

**2017 PRODUCTION FORECASTS FOR THE
GLOBAL ELECTRONICS AND
INFORMATION TECHNOLOGY INDUSTRIES**

December 21, 2016

JEITA

JAPAN ELECTRONICS AND INFORMATION TECHNOLOGY INDUSTRIES ASSOCIATION

FOREWORD

For the Japanese economy, 2016 was a year of waiting for recovery, as corporate earnings and capital investment lacked strength due to the appreciation of the yen and weak demand in Japan and overseas, and consumer spending showed signs of reining in due to anxiety over the future. Meanwhile, in its October 2016 World Economic Outlook, the IMF forecast 3.1% real growth for the world economy in 2016, and 3.4% for 2017, a slight improvement, reflecting the power of emerging countries to lead the economy, although the subdued situation is expected to continue, given increased uncertainties in the future outlook due to the issue of the United Kingdom that will withdraw from the EU, among other factors.

In the annual industries survey conducted by JEITA, production by the global electronics and information technology industries is estimated to have increased 2% year on year in 2016, to \$2,610 billion, and is expected to increase 3% year on year in 2017, to \$2,680 billion. Positive growth is expected to continue given increasing IT investments to create innovations, despite the adverse effects of the slower economic growth and the decelerated growth of smartphones.

Global production by Japanese electronics and IT companies is expected to increase 2% year on year in 2017, to ¥36.7 trillion, but is estimated to have declined 9% year on year in 2016, to ¥36.1 trillion as they confront harsh conditions affected by declining exports due to the stronger yen and intensified competition with foreign companies.

In this environment, JEITA aims to tackle the social issues facing Japan and create new business by promoting innovation across diverse fields, putting the realization of the CPS/IoT society, a new concept of creating new added value through information sharing between the real world and the virtual world, at the heart of its activities.

In its seventh “Trends Survey of Focused Areas,” JEITA investigated trends in the world market with respect to robots and mobile robots and artificial intelligence (AI) by focusing attention on technologies and products that will become critical in industrial structural changes in the Fourth Industrial Revolution (Society5.0) by IoT, and compiled the “Future Vision of an Affluent Life,” using illustrations.

In 2017 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.

Toshiaki Higashihara
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 (in dollar terms) is expected to have increased in 2016 and should rise in 2017, thanks to growth in electronics components and devices against a backdrop of IT solutions services, which expanded on the back of increasing IT investment to achieve innovation, the higher functionality of smartphones, and the rising percentage of electrical equipment in automobiles. This reflects the waves of worldwide industrial structural changes by IoT, offsetting the adverse effects of the slower economic growth and the decelerated growth of smartphones.

