

**PRODUCTION FORECASTS FOR THE
GLOBAL ELECTRONICS AND
INFORMATION TECHNOLOGY INDUSTRIES**

December 18, 2018

JEITA

JAPAN ELECTRONICS AND INFORMATION TECHNOLOGY INDUSTRIES ASSOCIATION

FOREWORD

In 2018, the Japanese economy remained on track for long-term recovery, driven by the corporate sector, although consumer spending lacked momentum. Exports and capital investment underpinned the economy against a backdrop of strong corporate earnings. Meanwhile, in the world economy, although the United States performed strongly, the trend of slowdown strengthened in China and uncertainty around the outlook rose in Europe as well. In its October 2018 World Economic Outlook, the IMF forecast that real economic growth would be 3.7% in 2018 and would remain at 3.7% in 2019.

Given the market environment, in the annual industries survey conducted by JEITA, production by the global electronics and information technology industries is estimated to increase 8% year on year in 2018, to \$2,934.5 billion, and is expected to increase 4% year on year in 2019, to \$3,045.8 billion. Positive growth is expected to continue given progress in IT investments and other initiatives for improving productivity, which is a common issue in the world economy, as well as increased demand for solution services.

Global production by Japanese electronics and IT companies is expected to increase 1% year on year in 2018, to ¥39.1 trillion, and 1% year on year in 2019, to ¥39.6 trillion, due in part to an increase in the production of highly functional, energy-saving, highly reliable electronic components and devices reflecting progress in the use of electrical equipment in automobiles and the spread of IoT.

In this environment, JEITA promotes activities aimed at realizing “Society 5.0”, a super-smart society that leads to the optimization of society as a whole. In “Society 5.0,” technology is used to create new added value aimed at delivering both sustainable economic growth and solutions to the challenges society faces.

In its ninth “Trends Survey of Focused Areas,” JEITA took up the theme of “Automotive IT and Electronics” in the area of mobility, which is a key domain within this “Society 5.0.” JEITA conducted a quantitative analysis with respect to advances in vehicles themselves, such as autonomous vehicles and eco-friendly vehicles, and the electrical equipment underpinning these advances, and also indicated a “Future Vision of Mobility” in a use case scenario.

In 2019 and beyond, JEITA will continue to bolster its activities by seeking out comments and opinions widely from both within and outside the electronics and IT industries. We will strive to contribute to the growth of these industries and better lifestyles for people everywhere. We will continue to report on our progress in the future in the sincere hope that information from JEITA proves to be a valuable resource.

December 2018

Masaki Sakuyama

Chairman

Japan Electronics and Information Technology Industries Association (JEITA)

PRODUCTION TRENDS IN THE GLOBAL ELECTRONICS AND INFORMATION TECHNOLOGY INDUSTRIES (IN DOLLAR TERMS)

Total global production by the electronics and IT industries is expected to increase 8% year on year in 2018, to \$2,934.5 billion, reaching an all-time high. Against the backdrop of a strong world economy, total production by the electronics and IT industries is expected to remain on the growth track in 2019, rising 4% year on year, to \$3,045.8 billion driven by growth in semiconductors and electronic components bolstered by a strong performance in IT solution services on the back of expansion in cloud services, an increase in the volume of data processed and a rising percentage of electrical equipment in automobiles.

