

Global PC market to fall by 3.4% in 2020 in best-case scenario

What are the key assumptions behind Canalys' latest client PC forecasts?

- In the best-case scenario, the overall PC market (including tablets) is expected to fall by 3.4% in 2020 as opposed to increasing by 0.3% as previously forecast.
 - PC shipments in Q1 2020 will fall by more than 25% sequentially and 10% annually as COVID-19 affects both the channel and the supply chain in China, both directly and indirectly affecting sell-in and sell-out.
 - Shipments to China are expected to fall by more than 20% sequentially in Q1 2020 to 14.3 million units, due to a direct impact on retail purchases.
 - High-growth markets, such as the US and Japan, are expected to decline in 2020, as inventory stockpiling in anticipation of increases in tariffs and IT spending for the Olympics comes to an end.
 - Supply chain shortages, primarily in PCBs and memory, are expected to affect shipments of certain product lines, with ODMs and component manufacturers prioritizing high-value segments when resuming full operation.
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Canalys updates its client PC shipment forecast estimates in the seventh week of every quarter. While the data is designed to help its clients by providing appropriate metrics that can serve as a feed to their internal planning processes, Canalys also supplements this data with key assumptions that can affect, both positively and negatively, demand for and supply of PC shipments worldwide.

In the forecast released on 20 February 2020, Canalys compiled all the information available to it from multiple sources, including but not limited to equipment vendors, ODMs, OEMs, supply chain companies, channel partners, retailers and ISVs. This forecast is especially important as it analyzes the effects of the COVID-19 outbreak that has affected multiple countries around the world, albeit with a higher level of severity in China and Asia generally.



Specifically, for this forecast (February 2020 update), Canalys presents two scenarios, for the best and worst cases, representing the minimum and maximum level of impact of the COVID-19 outbreak. The major difference between the two scenarios is in considering the length of time that it would take for normal operations to resume in China and the rest of the world with successful containment and control of the current COVID-19 outbreak. Particular emphasis has been given to production and manufacturing, with the assumption that channel health and consumer demand will respond quickly to adequate supply in the market. Published forecast estimates to our clients represent only the best-case scenario. Canalys expects, with 80% certainty, that the best-case scenario will prevail.

Month	Manufacturing capacity level	
	Best-case scenario (80% probability)	Worst-case scenario (20% probability)
January 2020	100%	100%
February 2020	30% to 35%	20% to 25%
March 2020	75% to 85%	40% to 55%
April 2020	100%	80% to 85%
May 2020	100%	90%
June 2020 onwards	100%	100%

Note: values represent production levels as compared with expected production in the given months.



The best-case scenario

In the best-case scenario, production levels are expected to revert to full capacity by April 2020, hence the biggest hit will be to sell-in shipments in the first two quarters, with the market recovering in Q3 and Q4. Thus, worldwide PC market shipments are expected to decline 3.4% year on year in 2020, with Q1 2020 down by 10% and Q2 2020 by 9%. PC market supply will normalize by Q3 2020.

On a yearly basis, Canalys expects the worldwide PC market will slowly begin its recovery starting in 2021. Driven by production levels returning to normal and pent-up demand, we expect small year-on-year growth in 2021, followed by a CAGR of 0.6% between 2021 and 2024.

China will be worse affected than the rest of the world, as the COVID-19 outbreak is not just a supply-side shock to production, logistics, shipping, etc, but also a demand-side shock. In particular, PC consumer segment demand will be markedly more affected than demand in the commercial segment. Hence the Chinese market is expected to recover slower than the worldwide market.

China's PC market is expected to recover quickly from the setback of a 3.8% year-on-year decline in 2020 with a 3.4% expected CAGR between 2021 and 2024.