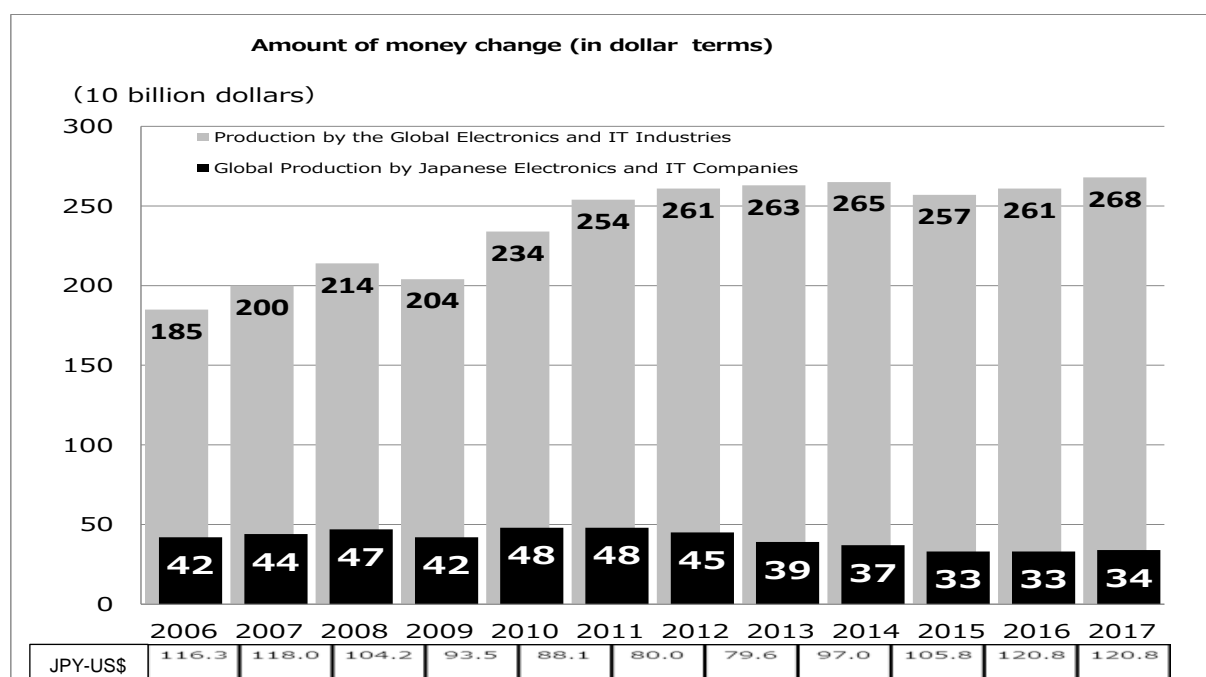
[Production by the Global Electronics and IT Industries (in dollar terms)]

Production by the global electronics and IT industries declined slightly in 2015, reflecting the global economic contraction in 2009 in the wake of the collapse of Lehman Brothers at the end of 2008 and the subsequent slower growth of the world economy. However, production continued to grow steadily in other years. In 2016, it is estimated to have increased 2% year on year, to \$2,610 billion, and is expected to rise 3% year on year in 2017, to \$2,680 billion. Looking at changes in the breakdown by area from 2006 when JEITA started the survey to 2016 (estimate), production increased from \$260 billion to \$530 billion in the area of communications, including smartphones, and from \$410 billion to \$750 billion in the area of IT solution services. As a result, in the production of the global electronics and IT industries, their contributions have risen 6 percentage points and 7 percentage points, respectively over the past 10 years.

Looking at the global production by Japanese electronics and IT companies, their overall share is 13% in 2016 (estimate). By area, they maintain a high share in electronic components and display devices, accounting for 38% and 16%, respectively. In recent years, however, the fall in the share has been significant in the area of electronic equipment where they had traditionally maintained a high global share, such as AV equipment (from 33% in 2014 to 28% in 2016), communications (from 7% to 5%) and computers & information terminals (from 14% to 13%), due to intensified competition with foreign companies, showing an alarming situation for Japanese electronics and IT companies.

