



COVID 19 ANALYSIS

S E M I C O N D U C T O R I N D U S T R Y

PREPARED BY

MARKET RESEARCH FUTURE

(Part of Wantstats Research & Media Pvt. Ltd.)

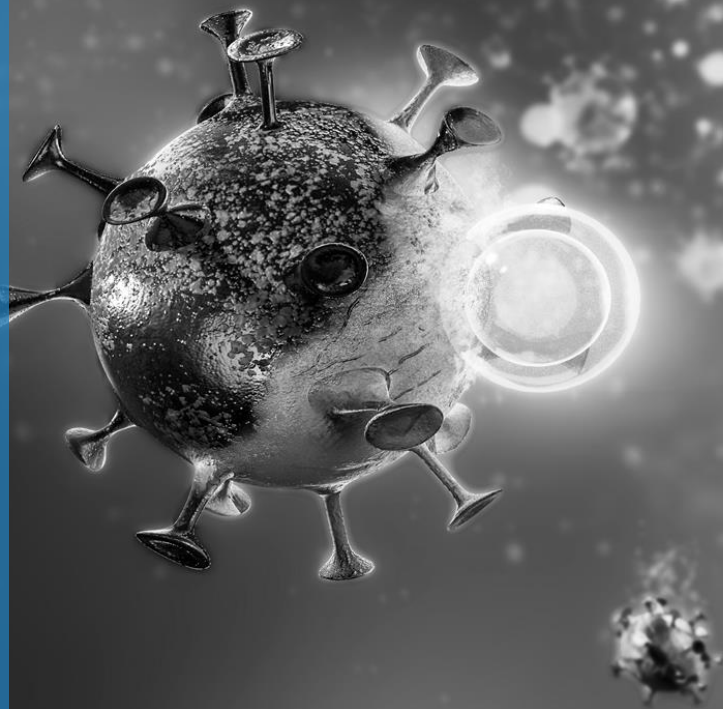


COVID 19 IMPACT ON

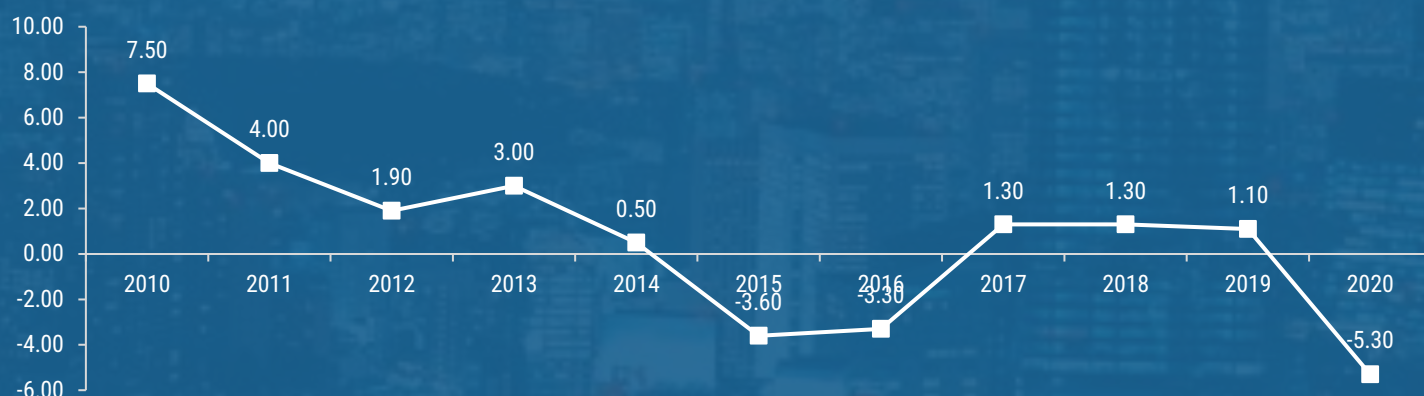
BRAZIL

SEMICONDUCTOR INDUSTRY

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Brazil-Real GDP Growth (Annual Percent Change) 2010 - 2020



Brazil is the tenth largest economy in the world and the biggest country in Latin America. The services sector is the most important and accounts for 63 percent of the total GDP. The biggest segments within services are government, defense, education & health (15 percent of total GDP), other services (15 percent), wholesale & retail trade (11 percent), real estate (8 percent), and financial services (7 percent). Additionally, manufacturing accounts for 18 percent of the GDP, with manufacturing (11 percent) and construction (4 percent) accounting for the largest shares. Exports of goods and services account for 13 percent of GDP while imports account for 12 percent, adding 1 percent of total GDP.

Brazil-Consumer Price Index (CPI) April 2019 - March 2020 (% Change)



In Brazil, the inflation rate measures a broad rise or fall in prices that consumers pay for a standard basket of goods. The most important categories of the index are- food & beverage (26 percent of the total weight), transport (18 percent), housing (15 percent), health care (12 percent), and personal expenses (11 percent). Additionally, clothing accounts for 6 percent, education for 5 percent, household goods for 4 percent, and communication for 4 percent.

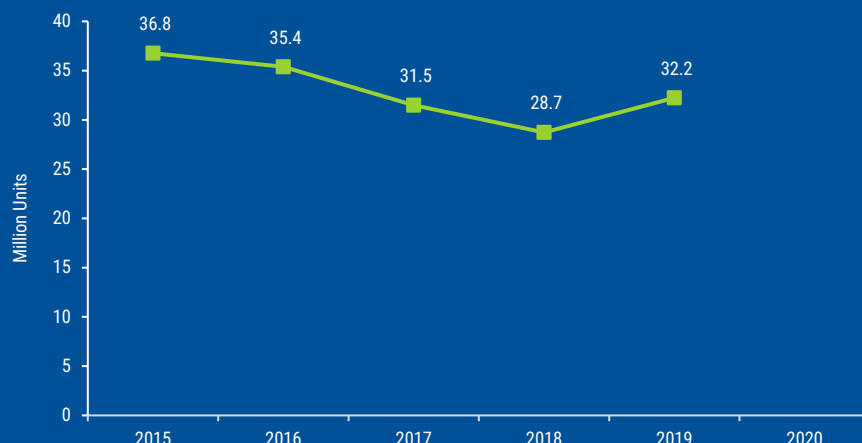
YEAR-ON-YEAR DATA

(2015 - 2020) - Million Units



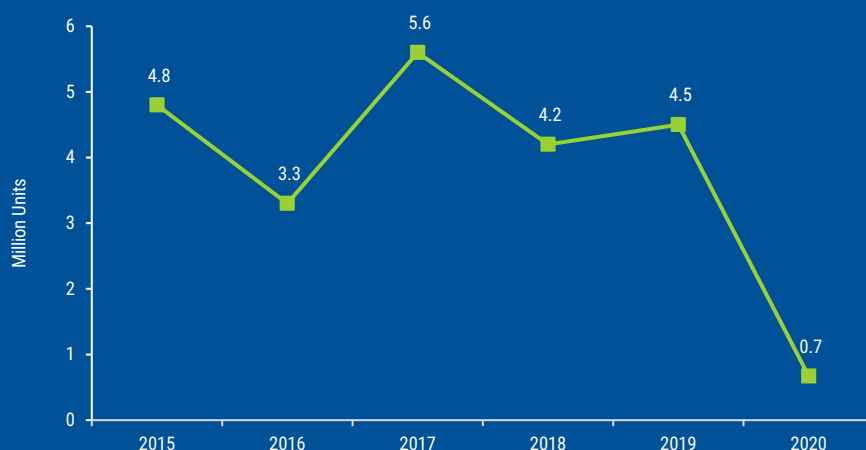
SMARTPHONE SHIPMENT

There has been a shortage in the smartphone shipment in the Brazil since 4th Quarter 2019 due to the lack of components from China. More than 56 % of the smartphones are exported from China in the country, but due to lockdown it has affected the shipment in the country.



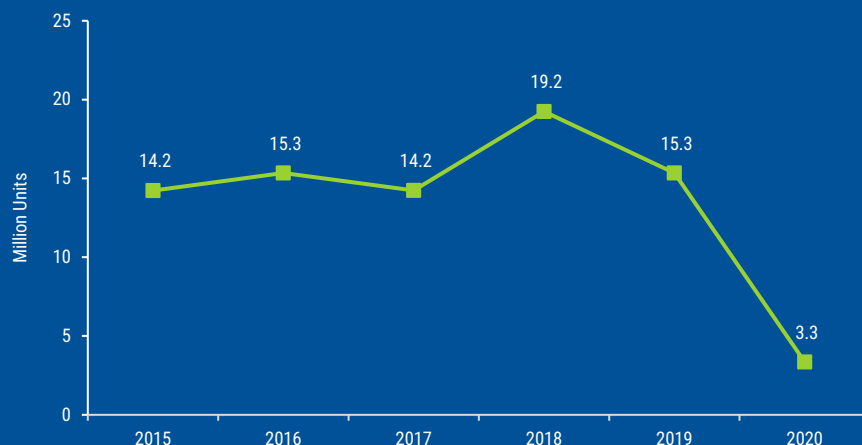
PC/LAPTOP SHIPMENT

The lack of raw material and components to produce laptops and PCs from China in the country due to impact of COVID-19 is impacting the PC/Shipments growth negatively.



LED PANEL SHIPMENT

There has been a negative effect in the LED panel shipment in Brazil due to lockdown. According to Brazilian Association of the Electrical and Electronics Industry (Abinee) 42% of the electronic components used in the country is exported from China.



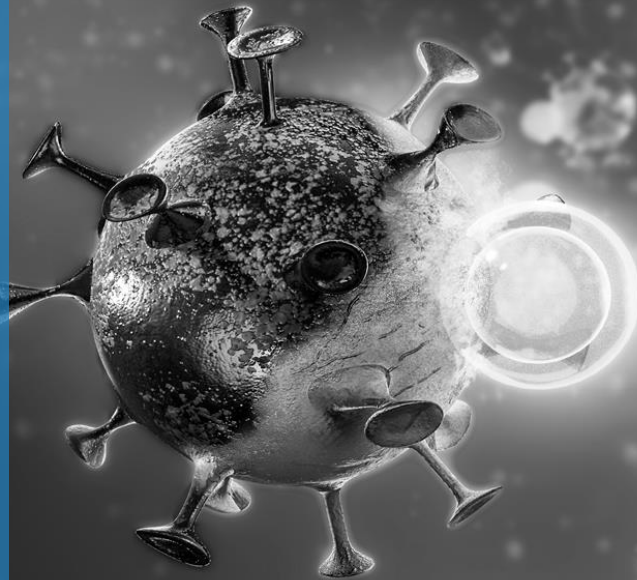


COVID 19 IMPACT ON

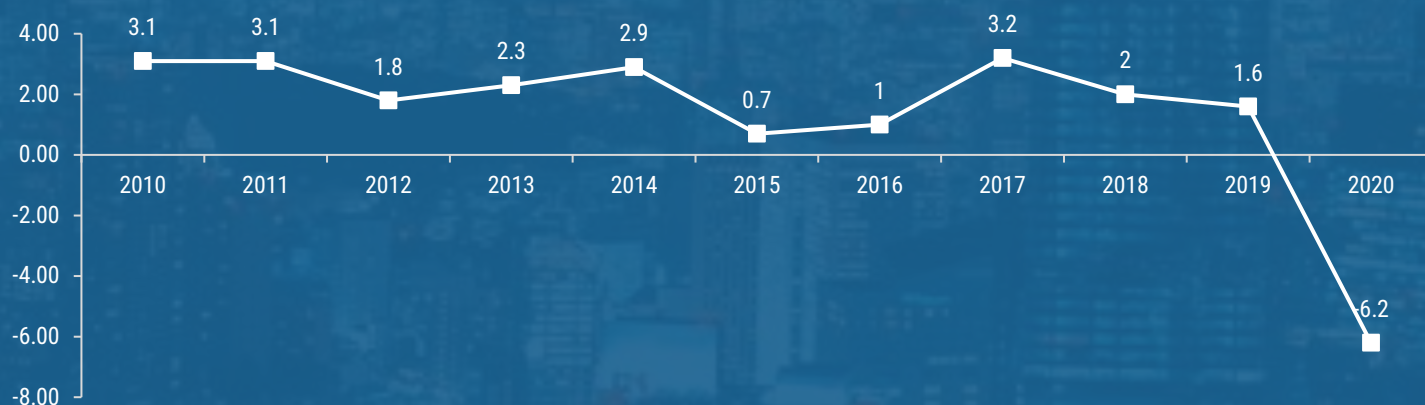
CANADA

SEMICONDUCTOR INDUSTRY

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Canada-Real GDP Growth (Annual Percent Change) 2010 - 2020



The Gross Domestic Product (GDP) in Canada expanded 1.50 percent in the fourth quarter of 2019 over the same quarter of the previous year. In Canada, services account for more than 70 percent of GDP. Within services the most important are finance, insurance, real estate, rental & leasing, and management of companies and enterprises (21 percent of total GDP), retail & wholesale trade (12 percent), health (8 percent), and public administration (6 percent). Manufacturing accounts for 13 percent of the output and construction for 6 percent. Mining and oil & gas extraction constitute only 4 percent of GDP, yet Canada is a net exporter of energy. Finally, agriculture, forestry, fishing, and hunting account for 2 percent of the output.

