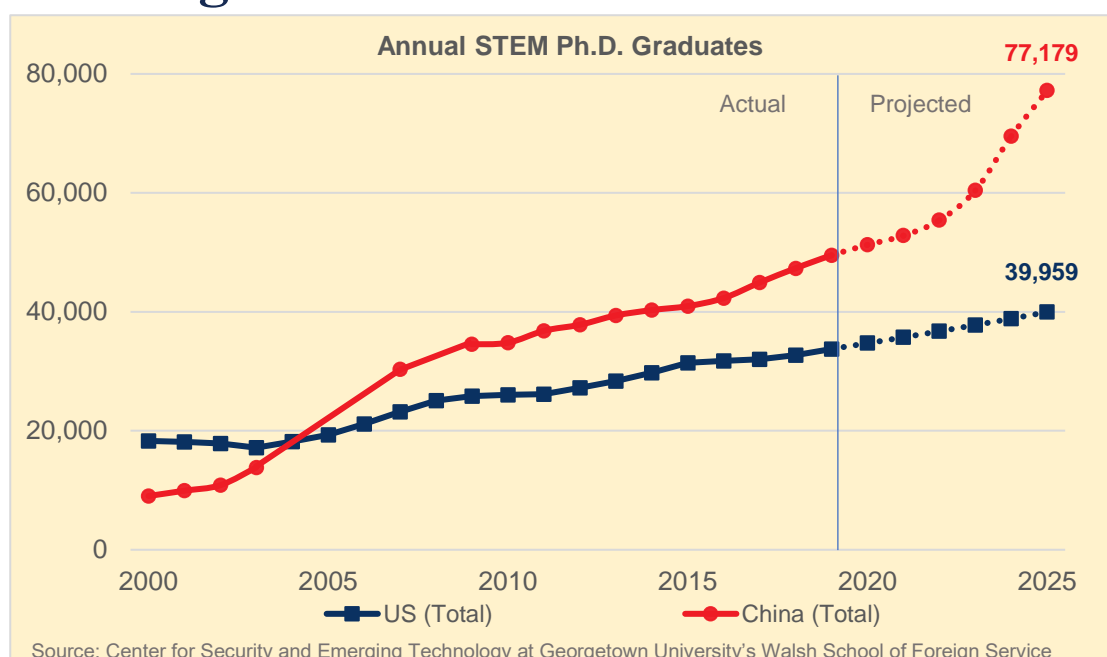


CHINA MONTHLY

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The Big Picture



Georgetown University's CSET projects Chinese universities will award more than 77,000 STEM Ph.D. degrees per year by 2025. About 80% of Chinese doctoral graduates are in science and engineering disciplines.

THE BRIEFING

No Decoupling

European Commission President Ursula Von der Leyen and French President Emmanuel Macron met President Xi Jinping in Beijing in April, with Von der Leyen saying ahead of her trip that it was not in the continent's interest to decouple from China. "Our relations are not black or white – and our response cannot be either. This is why we need to focus on de-risking – not de-coupling." Macron and Xi also issued a joint communique in which they agreed to "improve market access" for each other's businesses and closed a deal to open a second production line for Airbus in China, another boost to the company's ambitions in that market.

Jiangsu to use eCNY

Changshu city, a city of 1.5 million people in Jiangsu, will start paying civil servants and people who work for public institutions with the e-CNY digital currency starting next month. The move also includes schoolteachers, medical staff, technicians, journalists for official media outlets and state enterprise employees.

Registration-Based IPOs Debut

The first 10 debuts under China's new registration-based system for IPOs, which broadens rules adopted on tech boards to main exchanges, surged on the Shanghai and Shenzhen main boards in April. Regulators waived the 23x P/E valuation cap and first-day price limits in a move to widen funding access for millions of smaller companies.

Yuan Overtakes Dollar

The yuan became the most widely used currency for cross-border transactions in China in March, overtaking the dollar for the first time. Cross-border payments and receipts in yuan rose to a record USD549.9 billion in March from USD434.5 bn a month earlier, and it was used in 48.4% of all cross-border transactions, while the dollar's share declined to 46.7% from 48.6% a month earlier. These transactions cover both the current and capital accounts.