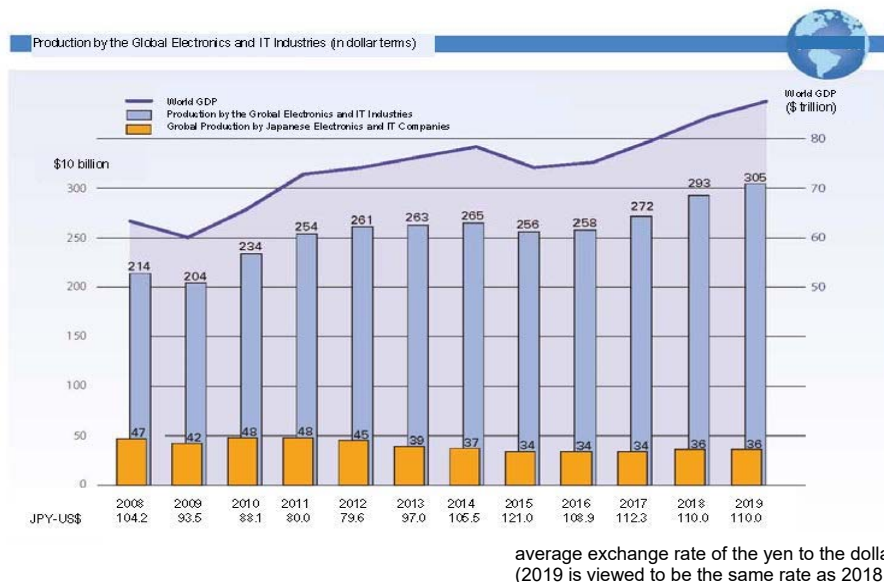
[Production by the Global Electronics and IT Industries (in dollar terms)]

Although production by the global electronics and IT industries declined in 2009 in the wake of the collapse of Lehman Brothers at the end of 2008 and slightly in 2015, reflecting the slower growth of the world economy, production continued to grow steadily in other years. In 2018, it is estimated to increase 8% year on year, to \$2,934.5 billion, and is expected to rise 4% year on year in 2019, to \$3,045.8 billion. In step with the growth of the world economy, growth is expected to continue in this way, breaking the record in two consecutive years. IT solution services remain strong on the back of expansion in cloud services while semiconductor demand was bolstered by increased needs for high speed processing of vast amounts of data due to advances in CPS/IoT. Given also that a shift towards autonomous vehicles and eco-friendly vehicles significantly contributed to a rise in the percentage of electrical equipment in automobiles, overall production of the global electronics and IT industries is expected to be driven by high growth of electronic components and devices.

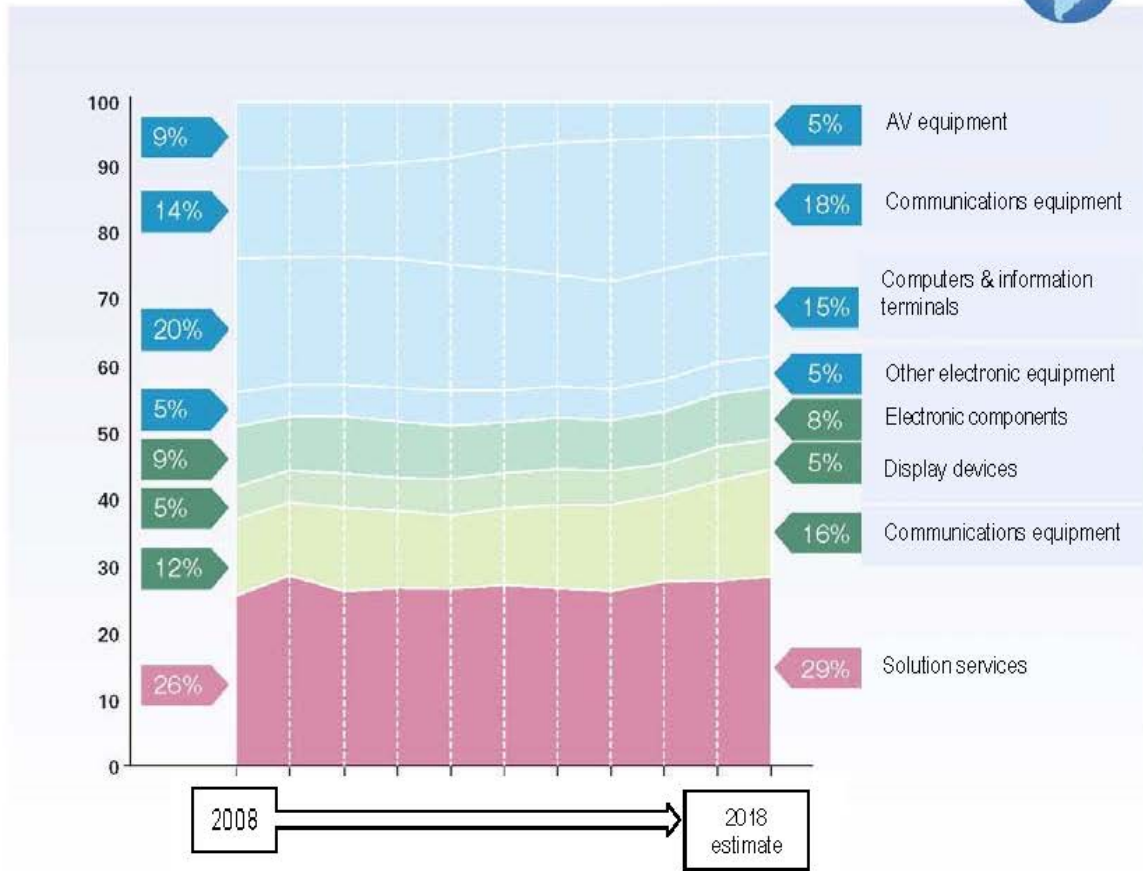
Looking at changes in the breakdown by area from 2008 to 2018 (estimate), production increased from \$292.3 billion to \$522.1 billion in the globally growing area of communications,