Canada-Consumer Price Index (CPI) April 2019 - March 2020 (% Change)



Consumer Price Index (CPI) in Canada decreased to 136.60 points in March from 137.40 points in February of 2020. The goods and services in the CPI basket are divided into eight major components: food, shelter, household operations, furnishings & equipment, clothing and footwear; transportation, health and personal care, recreation, education and reading, and alcoholic beverages, tobacco products & recreational cannabis. CPI data are published at various levels of geography, including Canada, the ten provinces, Whitehorse, Yellowknife and Iqaluit, and select cities.

YEAR-ON-YEAR DATA (2015 - 2020) - Million Units



SMARTPHONE SHIPMENT

Apple is the most popular smartphone brand in Canada. It holds nearly 51.3 percent of the market share followed by Samsung that holds 28.7 percent. Despite, the COVID-19 outbreak leading to low inventory of handsets, the smartphone market in Canada witnessed a modest growth of 5 percent in the first quarter.

With the supply constraint in the current quarter and the affluent customers in lockdown, the market could witness a pent-up demand from Canada. The smartphone firms may opt for online flash sales or product upsells to attract customers post lockdown.

PC/LAPTOP SHIPMENT

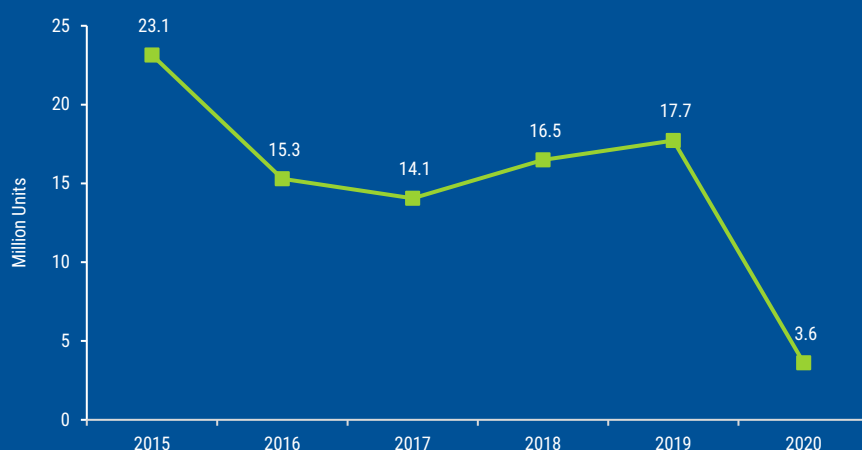
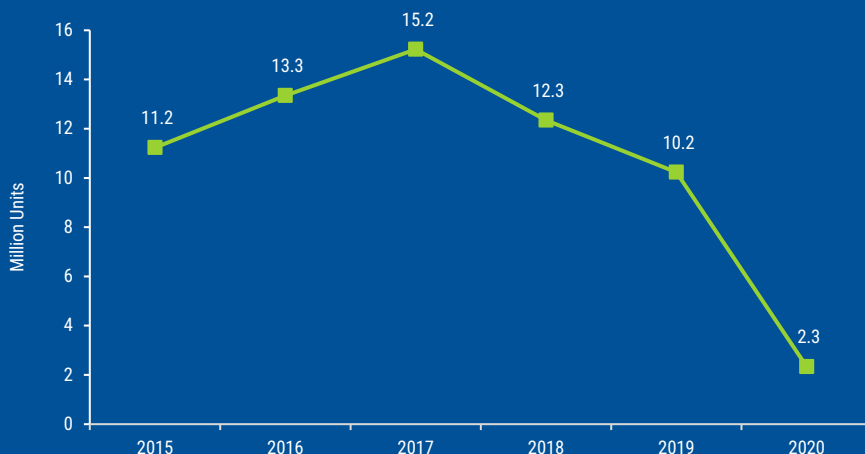
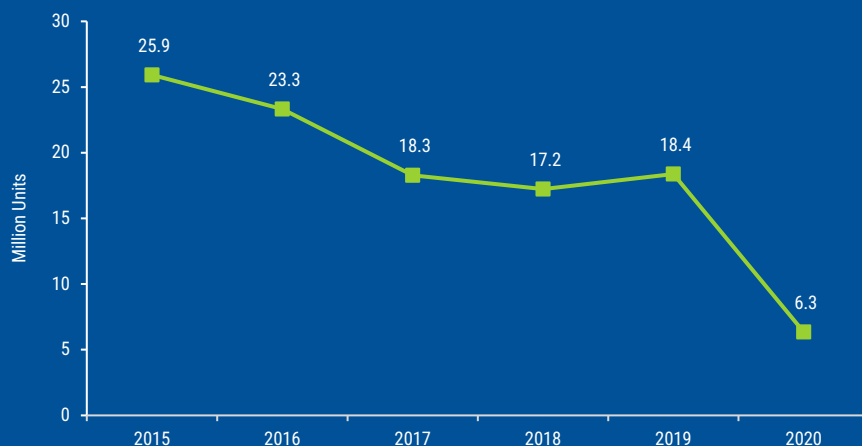
In Canada, the PC/Laptop market witnessed a growth in the first quarter of 2020 with several vendors being managing to capitalize during the COVID-19 pandemic. The major drivers for the market have been identified as strategic purchases for Windows 10 upgrades and the need to address working and learning from home. The first quarter witnessed inventory levels in all areas of the channel being reduced to meet this demand.

However, the following quarter is expected to witness decline as with retail locations and businesses close due to lockdown, the need to replenish inventory will also fade. Furthermore, the transport of goods will also be adversely hit due to lag in the supply chain.

LED PANEL SHIPMENT

LED Panel lights is a huge market in Canada and the product is carefully regulated by safety standards and regulations that are defined by the local authorities. The country has very limited number of manufacturers and therefore, a large portion of the LED panels are imported into the country to meet the demand.

However, with COVID-19, the country is witnessing disruption in supply chain and also shortage of raw material and components. This is expected adversely impact the LED panel shipment across Canada for the second and third quarter of 2020.

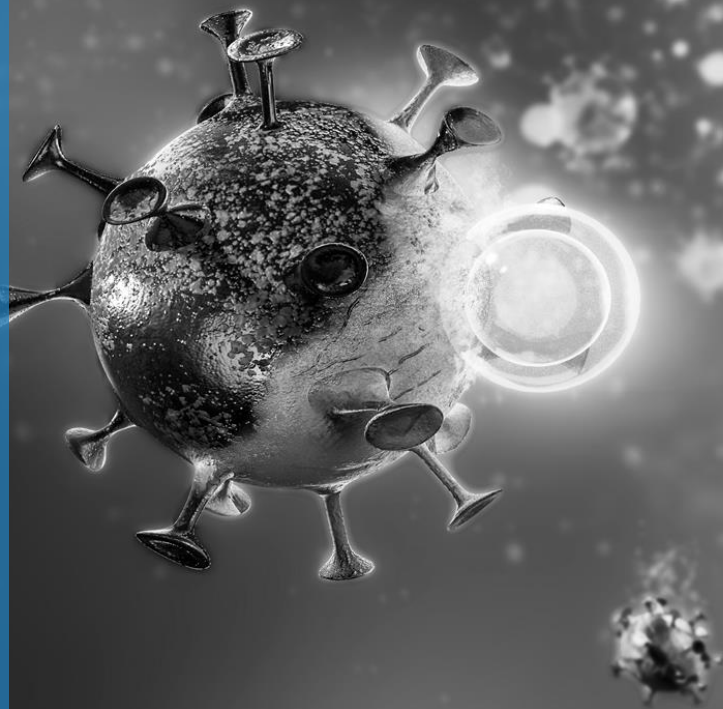




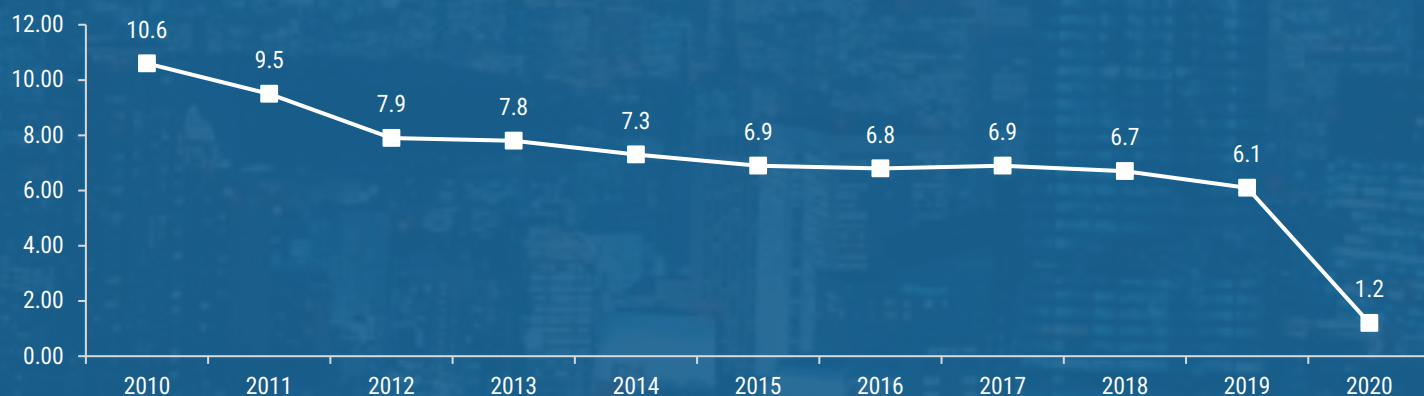
COVID 19 IMPACT ON **CHINA**

SEMICONDUCTOR INDUSTRY

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China-Real GDP Growth (Annual Percent Change) 2010 - 2020



- The Chinese economy contracted by a seasonally adjusted 9.8% in the three-month quarter to March 2020, following a 1.2 percent growth in the previous quarter and recorded a 9.9% decrease. This was the first quarterly contraction on record, as the COVID-19 outbreak paralyzed production and activities.

China-Consumer Price Index (CPI) April 2019 - March 2020 (% Change)



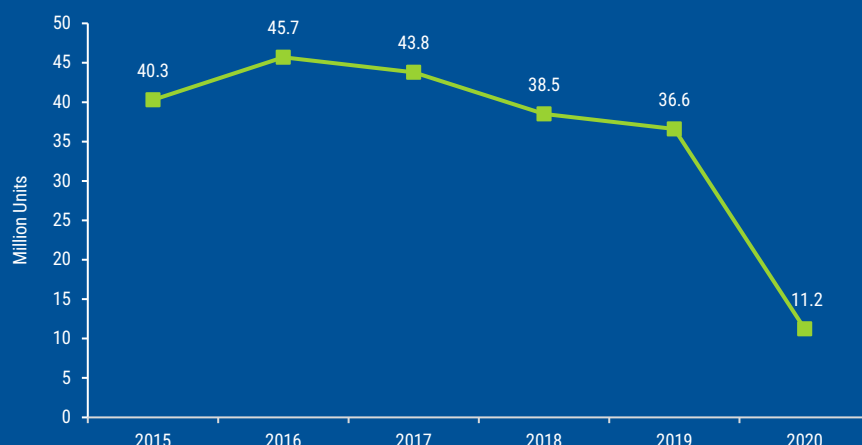
- China's Consumer Price Index (CPI) growth was measured at 4.3 % YoY in March 2020, compared with a rate of 5.2% in the previous month.
- E-commerce giants Alibaba (BABA), JD.com (JD), and Meituan each announced that they would monitor prices closely and remove overpriced items or ban merchants for price-gouging.