Li Qiang Commits to Opening Up

Premier Li Qiang vowed that China will open wider to the outside world and establish a "broad space" for foreign companies to develop, thanking them for the support over the years and urged them to "take a long-term view". "China's economy has deeply integrated into the global system," Li told foreign attendees of the China Development Forum. "China will unswervingly stick to opening up, regardless of changes to the global environment."

CHINA'S ENTREPRENEURIAL SPIRIT

By Wang Kangning

Since China joined the World Trade Organization in 2001, it has strived to become the factory of the world, supplying all the products that it is able to produce. The first ten years of its more active participation in global trade had been a time when the world got to know the term “Made in China”. From apparels, toys, and chemicals to industrial equipment or consumer electronics, products made in China are everywhere. But despite the massive amount of exports, China’s share of value add had been very low, since it does not have many home-grown designs or intellectual property. As iPhones plainly put: “Designed by Apple in California, Assembled in China”.

It was therefore a surprise when Huawei, within a span of just several years, stepped up onto the world stage and became a leader for telecom equipment and consumer electronics. These unprecedented achievements by a Chinese company are underpinned by its cutting-edge Research and Development, to provide a first-class consumer experience. By all measures, Huawei became a technology leader at a time when original innovation was so scarce in China.

Huawei Origins – Starting with USD3,000

In October 1987, Ren Zhengfei, at the age of 44, lost his job in a state-owned oilfield services company. In those days, being fired by an SOE (state owned enterprise) would mean the end of a career in the SOE system. To survive, Ren was left with no choice but to pool his savings with four partners and start a new business. The money they put together was merely USD3,000, but they gave their new company an awe-inspiring name, Huawei (华为), meaning China for Achievement. From that humble beginning, Huawei continues to achieve milestone after milestone.

A basic instinct for survival was deeply rooted in Ren since his very early childhood. One question Ren always asks his team is “Do you want to get fame or get enough to eat?” Growing up as the eldest son in a family that was in severe poverty, he had to constantly starve himself in his teenage years so that all his six younger brothers and sisters could survive. He was eventually the only child that the family could afford to send to university. After graduation, he enlisted in the army and was sent to Liaoning province to build a textile fiber factory. His harsh working experiences in the northeastern province further built up a resilient character that ultimately came to define Huawei.

Having served as a combat engineer, Ren never shied away from referring to Huawei as a troop and its employees as soldiers. In fact, the first book recommended by Ren to the Huawei Training Center was “The West Point Way of Leadership” by US Army Colonel Larry Donnithorne.

Cutthroat competition is the norm for the IT industry. Incumbent and start-up players all race to get hold of the most advanced technology. Lagging competitors by a few months would sometimes mean death for a company. For Huawei, they are competing with global giants like Cisco or Lucent Technologies.

Building a World Class Company with Strategic-Minded Lions and Process-Oriented Monkeys

“Mat Culture” is often cited by Huawei veterans as a hallmark of their success. In the early years, every new employee was given a mat on their first day of work and from that day on, they would spend numerous nights in the lab or clients’ server rooms sleeping on the mats. In simmering summers and freezing winters, these young engineers would work day and night to troubleshoot every single technical problem. The “Mat Culture” proved an indispensable weapon for Huawei to survive in the uneven battlefield.

The spirit of relentless dedication lives on. Unfazed by their powerful global rivals, some engineers proudly called themselves strategic-minded siege lions (攻城狮), while many more would rather self-deprecatingly refer to themselves as process-oriented monkeys (程序猿). 攻城狮 and 程序猿 are phonetically identical to the Mandarin terms for engineer and programmer.

In the winter of 1993, when Huawei just finished research on C&C08, its first digital telephone switch with self-developed intellectual property, these lions and monkeys would set off to China Telecom’s Yiwu city branch in Zhejiang province to install the first C&C08 switch, which was essentially just an untested prototype. Huawei had invested millions of yuan into this model and used up all its capital. For Huawei and its C&C08, failure was not an option.