including smartphones, and from \$553.3 billion to \$844.7 billion in the area of IT solution services. As a result, in the production of the global electronics and IT industries, proportions of these areas have risen 4 percentage points and 3 percentage points respectively over the past 10 years.

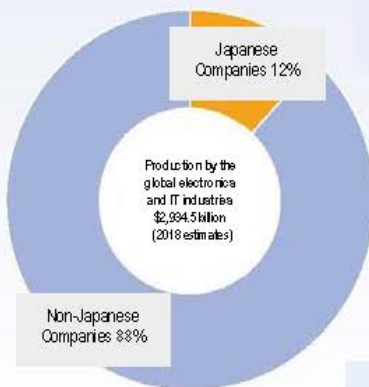
Global production by Japanese electronics and IT companies decreased after peaking at \$484.3 billion in 2010 and although it increased 3% year on year, to \$355.4 billion in 2018, this was still only around 70% of the peak level. Looking at changes in the share during this period, the overall share was 21% in the peak year of 2010, meaning that production by Japanese electronics and IT companies accounted for around 20% of total production in the world. In 2018 (estimate), however, the overall share declined by 9 percentage points, to 12%. Behind this trend is a significant fall in the share in the area of electronic equipment due to intensified competition with foreign companies. On the other hand, Japanese electronics and IT companies maintain a high share of around 40% in electronic components, although it declined by 2 percentage points from 2010 to 2018 (from 40% to 38%).



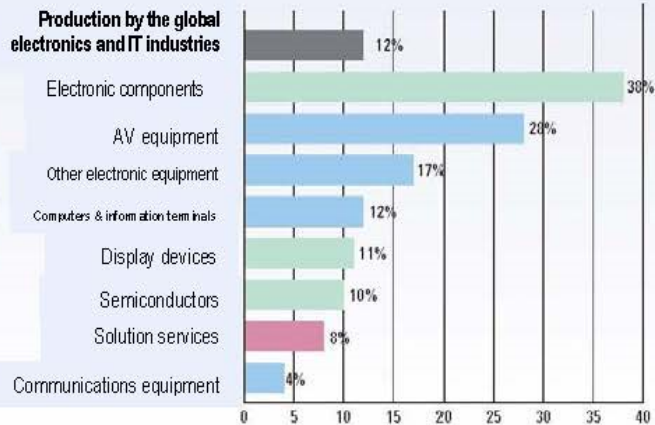
Production by the global electronics and IT industries composition ratio by field (2008→2018 estimates)