YEAR-ON-YEAR DATA (2015 - 2020) - Million Units



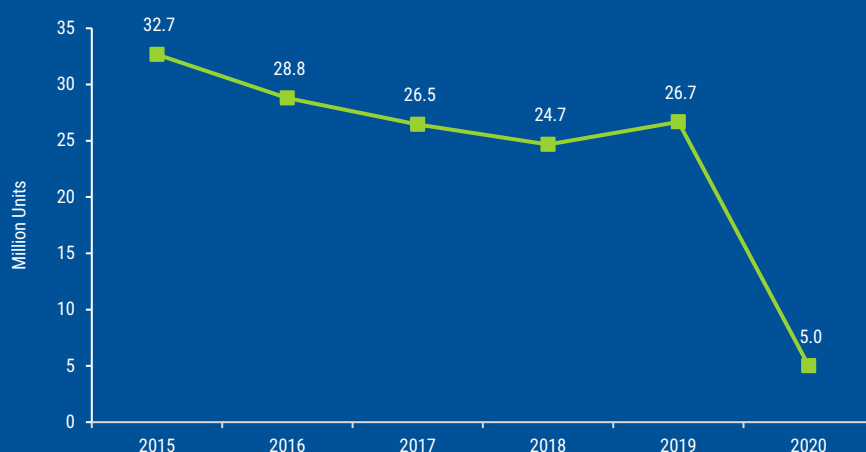
SMARTPHONE SHIPMENT

China is the hub for manufacturing and assembling of smartphones due to well-developed infrastructure and affordable labour. Since it has been the initial epicentre of the COVID-19 outbreak, the smartphone industry has been severely affected. In March, the smartphone shipments in China has witnessed a staggering decline of 21.9% and accounted for 21.0 million units.



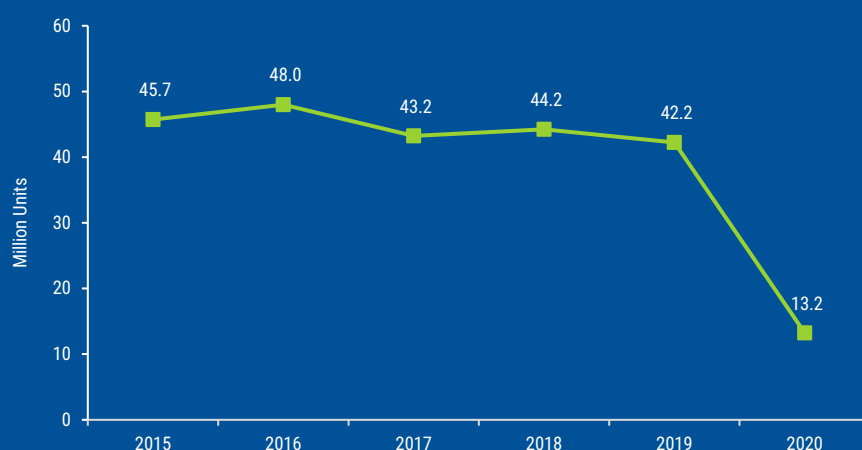
PC/LAPTOP SHIPMENT

The overall PC shipments in China has declined by 30% as compared to the shipments in 2019. Desktops and PCs used for commercial purposes, government, and educational organizations have experienced the highest decline of 40% whereas the laptops and notebooks have witnessed a decline of 20% since these devices are portable and used by employees working from home and students for e-learning.



LED PANEL SHIPMENT

Due to automation of manufacturing of LED panels, the impact of COVID-19 on the shipments of LED panels was comparatively less than module shipments. The shipment of TV panels was less impacted when compared to monitor and notebook computer panel shipments since, the TV panels are shipped in an open cell format and the monitor and notebook computer panels are shipped in module format. The TV Panel shipments have witnessed a steep decline of 4% in 2020.



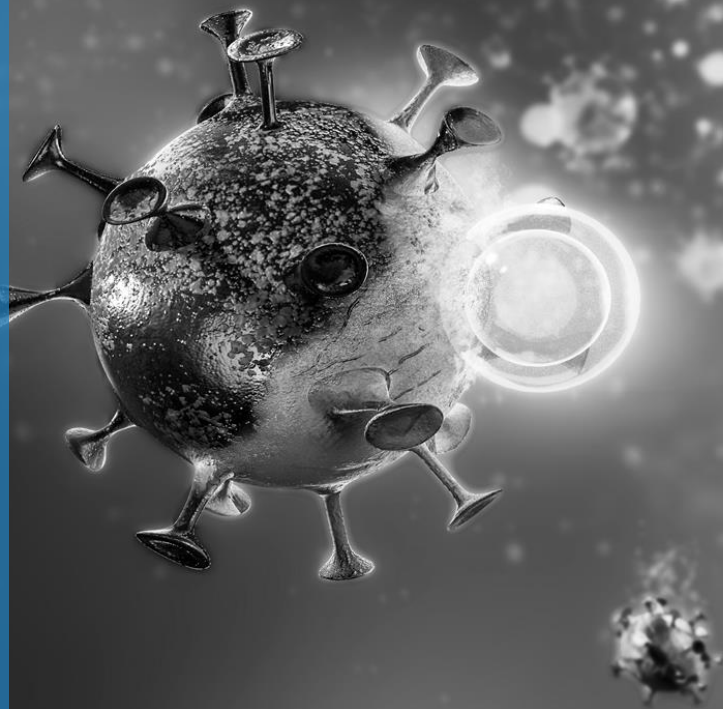


COVID 19 IMPACT ON

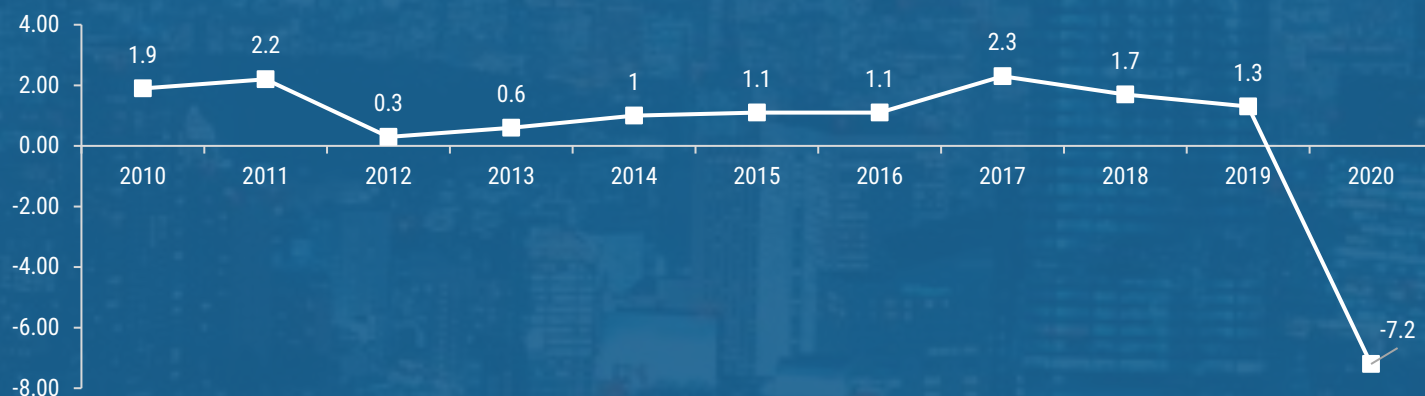
FRANCE

SEMICONDUCTOR INDUSTRY

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France-Real GDP Growth (Annual Percent Change) 2010 - 2020



France is the seventh largest economy in the world and the second-largest in Europe. The biggest sector of the economy is household consumption (55 percent), followed by government expenditure (24 percent) and gross fixed capital formation (22 percent). Exports of goods and services account for 29 percent of GDP while imports account for 31 percent, subtracting 2 percent from total GDP.

France-Consumer Price Index (CPI) April 2019 - March 2020 (% Change)



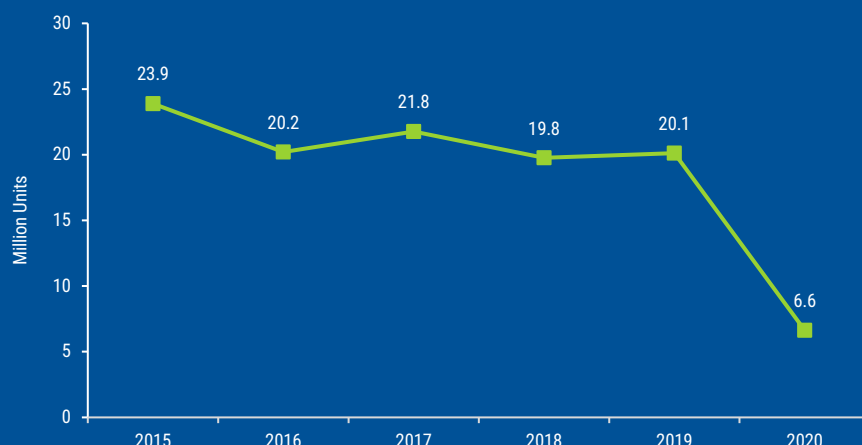
In France, the most important category in the consumer price index is services (48 percent of total weight), particularly actual rentals and services for dwellings (7 percent), health services (6 percent), transport (3 percent), and communication (2 percent). The index also includes manufactured products (26 percent), such as medical products (4 percent) and clothing & footwear (4 percent), food (16 percent), energy (8 percent) including petroleum products (4 percent), and tobacco (2 percent).

YEAR-ON-YEAR DATA (2015 - 2020) - Million Units



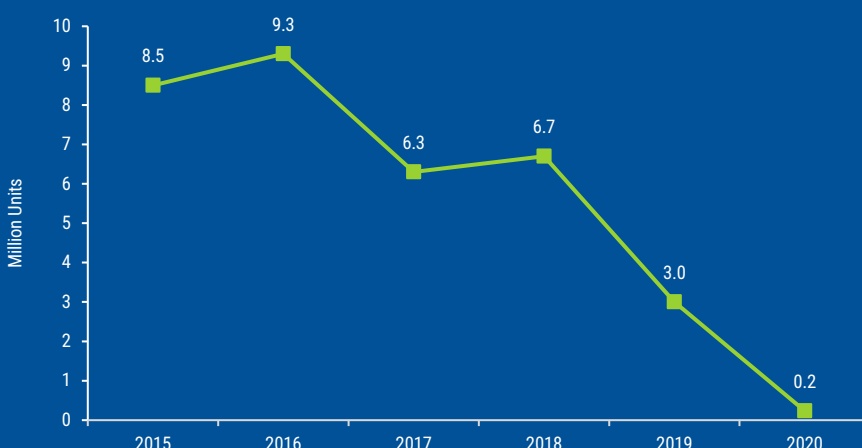
SMARTPHONE SHIPMENT

The shutdown of the manufacturers due to pandemic conditions there has been a huge decline in the smartphone's shipment in the France which is affecting the smartphones market. Additionally, impact of COVID-19 on the e-commerce business in the country has also resulted in the decline of the online orders. Furthermore, the initiative taken by the France government has led to the development of a digital application for tracking the moment of the infected people via their phone's geolocation services. These type of innovation in the application is expected to increase the shipment of the smartphones across the country.



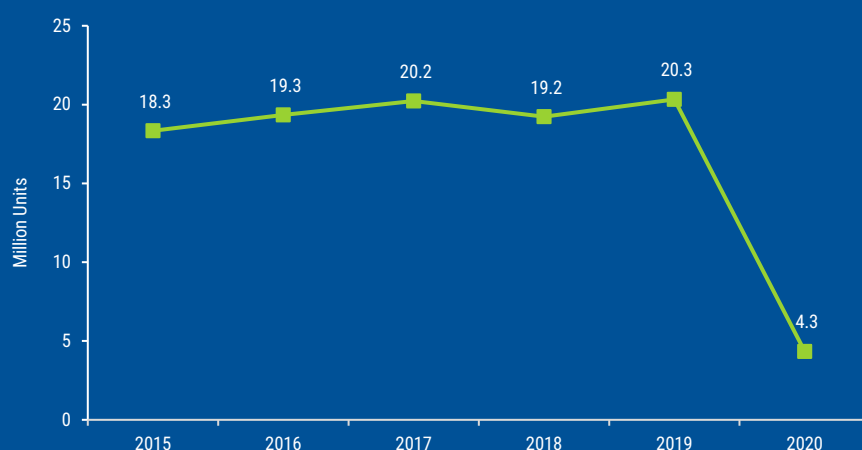
PC/LAPTOP SHIPMENT

The rise in the impact of the COVID-19 pandemic has led to affect the working culture in the country and has led the individuals to work from home, due to which there has been a shortage of PC/laptops in the country, also due to lockdown various PC/laptops production facilities in countries such as China, Japan, US has been closed which is also affecting the shipment. As the conditions will get better, the shipment is expected to increase that will impact in the growth of the PC/Laptops sale in France.