Huawei engineers worked endlessly in the Yiwu branch’s frigid server room, testing and revising the prototype. Glitches would pop up all the time. After two months of debugging, they finally delivered their first digital switch order. Minor technical problems would still occur occasionally after the delivery, but each time, Huawei would respond and solve the problems immediately. The earnestness of Huawei’s engineers really gained the Yiwu branch head’s respect and he recommended Huawei to all his business contacts. Orders for C&C08 skyrocketed and it became the best-selling digital switch in China. But more importantly, the SDH (synchronous digital hierarchy) technology used in its second generation models was the first and the most advanced of its kind in the world. For the first time, Huawei’s technology was at about the same level as the global leaders’.

Aim for the Sky

C&C08 was also the first product Huawei managed to sell into the international market. First to Hong Kong in 1996, then in 1997 to Russia and other emerging markets. A major setback came in 2003 when it failed to enter British Telecom's supplier shortlist. However, this setback would ultimately be the historic event that elevated Huawei to the status of the Number One global telecom equipment supplier.

In November 2003, BT's procurement team came to Shenzhen to conduct due diligence on Huawei and its suppliers. BT was regarded as probably having the most stringent procurement requirements. The due diligence covered 12 areas, including corporate management system, R&D system, quality control system, sustainability program as well as human rights practices. If Huawei could get BT's certification, that would effectively be an admission ticket into the tight circle of top global telecom carriers. Huawei took it really seriously, but after four days of close inspection and evaluation, BT said "No".

Huawei's scoring in technology and production infrastructure was high, but in some "soft" areas such as fulfillment capabilities or organizational visibility, Huawei failed miserably. The certification officers gave their candid advice in their concluding remarks: "Is Huawei a kaleidoscope, a toolbox, or an exposition? We can see all sorts of management tools in your company, but they are all scattered around and we cannot see an integrated system."

For Ren and his team, that was their moment of awakening. To compete in the developed markets, just having up-to-date technology or a ferocious sales team was not enough. A unified information system, unified philosophy, and a unified procedure, all designed to serve customer needs, is the foundation of a truly global corporation. Huawei must overcome this hurdle.

In the next two years, Huawei spent hundreds of millions of yuan to enhance its internal organization and management system. With help from the consulting firm Mercer, Huawei re-designed its senior management structure. In 2004, it created an eight-member executive management team to work together with the CEO, with the chair rotating every six months. This structure has proved to be consistently highly effective for strategic decision making.

This rotating chair structure is uncommon across the globe, even in China. Rotating among heads of departments encompassing R&D, marketing, production, procurement, finance and more, the mechanism brings a diversity of perspectives, priorities, and backgrounds in leadership. It frees up Ren's time, while giving this influential and visionary leader the benefit of reviewing decisions and recommendations distilled by this committee, mitigating the risk of a single key person making too many wrong decisions. It also builds teamwork by making it less likely that one department will run roughshod over the others.

In December 2005, Huawei was finally certified by BT and became a peer to the global technology giants that it had looked up to for so long.

Number One in 5G

Competition in the telecom equipment industry got extraordinarily intense after Huawei penetrated the top-tier telecom carriers. Unable to compete with Huawei's unthinkably low pricing, yet better quality and service, Nokia, Siemens, Alcatel and Lucent successively merged their telecom equipment businesses after 2006. By 2012, Huawei surpassed Ericsson and became the largest telecom equipment supplier in the world, operating in over 170 countries.

To stay as the first choice for telecom carriers, it is crucial for Huawei to not only meet, but also anticipate future customer needs. Pioneering research into new technology and setting industry standards became the key strategies for Huawei. In 2009, when the first 4G mobile phone was not yet introduced to the market, Huawei's R&D team had already started working on 5G technologies, which was estimated to be 100 times faster than 4G. By 2021, according to data compiled by IPLYtics, Huawei was the leading company for 5G technology and accounted for more than 15% of active patents globally. Qualcomm was second.

Huawei's leadership in intellectual property was made possible by attracting, developing, and retaining global talents, who play a key role in strengthening its technological innovation and organizational resilience. In the 2021 Forbes World's Best Employers List, Huawei was ranked eighth, moving up six places from 2020. In recent years, Huawei has substantially enhanced its corporate image, providing comfortable working environment and benefits, and offering handsome salaries (though staff still need to work hard and long hours). But what really appeals to its staff is the spirit of making achievements together. Like soldiers, they work shoulder to shoulder and look after their comrades.