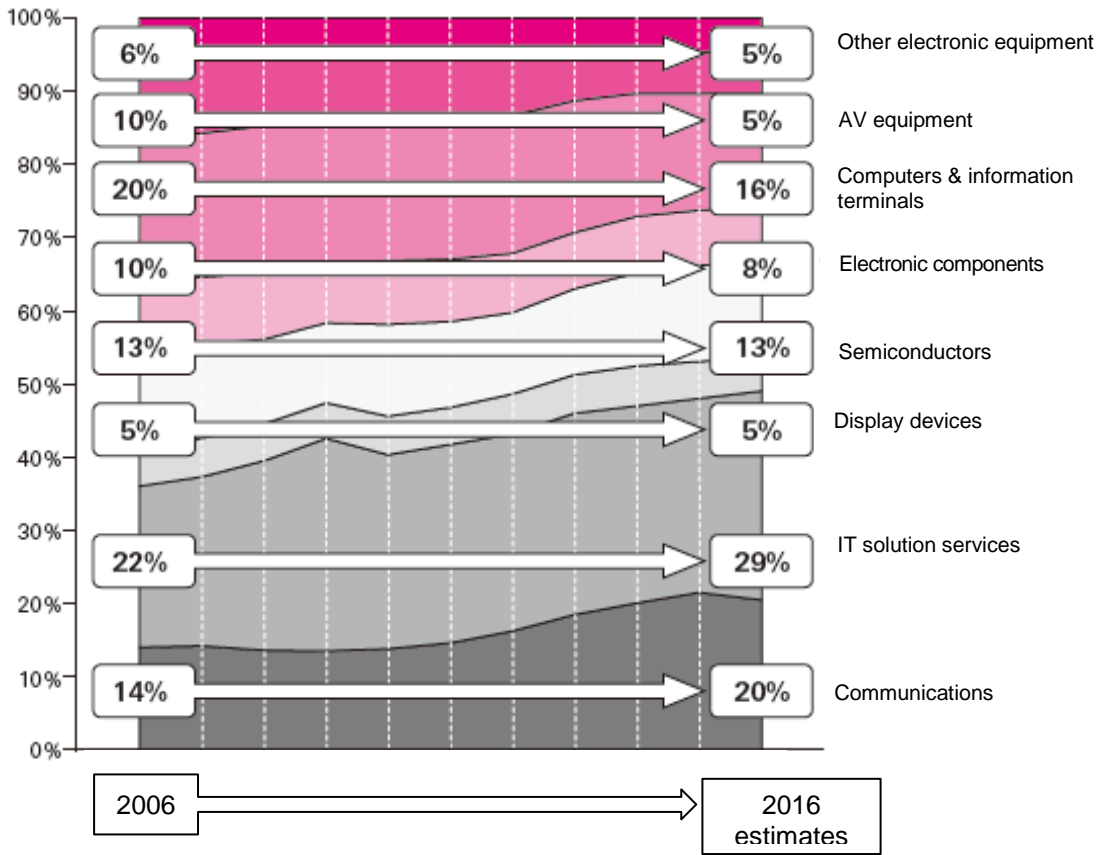
[Validation in dollar terms]

In this survey, numbers are prepared in yen terms. From the previous survey, JEITA posted numbers and charts in dollar terms as a reference by changing yen to dollars, using the average exchange rate of the yen to the dollar.

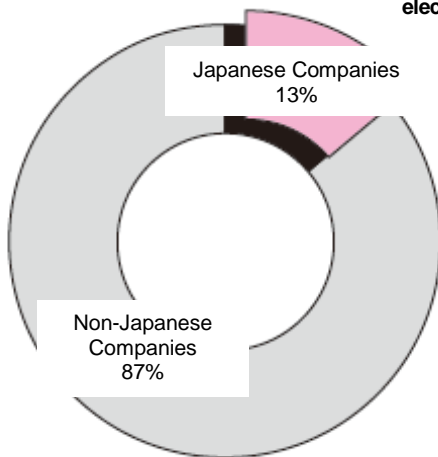


average exchange rate of the yen to the dollar

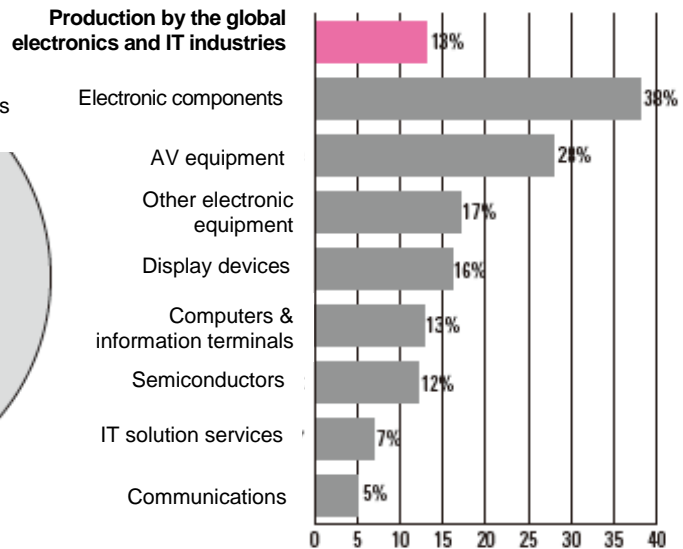
Production by the global electronics and IT industries component ratio by field (2006→2016 estimates)