LED PANEL SHIPMENT

The French LED panel market is hindered due to lack of raw material for manufacturing the LED panels and components. Due to the impact of COVID-19 there has been a decline in the shipment of various components and panels from China, Japan and other countries leading to hinder the shipment of the LED panels in the country.





COVID 19 IMPACT ON

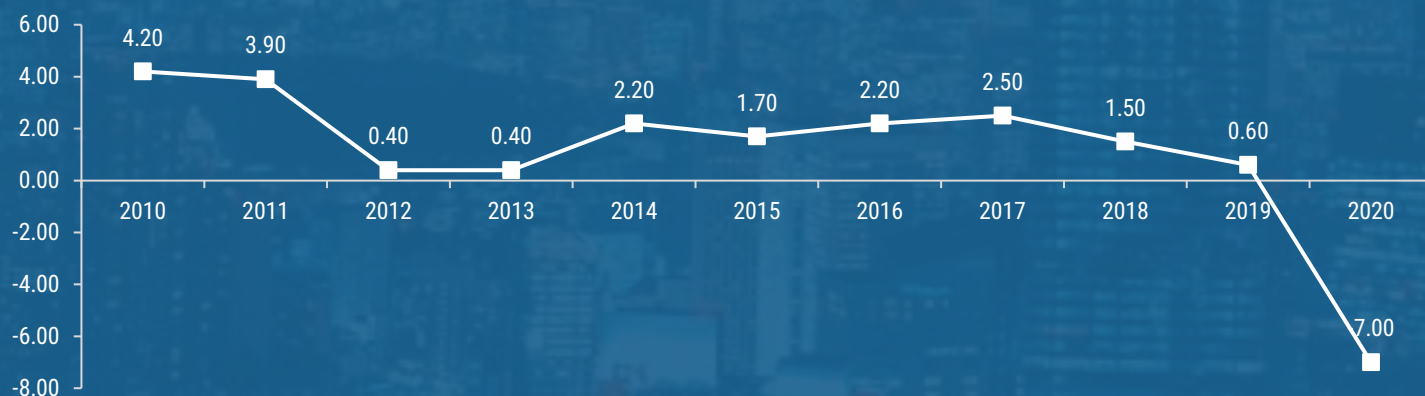
GERMANY

SEMICONDUCTOR INDUSTRY

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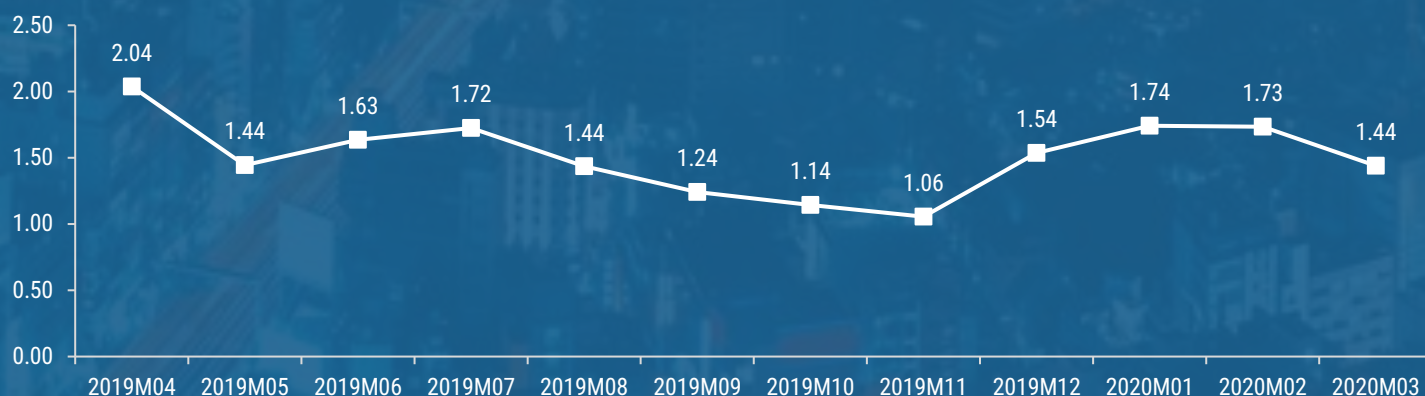


Germany-Real GDP Growth (Annual Percent Change) 2010 - 2020



Germany is the fifth largest economy in the world and the largest within the Euro Area. Germany is the second largest exporter in the world and exports account for more than one-third of national output. As such, the export of high added value products has been the main driver of growth in recent years. Composition of the GDP on the expenditure side: household consumption (55 percent), gross capital formation (20 percent, of which 10 percent in construction, 6 percent in machinery and equipment and 4 percent in other products) and government expenditure (19 percent). Exports of goods and services account for 46 percent of GDP while imports for 39 percent, adding 7 percent to total GDP.

Germany-Consumer Price Index (CPI) April 2019 - March 2020 (% Change)



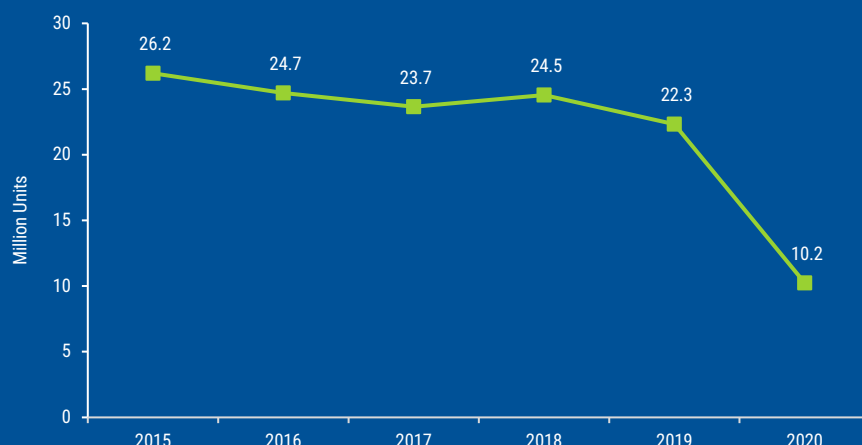
In Germany, the most important categories in the consumer price index are housing, water, electricity, and gas & other fuels (32 percent of the total weight), transport (13 percent), recreation, entertainment & culture (11 percent), and food & non-alcoholic beverages (10 percent). The index also includes miscellaneous goods & services (7 percent), furniture, lighting equipment, appliances & other household equipment (5 percent), restaurant & accommodation services (5 percent), health (5 percent), and Clothing & footwear (5 percent). The remaining 7 percent of the index comprises alcoholic beverages & tobacco, communication, and education.

YEAR-ON-YEAR DATA (2015 - 2020) - Million Units



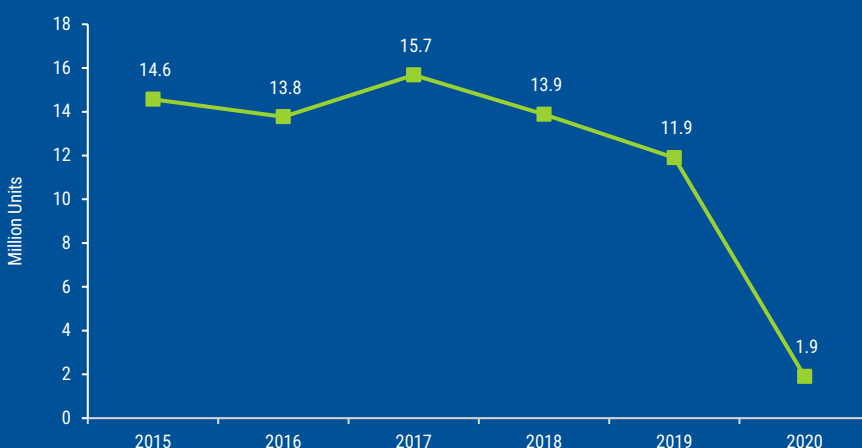
SMARTPHONE SHIPMENT

The first quarter of 2020 witnessed a sharp decline in the smartphone shipment in Germany and its is expected to fall in value in the future quarters of the year. The COVID-19 outbreak and subsequent lockdown has not only reduced the demand but is also expected to hinder the ability of the country to roll-out 5G network in 2020. Even though the initial phase of outbreak resulted in the disruption of the smartphone supply, the market is expected to witness a sharp decline in the demand in the coming months owing to the rapidly growing numbers of newly unemployed in the country as a result of economic downturn and lockdown.



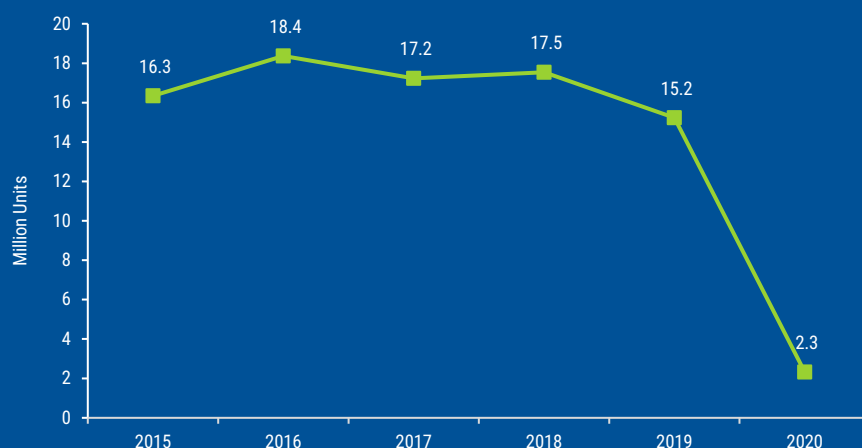
PC/LAPTOP SHIPMENT

The Germany PC market had been witnessing a decline in demand for the past two years. The demand was been witnessed within the gaming laptop segment. However, with the COVID-19 outbreak the first quarter witnessed a rise in demand for notebooks driven by remote employees and e-learning students. Despite the rise in demand, the country is expected to witness adverse impacted both the supply and demand in the Germany PC market due to the outbreak.



LED PANEL SHIPMENT

With the COVID-19 outbreak, the Germany LED panel industry is on the verge of witnessing a reduction in production, disruption in supply, and price fluctuations. Furthermore, the restricted transportation and logistics in the country from other countries, the manufacturers are witnessing shortage of raw materials. During the coming months, with the decline in the end-use industry such as Automotive, the demand is expected to witness a reduction. However, as the is expected to recover by the end of December 2020.



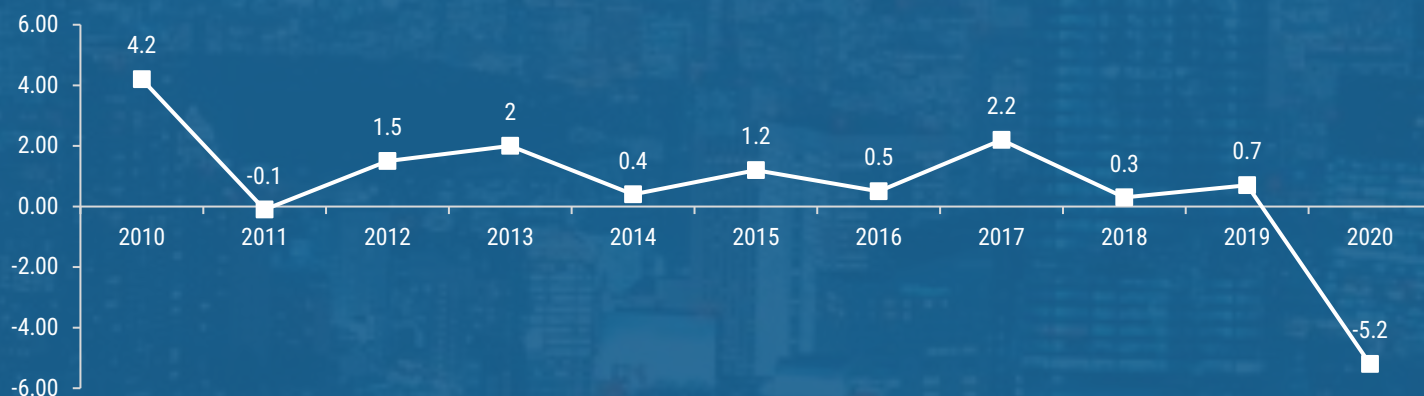


COVID 19 IMPACT ON
INDIA
SEMICONDUCTOR INDUSTRY

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India-Real GDP Growth (Annual Percent Change) 2010 - 2020



- India has emerged as the fastest growing major economy in the world and is expected to be in the top three economic powers of the world in the next few years, owing to its strong democracy and partnerships.
- India's nominal GDP growth rate is estimated at 12% in 2019-20. Due to current COVID-19 impact, experts have estimated growth for fiscal year 2021 with the lowest figures the country has seen in three decades.