Number Two in Smartphones

In 2009, Huawei also started to build its new growth engine and began to sell smartphones under its own brand. The smartphone business very soon became Huawei's fastest growing segment. In 2019, Huawei surpassed Apple as the second largest smartphone maker in terms of global shipment volume. Consumer products also contributed 54% of total revenue as the biggest business segment in that year. More remarkably, its products carried Huawei's proprietary IC chips that were self-developed by its own IC design team, HiSilicon. The HiSilicon chips, dubbed Kirin, had processing powers that met or even beat the top-notch chips from Qualcomm. Huawei's dominance in 5G put it in a very sensitive position.

In May 2019, US President Donald Trump signed an executive order blocking Chinese telecom equipment companies like Huawei from selling their products in the US. Meanwhile, the US Department of Commerce's Bureau of Industry and Security (BIS) also added Huawei to BIS' Entity List for allegedly violating US sanctions on Iran.

Future Huawei's

Inovance was founded by Zhu Xingming and his partners in 2003, with most of the founders coming from Huawei. Disagreeing with Emerson's conservative approach after Huawei's divestment in 2001, they decided to start their own firm to tap the immense opportunities in China's automation industry, which was dominated by international names like Siemens and ABB then. In its initial years, Inovance focused on frequency converters for segments neglected by foreign companies, such as elevators and water pumps. After achieving success in these segments, it moved into segments with higher technological content and also new product categories in industrial automation. First, in servo drives and motors, then PLCs (programmable logic controllers), automotive control systems, and industrial robots. It has consistently invested around 10% of each year's revenue in R&D to grow into China's leading domestic automation system provider. Today, its R&D team consists of more than 3,500 researchers from offices and facilities across Asia and Europe.

Besides Inovance, a host of successful companies were also founded by former employees from Huawei: Megmeet Electrical, Dptech Technologies, Sangfor Technologies, just to name a few. Even the casual observer can notice the Huawei DNA in these Huawei cubs.

The phenomenal success of Huawei epitomizes the successful development of Shenzhen from a fishing village to China's innovation powerhouse. The hardworking engineers, factory workers, and enterprising founders came to this promising Special Economic Zone forty years ago when China opened itself to the global supply chain and embraced practical and liberal economic policies.

Mindray is also an industry leader that started in Shenzhen. It is often regarded as the "Huawei of Medical Devices", though the only overlap it has with Huawei is, coincidentally, an office building in which both rented offices. Although it does not share any Huawei DNA, its ascendance has been equally extraordinary. In 1991, Li Xiting and his six partners founded Mindray. All the founders worked as scientific researchers before and all had very strong technical backgrounds. They came together with the vision of bringing innovative, high-quality, and affordable healthcare solutions to the world. In 1992, the company released its first self-developed product, a blood pulse oximeter. With a persistent focus on innovation, Mindray made bold inroads into medical device segments that used to be oligopolies: patient monitoring systems, medical imaging systems, laboratory diagnostics, and many more. Its investment into R&D has also been maintained at about 10% of its revenue, with 3,500 scientists and engineers working in ten research centers around the globe.

Common Factors for Success

APS looks for the common factors that drove Huawei's success in other companies that could drive investment alphas. Entrepreneurial drive, "Mat Culture", "aiming for the sky", doing "whatever it takes", diligence, strategic-mindedness, being process-minded, and perseverance are some of the key elements that led to the enormous success of Huawei in a

relatively short amount of time. Companies like Inovance, Mindray, Zhejiang Jingsheng, and Supcon have exhibited these qualities and have themselves become industry leaders. We believe the Chinese entrepreneurial DNA has been the single most important driver of China's economic success.

A wealthy retiring Chinese entrepreneur told our CIO over a private dinner recently "Don't worry about my and other entrepreneurs' retirements. There will be more than enough young Chinese willing to take the risk of the entrepreneurial route if there are opportunities."

Do not be surprised to see many more Huawei's emerging in the coming years.

Wang Kangning, CFA, is the Head of Investment Strategy of APS Asset Management. He has been with APS since April 2004 and has 20 years of experience in the fund management industry. He was previously with Philip Securities Pte Ltd as an analyst from January 2003 to April 2004. Mr. Wang has a Master's in Engineering from the National University of Singapore and a Bachelor's degree from Shanghai Jiaotong University.

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