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INTERCHINA INSIGHT

HIDDEN TRUTH OF CHINA'S INDUSTRIAL AUTOMATION

The move towards the full automation of Chinese factories has stalled. Franc Kaiser looks at why, and at the strategies that foreign players should adopt in response.

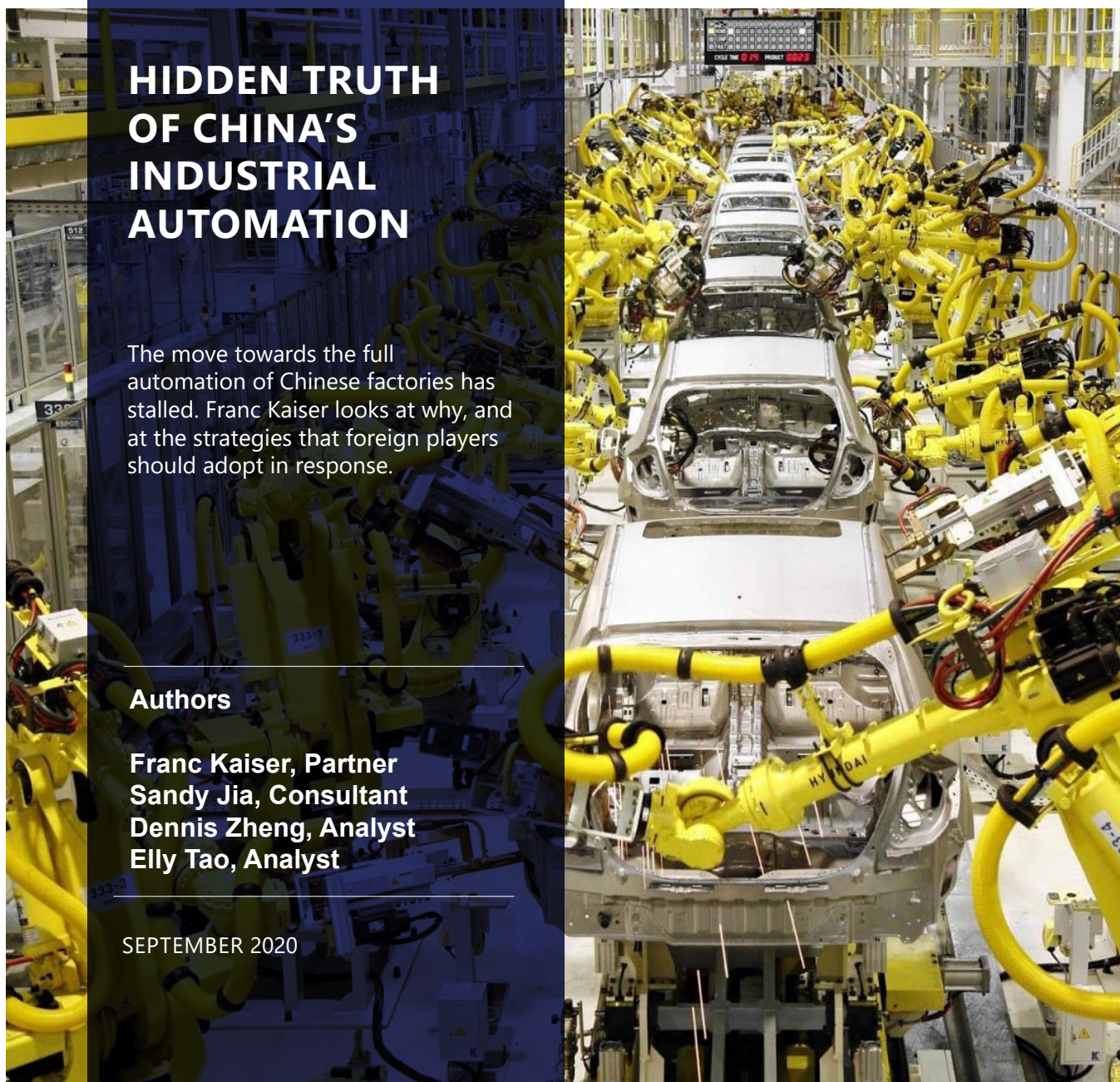
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Strategy | Corporate Finance



The move towards the full automation of Chinese factories has stalled. Franc Kaiser looks at why, and at the strategies that foreign players should adopt in response.