Production by the global electronics and IT industries (2018 estimates)



Share of Japanese Companies (2018 estimates)



PRODUCTION FORECASTS FOR THE GLOBAL ELECTRONICS AND INFORMATION TECHNOLOGY INDUSTRIES (IN DOLLAR TERMS)

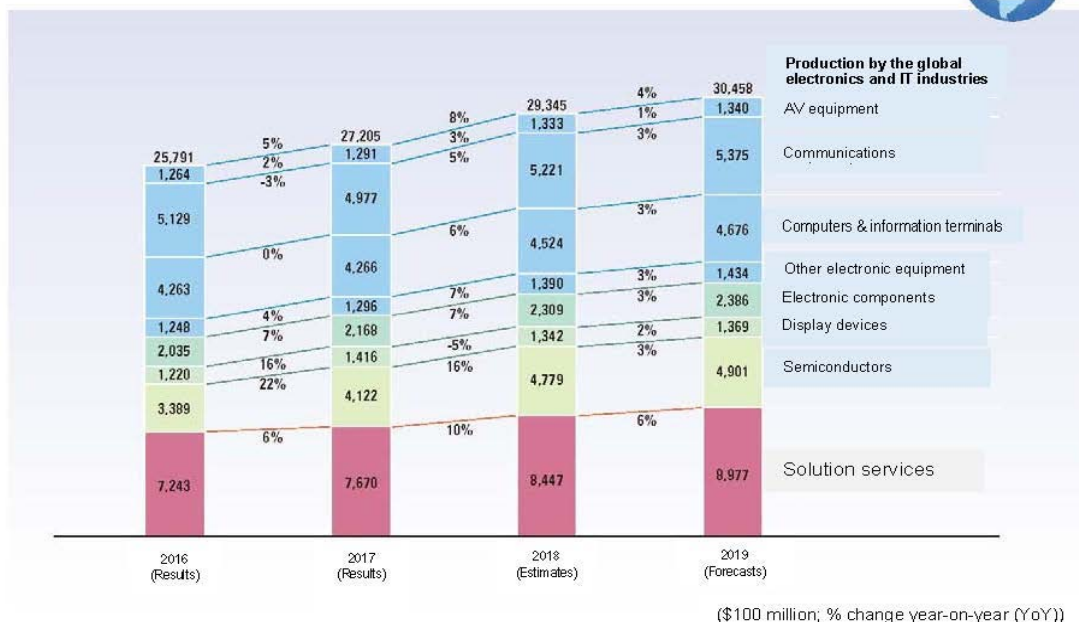
Overall production by the global electronics and IT industries (in dollar terms) was driven by a continued strong performance in IT solution services on the back of expansion in cloud services. Moreover, increased needs for high speed processing of vast amounts of data due to advances in CPS/IoT bolstered semiconductor demand. Given also that a shift towards autonomous vehicles and eco-friendly vehicles significantly contributed to a rise in the percentage of electrical equipment in automobiles, electronic components and devices look set to grow, and positive growth is expected in both 2018 and 2019.

In the world economy in 2018, although the United States performed strongly, the trend of slowdown strengthened in China and uncertainty around the outlook rose in Europe as well. According to the World Economic Outlook by IMF (October 2018), the real economic growth rate was lowered 0.2 percentage points from the April forecast, to 3.7%, which is the same level as 2017. Against this backdrop, the electronics and IT industries are being swept by a wave of reform that transcends industry boundaries. The information revolution is spreading, with efforts for creating new value and innovations progressing along with the expansion of the use of products and solutions designed to improve business models and raise productivity. Eco-friendly technologies for enhancement of automated driving functions and reduction of CO2 emissions are increasing the percentage of electrical equipment in automobiles. Moreover, smartphones and other equipment for internet connectivity are increasingly packed with more and more functions, reflecting advances in semiconductor technologies. Total global production by the electronics and IT industries (total of electronics industry and IT solution services) in 2018 is expected to increase 8% year

on year, to \$2,934.5 billion. Of this total, production by the electronics industry (hardware, including electronic equipment, components and devices) is also expected to increase 7% year on year, to \$2,089.8 billion.

