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Case study

Apple Inc.'s dilemma: Relocating global supply chains out of China

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In 2019, 70% of international trade was linked to global value chains.¹ In the last two decades, the removal of trade barriers, improved communications and shrinking transport costs made it increasingly attractive for Western multinational companies to split up the value chain and locate stages of it in low-cost countries. In this context, the “cheap China” sourcing model was highly convincing for many industries such as electronics, clothing or footwear. China became the most attractive offshoring destination for parts of multinationals’ supply chains.² However, fast rising labor costs, scandals around forced labor, the trade war with the USA, and recent experiences from the lockdowns during the Covid-19 crisis increasingly called its dominant role and future position in global supply chains into question. All those developments led a growing number of multinationals to newly evaluate the supply chain risks stemming from an extreme dependence on China.

The escalating tariff war between the USA and China was a major trigger of this rethinking. In 2016, President Trump laid out how he wanted to counter unfair trade practices from China by imposing higher tariffs. What started in spring 2018 with tariffs on imports of solar panels, washing machines and steel – not just those from China, ended up in successive rounds of tariffs being imposed in a tit-for-tat game of escalation. Over time, the scope of the affected product categories was widened and the tariffs were raised up to 25%.³ So far, the US has imposed a 25% tariff on \$250 billion and a 7.5% tariff on \$112 billion worth of imports from China.⁴ In the worst-case scenario, nearly all Chinese imports into the USA would be under tariff. Firms sourcing or

¹ OECD (2020): Trade policy implications of global value chains, February 2020. Accessed 10.8.2020, https://issuu.com/oecd.publishing/docs/trade_policy_implications_of_global

² The Economist (2019): Supply chains are undergoing a dramatic transformation, 11.7.2019. Accessed 14.8.2020, <https://www.economist.com/special-report/2019/07/11/supply-chains-are-undergoing-a-dramatic-transformation>

³ Brown, Ch. (2020): US-China Trade War Tariffs: An Up-to-Date Chart. Peterson Institute for International Economics, 14.2.2020. Accessed 15.8.2020, <https://www.piie.com/research/piie-charts/us-china-trade-war-tariffs-date-chart>

⁴ Tax Foundation: Tracking the Economic Impact of U.S. Tariffs and Retaliatory Actions. Accessed 27.8.2020, <https://taxfoundation.org/tariffs-trump-trade-war>

manufacturing in China and importing from there to the USA had to decide if they were passing on the extra costs to buyers or if they would absorb them. Furthermore, affected importers tried to get a tariff exclusion from the US Trade Representative (USTR). However, out of more than 50,000 exclusion requests, only 12% were granted - in the case of consumer products and assemblies the number was even lower (5%).⁵ Studies expected that President Trump's tariffs on Chinese-made products could cost the average American household \$600 a year.⁶ The latest announcements by the US government in this trade war suggested that steps were envisioned that went beyond tariffs and aimed at a decoupling of the US and Chinese economies.⁷

HAD APPLE INC.'S BIG BET ON CHINA TURNED SOUR?

Apple Inc. was one of the foremost technology companies from the USA that designed, developed, and sold consumer electronics, computer software, and online services. Apple made revenues of \$260 billion in 2019. The global smartphone market was about 1.4 billion shipments and Apple's market share was 13%.⁸ 200 suppliers with 800 production locations in 43 countries represented about 98% of all expenditures for materials, manufacturing and product assembly.⁹ Apple did not own factories; it outsourced manufacturing and assembly to electronics contract manufacturers among which Hon Hai Precision Industry Co., better known as Foxconn Technology Group, was the biggest partner followed by Pegatron Corp. and Wistron Corp., all of them headquartered in Taiwan.¹⁰ 90% of the assembly happened in China. Foxconn employed about 1.3 million people in China and made about \$140 billion in global revenues.¹¹ It had been Apple's partner for 20 years and today about 50% of Foxconn's revenues came from Apple. Foxconn was crucial to the development of the China manufacturing ecosystem of Apple and the mastermind and driver behind the building of a new factory town near Zhengzhou in Henan province, called by locals "iPhone City". Foxconn was able to increase employment in its Zhengzhou factory from 100,000 to 300,000 people during the peak production season if required and increase output by four times

⁵ China Briefing (2020): US Tariff Exclusion for Chinese Imports: What is the Status? 22.7.2020. Accessed 1.9.2020, <https://www.china-briefing.com/news/us-tariff-exclusion-china-imports-eligibility-application-process/>

⁶ Lobosco, K. (2019): Trump is lining up new tariffs. Here's what they mean for you. CNN, 3.12.2019. Accessed 9.8.2020, <https://edition.cnn.com/2019/12/03/politics/tariffs-iphones-cheese-trump/index.html>

