Quality Productivity Forces" (新质生产力)

"New High-Quality Productivity Forces" is the latest growth driver for China, with a series of major differences from the traditional growth model.

*---National Development and Reform Commission*

| ***Policy goals*** | ***Changing business dynamics*** |
|---|---|
| Major technological breakthroughs | Rising new industries |
| Innovative use of productive resources | Renewing business models |
| Qualitative improvements in workers & materials & processes | Changing social production relationships |
| Significant industrial upgrading | …… |
| …… | |

# Essence of "New High-Quality Productivity Force" are illustrated by the central government

*Sep 2023* — President Xi introduced the concept of "New High-Quality Productive Forces" during his visit to Heilongjiang

*Dec 2023* — The term "New High-Quality Productive Forces" was officially illustrated in the Central Economic Work Conference, highlighting the need to drive industrial progress by leveraging technology innovation.

*Jan 2024* — Three key points were outlined, by the Central Finance Office, for cultivating "New High-Quality Productive Forces":
1) Develop a workforce containing strategic talents who can foster new productivity, and skilled practitioners who can effectively utilize new production tools.
2) Focus on mastering core technologies to empower emerging industries.
3) Create efficient production relationships to ensure a smooth resource flow.

*Jan 2024* — President Xi emphasized the importance of accelerating the cultivation on "New High-Quality Productive Forces" to achieve high-quality growth.

*Apr 2024* — Xinhua News Agency criticized some regions for blindly pursuing "novelty" and putting product quality behind, saying that enterprises should focus on technology that leads to high-quality productivity.

# Local governments are hashing out a wide diversity of policy initiatives to practice "New High-Quality Productivity Forces"

*Jul 2023*

**Liaoning Province: Industrial transformation and opportunities for old business (old trees sprouting new shoots)**

Liaoning is a province with many traditional sectors and old industry bases. The government encouraged traditional business to actively adapt into technology revolution and industrial transformation, promote the construction of a modern industrial system, as well as accelerate the cultivation of new productivity on both new and old "tracks". The end goal is to transform Liaoning from a traditional manufacturing hub into an intelligent industrial hub.

*Apr 2024*

**Guangdong & Zhejiang Province: Modern industrial system**

The 2024 Government Work Report stresses the importance of building a modern industrial system, focusing on innovation and moving away from traditional economic growth models. This involves developing cutting-end technology, improving producing quality/efficiency, creating strong connections between industry sectors (innovation, talent, manufacturing, services), and enhancing competitiveness on the international stage.

*Aug 2024*

**Jiangsu Province: Transformation for traditional industries and support for SMEs**

Traditional industries like steel, petrochemicals, textiles, and light industry, form the foundation of Jiangsu's manufacturing sector, said Shi Xiaopeng, Deputy Director of the Provincial Department of Industry and Information Technology. To transform/revitalize the local industries, Jiangsu government implements the "Six Batches" strategy, targeting those sectors with a wide range of initiatives, including free inspections, outdated technology upgrading and financial services. Moreover, a public service system is established for small and medium sized enterprises, as a way to cultivate the "New High-Quality Productive Forces".

# Enterprises are also delivering values to push the policy initiative forward

*Apr 2024*

**Trumpf China (foreign): Achieving "New High-Quality Productive Forces" through advanced technology and superior product performance**

As a global high-tech enterprise with 24 years' experiences operating in China, Trumpf China's business covers areas such as automotive, new energy, consumer electronics, semiconductors and medical devices, respected for the ongoing technological innovation and high-quality products.

With world-leading intelligent manufacturing & precision machining technologies and laser processing solutions, Trumpf China is able to produce with superior performance, standing out in the increasingly fierce competition landscape in China, and therefore achieving new quality productivity. It is the only manufacturer capable of providing light sources for EUV lithography machines.

*May 2024*

**Comau (Foreign): Digitalization in intelligent manufacturing**

Specialized in areas like machine tool body assembly, electric drive processing and battery manufacturing, Comau, a leading automation system integrator, is offering digitalization solutions to the industrial processes. With data-driven approaches, equipment interconnectivity, and digital management tools to help OEMs optimize the production processes, Comau is delivering values to help China develop "New High-Quality Productive Force" (in electric vehicles, warehousing, logistics and renewable energy sectors).