India-Consumer Price Index (CPI) April 2019 - March 2020 (% Change)



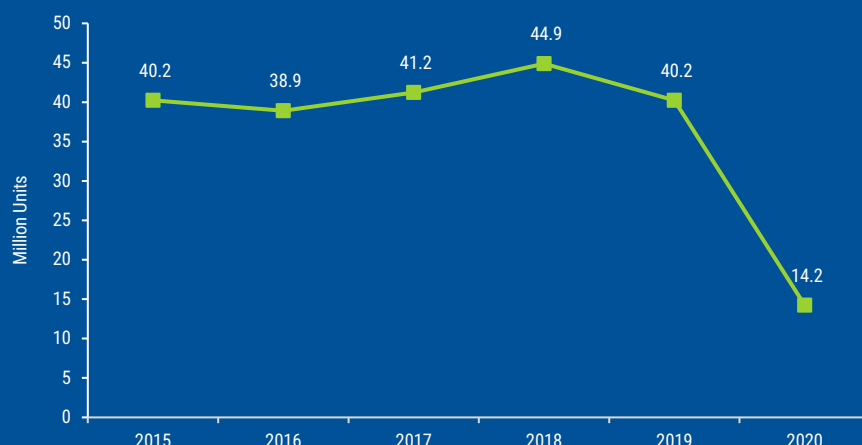
- India's consumer price index or retail inflation has shown 5.9% YoY in March 2020 amid the COVID-19-induced nationwide lockdown.
- With falling crude oil prices, low food prices, and weak consumer demand for non-essential products due to the spread of COVID-19, the CPI is expected to show moderation in the coming months.

YEAR-ON-YEAR DATA (2015 - 2020) - Million Units



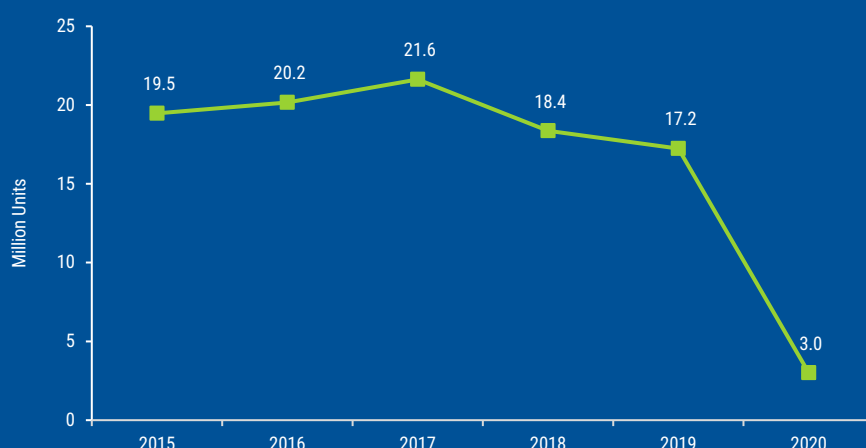
SMARTPHONE SHIPMENT

According to the research, in India smartphone market grew at 4% YoY in Q1 2020 as compared to last year. Now due to COVID-19 the smartphone shipment in the India has declined nearly 19% from 2019 sales. In the past two months there are no activities in smartphone market and its shipments due to ongoing lockdown in India. Economic activities have declined as people have started saving money in expectation of extended period of uncertainty, especially the middleclass population. Almost all the smartphone manufacturing units in India has been suspended due to social distancing norms.



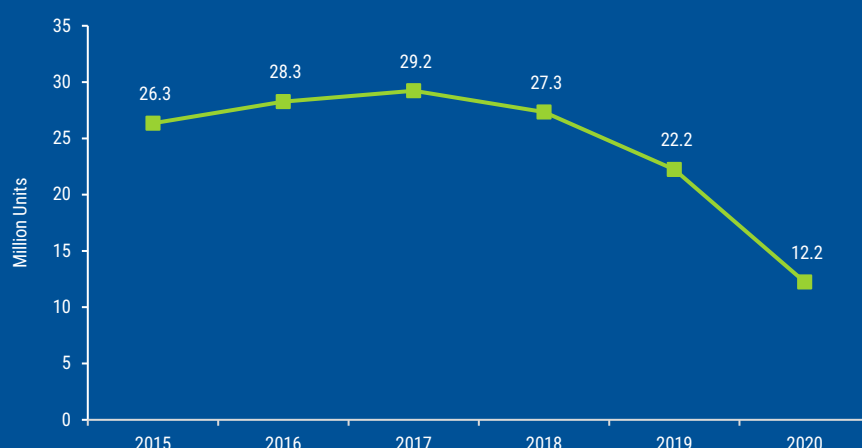
PC/LAPTOP SHIPMENT

While several industries reel under the COVID-19 pandemic in India but the PCs and business laptops started selling at high demand even before the 21-day lockdown was announced from March 24 midnight. It has up by almost 15% on year in Q2 in India. As millions of Indians across the country began working from home as corona-positive cases began emerging from various offices in the early March. For Instance, Lenovo India is aiming to double its PC shipment volume in the financial year 2020-21 despite the challenges brought by COVID-19 pandemic.



LED PANEL SHIPMENT

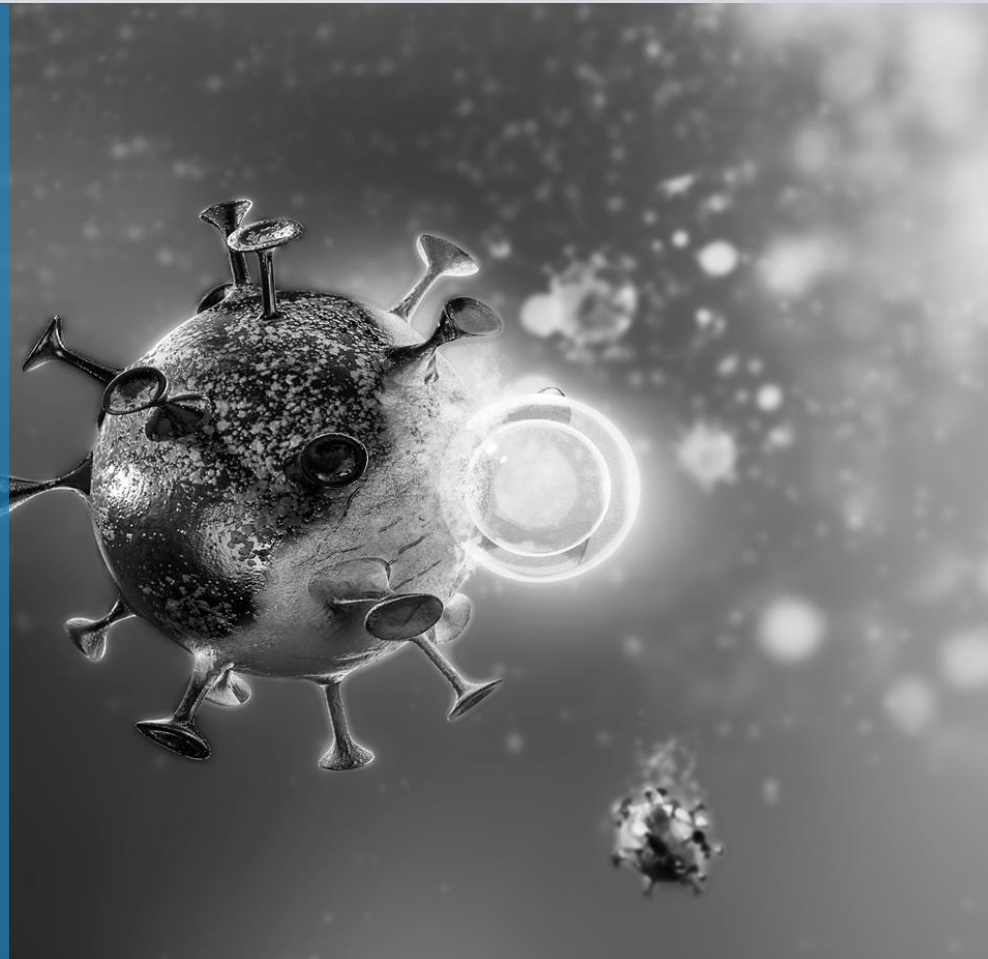
As the market for TV has declined due to COVID-19 pandemic. The demand for LED panels also has decreased as all the manufacturing units are closed till lockdown gets over. People in India has become less interested in buying many electronic devices such as smart TVs, video wall, interactive displays. Hence, the manufactures in India also has stopped demand for LED panels. LED panels are imported in India, but due to suspended import export services are impacting the LED panel shipments in India.



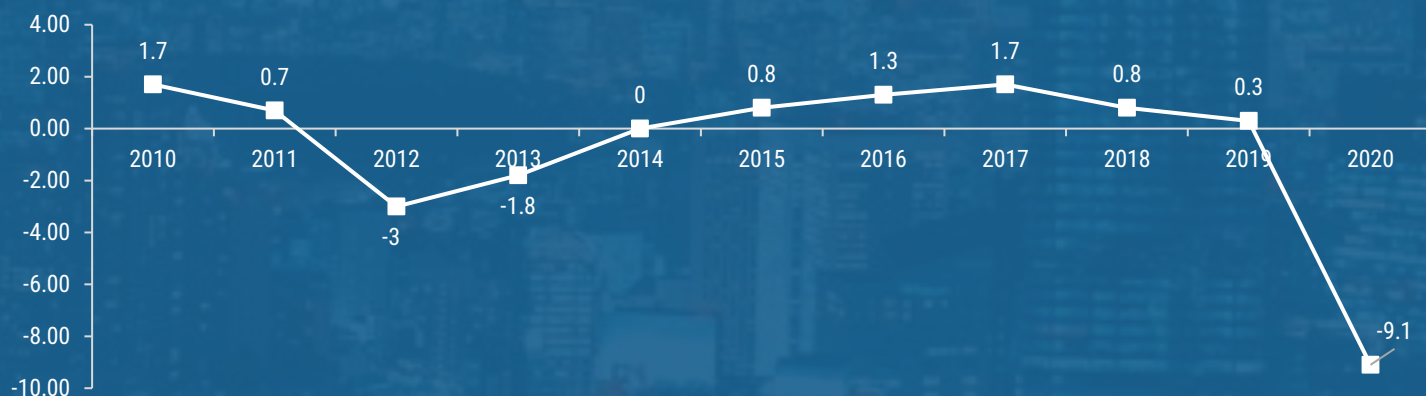


COVID 19 IMPACT ON
ITALY
SEMICONDUCTOR INDUSTRY

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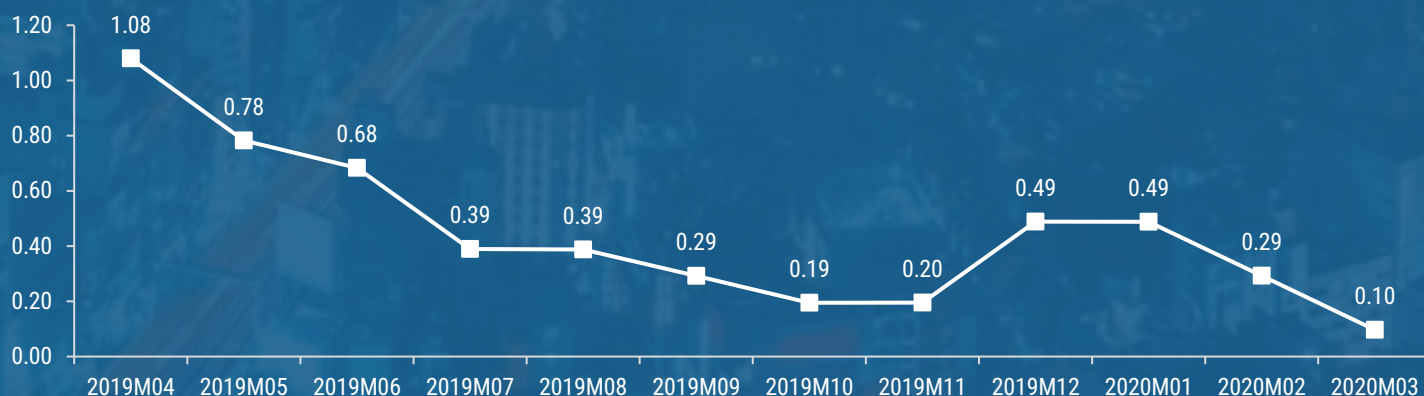