⁷ Foroohar, R. (2020): China wants to decouple from US tech, too. Financial Times, 6.9.2020. Accessed 9.9.2020, <https://www.ft.com/content/371e139e-df4d-4ef8-9ed9-a92b97543af6>

⁸ Businesswire (2019): China's Surge Into 5G Will Push the Worldwide Smartphone Market Back to Growth in 2020. 26.11.2019. Accessed 20.8.2020, <https://www.businesswire.com/news/home/20191126005183/en/Chinas-Surge-5G-Push-Worldwide-Smartphone-Market>

⁹ Apple.com: Supplier List. Accessed 15.8.2020, <https://www.apple.com/supplier-responsibility/pdf/Apple-Supplier-List.pdf>

¹⁰ Moorhead, P. (2019): Who Are Apple's iPhone Contract Manufacturers?, Forbes, 13.4.2019, Accessed 15.8.2020, <https://www.forbes.com/sites/patrickmoorhead/2019/04/13/who-are-apples-iphone-contract-manufacturers/#538ab3444e6d>

¹¹ Jacobs, H. & Zheng, A. (2018): Tens of thousands of Chinese people live at the mercy of Apple's factories — and they don't even work there. Businessinsider, 15.5.2018. Accessed 20.8.2020, <https://www.businessinsider.com/china-iphone-city-residents-foxconn-apple-effect-2018-5?r=DE&IR=T>

the normal production rate. No other contract manufacturer could get close to that scale. Foxconn could produce 500,000 handsets per day there.¹² It gained subsidies of \$1.5 billion from the local government for building factories and housing for 400,000 workers, and \$10 billion for a new airport.¹³

APPLE AND CHINA: A MUTUALLY BENEFICIAL RELATIONSHIP

Apple's involvement in China was of mutual benefit. Apple's bet on China as strategic manufacturing and developing location helped to develop an ecosystem of local low-cost suppliers, ranging from components and assembly to technology and software providers. China's infrastructure was better developed than that of other Asian countries. In addition, Chinese government had been a supportive partner when Foxconn and Apple were looking for business expansion. About 5 million jobs in China relied on Apple ranging from workers assembling products, people in component production to software engineers creating apps for the iOS operating system.¹⁴

Without any doubt, the China-focused supply chain was a core element of the iPhone success story and Apple's rise to the most valuable company in the world. Experts estimated that Apple captured 90% of the global smartphone industry's overall profit while it only held a share of 12% in global sales.¹⁵ However, China's role in the business model of Apple had changed in the last 20 years. While at the beginning China was valued for its low-cost manufacturing, the huge Chinese market with a fast rising middle-class had become more important in the last years.

Apple's Chinese fortune was built from 2010-15, when its revenues in the country grew from \$2.8 billion in 2010 to \$59 billion in 2015.¹⁶ In 2019, Apple generated revenues of \$44 billion there, representing 17% of global revenues and even more of its profits.¹⁷ That was down from the peak of a 25% share in 2015. This fall reflected changing perceptions of the brand and intensified competition, especially by the local champion and market leader Huawei.¹⁸ On the supply side, fast

¹² Barboza, D. (2016): How China built iPhone City with billions in perks for Apple's partner. New York Times, 29.12.2016. Accessed 8.8.2020, <https://www.nytimes.com/2016/12/29/technology/apple-iphone-china-foxconn.html>

¹³ Ibid.

¹⁴ The Economist (2019): Does Apple's boss have a Plan B in China? 30.5.2019. Accessed 15.8.2019, <https://www.economist.com/business/2019/05/30/does-apples-boss-have-a-plan-b-in-china>

¹⁵ Barboza, D. (2016): How China built iPhone City with billions in perks for Apple's partner. New York Times, 29.12.2016. Accessed 8.8.2020, <https://www.nytimes.com/2016/12/29/technology/apple-iphone-china-foxconn.html>

¹⁶ The Economist (2020): Red plateau - Apple's Chinese troubles. 20.2.2020. Accessed 14.8.2020, <https://www.economist.com/business/2020/02/20/apples-chinese-troubles>

¹⁷ Richter, F. (2020): Apple - The Size of Apple's China Business. Statista, 18.2.2020. Accessed 14.8.2020, <https://www.statista.com/chart/13246/apple-china-revenue/>

¹⁸ Hille, K. & Liu, Q. (2020): Luxshare rises as China's homegrown iPhone manufacturer. Financial Times, 10.8.2020. Accessed 13.8.2020, <https://www.ft.com/content/5a9afb09-a9f2-483a-bd90-c30cee996480>

rising labor costs had lessened the country's attractiveness for labor-intensive activities such as the assembly of the iPhone.