*Jun 2024*

**Kede CNC (Domestic): Self-developing high-end five-axis linkage CNC machine tools**

For a long time, China has been heavily reliant on the imports of high-end five-axis linkage CNC machine tools. In order to break free from foreign technology control and then end the reliance, Kede CNC spent 20 years in R&D and product iterations. Now it has achieved full independence over key components of high-end five-axis linkage CNC machine tools, becoming the only listed company in China with this production line.

*Jul 2024*

**Chongqing Machine Tool Group (Domestic): Large-Scale Equipment Renewal and Consumer Goods Trade Initiative**

Currently, China is fully self-sufficient in the production of middle and low-end CNC machine tools. But in order to meet the changing market demand and supply, enterprises like Chongqing Machine Tool Group are required to renewal the existing equipment, promote the substitution of high-end CNC machine tools, and accelerate the digital transformation of the manufacturing sector, as per the policy initiative "Serval Measures to Strengthen Support for Large-Scale Equipment Renewal and Consumer Goods Trade".

*Aug 2024*

**Genertec (Domestic): Capture the future trends (green, high-end, intelligent) of the manufacturing industry**

Dedicated to advancing the high-end, intelligent, and green capabilities of the machine tool industry, Genertec is enhancing digital & intelligent manufacturing, developing high-end product structures, creating intelligent machines & smart factories, as well as innovating green technologies, on a pathway to achieving new quality productivity.

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# A series of policy guidelines has been put out by the central government to achieve the digital transformation of the manufacturing industry

**Dec 2021**

The Ministry of Industry and Information Technology (MIIT), along with several other departments, issued the "14th Five-Year Plan for Intelligent Manufacturing Development", with the following goals:

1) 70% of large-scale manufacturing enterprises to achieve digital networking by 2025; digital networking to be fully implemented throughout the sector by 2035.
2) Establishing over 500 intelligent manufacturing demonstration factories.
3) Significantly improving production efficiency, product quality, and utilization.

**Apr 2024**

MIIT Vice Minister stated that the efforts would focus on accelerating the construction of digital infrastructure, including the industrial internet, gigabit optical networks, and computing power centers.

**May 2024**

The National Development and Reform Commission (NDRC), and the National Data Bureau issued the "Digital Economy 2024 Work Guidelines", outlining nine priorities, including accelerating industrial digital transformation, fostering digital technology innovation, improving public services, strengthening digital governance, and enhancing digital security.

**May 2024**

Liu Liehong, a member of the NDRC, emphasized the focus on green and low-carbon development in the process of digital transformation, with the goal of building a circular and environmental-friendly economy.

# Regional governments are putting policies into practice in response to the central government guideline -- Beijing

## Implementation Plan for the Digital Transformation of the Manufacturing Industry (2024-2026)

### Main Goals

- **Achieve full digitalization**: Establish a complete set of standards to help manufacturing companies transition through digital & intelligent upgrades.
- **Enhance the supply capability of digital transformation**: Increase the supply of intelligent equipment, industrial software, and system solution.
- **Improve the effectiveness of digital transformation:** Focus on Beijing's high-end cutting-edge industries, establish national-level intelligent manufacturing demonstration companies ("world lighthouse factories")
- **Enhance the Beijng-Tianjin-Hebei Coordinated Smart Manufacturing Ecosystem**: Establish secondary industrial internet identification nodes in the three regions, with over 60,000 service nodes.

### Supportive Measures

- Companies that have been in operation for over two years are encouraged to fully embrace digital transformation, supported by Beijng's local policies. For new companies, the level of digitalization is considered as part of the evaluation criteria for **privileged land use and talent policies**.
- Qualified companies listed on the Beijing Stock Exchange are encouraged to **apply for national programs and relevant awards**, funded by the government.
- **Financial institutions and industrial investment funds** (particularly equity investments) are incentivized to support the digital transformation of the manufacturing enterprises.

# Regional governments are putting policies into practice in response to the central government guideline –- Shanghai

## Action Plan for Coordinated Digital and Green Transformation of the Manufacturing Industry (2024-2027)

### Main Goals

- **Enhance green and intelligent manufacturing productivity**: by 2027, over 85% of large-scale manufacturing enterprises to complete digital transformation; industrial labor productivity to exceed 500,000 RMB per person; the scale of green and low-carbon industry to surpass 5 trillion RMB.
- **Use digital technologies for energy conservation and emission reduction**: promote the application of smart green technologies and equipment, especially for high-energy-consuming industries and enterprises.
- **Create demonstration projects**: Cultivate 20 green intelligent industry leaders and 50 system solution providers; build 20 green smart demonstration parks and and 50 demonstration factories.
- **Improve the policy environment**: Introduce public service platforms and collaborative technical standards; incentivize widespread adoption of green and digital integrated production methods.