A few years back there was much talk about how the big automation wave would engulf the Chinese factory. Outdated, labor-intensive working practices would be replaced by smart, automated solutions that

transformed product offerings. The reality today is that this hasn't happened to anything like the degree that many expected. Indeed, although China's e-commerce giants have admittedly spent billions investing in state of the art, largely automated warehouses, scratch beneath the surface and they remain the exception. This isn't to say that China isn't automating, it's just automating differently to the West. Instead, rather than switching to fully-automated set ups, Chinese factories and warehouses are seeking cheaper, semi-automated solutions.

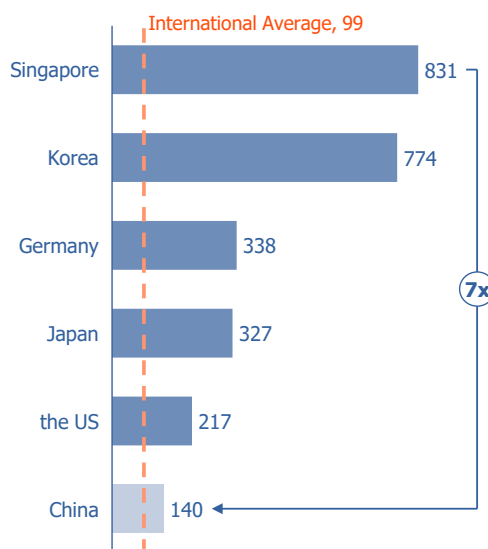
Still catching up

China's automation has a long way to go to catch up with other countries. For instance its industrial robot density is well under half that of Japan, and six to seven times lower than Singapore. China also has 10 times less fully automated warehouses than Japan.

But there are plenty of reasons for expecting the gap to close, not least because of rising labor costs. Labor costs in the Chinese manufacturing sector have grown 12% year-on-year over the last few years and the average yearly wage of a worker has doubled since 2010, making the case for robots replacing costly workers all the stronger.

Chart #1

**Comparison of Industrial Robot Density, 2018
 (Unit: 1 Robot per 10,000 workers)**



Source: IFR

Yet there is an obvious tension between central government efforts to boost the wider automation of the country's factories set against the concerns of local governments over the impact on jobs, concerns only further heightened by the Covid-19 crisis. With several million people rendered unemployed during the coronavirus lockdowns earlier this year, local governments are unsurprisingly reluctant to incentivize the replacement of manual assembly jobs with robots.

Stagnant sales

Sales of industrial robots have stagnated. In 2019 China bought roughly the same number of robots as in 2018, just under 250,000 units. However the make-up of this figure has changed rapidly. In 2018 40% of

these units were imported, whereas last year imports only accounted for 25% of sales as we saw much more locally-produced robots.

One factor behind this shift is that foreign robotics players have traditionally enjoyed strong sales in the automotive industry which accounts for more than a third of sales on industrial robots in China. But that sector is being hit by a weak global market, reduced capex, and the huge impact of Covid-19.

For instance, major global robotics player Kuka, which was acquired by Chinese appliance group Midea in 2018, recently said that the pandemic had posed "unprecedented challenges" for the company in the first half of 2020, adding to the strain it was already feeling in its markets before the crisis. In the second quarter

of 2020 Kuka's global robotics orders fell 30% year on year.