Then, in 2019, although there is concern about the global economy and semiconductor business conditions, the need to process and save data instantaneously in a large amount is expected to increase more and more. The development of various types of information equipment with high functionality and a further rise in the percentage of electrical equipment in automobiles are also projected. Moves to quickly produce successive new services and initiatives to create new value in the mobility field and other fields of application will progress and expansion in demand for IT solution services related to these moves and initiatives can also be expected. Production by the global electronics and IT industries is expected to increase 4% year on year in 2019. Despite slowing slightly from 2018, it is expected to maintain growth with the world economy (which is expected to grow 3.7% year on year, according to the World Economic Outlook by IMF), and remain firm.

Production by the Global Electronics and IT Industries (IN DOLLAR TERMS)



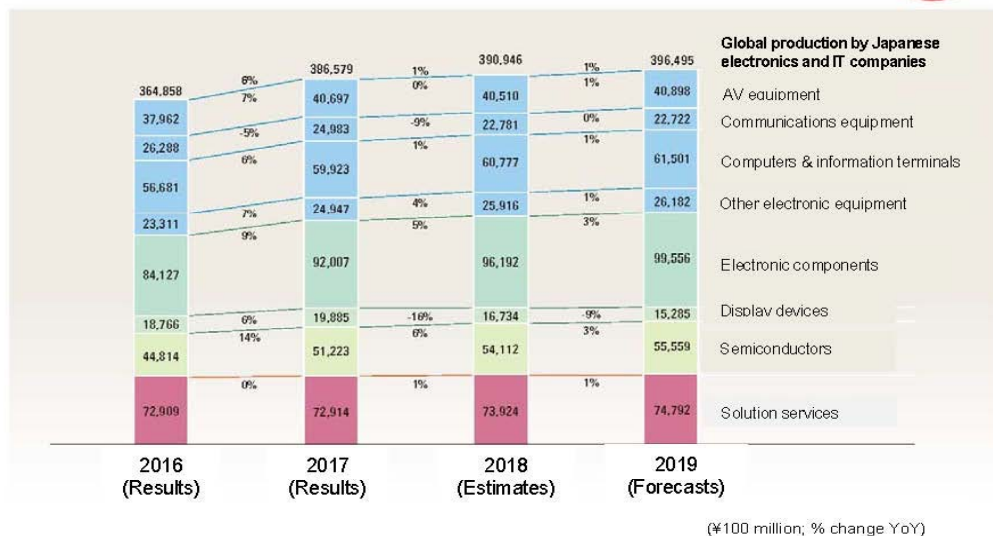
FORECASTS OF GLOBAL PRODUCTION BY JAPANESE COMPANIES (IN YEN TERMS)

In 2018, global production by Japanese electronics and IT companies (including offshore production) is projected to grow 1% year on year, to ¥39,094.6 billion, due to higher demand for semiconductors and electronic components reflecting an increase of electrical equipment in automobiles and higher demand for information equipment such as computers and printers against a backdrop of strong corporate earnings. Looking ahead, growth of global production by Japanese electronics and IT companies is expected to be mostly unchanged year on year in 2019 due to expected increase in high function, energy-saving and high reliability electronic components and devices resulting from a rise in the percentage of electrical equipment in automobiles and progress in infrastructure development toward 2020.