Italy-Real GDP Growth (Annual Percent Change) 2010 - 2020



- The GDP (Gross Domestic Product) in Italy was worth 2030 billion USD in 2019, which represents 1.68 % of the world economy.
- Italy also entered a recession in the first quarter of 2020 with GDP decreasing by 4.7% compared to the previous quarter due to the impact of COVID-19; the country's GDP contracted for the first time since 2014.
- The country follows contracting of 0.3 % in the last three months of 2019

Italy-Consumer Price Index (CPI) April 2019 - March 2020 (% Change)



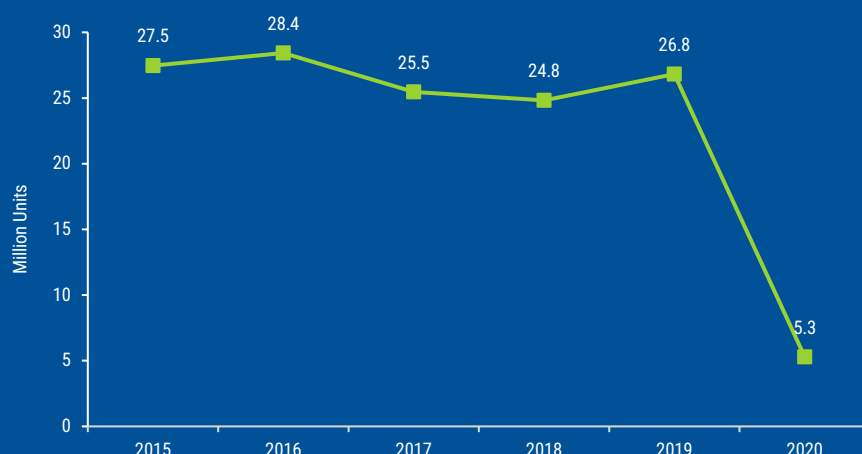
- Italy's Consumer Price Index (CPI) has shown a growth rate of 0.1 % YoY in March 2020, compared to a rate of 0.3% in February 2020.
- Consumers in Italy are unable or reluctant to purchase goods and services. Given the current environment of uncertainty and lockdown, enterprises are likely to delay investments, purchases goods, and hire workers.

YEAR-ON-YEAR DATA (2015 - 2020) - Million Units



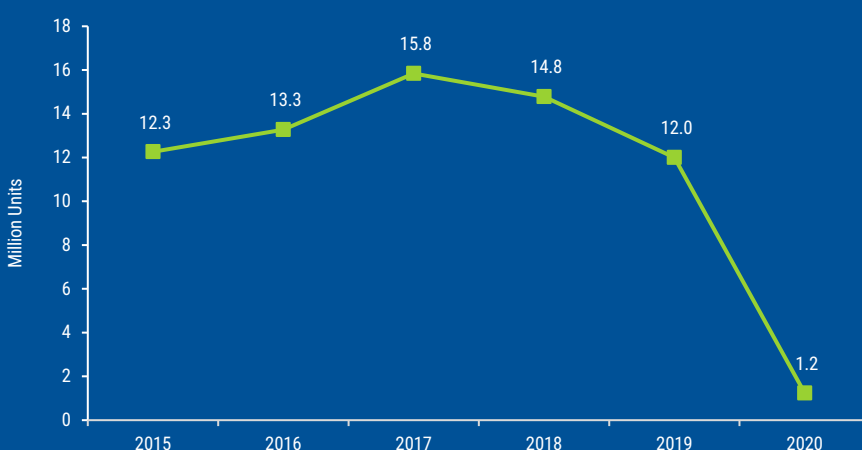
SMARTPHONE SHIPMENT

The Italian government has not compelled for early quarantine in the initial stages of COVID -19 outbreak. This has severely impacted the Italian economy in March and is also expected to witness decline in the smartphone shipments in coming months. Apple stores along with many other small and medium retail stores have been shut down by the President of the Council of Ministers to overcome the spread of Coronavirus in Italy.



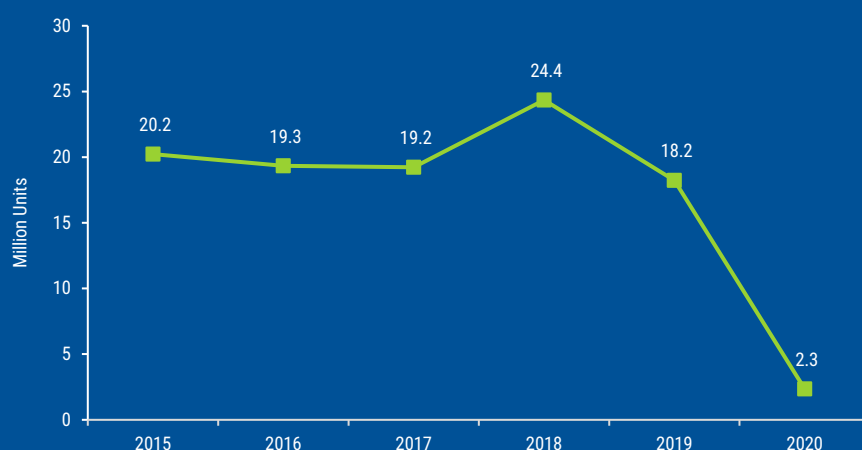
PC/LAPTOP SHIPMENT

The economic growth in Italy is expected to register a dip in the first quarter of 2020. Retail and online sales of PCs and laptops have been put on hold in March 2020, owing to sudden outbreak of COVID-19 pandemic. Lack of inventory and supply shortages is likely expected to decline the shipments in Italy. However, the demand for SMB PC shipment is expected to increase in the later 2020.



LED PANEL SHIPMENT

The Italian market imports mobile displays, open cell TV panels, open circuit boards, memory and LED chips from China. Since the COVID-19 pandemic has restricted transportation and logistics, the LED panel shipments in Italy is expected to witness a significant decline. However, the market is expected to recover by the end of June 2020.



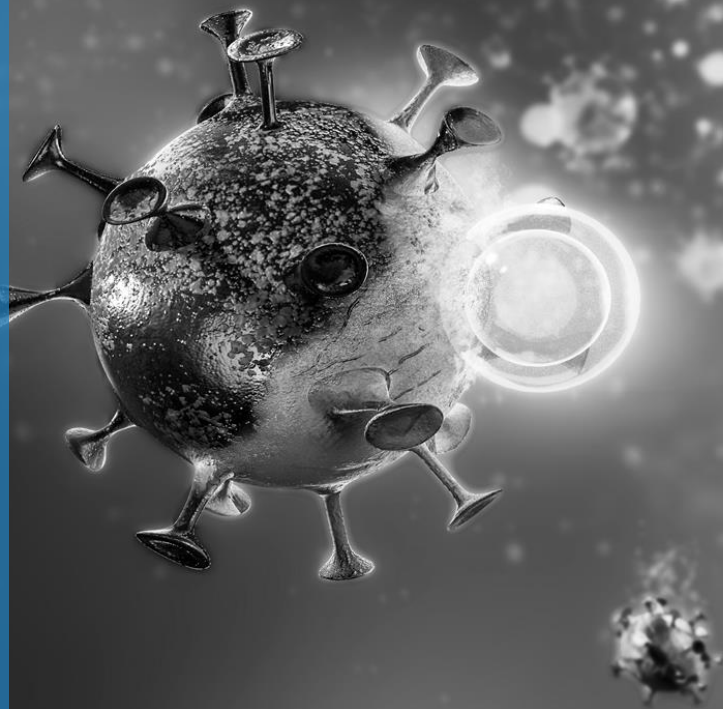


COVID 19 IMPACT ON

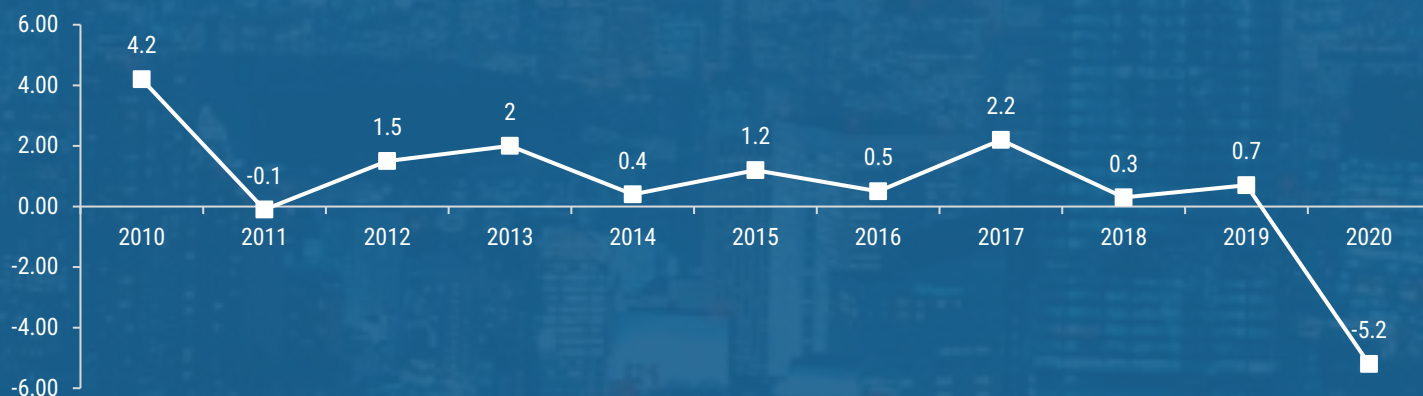
JAPAN

SEMICONDUCTOR INDUSTRY

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Japan-Real GDP Growth (Annual Percent Change) 2010 - 2020



- The gross domestic products (GDP) in Japan averaged USD 2,782.13 billion from 1960 until 2019, reaching an all time high of 6,203.21 USD billion in 2012.
- According to experts, after the fallout from the COVID-19 outbreak, Japan's economy is expected to be boost by 3.8% in the coming year.

Japan-Consumer Price Index (CPI) April 2019 - March 2020 (% Change)



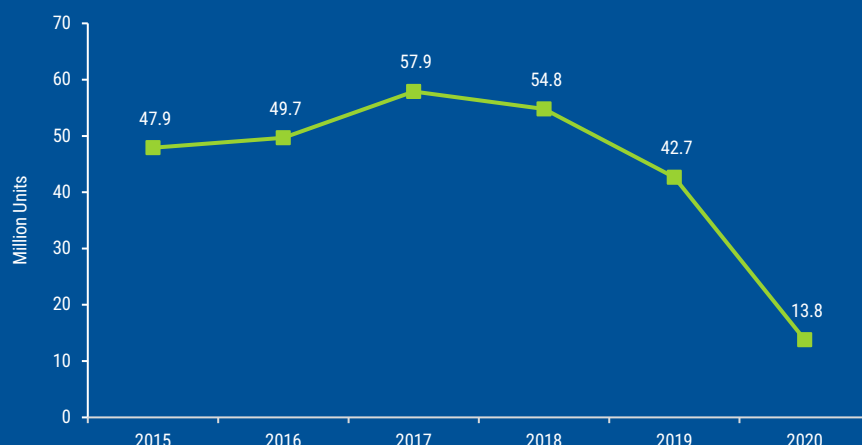
- Business sentiment among key Japanese companies in the first quarter fell to the lowest level in five years, primarily due to the COVID-19 outbreak and declining exports to China.
- The confidence index covering firms capitalized at USD 9.6 million and stood at minus 10.1 % in 2020.