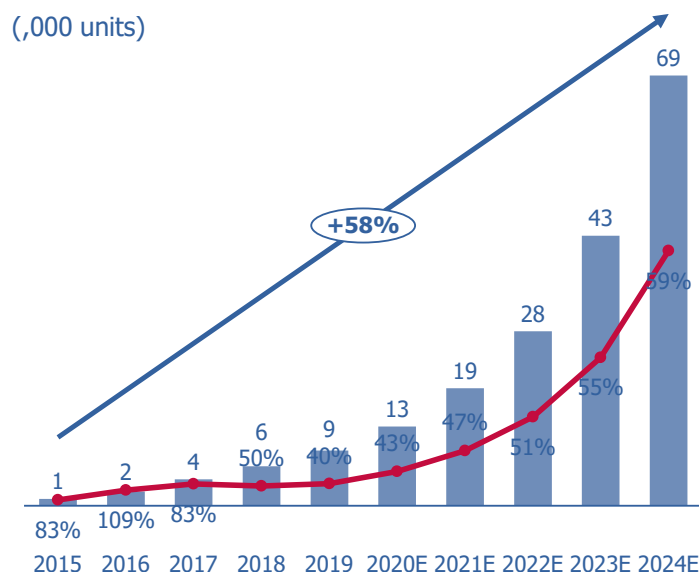
In China local robotics makers have historically not been competitive in the automotive market and instead focused on other sectors to automate. This would now appear a blessing in disguise for them.

Cobot growth

But some areas of the Chinese market are on the rise. Collaborative robots - 'cobots' - perform tasks in collaboration with workers in industrial settings and the market is growing rapidly. Among all industrial robot types in China this segment is expected to expand the fastest over coming years with the market dominated by Chinese players such as Aubo and Jaka.

Chart #2

Cobot sales volume in China



Source: GGII, Statista, InterChina Interviews & Analysis.

Last year China bought 9,000 units whereas by 2024 it is forecast that this may approach 69,000 units. At the same time cobots are becoming increasingly price competitive with the average price nearly halving since 2014.

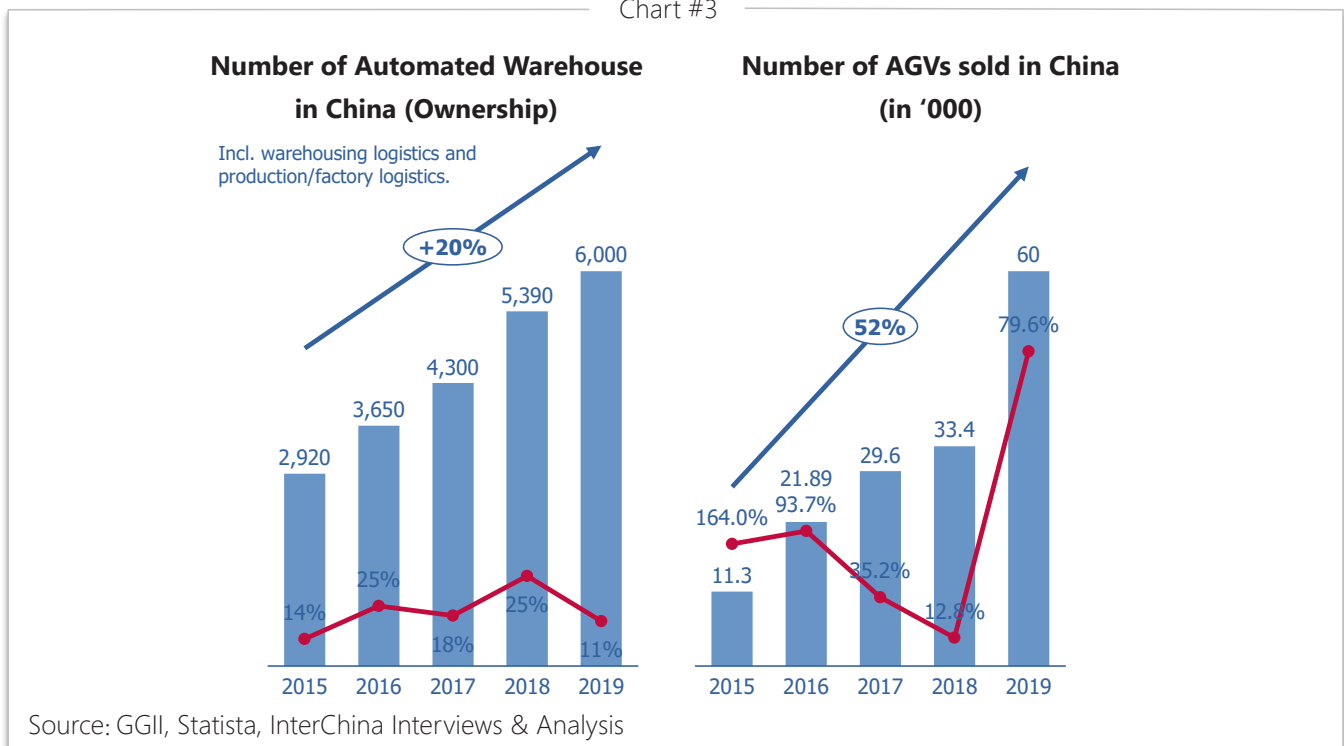
One reason for the increase is the make-up of China's economy itself. For instance processes within China's huge electronics industry demand a lot of repetitive human input, and so cobots can be a welcome addition to the factory set-up.