The Japanese economy continued to enjoy modest growth, driven by the corporate sector. Corporate earnings remained strong and exports and capital investment held firm. In Japan's electronics and IT industries, demand for information equipment such as computers and printers was strong thanks to the government's promotion of workstyle reform and the spread of initiatives to improve productivity. Meanwhile, in the world market, expansion in the use of electrical equipment in automobiles amid a shift towards autonomous vehicles and eco-friendly vehicles resulted in market support for the high function, energy-saving, and high-reliability semiconductors and electronic components at which Japanese manufacturers excel, and Japanese electronics and IT companies performed strongly. Production by Japanese electronics and IT companies (including offshore production) in 2018 is estimated to grow 1% year on year, to ¥39,094.6 billion. Electronics production is expected to account for ¥31,702.2 billion of this total, increasing 1%. Looking towards 2019, infrastructure development in the run-up to the Tokyo 2020 Olympic and Paralympic

Games is expected to lead to higher demand for electronic equipment such as public displays. There will also be moves to expand active IT investments with a view to easing the labor shortage by increasing operational efficiency and improving productivity, and IT products and IT solution services are expected to become more widely used. Meanwhile, progress will be made with initiatives to create new value and innovation through the development of functions to meet customer needs in a range of industries and operations including sophisticated security solution technologies and data linkage technologies. Moreover, in the area of electronic components and devices, needs for electronic components and devices offering high functionality and high reliability, at which Japanese manufacturers excel, will also increase due to the rising percentage of electrical equipment in automobiles, advances in IoT, and the higher functionality of smartphones. Growth of global production by Japanese electronics and IT companies is expected to be mostly unchanged year on year in 2019, edging up 1%.

Global Production by Japanese Electronics and IT Companies (IN YEN TERMS)



FORECASTS OF DOMESTIC PRODUCTION BY THE JAPANESE ELECTRONICS INDUSTRY (IN YEN TERMS)

Domestic production by the Japanese electronics industry in 2018 is expected to amount to ¥11,964.0 billion, unchanged year on year, reflecting growth in exports of electronic components and semiconductors and higher corporate demand for computers and server/storage equipment. In the following year, 2019, domestic production by the Japanese electronics industry is predicted to grow 2% year on year, to ¥12,153.0 billion, because continued growth in exports of electronic components and semiconductors and replacement demand for computers can be expected.

In 2018, the Japanese economy remained on track for recovery, driven by the corporate sector. Corporate earnings were strong, and exports and capital investment underpinned the economy. In the electronics industry, the rising percentage of electrical equipment in automobiles resulted in a dramatic increase in the use of electronic components and devices, which account for just under 70% of domestic production, and factors such as growth in demand for server/storage equipment arising from the need for high speed processing and the higher functionality of smartphones led to an increase in production of electronic components, including power semiconductors used in automotive motor control, memory and other integrated circuits and capacitors. Production of server/storage equipment and computers also grew due to corporate replacement demand. Domestic production by the Japanese electronics industry in 2018 is expected to be mostly unchanged year on year. In 2019, the economy is expected to remain on a modest recovery track, mainly due to stable corporate demand for the replacement of computers

and infrastructure investment and redevelopment demand in the run-up to the Tokyo 2020 Olympic and Paralympic Games. Although there is concern about exports due to heightened trade tensions, trends including (1) the rising percentage of electrical equipment in automobiles, (2) the higher functionality of smartphones, and (3) greater factory automation are expected to lead to an increase in the production and export of highly reliable electronic components and semiconductors, which contribute to downscaling, slimmer dimensions, and energy conservation. Domestic production by the Japanese electronics industry in 2019 is expected to increase 2%. Domestic production is set to account for 38% of total global production by Japanese companies in 2019. In particular, domestic production should remain strong for products offering high reliability and quality, such as display devices (88% manufactured in Japan), server/storage equipment (81%), semiconductors (68%), electronic medical equipment (64%) and electric measuring instruments (70%).

■ Domestic Production by the Japanese Electronics Industry (IN YEN TERMS) ■