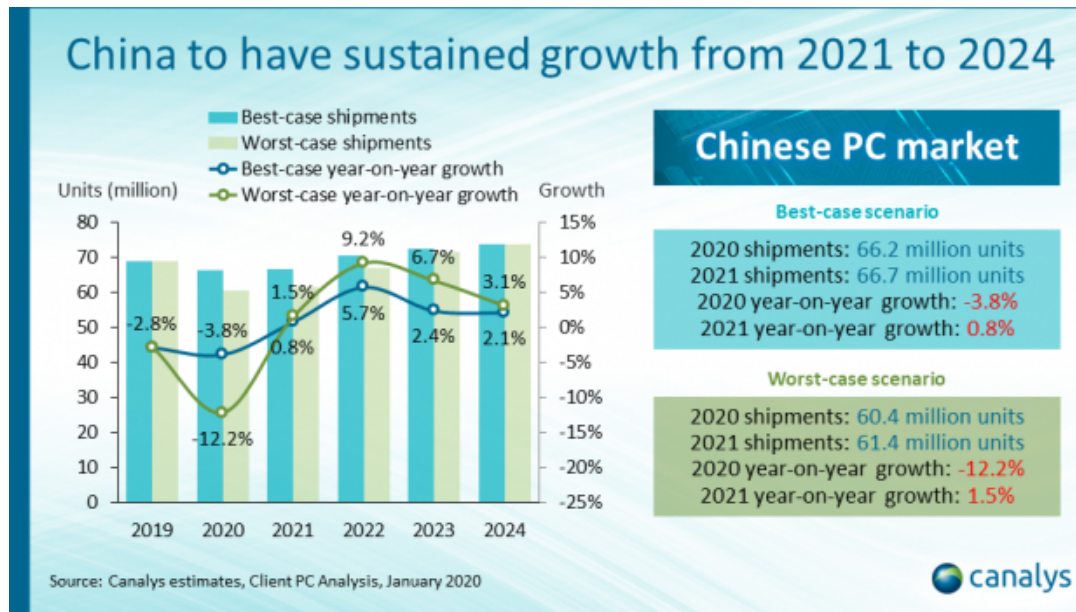
The worst-case scenario

In the worst-case scenario, production levels are not expected to revert to normal until as late as June 2020. As a result, sell-in shipments in the first three quarters will show a significant year-on-year decline compared with 2019. The market is then expected to recover in Q4 2020. Thus, worldwide PC market shipments are expected to decline year on year for three consecutive quarters, with a 21% decline in Q1, a 23% decline in Q2 and a 6% decline in Q3. This will be followed by 13% growth in Q4 as the market stabilizes.

Therefore, the worldwide PC market will suffer a heavy decline of 9% year on year in 2020 when compared with 2019, driven by poor performance in the first three quarters in all the major regions, with market recovery being delayed until Q4. The market is then expected to recover with 3% growth in 2021 and a CAGR of 1.6% between 2021 and 2024.

Under the assumptions of this scenario, production and demand levels in China will take even longer to recover and Q2 will suffer a decline on a par with Q1 as a consequence. It will be as late as Q4 2020 until we see a market recovery. Hence, we expect China's PC market to suffer 24% and 23% year-on-year declines in Q1 and Q2 respectively. The decline will persist until Q3, with a 9% drop, until the market finally recovers in Q4 with 17% year-on-year growth.

The Chinese market will suffer heavily in 2020 under this scenario, with a 12% year-on-year decline over 2019, and subsequent stabilization taking even longer, with 2021 forecast shipments lagging 6 million behind the best-case scenario. The expected CAGR between 2021 and 2024 in China is 6.3%.



Forecast assumptions and predictions

Our overall forecast assumptions are split into four main areas of impact – supply chain and production, channel impact (retail and distribution), China, and end-user demand (commercial and consumer). Canalys also identifies macroeconomic factors that may further affect demand in the world's major markets, including the US and Japan.

Supply chain and production

The impact on product manufacturing will vary based on the function of the particular entity in the supply chain, mainly damaging component manufacturers and PC assembly lines.

Component manufacturers – including displays, memory, storage and chipsets

- Current impact – workforce, operational, transport infrastructure.
- Component manufacturers based in Wuhan and some other provinces, such as Jiangsu, are the most affected by the COVID-19 outbreak, as factory owners have been unable to resume full operations, partly due to a seriously short supply of workers, but also due to additional restrictions on working conditions imposed by the Chinese government making it difficult to operate as before.
- PCB manufacturing is the most affected and PCBs are expected to remain critically scarce for the next two quarters. In comparison, generally, display and memory suppliers have been less affected. But this also depends on the location of factories, whether they are in Hubei or other affected provinces.
- While a slow resumption of transport services has already been seen in China, this is a modest 50% to 60% of what is expected for a post-holiday period. This will result in slower production of raw-material intensive components, such as displays, memory and chipsets.
- The impact on PC shipments is likely to be immediate. Vendors are expected to book production capacity in

advance, anticipating the short supply and are likely to prioritize business-critical portfolios. Canalys expects vendors to focus on high-value commercial products, while paying special attention to the low-cost volume categories that will ensure preservation of market share.

- Impact level – high and immediate.
- Impact duration – short- to medium-term (two to three quarters).

ODM / product assembly

- Current impact – workforce, operational, transport infrastructure.
- PC assemblers, such as Foxconn, Quanta, Compal and Wistron, have reported a partial resumption of PC assembly in their Chinese factories, which has inadvertently affected overall production of PC endpoints. Factories in China are now required to apply for a permit to resume operations, available to them only with ample protective measures in place, such as an adequate supply of hygiene masks and germicides. ODMs have reported their current production capacity at 20% to 40% of the previously expected output in February.
- Vendor-owned PC assemblies are also affected, with about 5% of all PCs being assembled in COVID-affected areas, such as Wuhan. This will affect overall output for vendors such as Apple, HP and Lenovo to a large extent.
- ODMs are expected to work on minimizing the impact on revenue and operational expenditure as Q1 is expected to be one of their weakest quarters in history.
- Vendors' advanced booking of production capacity will be helpful for ODMs, providing necessary cashflow, especially for smaller manufacturers.
- Impact level – high and immediate.
- Impact duration – short- to medium-term (two to three quarters).