YEAR-ON-YEAR DATA (2015 - 2020) - Million Units



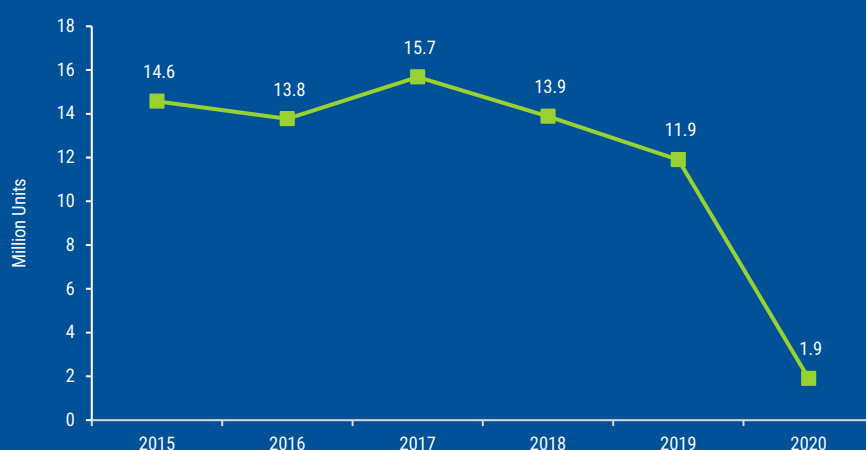
SMARTPHONE SHIPMENT

The smartphone shipment in Japan was down by nearly 6% in Q1 2020 from Q1 2019 due to covid-19. Chinese major smartphone manufacturer was the only manufacturer with positive growth. Japan's major electronics companies such as Sony and NEC have temporarily diverted their business focus on production of medical equipment to tackle coronavirus pandemic.



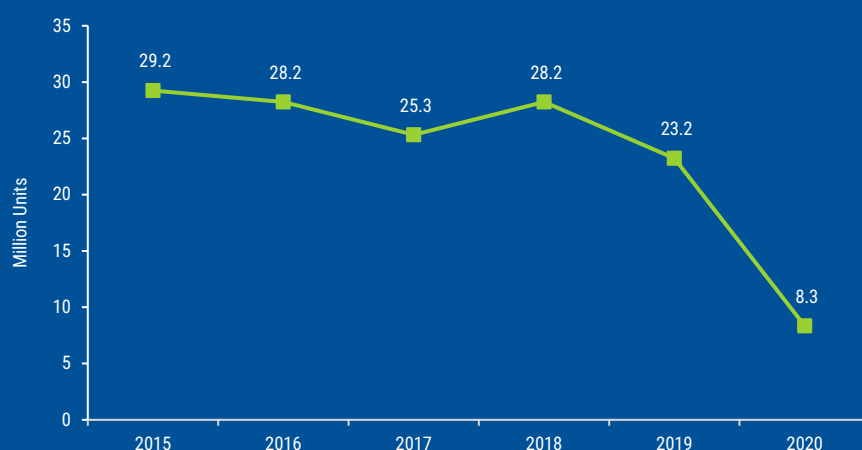
PC/LAPTOP SHIPMENT

The sales of traditional PC in Japan was struck by decline of nearly 8% in the first quarter of 2020. The increase in sales of PC/Laptop is not expected to get better even after the mid of 2021. Other factors such as replacement of traditional laptops with 2-in-1 laptop and smartphones also add to the decline.



LED PANEL SHIPMENT

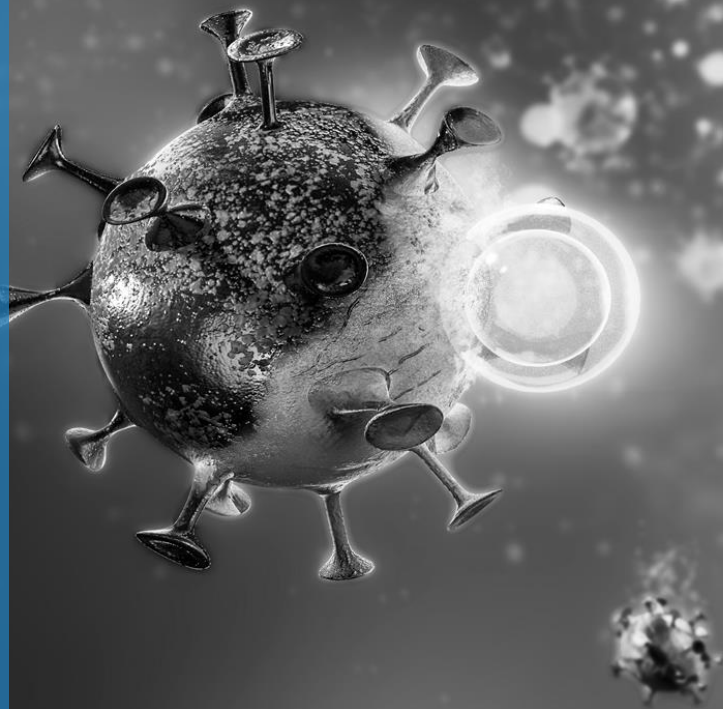
The sales of smart TV, wearable devices, and smartphones has declined in the first quarter of 2020 due to covid-19 impact. Although, the major LED manufacturers in Japan have shifted their focus temporarily on utilization of LED panels in medical equipment.



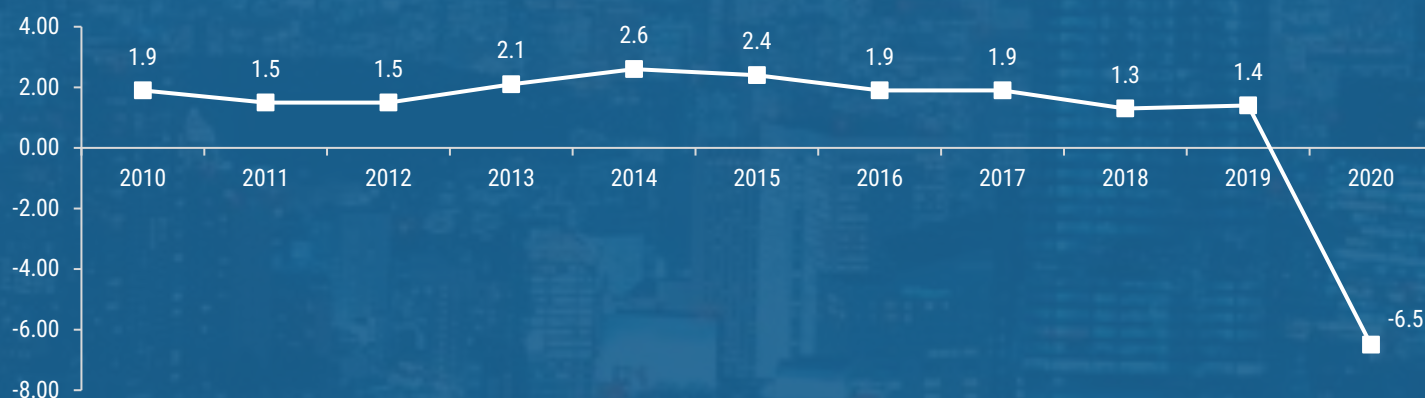


COVID 19 IMPACT ON
**UNITED
KINGDOM**
SEMICONDUCTOR INDUSTRY

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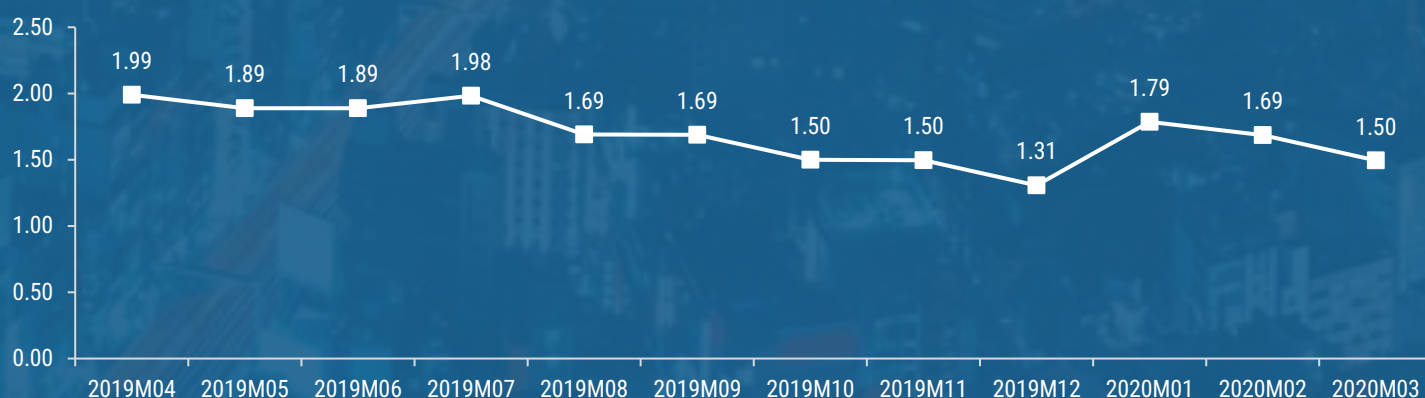


UK-Real GDP Growth (Annual Percent Change) 2010 - 2020



- Like all other European countries, the UK is also in a state of lockdown, as measures of social distancing have been issued by the government.
- As a consequence of the COVID-19 pandemic, the UK economy has taken a sudden and dramatic hit, more severe than the global financial crisis of 2008.

UK-Consumer Price Index (CPI) April 2019 - March 2020 (% Change)



- Consumer Price Index (CPI) in the UK reached an all time high of 108.60 points in February 2020.
- In the UK, the most important categories in the CPI (consumer price index) are transport and recreation & culture.

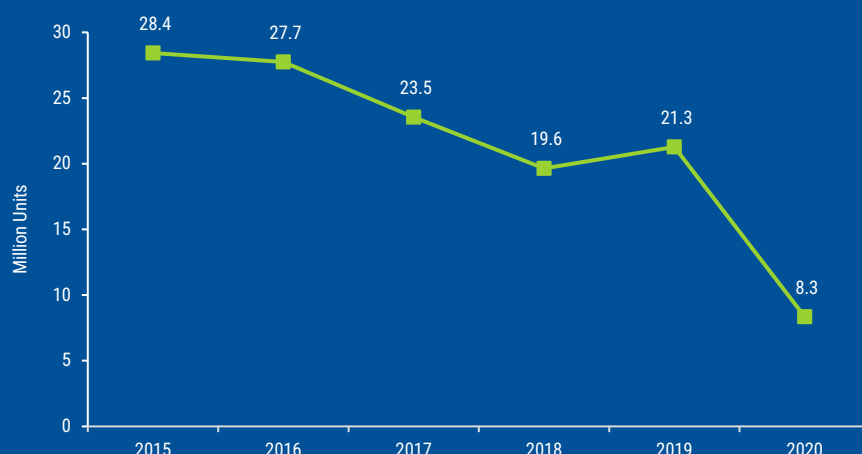
YEAR-ON-YEAR DATA

(2015 - 2020) - Million Units



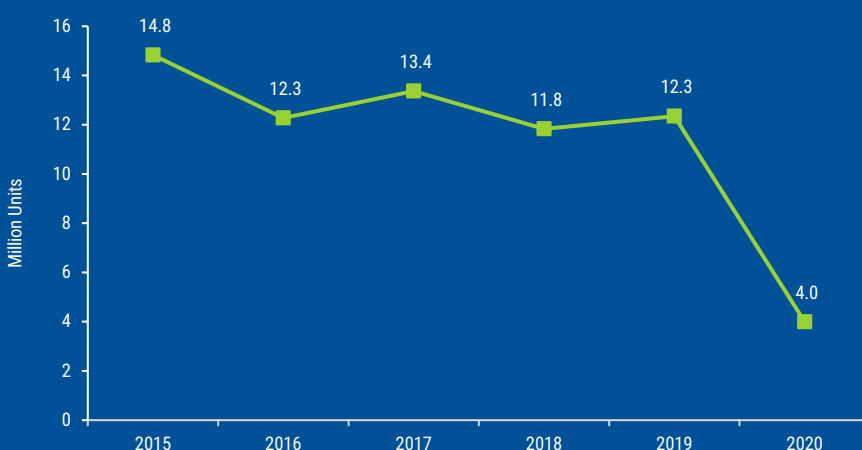
SMARTPHONE SHIPMENT

Due to coronavirus pandemic, the smartphone shipment in the UK is expected to suffer a decline of nearly 14% from 2019 sales. The decline in sales till 2019 was majorly due to longer replacement cycles of smartphones, and consumer sentiments. Lack of new designs, and features was also an important factor for the decline. The changing consumer sentiments due to covid-19 to utilize more of essential goods and services will impact the growth of smartphone sales in UK.