And AGVs strong too...

Automated Guided Vehicles (AGVs) are mobile robots that follows markers or wires in the floor and are increasingly used in industrial applications to move materials around manufacturing facilities. Although China's automated warehouse market - measured by the number of automated warehouses installed - only grew by 11% in 2019 over 2018, sales of AGVs rose by nearly 80% over the same period. Last

year, 60,000 AGVs were sold in China, and that number is expected to be six times higher in five years from now.

Chart #3





The AGV market in China is already dominated by local players such as Siasun, Yuan Neng, Jiateng, and Well Source, while many diversified industrial and electronics companies in China are also starting to produce AGVs. The growth of AGVs precisely shows how the owners of Chinese logistics services and industrial plants are betting on semi-automated solutions as they gradually learn to get more comfortable with such technologies. And how they start by upgrading their current set-ups with items that come at the easiest price point, such as an AGV.

Foreign player strategies

With Chinese players growing their unit sales of industrial robots, cobots and AGVs rapidly, foreign players face some tough choices when it comes to their strategy in China. In short, they need to rethink their models to reflect what the Chinese market wants and the best way to engage with Chinese customers. One of the biggest challenges they face is that they don't particularly want to go down the semi-automation route that most Chinese players have taken. Instead they would rather install fully automated solutions in factories, as they often do in the West, where all processes can be fully integrated using smart Internet of Things (IoT) technologies.

In time such a transformation is still likely to happen in China, but our view is that it is at least a decade away. In

the meantime, Chinese customers remain skeptical of the benefits of introducing fully automated solutions in their factories and we don't expect this view to change any time soon.

One big reason is that customers increasingly want flexibility. Foreign players will traditionally put great store by their own supplier solutions, but in today's world they need to be adapting their offering to what the customer wants. Indeed we are already beginning to see a far more modular approach in Chinese factories where customers pick and choose the price-competitive automated solutions they want. They are also reluctant to invest significant sums in robotics which they feel they may no longer need in a few years' time.



Choices

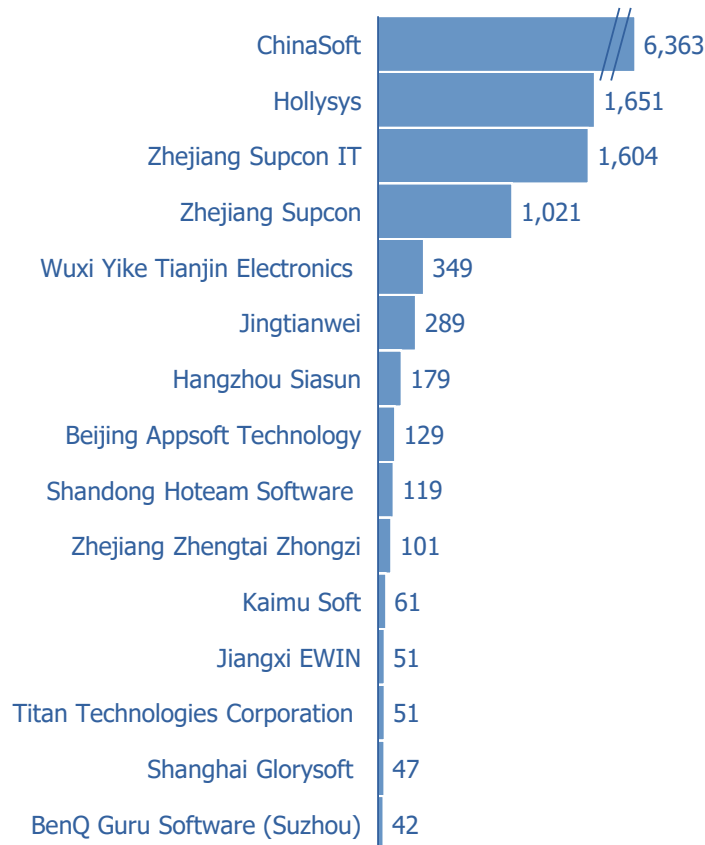
One option for foreign players could be to sit out this current period of flux and hope for more home-grown consolidation of the Chinese suppliers. This is a distinct possibility given that many Chinese companies struggle to make sufficient economies of scale in this market. But the danger is that foreign players wait too long and completely miss the boat.