Production by the global electronics and IT industries \$2,610 billion (2016 estimates)



Share of Japanese Companies (2016 estimates)



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

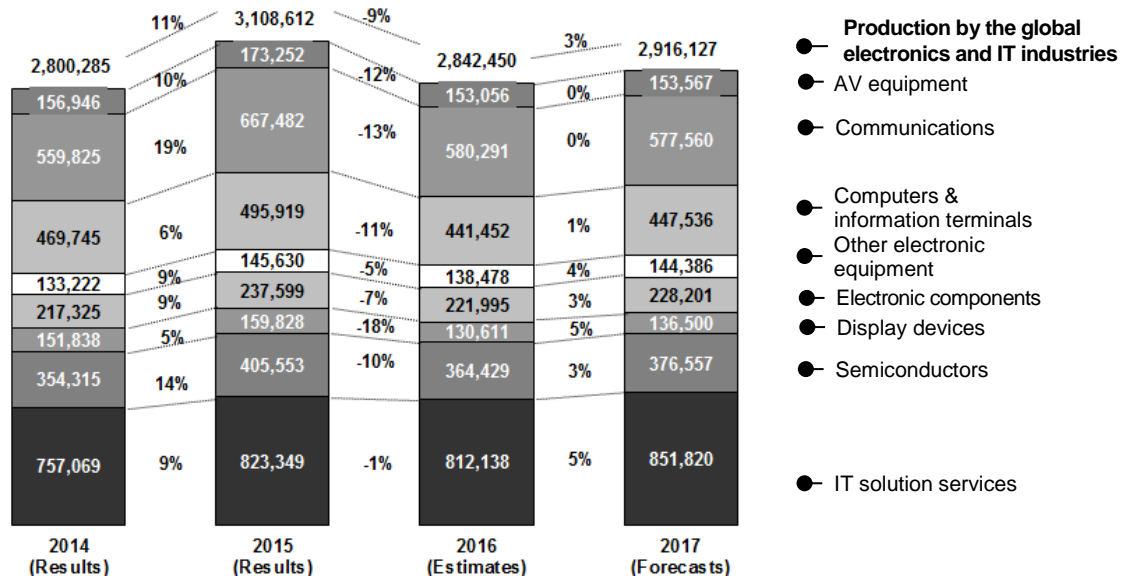
Production by the global electronics and IT industries is expected to have declined 9% year on year, to ¥284,245 billion, in 2016. In 2017, global production is forecast to increase 3% year on year, to ¥291,612.7 billion, given the expected growth in demand for IT solution services to create innovations, the higher functionality of smartphones and the rising percentage of electrical equipment in automobiles, driven by the waves of worldwide industrial structural reforms by IoT.

In 2016, the growth of world economy was slowing due to rising uncertainty in Europe and the deceleration of economic development in China, despite an improvement in employment, a marked improvement in consumption and housing investment and the recovery of capital investment by companies in the United States. In this environment, the waves of industrial structural reforms including the Fourth Industrial Revolution helped expand IT investment to create innovations across a number of industries. In addition, the expansion of equipment connected to the Internet also boosted the development of communications infrastructure in emerging countries. However, total global production by the electronics and IT industries (total of electronics industry and IT solutions and services) in 2016 is expected to have declined 9% year on year, to ¥284,245 billion, given the pause in the expansion of smartphones, which had been a driving force, in developed countries and China as a result of progress in LTE response and the erosion due to the stronger yen. Of this total, production by the electronics industry (hardware, including electronic equipment, components and devices) is seen falling 11%, to ¥203,031.2 billion.