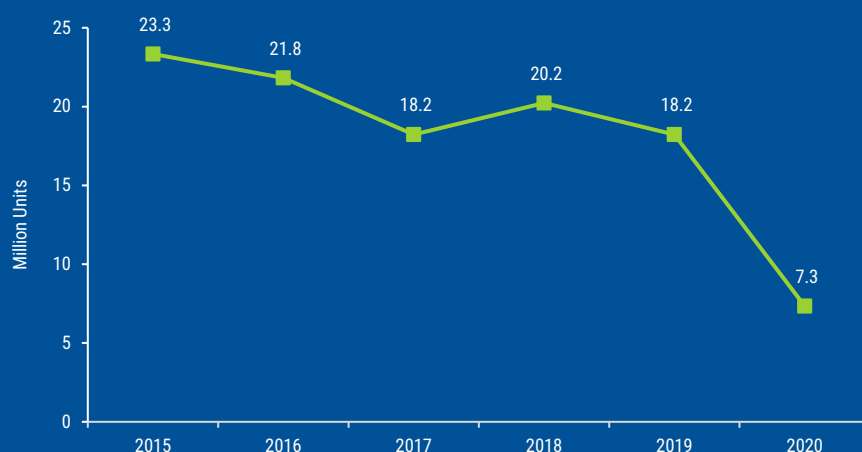
PC/LAPTOP SHIPMENT

The shutdown of production facilities in the US and Asian countries has disrupted the global supply chain and also the sales in UK. Though UK is among the major importer of PCs and Laptops, major manufacturers, such as Dell, HP, Acer, and Asus are facing difficulties to operate the production in UK as well. A major proportion of laptop sales in the UK was made through e-commerce channel which has witnessed cancellation of orders.



LED PANEL SHIPMENT

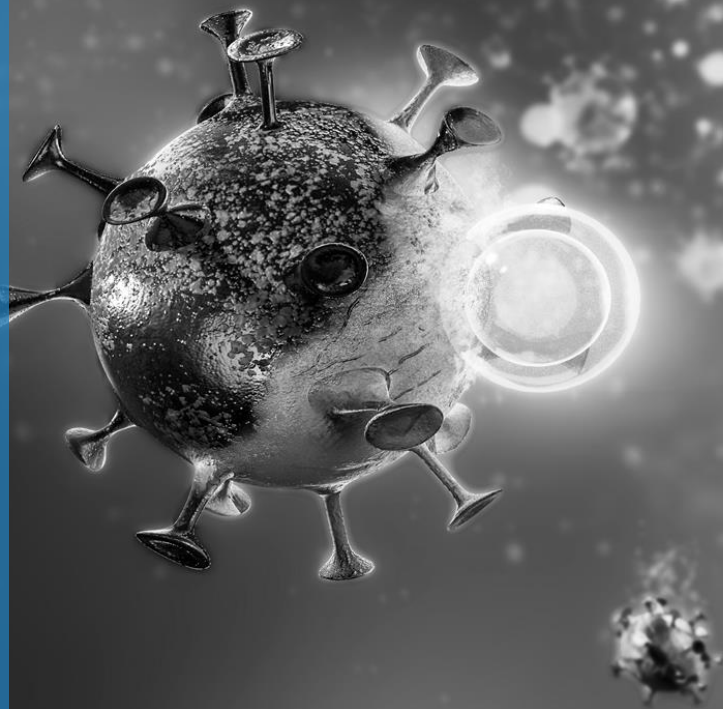
UK is one of the major markets for LED interactive displays, Kiosks, Video wall and Smart TVs. The overall disruption in the global value chain due to non-availability of raw material and components from China has impacted the decline in LED panel shipment across the UK.



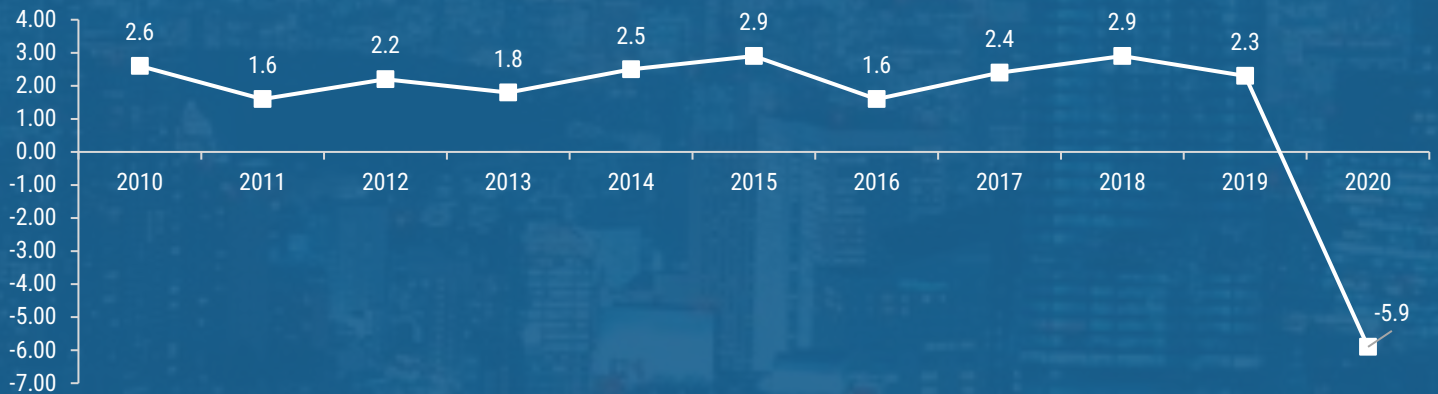


COVID 19 IMPACT ON
**UNITED
STATES**
SEMICONDUCTOR INDUSTRY

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US-Real GDP Growth (Annual Percent Change) 2010 - 2020



- The US economy shrunk by 4.8% in the first quarter of the 2020. It's the country's first contraction since 2014 and the biggest largest drop in the past 10 years.
- Consumer spending declined sharply in the first quarter, contributing -5.3 % points to the first quarter's contraction. Falling consumer spending has major effects on overall GDP growth in the US as it accounts for nearly 68% of the GDP.

US-Consumer Price Index (CPI) April 2019 - March 2020 (% Change)



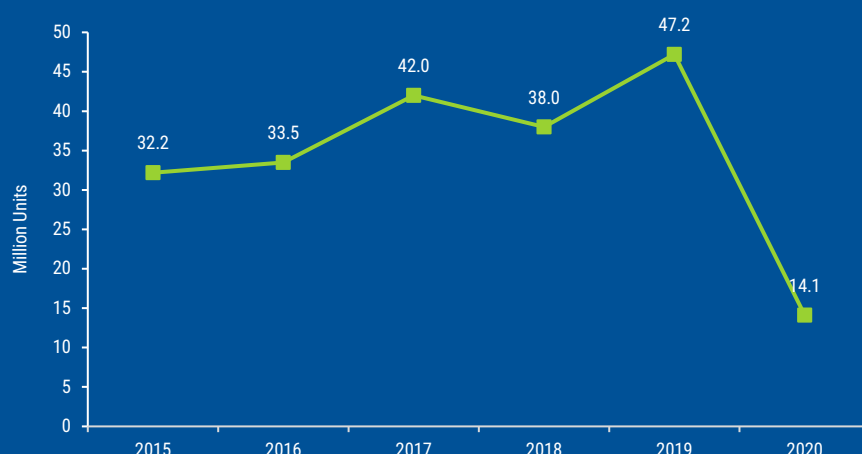
- The country's GDP declined due to the spread of COVID-19 as the US government issued 'stay-at-home' orders in March. This led to rapid changes in consumer demand as businesses and schools switched to remote work or shutdown, which has reduced the overall consumer spending.
- The impact of the COVID-19 pandemic on the Consumer Price Index (CPI) data in the US was relatively minor for March 2020.

YEAR-ON-YEAR DATA (2015 - 2020) - Million Units



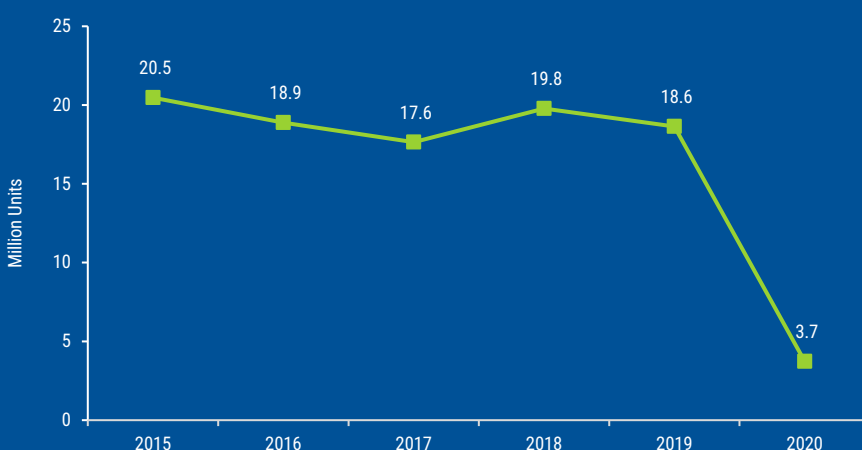
SMARTPHONE SHIPMENT

The smartphone shipment in the US has declined in 2018 from the previous year shipment. A slight increase was observed in the year 2019 owing to rapidly changing technology and introduction of 5G and foldable phones. Apple Inc was yet the leaders in global as well as the US market for smartphones. However, due to recent Corona virus outbreak, the unit shipment till Q1 dropped to nearly 14.1 million and is not expected to show much improvement till the end of Q3.



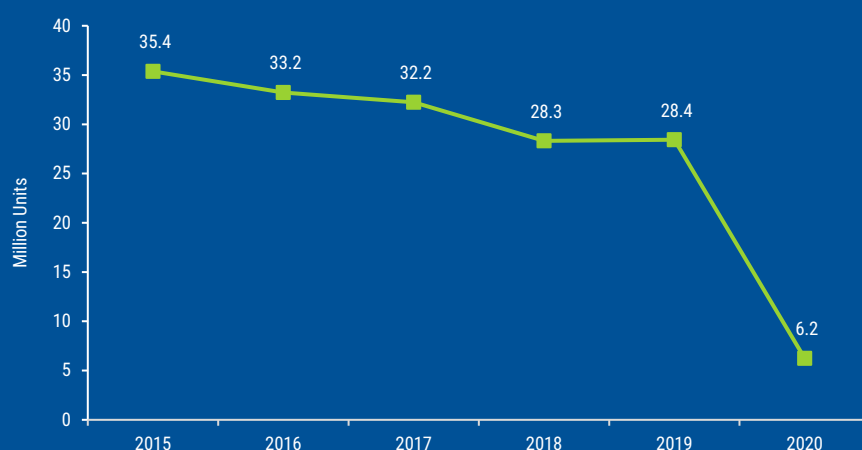
PC/LAPTOP SHIPMENT

The compound growth rate of Laptop/PC shipments has shown a negative growth since 2015. The major reason for the decline in PC/Laptop shipment is the declining demand of PCs and replacement of smartphones with laptops and 2-in-1 devices. In Q1 2020, the sales of non essential and production of these goods is stopped which is further expected to reduce the laptop sales in next coming year as well.



LED PANEL SHIPMENT

The sales of televisions, laptops, PCs and other mobile devices using LED panels have declined which directly impacts the production and distribution of LED panels. However, a significant proportion of LED panel manufacturers in the US are offering services to medical and aerospace sector which is less likely to be affected by the Covid-19.



Thank You

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