The escalating trade war between the USA and China highlighted the high risk of the concentration of manufacturing and assembly in one country. So far, Apple managed to get exemptions for iPhone imports from China but, that is somehow ironic, not for components that it sourced for US production sites.¹⁹ However, a 25% tariff could add \$160 to the cost of a \$999 iPhone XS, so the estimate.²⁰ A further threat posed President Trump's recent executive order that would ban US residents from downloading the communications tool WeChat, developed and owned by China's high-tech giant Tencent Holdings.²¹ Although used less by US-Americans, WeChat was hugely popular in China and among ethnic Chinese abroad. A forced withdrawal from Apple's app stores worldwide could see shipments fall by 25-30% as Chinese smartphone users would then have to choose between the iPhone and their favorite app.²²

Apple was under enormous pressure to move parts of its global supply out of China. Even if the trade dispute calmed down, diversifying production out of China was necessary in order to reduce the dependency. Although China was also taking retaliatory measures, such as imposing import tariffs on US imports, in a tit-for-tat in this trade war, it was less likely that the Chinese government would target US firms operating in China as this would hit local employment and value added. Apple contributed about \$24 billion a year to China's economy.²³ However, the question was how much pain China could endure.²⁴ Another important part of this trade conflict were US government attacks and bans on Huawei, China's technology champion, world leader in 5G technology and biggest seller of smartphones in China. A crash of Huawei could lead to retaliatory measures and consumer boycotts of Apple products in China.²⁵

The establishment of a manufacturing hub of that size in China demonstrated that Foxconn's founder and chairman Terry Gou and Apple's CEO Tim Cook succeeded in building good relations

¹⁹ The Economist (2020): Red plateau - Apple's Chinese troubles. 20.2.2020. Accessed 14.8.2020, <https://www.economist.com/business/2020/02/20/apples-chinese-troubles>

²⁰ The Economist (2019): Does Apple's boss have a Plan B in China? 30.5.2019, Accessed 16.8.2019, <https://www.economist.com/business/2019/05/30/does-apples-boss-have-a-plan-b-in-china>

²¹ The Economist (2020): Donald Trump has caused panic among millions of WeChat users. 13.8.2020. Accessed 5.9.2020, <https://www.economist.com/china/2020/08/13/donald-trump-has-caused-panic-among-millions-of-wechat-users>

²² Wu, D. (2020): China's days as world's factory are over, iPhone maker says. Bloomberg, 12.8.2020. Accessed 27.8.2020, <https://www.bloomberg.com/news/articles/2020-08-12/hon-hai-beats-profit-estimates-after-pandemic-spurs-apple-demand>

²³ The Economist (2019): Does Apple's boss have a Plan B in China? 30.5.2019, Accessed 16.8.2019, <https://www.economist.com/business/2019/05/30/does-apples-boss-have-a-plan-b-in-china>

²⁴ White, M. (2019): No longer a simple tit-for-tat: China is ready to endure — and inflict — real pain on the U.S., NBC News 24.5.2019. Accessed 12.8.2020, <https://www.nbcnews.com/business/economy/no-longer-simple-tit-tat-china-ready-endure-inflict-real-n1009891>

²⁵ Ibid.

with the autocratic Chinese government and winning its support. At the same time, numerous conflicts arose from this close relation – either with Beijing itself, with Apple’s customers or with the public at home. For instance, ignoring suicides and alleged human rights abuses in contractors’ factories earned the company a lot of blame in the West.²⁶ In 2017, the removal of virtual private network apps that allowed users in China to bypass strict censorship laws from its China app store led to public outcries. The same happened again when the Chinese government required Apple to adhere to the law and to remove a mapping app used by pro-democracy protesters in Hong Kong in 2019. Both moves further tarnished the image of Apple. Confronted with it Tim Cook, Apple’s chief executive, replied: “We would obviously rather not remove the apps but, like we do in other countries, we follow the law wherever we do business.”²⁷

LOOKING FOR WAYS OUT OF THE CHINA DEPENDENCY

As President Trump was driving further the decoupling of the American and Chinese economic and technological ecosystems, Apple had to prepare for mounting difficulties when it wanted to keep and expand its position on the Chinese market and run its Chinese supply chains efficiently.²⁸ Tim Cook was aware of these threats. Together with its strategic business partners, Apple worked on a restructuring of its supply chain. It asked its key iPhone assemblers Foxconn, Pegatron and Wistron to evaluate options outside of China and the cost implications of a shift of 15-30% of its capacity.²⁹ Experts estimated that even in the best-case scenario Apple would be only able to relocate 5-7% of its iPhone production to India within 12 to 18 months after finding an agreement with contractors and governments over subsidies.³⁰ In the course of the discussion, the working group discovered that even if they moved manufacturing and assemblies to Vietnam or other Southeast Asian countries in order to diversify their supply chain, they were still heavily dependent on China for production inputs.³¹