Another option could be to consider entering the market by acquiring a leading local player in the near future and developing their own lower-end range of offerings that fit better into the more semi-automated Chinese market. Furthermore, a suite of local suppliers of industrial automation components and software makers is establishing itself that foreign players further up the value chain could consider as strategic investment targets.

Whatever the strategy they adopt they must still remember that the fundamentals behind the drive towards automation still remains strong. For instance, the huge rise in demand for e-commerce services in China and across the globe – only accelerated by the pandemic – is just one example of how a rapid upgrade in automated solutions at factories and warehouses will be required in years to come.

Chart #4

Examples of privately- owned local MES players (revenues only indicative, for 2018 and 2017)



Source: Gongkong, public literature, InterChina analysis



Chart #5

Examples of leading Chinese industrial sensor makers

	Pressure sensor	Temperature sensor	Inductive Proximity sensors	Reed Sensor	Photoelectric sensors	Acceleration sensor	Speed	Torque Sensor	Gyroscope sensor	Magnetic sensor	Capacity Proximity sensors	Hall Effect	IR sensors	Optical fiber sensor	Ultrasound sensors	Gas sensor	RFID	UV sensors
Shanghai Haihua Sensor	•	•		•			•	•										
Microsensor	•	•		•							•							
Wu•i Grand Vision	•	•									•	•						
Tianjin Hengyuan Sensor			•		•					•				•				
Shenzhen Fast Sensor	•		•	•								•						
Shanghai Wiltai	•	•									•							
Suzhou Goodpark	•					•			•									
Shanghai QST Corporation	•					•				•								
Hunan Firstrate	•	•		•														
Beijing Hangyu Shidai	•	•						•										
Jiangsu Ningke Sensor	•				•													
Chongqing Tianjian Sensor						•	•		•									
Wenzhou ZhuoRui Aut.sensor	•		•				•											
Shanghai Misensor			•	•						•								
Beijing First Mems	•					•												
Xinfu	•												•					
Changzhou Senstar Sensor	•							•										
Shanghai Lanbao			•		•													
Shenzhen Kemit		•										•						
Shanghai Yishike			•		•													
Kunshan Shuangqiao Sensor	•	•																
Jiangyin Ma•onic Entech Sensor	•	•																
Shenzhen Haiwang		•											•					
Euxi Helie			•				•											
Putian Hongfei Sensor	•							•										
Beijing Tumems						•			•									
Henan Hanwei																•		
Jiangsu Tongding														•				
Beijing North GuangWei	•																	
Aerospace South-Ocean (Zhejiang)	•																	
Shenzhen Senodia									•									
Yangzhou Aoliwei				•														
Shanghai Reesensor				•														
Xi'an Weina Sensor	•																	
Shanghai Haoguang Sensor							•											
Xi'an Sensesi Sensor	•																	
Bengbu Tianguang Sensor	•																	
Beijing Guohao										•								
Hangzhou SAKADY					•													
Shanghai Prevision Aut. Sensor	•																	
Changzhou Huichang		•																
Changzhou Bestar														•				
Wuxi Haiying	•																	
Wuxi Zhongke Sensor		•																
Hebei Meitai																		•
Wuxi Nawei Dianzi	•																	

Source: InterChina analysis

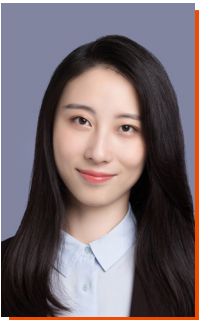
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About InterChina

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