In 2017, the world economy is expected to maintain growth thanks to continued growth in the United States due to the recovery of corporate performance and the improving employment environment, infrastructure development and rising consumption in India and the Southeast Asia, and higher consumption and an increase in capital investment by companies in Japan due to large-scale economic measures, despite some concerns such as the deceleration in the euro region and slower growth in emerging countries. In the electronics and IT industries, increased functionality of devices connected to the Internet, such as smartphones, is expected. Rising demand for automobiles that mount an automated driving support system and a growing percentage of electrical equipment in automobiles are anticipated, given safety and security needs, and this will lead to an increase in the number of electronic components and semiconductors mounted. In addition, efforts to create new value by applying artificial intelligence (AI), sensors and actuators will make progress in a range of industries, and demand for IT solution services that are involved in the developments above is expected to increase. Given these factors, production by the global electronics and IT industries is expected to increase 3% year on year in 2017.

Production by the Global Electronics and IT Industries

(¥100 million; % change year-on-year (YoY))



FORECASTS OF GLOBAL PRODUCTION BY JAPANESE COMPANIES

In 2016, global production by Japanese electronics and IT companies (including offshore production) appears to have declined 9% year on year, to ¥36,122.9 billion, mainly attributable to the erosion of amounts due to exchange rates and the downscaling of personal computers and flat televisions overseas. Global production by Japanese electronics and IT companies in 2017 is expected to rise 2% year on year, to ¥36,725.7 billion, reflecting progress in infrastructure development toward 2020 and an increase in high-function, energy-saving and high-reliability electronic components and devices due to the use of IoT for automobiles.

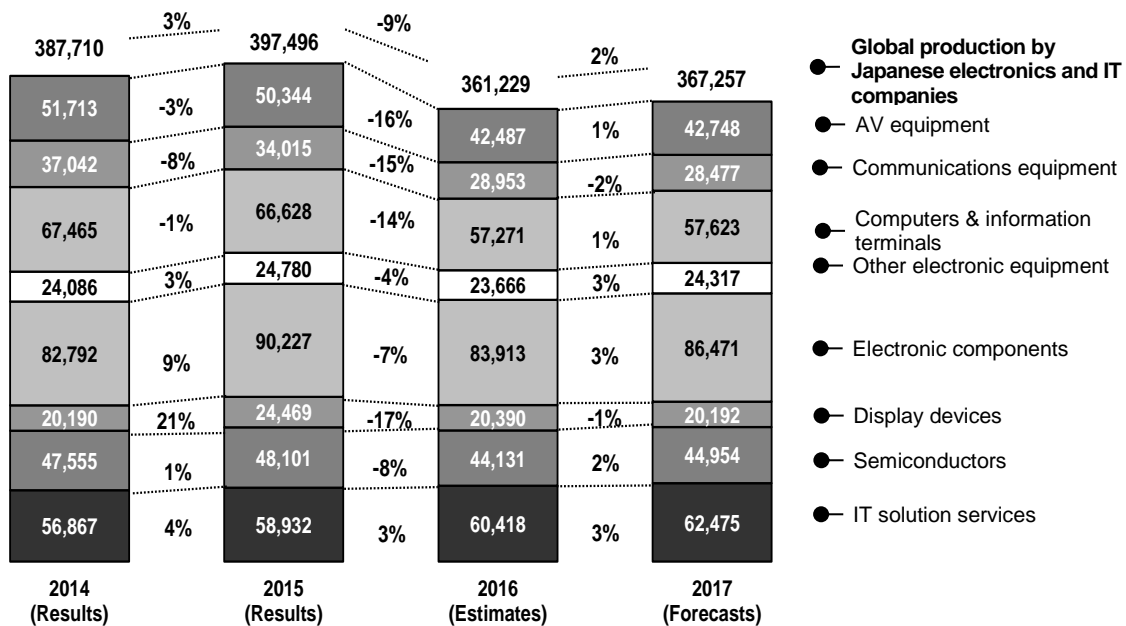
The Japanese economy is currently at a standstill. Corporate performance, which had been improving, saw a decline in exports due to the sustained strength of the yen, and this was having an impact on production activities. Japanese electronics and IT companies saw their share falling overseas in AV equipment due to a decline in digital cameras and others, reflecting the higher functionality of smartphones worldwide and the fact that flat televisions became a popular product. In addition, the downscaling of personal computers and mobile phones and the falling share due to intensified competition with foreign manufacturers were noticeable in the Japanese market. Meanwhile, in the world market, although the performance of high-function and high-reliability electronic components was robust due to strong needs for products such as smartphones that incorporated technologies at which Japanese companies excel, the amounts are expected to shrink, affected by exchange rates. Production by Japanese electronics and IT companies (including offshore production) in 2016 is estimated to decline 9% year on year, to ¥36,122.9 billion. Of this total,