Channel impact – retail and distribution

Retail: As an immediate impact of the COVID-19 outbreak in China, Chinese central government announced the extension to the official Lunar New Year holidays (until 9 February), followed by local governments' stringent travel restrictions to keep citizens at home and to largely reduce the number of people in public areas. This resulted in a significant drop in offline retail traffic and a dramatic fall in consumer purchases. Apple responded by shutting down all its retail stores in China, where it has the most extensive network outside of the US, through the Chinese New Year and has just begun reopening its stores in China. Despite measures taken by various retailers to ensure hygiene, consumers are avoiding any non-essential offline purchases. While online retail continued to remain operational, the lack of transport and last-mile connectivity via domestic courier services had a detrimental effect on online sell-out. Even in countries outside of China where COVID-19 has made advances, such as Singapore, Thailand, Indonesia and Japan, the impact on offline retail has been drastic and immediate. Beyond these countries, the retail impact has been minimal to none.

Distribution: Supply shortages are now affecting tier-one distribution, not just in China but also worldwide. The situation has been worsened due to slower resumption of work in ports and export facilities in China and Hong Kong. In addition to domestic logistics disruption in China, air cargo capacity has been reduced between China and Europe, which resulted in shipment delays, leading vendors and distributors to warn customers of shortages. Likewise, channel partners have received notifications from key PC vendors over the last two weeks that their PC shipments and replacement parts can be expected to arrive in up to 14 weeks – over three times the usual delivery time – depending on where partners are located. Operations, while expected to normalize by Q2 2020, are likely to

have a lasting impact on PC distribution as small players that do not receive shipments and are unable to fulfill orders will lose business.

End-user demand – commercial and consumer

While there has been no slowdown in worldwide end-user demand for PCs, China, which accounts for 17% of the total PC market, has seen a drastic drop in sell-out. The commercial and consumer markets in China have reacted differently to the COVID-19 situation, with each end user focused on sustenance rather than optimization.

Commercial demand in China: businesses have put aside their IT spending on new equipment and prioritized only business-critical expenditure. With companies forced to allow employees to work remotely, demand for mobile PCs has risen. This does not, however, compensate for the overall drop in IT spending as more and more companies focus on minimizing operational costs as opposed to ensuring equipment refreshes for employees. In the long term, however, as COVID-19 passes, companies will look to streamline business processes and ensure flexible working policies, thereby modifying their own IT procurement policies. This will lead to a minor uptick in demand for notebooks and tablet PCs (commercial). As backlog orders pick up in the latter half of the year, vendors that can fulfil demand immediately will benefit, as businesses will focus less on brand and more on availability.

Independent and small businesses that have limited cashflow are likely to struggle to stay solvent, while SMBs will feel the heat of the slowdown much more than large businesses. This will further lead to budget cuts and slower procurement of fresh IT equipment. Industries such as retail, hospitality, travel and tourism are most likely to be affected.

Commercial demand outside China: COVID-19 has had a minimal effect on operations outside of China, except in certain countries in Asia where the virus has spread to more than 10 nationals.

- **Japan**, still reeling from an economic slowdown caused by an increase in GST, faces an uncertain future as COVID-19 has infected more than 500 residents. Any further escalation of the virus in Japan threatens to disrupt the 2020 Olympics, which will deal a massive blow to Japan's tourist economy. While PC demand is expected to fall in 2020, as opposed to 2019, COVID-19 threatens to affect Japan just as it did China.
- **The United States**, being the world's number one market for PCs, is likely to be most affected by the shortage in the supply of client PCs. The effects will only be seen from late Q2 2020, given that most PC vendors have stockpiled inventory in 2019 in anticipation of another round of sanctions on Chinese imports by the US government. Seasonally, Q2 is a strong quarter for sell-in of Chromebooks and other notebooks as the US braces for back-to-school demand for PCs. Almost all vendors are likely to prioritize the US in the face of a shortage but maintaining a delicate balance of portfolios will be key.
- **Asia Pacific**, being closest to China, has seen the impact of COVID-19, especially in financial hubs, such as Singapore and Hong Kong. While there has been no impact on commercial demand yet, Canalys expects some disruption to IT procurement cycles as companies focus on ensuring employees' health and safety.

Consumer demand in China: Consumer PC purchases in Q1 2020 and in future quarters will be primarily driven by new consumer requirements, such as online learning and remote working. With an impact on the earning capabilities of some consumers, due to elongated holidays and compulsory isolation policies of the Chinese government, non-essential spending will be affected. Consumers are also less likely to head outdoors for purchases, favoring online shopping instead. With supporting logistics limping back into operation, consumer demand in China could see a short burst in late Q1 and Q2 2020. There will be an indirect decrease in overall consumption capability in China for a short period lasting through 2020, which will affect consumer spend on new PCs this year.

Consumer demand outside China: Consumers outside of China will be affected only by supply shortages of PCs and spare parts, leading to higher prices for such equipment. Consequently, refresh rates are expected to lengthen slightly, leading to an overall fall in consumer demand.

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