An interesting development in this context was the planned acquisition of two China-based subsidiaries of Foxconn by Luxshare, a Chinese electronics manufacturing service provider. If these

²⁶ Gurman, M. (2019): Apple, Foxconn Broke a Chinese Labor Law to Build Latest iPhones. Bloomberg, 9.9.2019. Accessed 15.8.2020, <https://www.bloomberg.com/news/articles/2019-09-09/apple-foxconn-broke-a-chinese-labor-law-for-iphone-production>

²⁷ McGee, P. (2020): Apple commits to freedom of speech after criticism of China censorship. Financial Times, 4.9.2020, Accessed 13.9.2020, <https://www.ft.com/content/a88f5d3d-0102-4616-8b3f-cb0661ba305d>

²⁸ Mitchell, T. (2020): US companies defy Trump’s threats about ‘decoupling’ from China. Financial Times, 9.9.2020. Accessed 15.9.2020, <https://www.ft.com/content/8d23d65b-ee20-4449-a615-e3d2a9b672f8>

²⁹ Reuters (2019): Apple explores moving 15-30% of production capacity from China: Nikkei. 19.6.2019. Accessed 14.8.2020, <https://www.reuters.com/article/us-apple-china-restructuring/apple-explores-moving-15-30-of-production-capacity-from-china-nikkei-idUSKCN1TK0XN>

³⁰ Ibid.

³¹ Garcia-Herrero, A. (2020): Companies must move supply chains further from China. Nikkei Asian Review, 26.2.2020. Accessed 16.8.2020, <https://asia.nikkei.com/Opinion/Companies-must-move-supply-chains-further-from-China>

deals went through, it would be the first time that a Chinese company ran an iPhone plant.³² Tim Cook seemed to have a hand in this deals by encouraging Foxconn to approve it although the company would nourish a direct competitor. As a result, Luxshare could take care of the mid-to-entry level handsets while Foxconn continued assembling premium iPhones.

To replicate a supply chain that was built in China over 20 years would take a lot of time and finally end up with higher costs anyway. A large (semi-)skilled workforce, good infrastructure, a multitude of suppliers and the availability of integrated supply chains that were concentrated in China's top industrial clusters created outstanding locational competitive advantages in the specific industries that were hard to match in size, quality and costs.³³ Moreover, China's suppliers had moved upward in the value chain over the past decade by expanding their competencies and providing higher value activities such as R&D and technology services. This meant that China had become less dependent on foreign production inputs, a process driven by the government's industrial policy of import substitution in strategic sectors.³⁴

New locations for production and sourcing that could offer large numbers of low-cost but sufficiently skilled workers, a well-developed logistics and supplier infrastructure, a supportive bureaucracy, and a business-friendly investment climate ranked high in this search process. Vietnam, India, Malaysia, Taiwan and Indonesia were named as favorites for relocations. However, when adding a low dependence on China as a further selection criterion in order to reduce the concentration risk, then Mexico, Turkey and countries in Central and Eastern Europe would become attractive targets too.³⁵

Relocating the supply chain out of China posed enormous risks for Apple. Nevertheless, Apple knew that it had to take this step.

QUESTIONS:

1. How big is the problem resulting from the US-China tariff and trade war for Apple?
2. How can Apple respond to higher tariffs for imports from China?
3. What are the risks of a supply chain relocation out of China for Apple?
4. Which options does Apple have in adjusting its China-centered global supply chain?

³² Hille, K. & Liu, Q. (2020): Luxshare rises as China's homegrown iPhone manufacturer. Financial Times, 10.8.2020. Accessed 13.8.2020, <https://www.ft.com/content/5a9afb09-a9f2-483a-bd90-c30cee996480>

³³ The China sourcing blog (2011): Map: China's Top 100 Industrial Clusters, 4.11.2011. Accessed 13.8.2020, <http://www.chinasourcingblog.org/2011/11/chinas-industrial-clusters.html>

³⁴ Garcia-Herrero, A. (2020): Companies must move supply chains further from China. Nikkei Asian Review, 26.2.2020. Accessed 16.8.2020, <https://asia.nikkei.com/Opinion/Companies-must-move-supply-chains-further-from-China>

³⁵ Ibid.