### Supportive Measures

1. **Improve Institutional and Policy Support**

   Integrate industrial development with energy-saving and emission reduction funding; provide support & rewards for companies adopting new technologies, materials and equipment; digital & green transformation criteria will be incorporated into the evaluation system for new major manufacturing projects.

2. **Enhance Domestic and International Collaboration**

   Strengthen collaboration between Shanghai and the Yangtze River Delta Region on digital & green transformation; engage in international carbon border adjustment systems; deepen international cooperation.

# Regional governments are putting policies into practice in response to the central government guideline -- Jiangsu

## Three-Year Action Plan for Intelligent Transformation and Digitalization of the Manufacturing Industry (2022-2024)

### Main Goals

- **Improvement in digital and intelligent levels**: Focus on large-scale industrial enterprises fully implementing intelligent transformation and digitalization.
- **Increase in labour productivity**: Annual labour productivity growth rate exceeds the value-added growth rate of the manufacturing industry ; the numerical control rate of key processes in major enterprises reaches 65%; 90% of the companies adopt digital R&D and design tools; digital management covers over 80% of the companies.
- **Development of new business models and economic drivers**: the goal is to establish a national demonstration zone for high-quality manufacturing development.

### Supportive Measures

**1. Financial Support**

Allocate 1.2 billion RMB in special funds, such as loan interest subsidies and investment subsidies, to support manufacturing enterprises' intelligent transformation and digitalization process.

**2. Talent Support**

Build a "Smart Transformation and Digitalization Talent Knowledge Platform" to attract top-notch technology talents.

**3. Creating opportunities for knowledge exchange**

Organize experience-sharing sessions with leading enterprises and research institutions; Host events (such as Manufacturing and Iot Expo) for knowledge exchange business collaboration.

# Regional governments are putting policies into practice in response to the central government guideline -- Guangdong

## Digital Transformation Implementation Plan for the Manufacturing Industry (2021–2025)

### Main Goals

1. **Significant improvement in digital transformation**: 30,000 large-scale industrial enterprises to achieve digital transformation; 80,000 enterprises to adopt cloud computing solutions (reduce costs, improve quality & efficiency); develop a group of demonstration enterprises for digital transformation.
2. **Further improvement of infrastructure:** build industrial internet infrastructure covering key industries; further promote the application of 5G equipment; construct over 50 secondary nodes for industrial internet identification and resolution.
3. **Continuous Technological Innovation:** Achieve technological breakthroughs in core areas such as security, micro-level chips, industrial software, and control systems.

### Supportive Measures

**1. Strengthening Talent Support**

Attract and cultivate high-level, interdisciplinary talents, as well as establish a robust talent evaluation mechanism.

**2. Enhancing Financial Services**

Incentivize financial institutions to actively participate in the digital transformation of the manufacturing industry; promote information sharing between financial institutions, government departments and other relevant parties to build a digitalization credit assessment and risk management system; protect the intellectual property of industrial internet platforms and software.

**3. Encouraging outstanding enterprises to "go global"**

Support outstanding digitalized enterprises and associated service providers to develop overseas market, while enhancing the advertising and dissemination of successful digital transformation experiences.

# Regional governments are putting policies into practice in response to the central government guideline -- Liaoning

## Notice from the Provincial Development and Reform Commission on the Establishment of the Liaoning Provincial Digital Transformation Promotion Center

### Main Goals

- **Joint-innovation incubation for enterprises:** promote collaborative innovation between enterprises, industry platforms, and financial institutions; facilitate the sharing of resources such as technology, data, general-purpose assets, market channels and middleware, to drive coordinated innovation and development.
- **Industry-academia-research-application integration:** collaborate with key universities & disciplines to cultivate the technical talent required for digital transformation; offer education programs to enhance the digital skills of current employees; accelerate the commercialization of research findings and promote the application of digital technologies.
- **Support for Transformation and Development:** provide customized solutions for enterprises undergoing digital transformation; focus on the digital development of public service areas, such as smart cities, digital brains, elderly care and transportation.

### Supportive Measures

At present, the notice does not specify detailed support measures. It is likely that corresponding policies, financial resources, and technical support will be formulated based on the actual progress and needs of implementation.

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ITALIAN TRADE AGENCY