electronics production is seen decreasing 11%, to ¥30,081.1 billion.

In 2017, the world economy is expected to grow moderately. In the Japanese market, infrastructure development and demand for products for tourists from overseas will be activated toward the Tokyo 2020 Olympic and Paralympic Games. In IT solutions and services, growth in new IT investment is expected, given a growing desire to create a new business model using new technologies such as big data analysis technology and progress in the renewal of a large-scale IT system that incorporates cyber security measures. Given that needs for high-function and high-reliability electronic components at which Japanese companies excel will increase in electronic components and devices due to the dissemination of communications function in automobiles, the advancement of IoT and the expansion of high-function smartphones, global production by the Japanese electronics and IT companies should see 2% year-on-year growth in 2017.

Global Production by Japanese Electronics and IT Companies

(¥100 million; % change YoY)



FORECASTS OF DOMESTIC PRODUCTION BY THE JAPANESE ELECTRONICS INDUSTRY

Domestic production by the Japanese electronics industry in 2016 is expected to decline 6% year on year, to ¥11,659.5 billion, the first decrease in three years and largely attributable to a fall in exports due to the stronger yen. 2017 should see positive growth of 2% year on year, to ¥11,918.7 billion, given the expansion of exports of electronic components and devices and an expected improvement in domestic demand for personal computers and AVC equipment.

In 2016, the Japanese economy saw weak consumer spending, although real wages were increasing on the strength of a continued improvement in employment. Corporate earnings and capital investment were firm but lacked strength. In the Japanese electronics industry, the number of electronic components mounted were increasing steadily, thanks to the higher functionality of smartphones and the rising percentage of electrical equipment in automobiles. In addition, the domestic production of automobile AVC equipment and personal computers was also increasing together with the recovery of domestic demand. However, a fall in electronic components and devices, which account for a large share in the Japanese electronics industry, was noticeable, because semiconductors and display devices, which are the mainstay products for export, were affected by the slower growth of high-function smartphones overseas, and the value of exports decreased due to the stronger yen. Domestic production by the Japanese electronics industry in 2016 is expected to have declined 6% year on year, the first fall in three years.

In 2017, the moderate economic recovery is expected to continue in Japan, underpinned by public works. High-reliability electronic components and semiconductors, which contribute to small, thin and energy-saving products manufactured in Japan, are expected to increase thanks to the higher functionality of smartphones and the rising percentage of electrical equipment in automobiles, a reflection of the improvement of the automated driving support function of automobiles and an increase in the number of electric vehicles. In addition, given expectations of increasing demand for personal computers and car navigation systems in Japan, domestic production is set to show positive growth in 2017, and should represent 39% of total global production by Japanese companies. In particular, domestic production should remain strong for products offering high reliability and quality, such as display devices (93% manufactured in Japan), server/storage equipment (74%), semiconductors (69%), electronic medical equipment (68%) and electric measuring instruments (66%).

Domestic Production by the Japanese Electronics Industry

(¥100 million; % change YoY)

